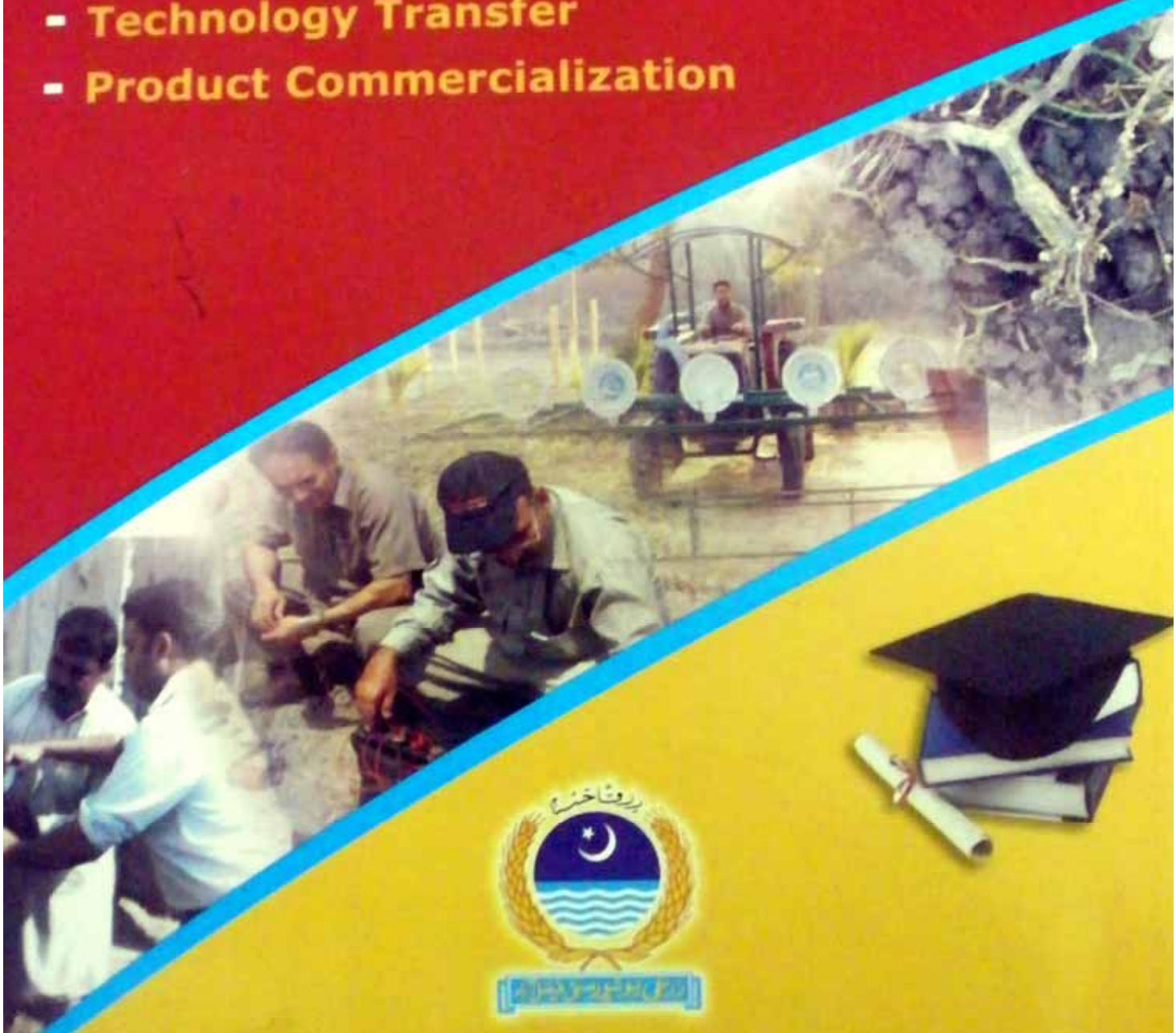
ANNUAL REPORT
2007-08

- Faculty Development
- Technology Transfer
- Product Commercialization



ENDOWMENT FUND SECRETARIAT
UNIVERSITY OF AGRICULTURE FAISALABAD
(www.uaf.edu.pk/endowment_fund/end_overview.html)

ANNUAL REPORT
(2007-08)

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ENDOWMENT FUND SECRETARIAT
UNIVERSITY OF AGRICULTURE
FAISALABAD

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MESSAGE FROM THE VICE CHANCELLOR

It is time to provide resources matching commitments to ensure sustainable agricultural development. Towards that end, the US Department of Agriculture (USDA) sponsored Endowment Fund at the University of Agriculture Faisalabad (UAF). Endowment has made substantial efforts for capacity building at institutional and farmer's level.

Three objectives among the current agenda are Faculty Development (FD); Technology Transfer (TT); and Product Commercialization (PC).

I welcome the continuing involvement of USDA in the Endowment Fund Secretariat, UAF under "Food for Progress Program". This will certainly raise the spirit of research for development and advancement of agriculture in Pakistan. I feel it will not only help bring Pakistan's people out of poverty but will strengthen the already strong relationship between the United States and Pakistan.

I am pleased to acknowledge the efforts of EFS-UAF staff in having a good start. I must, however, point to the huge challenges and opportunities for EFS in foreseeable future regarding judicial use and expansion in the financial resources.

(PROF. DR. IQRAR AHMAD KHAN)
Vice Chancellor/Chairman Bod

EXECUTIVE SUMMARY

The UAF established Endowment Fund with the assistance of USDA under "Food for Progress" agreement. USDA supplied beef tallow, which was sold by the Trading Corporation of Pakistan for Rs. 650.00 million. This amount was transferred to UAF through Government of Pakistan and Higher Education Commission, Pakistan. The principal amount is invested in the scheduled banks on the recommendation of an Investment Committee and the income generated is used for funding programs under Technology Transfer, Faculty Development and Product Commercialization.

The Board of Directors (BoD) is the governing body, and the Technical Advisory Committee (TAC) provides technical advice on the feasibility of projects funded from the Endowment Fund. The rules of business of BoD and TAC have been approved by the Syndicate of the University of Agriculture, Faisalabad. The Endowment Fund Secretariat is headed by an Executive Director.

During the year 2007-08 total profit earned and realized through investment was Rs.56.711 million and the principal amount expanded to Rs.700.00 million.

Under faculty development program BoD initially allowed to start short term training abroad for UAF faculty members. During the year under report two batches were processed. Sixteen applicants were finalized by the BoD. However, due to mandatory course requirement in parallel to the training no selectee was able to avail the grant.

During 2007-08, 51 proposals were received under technology transfer component from all over the country, out of which 17 were approved by the BoD. The approved projects represented all the major agricultural sectors. Overall theme of the intervention was to disseminate the useful technology, and practical training of the farmers for sustainability and better utilization of resources.

Implementation of the approved projects is being monitored through a special project designed for this purpose headed by a social scientist. Quarterly review meetings are also held at the University of Agriculture, Faisalabad. These meetings are presided by the Chairman BoD/Vice Chancellor. Annual Report submitted by the PIs are got evaluated by relevant experts. Next release of funds is subject to the satisfactory progress.

Activities under product commercialization remained dormant due to the lack of infrastructure and legal framework. The Endowment Fund staff visited HEC and PARC to study the prevailing practices in the peer institutions. A resource person from NUST was also invited to give a detailed presentation to the Deans/Directors to sensitize them about the commercialization through incubators/technology Park.

At the end I appreciate efforts of the Endowment Fund staff who made it possible to launch projects in the 1st year of Funds establishment. I am also thankful to the University administration, especially Treasurer & the Registrar, for their cooperation and professional contribution.

(Dr. Abdul Ghafoor)
Executive Director/Director Research

Section-1

FACULTY DEVELOPMENT

FACULTY DEVELOPMENT PROGRAM

Out of the approved programs under Faculty Development, S**hort Term Training abroad** (3-4 months) is initiated. This program has been designed with the objective to train manpower to accelerate the quantum of research and development in Agricultural areas that are catalytic to the technological and socio-economic development of the country.

Under this program, teachers and researchers of University of Agriculture Faisalabad are nominated by the respective department to avail grant but related to the current field of specialization of the scholars.

1.1 SHORT TERM TRAINING (BATCH-1)

The Endowment Fund Secretariat invited applications during 2006-07 but due to poor response, the training program was re-advertised again in July, 2007 in the National press (The Nation, Daily Khabrain, Sadaat) and UAF Campus News in the following areas:

a) Seed Technology
b) Agricultural Biotechnology/Genetic Engineering
c) Embryo Transfer Technology/Embryo Cloning/Embryo Sexing
d) Plant Virology
e) Training for Laboratory Instrumentation
f) Transgenic Animal Production
g) Environmental Impact
h) Agri. Business Strategies

Further, training courses available / offered all over the world were searched by this office and conveyed to UAF staff/candidates. However, candidates were encouraged to identify the avenues in related fields at their own. The Deans/Directors were also requested to nominate their staff for this program. In response, 21 nominations were received. Out of which ten (10) applicants submitted formal applications. A committee was constituted by the Vice Chancellor to scrutinize the applications. Keeping in view the particulars of applicants and relevance of training, the committee recommended the following 8 applicants for the approval of BoD:

Sr.#	Name & Designation	Department	Title of Training
1	Mr. Amir Shakeel, Lecturer	Deptt of PBG	Gene Maping Techniques
2	Dr. M. Mumtaz Khan, Professor	Insti. of Hort. Sciences	Use of biotechnological tools in understanding abiotic stress in crop plants.
3	Dr. Waqas Wakil, Asstt. Prof.	Deptt. of Agri. Entomology	Advance techniques for the development of mycopesticides.
4	Asad Ullah Hyder, Lecturer	Deptt. of ABG, UAF	Training in Bovine Embryo Transfer
5	Dr. Atif Randhawa, Assistant Prof.	National Inst. of Food Science & Tech. UAF	Improvement in texture and nutrition of thermally treated sweet potato cubes with calcium chloride Characterization of cell-free
6	Dr. M. Anjum Zia, Assistant Prof.	Deptt. of Chemistry Biochemistry), UAF	proteins through NMR/mass spectroscopy
7	Dr. Farooq Ahmad Khan, Assistant Professor	Deptt of P.B.G. UAF	Molecular characterization of sugarcane clone with SSR genetic markers.
8	Dr. Ejaz Ahmad Waraich, Assistant Prof.	Deptt of Crop Physiology, UAF	Genetic Engineering for Drought Tolerance

The Board of Directors (BoD) in its meeting held on November 13, 2007 approved the award to 8 candidates. The BoD also approved the following recommendations of the Scrutiny Committee after minor amendments:

a) Duration of short training program will be extendable up to 9 months on case to case basis, i.e. for indigenous MS/Ph.Ds or foreign MS/Ph.Ds who have not taken any course, the duration may be extended up to 9 months and for foreign MS/Ph.Ds having taken course work, the duration will be 4-6 months.

b) The trainee should arrange his training program in parallel to semester system of the host institute and study at least one course in line with his training or field of specialization. The fees will be paid from the FDTTPC fund. The trainee must pass the course for which certificate signed by course Tutor and Dean Graduate School/Advisor International

Students will be required. The trainee will not attend the course merely as an audit course.

c) Age of the trainee should be less than 50 years.

d) The trainee must be a regular employee of the University.

e) Preference may be given to countries/institutes where English is the medium of Instruction.

f) Young indigenous MS and Ph.D. degree holders and productive scientists may be given preference for short training abroad.

g) On return, the trainee will deliver a seminar (widely publicized at Campus) on his/her training and submit a comprehensive report to Endowment Fund Secretariat about his training.

The BoD further approved that Technology Transfer & Product Commercialization should be included as priority areas for short training and Faculty Development Programmes should be restricted for the faculty members of University of Agriculture, Faisalabad only.

1.2 SHORT TERM TRAINING (BATCH-II)

As the BoD in its meeting held on November 13, 2007 decided to restrict faculty development program for the faculty members of UAF only, the Endowment Fund Secretariat launched 2nd phase of short term training (abroad) through University Campus news in January, 2008. All Deans/Directors were requested to nominate faculty members for short training in weak areas. Out of 21 faculty members nominated from different faculties of UAF, only 10 submitted complete applications. The Scrutiny committee evaluated and recommended all the applicants for short training. However, the cases of the following 8 applicants who have shown willingness and completed the formalities will be presented in the forthcoming BoD meeting for final approval.

Sr.#	Name of Trainee	Department	Title of Training
1	Dr. Hamad Nadeem Tahir, Assistant Prof.	Deptt of Plant Breeding & Genetics, UAF	Cytogenetics of Crop Plants
2	Mr. Ihsan Qadir, Lecturer	Deptt of Forestry, UAF	Modern Techniques for rehabilitation/ improvement of range lands
3	Dr. Muhammad Iqbal, Asstt. Professor	Institute of Soil & Environmental Sciences, UAF	Learning of identification strategies of soil carbon sequestration to offset fossil fuel emissions, improve the environment and provide an opportunity for farmers to trade carbon credits
4	Dr. M. Anwar-ul-Haq, Asstt. Professor	Institute of Soil & Environmental Sciences, UAF	Sodium Transport in plant cells to encounter salinity tolerance
5	Mr. Iftikhar Ahmad, Lecturer	Institute of Horticultural Science, UAF	Post Harvest Management of Cut flower
6	Dr. M. Yaqoob, Associate Professor	Deptt of Livestock Management, UAF	Application of precision farming technologies (DGPS/GIS) to animal grazing systems
7	Mr. Faiz-ul-Hassan, Lecturer	Deptt of Animal Breeding & Genetics, UAF	QTL: detection for economic traits in Cattle
8	Mr. M. Imran Khan, Lecturer	Deptt of Mathematics & Statistics, UAF	**Analysis of Microarray and other Multivariate Biological data**

Section-2

TECHNOLOGY TRANSFER

2.1 BRIEF OVERVIEW OF THE PREVIOUS YEAR (2006-07)

The Endowment Fund Secretariat invited concept papers under Technology Transfer component during March 2007 through National Press in the following areas:

a) Water use efficiency
b) Post harvest technologies
c) Animal Health Care and Production Strategies
d) Modern production technologies for different field crops
e) Management of brackish and heavy metal contaminated soils and brackish waters

After screening of 51 concept proposals, only 38 full blown project proposals were sent to experts all over the country for technical evaluation. No funds were spent during 2006-07 for this activity.

2.2 PROGRESS DURING 2007-08

Approval of Projects

All the 38 full blown projects were got evaluated each by two technical experts from outside the University. The comments of the experts were conveyed to PIs for revision of projects according to the suggestions of the technical experts. Twenty one (21) projects were presented to Technical Advisory Committee (TAC) on 19.09.2007. After technical evaluation and recommendation from TAC, the projects were presented to the BoD at its meeting held on 13.11.2007. The BoD approved 14 projects for final award.

Implementation of projects

Out of 14 approved projects, 12 projects are being executed w.e.f. 01.01.2008, one project will be executed from 01.07.2008 and one has been cancelled. Projects are listed as under:

Projects approved by BoD on 13.11.2007.

Sr. #	Title of the Project	Progress/Remarks
1	Use of Sodium Bicarbonate for Optimum Weight Gain of Growing Buffalo Calves and Lambs (Prof. Dr. Muhammad Sarwar)	In progress at T.T. Singh.
2	Dissemination of Technologies for Profitable Dairying at Farmer's Level (Dr. M. Qamar Bilal)	In progress at T.T. Singh.
3	Epidemiology of Parasitic Fauna of Domestic Animals of T.T.Singh (Prof. Dr. Muhammad Nisar Khan)	In progress at T.T. Singh.
4	Control of Newcastle Disease in Rural Poultry of Tehsil T.T. Singh (Dr. Muhammad Arshad)	In progress at T.T. Singh.

Sr. #	Title of the Project	Progress/Remarks
5	Survey and Management of Mite Pests of Stored Grains in Tehsil Toba Tek Singh (Dr. M. Afzal)	In progress at T.T. Singh.
6	Demonstration of Light Equipped Power Insect Killer (LEPIK Technology) for mechanical insect pest control in croplands (Prof. Dr. Rashid A. Khan)	In progress at T.T. Singh.
7	Improving water use efficiency in cereals through ACC-deaminase biotechnology (Prof. Dr. Muhammad Arshad (T.I.))	In progress at T.T. Singh.
8	Demonstration of Multi-Nutrients Foliar Feeding technology for Sustainable Crop Production (Dr. Muhammad Yaseen)	In progress at T.T. Singh.
9	Dissemination of Raised Bed Technology to Address Water Shortages in Irrigated Areas (Prof. Dr. Rai Niaz Ahmad)	In progress at T.T. Singh.
10	Investigating Aquifer Storage and Recovery (ASR) Techniques to Recharge Saline Groundwater at Farmer's Field (Prof. Dr. Allah Bakhsh)	In progress at T.T. Singh.
11	Impact Assessment and Evaluation of Projects Under Endowment Fund at Tehsil Toba Tek Singh (Prof. Dr. Ashfaq Ahmad Maan)	In progress at T.T. Singh. The former PI left the University. Dr. Ashfaq Ahmad Maan is appointed as new PI. The scope of the project has been confined to impact assessment only. The budget has been reduced from Rs.8.0 million to Rs.2.98 million.
12	Distribution and Management of Root-Knot Nematodes (Meloidogyne spp.) (Dr. Tariq Mukhtar, UAAR)	In Progress at Taxila
13	Nature and extent of post harvest losses and integrated management strategies in major horticultural crops (Prof. Dr. Aman Ullah Malik)	The project was cancelled due to the reason that PI was unable to get collaboration from AARI as desired by TAC.
14	Technology Transfer for Using Tube well Water on Salt-Affected Soils for Crop Production (Dr. Ghulam Murtaza)	As the PI was abroad for Post-Doc., the project was initiated w.e.f. 01-07-2008 at T.T. Singh.

The progress report of 12 projects for the six months (01.01.2008 to 30.06.2008) is given in this report.

Approval of Remaining Projects Phase-1

Out of 38 project proposals from the 1st batch, 10 pending project proposals were presented to TAC for technical evaluation. The TAC recommended the following 3 projects for funding which were approved by the BoD in its meeting held on 27.03.2008.

Sr. #	Title of the Project	Name of the PI
1	Computer Assisted Identification of the Large Ruminants	Prof. Dr. Muhammad Younas Department of Livestock Management, UAF
2	Construction of Mobile Communal Dip and Demonstration and Dissemination of its Use for Tick Control	Prof. Dr. Zafar Iqbal Chairman, Department of Veterinary Parasitology, UAF
3	Introduction of Sweep Cultivator in the Selected Union Councils of Tehsil Toba Tek Singh	Prof. (Retd) Dr. Jehangir Khan Sial, Dean, Faculty of Agri. Engg. & Technology, UAF.

The agreements have been signed with the PIs to execute the projects w.e.f. 01.07.2008.

2.3 PROGRESS/ACHIEVEMENTS OF ONGOING PROJECTS

The financial & technical progress of individual Technology Transfer projects being executed from January 1, 2008 at Toba Tek Sigh is given below:

TT-03/07: Improving Water Use Efficiency in Cereals Through Acc-Deaminase Biotechnology

Name of PI: Prof. Dr. Muhammad Arshad(T.I.), Professor, Institute of Soil & Environmental Sciences, UAF

Total project cost	:	Rs. 2.485 million
Funds released	:	Rs.0.852 million
Funds utilized	:	Rs.0.109 million

Objectives:

- To evaluate the effect of inoculation with ACC-deaminase bacteria on wheat and maize at the farmers' fields under water stress conditions developed either by skipping irrigation at different stages of growth or applying less water per irrigation.
- To develop formulations of effective bio-fertilizer from ACC-deaminase bacteria for the efficient utilization of water and increasing growth and yield of wheat and maize under limited water supply.
- Transfer of environment friendly novel technology (biofertilizer) to the farmers to obtain high yield potential per less amount of water.

Achievements during the period under report:

Demonstration trials on maize and sorghum were conducted at two sites viz, 381/JB, and 329/JB. The results indicated that inoculation with selected plant growth promoting rhizobacteria containing ACC-deaminase, significantly increased biomass production of maize and sorghum both under normal & water stress conditions. In case of sorghum, addition of compost further increased the efficiency of inoculation. Farmer's field day was organized on 11th June, 2008 at the farm of Mian Masood, Chak No.296/GB, Toba Tek Singh. Farmers showed confidence in the technology under demonstrations.

Untreated crop of sorghum

Treated crop of sorghum


Untreated crop of cotton


Farmer's day on 11-6-08

Sorghum treated with ACC-4 + Compost

TT-10/07: Demonstration of Multi-Nutrients Foliar Feeding Technology for Sustainable Crop Production

Name of PI: Dr. Muhammad Yaseen, Associate Professor, Institute of Soil & Environmental Science, UAF.

Total project cost	:	Rs. 2.218 million
Funds released	:	Rs.0.552 million
Funds utilized	:	Rs.0.505 million

Objectives:

- Demonstration of foliar spray for improving crop production on farmer's field with and without soil applied fertilizers.
- Improving nutrient use efficiency through foliage by amending foliar spray with chelating agent/surfactant.
- Development of protocol for foliar application for optimum return under field conditions.
- Estimating cost-benefit ratio of the technology.
- Dissemination of technology by holding farmer's field day with the collaboration of the extension field staff of the area.

Achievements during the period under report:

The project was started on wheat crop from 1st January 2008. Eight farmers field sites were selected to execute the project activities. Multinutrient foliar spray was prepared using various nutrient sources like, N, K_2O, Zn Fe, B, Mn, Cu, etc. Demonstration trials on wheat crop were conducted at tehsil Toba Tek Singh on eight sites (Chak No. 309/G-B, 379/J-B, 378/J-B, 396/G.B, 396/G.B, 329/J-B, 383/J-B and 278/J-B). Treatments applied were: sprayed and unsprayed (control). The results revealed 21-27 %, 13-27 % and 17-30% increase in number of tillers m^{-2}, straw and grain yields, respectively in sprayed plots compared to control. The second crop was rice in the PC-1 which was later on replaced by cotton as rice is not the main crop in the project area. Results on cotton are under compilation stage. Moreover, a farmer's field day was organized on 21.04.2008 to demonstrate the technology to the farmers/stakeholders. A large number of farmers not only from the project area but also from the surrounding area attended the occasion. The earning of Rs.36,950/- from the sale of foliar spray has been deposited in the FDTTPC Account No.011377-4

Unsprayed crop of cotton

Sprayed crop of cotton


Farmer's day on 21-4-08

TT-23/07: Use of Sodium Bicarbonate for Optimum Weight Gain of Growing Buffalo Calves and Lambs

Name of PI: Dr. Muhammad Sarwar, Professor/Director, Institute of Animal Nutrition & Feed Tech., UAF

Total project cost	:	Rs. 2.098 million
Funds released	:	Rs.0.404 million
Funds utilized	:	Rs.0.260 million

Objectives:

- To know the influence of varying sodium bicarbonate levels on parameters like Nutrients intake, Nutrient digestibility and Nitrogen metabolism.
- Optimum weight gain in growing calves and goats.
- Dissemination to the farming community thorough seminars/ workshops and farmers' day activities.

Achievements during the period under report:

The studies were initiated at farmers' filed in Tehsil Toba Tek Singh. Five iso-nitrogenous and iso-caloric diets having 0.00, 0.40, 0.80, 1.20 and 1.60% sodium bicarbonate, respectively were given to sixty growing buffalo calves (10-12 months old) following a randomized complete block design. First 15 days of the 3 months long experiment, were allocated for adaptation to experimental diets while remaining time for collection of samples. Calves were fed separately twice a day at 0300 and 1400 h at *ad libitum* but at 10% weight back during collection period. A pfarmers' day was organized on 11th June, 2008 at the location of experimental site to educate and encourage the farmers of the area to adopt the technology.

Experimental animals at selected farmer's farm

TT-29/07: Epidemiology of Parasitic Fauna of Domestic Animals of Tehsil Toba Tek Singh

Name of PI: Prof. Dr. Muhammad Nisar Khan,Deptt. of Veterinary Parasitology, UAF

Total project cost	:	Rs. 2.315 million
Funds released	:	Rs.0.669 million
Funds utilized	:	Rs.0.196 million

Objectives

- To conduct an epidemiological survey for documentation of parasitic fauna of livestock and dairy industry of Tehsil Toba Tek Singh.
- To determine the factors affecting the epidemiology of parasitic diseases in the area.
- To estimate economic losses attributed to livestock and dairy industry.
- To transfer the latest technology/ information to the dairy farmers regarding the control of parasitic diseases in the field.
- This study may result in better and sustainable animal production in the focused area.

Achievements during the period under report:

Month wise prevalence of gastrointestinal (GIT) parasites was carried out in 4 areas of tehsil Toba Tek Singh for the documentation of parasitic fauna of livestock viz., Chak No.285/GB, Chak No.346/GB, Chak No.399/JB and Toba Tek Singh proper. Faecal samples from different animals were collected during each month and analyzed following standard coprological procedures for the presence of eggs of different GIT parasites. Month wise prevalence was the highest in February (29.43%) and lowest in June (5.60%). The GIT parasitic species found prevalent in cattle and buffaloes of the study areas included *oesophagostomum, cooperia, trichostrongylus, strongyloides, ostertagia, Fasciola hepatica, Fasciola gigantica, Heamonchus contrortus and trichuris*. The species recorded during survey of sheep and goat were *Haemonchus contortus, oesophagostomu, Trichuris, Toxocara vitulorum, Fasciola hepatica and moniezia.* The study provided baseline data to educate the farmers about these parasitic diseases prevalent in the study area. The information generated will be helpful for planning further control programs.

TT-31/07: Dissemination of Technologies for Profitable Dairying at Farmers' Level

Name of PI: Dr. Muhammad Qamar Bilal, Associate Professor, Deptt of Livestock Management, UAF

Total project cost	:	Rs.2.319 million
Funds released	:	Rs.0.631 million
Funds utilized	:	Rs.0443 million

Objectives

- To introduce the technologies in field with farmers' participation to reduce calf mortality and age of maturity in heifers.
- To train farmers about technologies related to feeding management of dairy animals.
- To introduce dairy herd health management packages at farmer level.

Achievements during the period under report:

Technologies related to calf management (in-time colostrums feeding and artificial feeding to calves) were disseminated through training (lectures, discussion and practical demonstrations), trials and literature. In-time colostrum feeding significantly reduced the mortality rate and decreased the time of placenta expulsion. Similarly, artificial feeding method proved useful for keeping healthy calves and dams as compared to direct sucking method which damage the dam teats and calves remain under-fed/over-fed.

Two farmers' days were organized on 11.03.08 and 12.06.08. Farmers responded very well and showed extra-ordinary interest towards the adoption of recommended practices.

Demonstration of artificial feeding

Demonstration of vaccination

Demonstration of naval cord care

Farmer meeting on 25-4-08

Farmer's day on 11-3-08

Farmer meeting on 12-6-08

TT-34/07: Survey and Management of Mite Pests of Major Crops and Stored Grains in Tehsil Toba Tek Singh, Punjab

Name of PI: Dr. Muhammad Hamid Bashir, Assistant Professor, Deptt. of Agri. Entomology, UAF.

Total project cost	:	Rs. 2.153 million
Funds released	:	Rs.0.612 million
Funds utilized	:	Rs.0.510 million

Objectives:

- To elucidate the exact picture of incidence and losses caused by different mite species.
- To explore the existence of different mites in different localities of Toba Tek Singh, Punjab.
- To evaluate/ explore different mite pest management strategies culminating into integrated pest management.
- To explore different mite pest in grain storage and analyze the post harvest losses caused by them.
- To develop a strategy in order to control and management of stored grain mite pests.
- Demonstration/ dissemination of technology by holding farmer's field day with the collaboration of the extension field staff of the area.

Achievements during the period under report:

Eight farmers from eight villages in the project area were selected as focal persons. Collection of stored grain samples was done from different sources in the project area including farmer storages, Government godowns and local market. A total of 110 samples were collected. Two methods were used for collection of mites from the samples, i.e. direct collection method and Berlese's Funnel method. The collected mites were sorted and preserved for further studies. Out of 110 samples, only 11 samples were found infested with the stored grain mites. The reason for the less infestation was non availability of wheat from the previous year due to wheat crises. Almost all the samples collected were from the fresh crop of year 2007-08. The collected specimens were mounted permanently on the microscopic slides. These specimens were identified up to the family level. Mites mainly belong to two families' viz., Acaridae and Histostomatidae were identified from these samples. Maximum specimens belonged to Family Acaridae.

Farmer day at 323JB Trandi

Practical training of farmers

TT-35/07: Dissemination of Raised Bed Technology to Address Water Shortages in Irrigated Areas

Name of PI: Prof. Dr. Rai Niaz Ahmad, Director, Water Management Research Centre, UAF

Total Cost	:	Rs. 1884 million
Funds released	:	Rs.0.507 million
Funds utilized	:	Rs.0.415 million

Objectives:

- To introduce University Bed Planter to grow various crops on bed-furrow system for improving their water productivity.
- To demonstrate Raised Bed Technology and Laser land Leveling at Farmer's fields in comparison with traditional irrigation practices.
- To search and address the constraints, both at the farmers and technology level, to adopt the raised bed technology among farming community.

Achievements during the period under report:

The project activities were started with the selection of sites and focused group meetings with the farmers. Six potential sites viz, 369/JB, 250/GB, 251/GB, 253/GB, 256/GB and 258/GB were selected for cotton. The project team created awareness about raised Bed Technology among the farmers of the project area. The existing wheat bed planter developed by Water Management Research Centre, UAF was upgraded/modified for sowing of cotton and maize. The target for first year was 20 acres of cotton bed planting, but due to great interest of farmers 33 acres of cotton were sown on raised beds in the project area. Maize was planted at 2 sites i.e. 369/JB and 183/GB. Both maize and cotton planted at farmers' fields gave good germination and better stand on raised beds in addition to water saving of about 50%. Soil chemical analysis indicated that mostly soils were loamy with pH 8 and organic matter up to 1%.

Maize on beds

Cotton on beds

Cotton on beds

Cotton on beds, irrigated

TT-38/07: Investigating Aquifer Storage and Recovery (ASR) Techniques to Recharge the Saline Groundwater at Farmer's Fields

Name of PI: Prof. Dr. Allah Bakhsh, Professor, Deptt. of Irrigation & Drainage, UAF

Total Cost	:	Rs. 2.233 million
Funds released	:	Rs.0.312 million
Funds utilized	:	Rs.0.017 million

Objectives:

- To study the physical and chemical characteristics of the aquifer planned for Aquifer Storage and Recovery (ASR) techniques in the saline groundwater zone of Tehsil Toba Tek Singh at farmer's field using resistivity survey meter.
- To investigate the effects of volume, rate and periods of surplus water storage on groundwater quality and lateral and vertical extent of the injected water in the aquifer.
- To monitor the quality of groundwater injected and pumped and evaluate the recovery efficiency and suitability of the aquifer for implementing the ASR concepts by ensuring the farmer's participation and the Agri. Extension personnel.

Achievements during the period under report

The study area was selected at Chak No. 405/JB, Tehsile Toba Tek Singh, to demonstrate the Aquifer Storage and Recovery (ASR) technology as an approach to recharge the groundwater. As a part of the ASR technology, resistivity survey, in collaboration with the Agricultural Engineering Department, Govt. of Punjab, was conducted and demonstrated to the farmers of the area for its benefits prior to the well drilling. Keeping in view the resistivity survey, an ASR technology and its components regarding water storage pond, dug well, filter, delivery pipe, control valve, volume measuring meter and pump etc. has been designed using the computer software 1X1D (Interpex,USA). Aquifer thickness and groundwater quality and quantity was assessed which is a significant achievement. The benefits of the survey were shown to the farmers of the area regarding proper well design and strainer length installation with respect to the aquifer potential. After preparing the land, points have been marked according to the design measurements The drilling agency (Kisan boring, T.T. Singh) has started their work and a well of 9 ft dia and 20ft depth has been dug. The drilling of the ASR well is in progress.

Assessment of aquifer thickness by Resistivity meter

Digging of well

TT-43/07: Control of Newcastle Disease in Rural Poultry of District T.T. Singh

Name of PI: Dr. Muhammad Arshad, Associate Professor, Department of Veterinary Microbiology, UAF

Total project cost	:	Rs. 1.961 million
Funds released	:	Rs.0.417 million
Funds utilized	:	Rs.0.278 million

Objectives:

- To involve rural families/persons having poultry to create awareness for the control of ND in rural poultry.
- To apply epidemiological techniques on ND in rural poultry of the area.
- To introduce the scientifically designed ND control programme for rural poultry in the area.
- To reduce economic losses caused by the disease in rural poultry.

Achievements during the period under report:

To develop liaison and to get full support and cooperation of the local Government bodies, meetings were held with District Livestock Officer and Veterinary Officer, Tehsil T.T. Singh. Five villages viz., 296/GB, 302/GB, 521/GB, 379/JB and 388/JB, were selected to start project activities. More than 500 families/persons of the selected villages were registered and basic data were collected. About 600 birds were examined for the presence of antibodies against ND before vaccination and sero-prevalence of 39% was recorded. After vaccination, no outbreak of ND has been reported in the selected villages. The bird owners of the selected villages were told about the control of the disease and trained for vaccination of their birds. Post-vaccinal antibody titres against ND are being measured in randomly selected birds of each selected village.

Rural poultry birds

Vaccination of rural poultry

TT-45/07: Distribution and Management of Root-Knot Nematodes (Meloidogyne spp.)

Name of PI:Dr. Tariq Mukhtar, Associate Professor, Deptt of Plant Pathology, UAAR

Total project cost	:	Rs. 2.198 million
Funds released	:	Rs.0.518 million
Funds utilized	:	Rs.0.311 million

Objectives:

- Conducting extensive and intensive surveys on the occurrence, distribution, and infestation of root-knot nematodes.
- Effect of different inoculum densities of root-knot nematodes on the growth of important vegetables grown in the area (Cucumber, Tomato, brinjal).
- Screrening of different cultivars of major important vegetables grown in the area for their resistance against root-knot nematodes.
- Transfer of nematode management strategies to the farmers.

Achievements during the period under report:

The project was initiated by conducting survey of the project area to assess the awareness of the farmers about root-knot nematodes and their incidence and severity. The incidence and severity of root-knot nematodes was determined in the areas which were found to be quite high. The farmers were trained regarding identification and management of these nematodes. The farmers were advised to control this nematode by the application of Carbofuran which proved effective. Research on other management strategies i.e. summer ploughing, cultivation of resistant cultivars, crop rotations etc. are in progress and will lead to finding non chemical methods.

Root-knot nematodes

Infected roots

Survey of infestation

Farmer's meeting

TT-48/07: Demonstration of Light Equipped Power Insect Killer (LEPIK TECHNOLOGY) for Mechanical Insect Pest Control in Cropland.

Name of PI: Prof. Dr. Rashid Ahmad Khan, Deptt of Forestry, Range Management & Wildlife, UAF

Total project cost	:	Rs. 2.195 million
Funds released	:	Rs.0.639 million
Funds utilized	:	Rs.0.359 million

Objectives:

- Introducing "Light Equipped Power Insect Killer (LEPIK)" in the field of agriculture for non-chemical control of crop insect pests.
- Comparing the cost benefit ratio of insect control by LEPIK machine against other insect control methods.
- Improving efficacy of the LEPIK devices by modifying its various parts and using the most attractive light for higher insect response on the basis of field experience.
- Conducting large scale field experiments involving local farmers to familiarize this technology in agriculture sector.
- Translating field experience into suitable recommendations, i.e. best time for field operation, optimum coverage speed of the machine during treatment, row-to-row distance of crops and field size etc. for operating the machines in croplands to achieve better insect control results.

Achievements during the period under report:

Findings of about 200 insect pest collections using LEPIK machine on above said crops have indicated that among many other insects, Diptera (4%), Lepidoptera (21%) and Coleoptera (19%) were the highly attracted insects in ach collection from vice collor and sugarcane crop. Operation of the machine was found to be more effective during dark nights. Pest control practices during late hours at night and during moonlit nights were observed a little less effective for insect control. Overall, ten different insect orders were attracted and killed by LEPIK machine during field operations which mostly included potential insect pest. Proportion of predacious insects killed during pest control operations was only 3.7% which is negligible and can be reduced further by placing mesh over light cover of the machine. Farmers like to use this device for plant protection purpose due to added advantages of being handy, easy to operate, cheapest to use against insect pest and environment friendly.

Tractor mounted LEPIC Machine

TT-37/07: Impact Assessment and Evaluation of Projects under Endowment Fund at Tehsil Toba Tek Singh

Name of PI: Prof. Dr. Ashfaq Ahmad Mann, Chairman Deptt. of Rural Sociology, UAF

Total Cost	:	Rs. 2.983 million
Funds released	:	Rs.1.728 million
Funds utilized	:	Rs.0.528 million

Objectives:

- To investigate the Agro-economic and social characteristics of the people/farmers in the projects area.
- To make evaluation from time to time activities of on-going projects.
- To conduct impact assessment of the projects under Endowment Fund.
- To suggest policy implications and give recommendations for future research, development and technology transfer programs under Endowment Fund at UAF.

Achievements during the period under report

The progress of the project was slower because of the resignation of the earlier PI and the project operations were delayed till the appointment of new PI. The project team visited the project areas of all the projects funded under FDTTPC and organized meetings with PIs of projects. Various shortcomings and needful were highlighted and indicated to the PIs. A questionnaire was also developed for base line survey to assess the agro-economic and social characteristics/profile of the end users/villagers/villages which has helped to understand the communities and their social structure.

2.4 MONITORING & EVALUATION

Monitoring of the projects is the responsibility of Endowment Fund Secretariat. In addition to that a complete project for monitoring and evaluation of the projects at T.T. Singh is approved under the title "**Impact Assessment and Evaluation of Projects under FDTTPC Endowment Fund in Tehsil T.T. Singh**" being executed by Prof. Dr. Ashfaq Ahmad Maan, Chairman, Department of Rural Sociology. The PI and his team regularly visited the projects sites and remained in continuous liaison with all the PIs in project area. The Endowment Fund staff also visited project sites and attended farmer days. It is mandatory for all the PIs to submit six monthly and annual reports to the Endowment Fund Secretariat. The PI of the monitoring project has to review the progress and submit a comprehensive progress report to the Endowment Fund Secretariat twice a year.

An in-house meeting with the PIs of technology transfer projects being executed in Tehsil Toba Tek Singh has also been scheduled on 04.08.2008.

2.5 SEMINAR ON TECHNOLOGY TRANSFER

A seminar on Technology Transfer at UAF was organized on 27th March 2008 in which all PIs of projects, faculty members and progressive farmers participated. The main focus of this seminar was to highlight the significance of technology transfer and its impact on development of agriculture. Following experts as resource persons were invited to share their experience regarding Technology Transfer.

1. Dr. Iftikhar Ahmed, Member Plant Sci. div. PARC, Islamabad.
2. Dr. Abdul Majeed, ICARDA, NARC, Islamabad.
3. Dr. Azeem Khan, CSO, SSD, NARC, Islamabad.

Note: Dr. Iftikhar Ahmed could not present his paper owing to his official and emergent meeting in the P&D, Islamabad. However, his subject was covered by Dr. Azeem Khan.

Section-3

PRODUCT COMMERCIALIZATION

3.1 CURRENT STATUS

The BoD constituted a committee to emphasize the ways and means pertaining to Product Commercialization. The BoD suggested the University of Agriculture Faisalabad to develop companies on priority to promote partnership between public and private sector, develop database of technologies ready for commercialization.

Concept papers for proposals were invited from scientists working in the public sector organizations, through National press in January, 2008. In response, 12 concept papers were received from which 8 were rejected and 4 are under process. No funds were expended during 2007-08 for this activity.

The staff at EFS remained in search of prevalent practices for research commercialization within and outside the country as a bench mark. Some breakthrough is expected in the next year.

Section-4

FINANCIAL REPORT

4.1 INVESTMENT OF FUNDS

On the recommendations of the investment committee, the principal amount was invested in banks at various rates of profit on half yearly basis as under:-

Sr.#	Name of Bank	Amount Invested (Rs. in million)	Duration	Rate of Profit
1	The Bank of Punjab	30	27.08.2007 to 26.08.2008	9.50%
2	The Bank of Punjab	260	02.11.2007 to 01.11.2008	10.50%
3	The Bank of Punjab	130	02.02.2008 to 30.06.2009	10.60%
4	The Bank of Punjab	100	04.02.2008 to 30.06.2009	10.50%
5	National Bank of Pakistan	180	04.02.2008 to 03.08.2008	8.60%
	Total Investment:	**700**		

The BoD in its meeting held on 27.03.2008 approved the above mentioned investment. Total income received up to 30.06.2008 from the above mentioned investment was Rs.56,711,279. Annual income is considered on realization basis instead of accrual basis.

4.2 EXPANSION IN PRINCIPAL AMOUNT

As per BoD decision to counter the yearly inflation and to expand Endowment Fund, a portion of total earnings (from the invested amount) should be retained and made part of principal amount at the end of each fiscal year. The BoD in its meeting held on 27.03.2008 approved the recommendations of Investment Committee to retain Rs.20.00 million as contribution. After adding the effect of contribution amounts the volume of Principal amount has expanded as follows:

(Rs. in million)

Year	Opening Principal amount	Profit earned	Contribution to Principal Amount	Total principal amount
2006-07	650.0	40.607	30.0	680.0
2007-08	680.0	56.711	20.0	700.0

4.3 ACTUAL INCOME & EXPENDITURE DURING THE YEAR 2007-08

The income from investment out of Endowment Fund was originally estimated at Rs.73.621 million. However, with the grace of Allah Endowment Fund UAF earned an income of Rs. 56.711million during the financial year 2007-08 on the basis of realization. Therefore the total revised income of the Fund for the year 2007-08 remained at 65.430 million. The detail of income and expenditure is shown in the table given below:

(Rs. In million)

	Original Estimates	Revised Estimates
Unspent balance for 2006-07	-	**8.719**
Income from Investment 07-08	73.621	**56.711**
Total Income	73.621	**65.430**
Expenditure against component	64.738	**10.932**
Transfer to Principal Amount*	--	**20.000**
Unspent balance	8.883	**34.498**

*As per BoD decision at its meeting held on 13.11.2007

Components-wise Allocation/Expenditure during the Year 2007-08

Name of Component	Unspent Balance 2006-07	Allocation during 2007-08	Total allocation 2007-08	Actual expenditur 2007-08	Unspent Balance 2007-08
Faculty Development	0	12,981,243	12,981,243	0	12,981,243
Technology Transfer	0	17,308,323	17,308,323	7,838,485	9,469,838
Product Commercialization	0	8,654,162	8,654,162	0	8,654,162
Operational Cost	2,159,908	4,327,081	6,486,989	3,094,253	3,392,736
Grand Total	**2,159,908**	**43,270,809**	**45,430,717**	**10,932,738**	**34,497,979**

Note: Out of allocation for Faculty Development Rs.3.00 million were converted into US Dollars @ Rs.63.40/- per Dollar. US$ 47319 are kept in account No.**FC-150056-7 Faculty Development FDTTPC, UAF** in NBP Aminpur Bazar Branch, Faisalabad. No expenditure was made out of this account during year 2007-08.

(Rs.9.981 M + Rs.3.000 M = Rs.12.981 million)

The BoD approved 17 projects at the cost of Rs.33.172 million under Technology Transfer component in its meeting held on 13.11.2007 out of which 12 projects are being executed w.e.f.1-1-2008 and an amount of Rs. 7,838,485 was spent under Technology Transfer head during the reporting year.

No expenditure was incurred under Faculty Development & Product Commercialization during the year 2007-08.

ANNUAL EXPENDITURE STATEMENT

(OPERATIONAL BUDGET)
FOR THE FINANCIAL YEAR 2007-08
ENDOWMENT FUND SECRETARIAT (FDTTPC), UAF

Code	Head	Actual Budget (2007-08)	Expenditure (2007-08)	(Rs) Closing Balance (2007-08)
A037	Contractual Services	200,000	0	200,000
A03805	TA/DA to Office Staff	200,000	37,760	16,2240
A01273	Honorarium	300,000	255,865	44,135
A03807	POL/Running Cost of Vehicle/Hiring of Vehicles	200,000	146,946	53,054
A03905	News Paper, Periodicals & Books	36,989	3,912	33,077
A03901	Stationary	100,000	52,596	47,404
A03201	Postage and Courier etc.	50,000	14,751	35,249
A03202	Telephone and Trunk Calls, e.mail/Internet	200,000	78,479	121,521
A03902	Printing & Publications etc.	200,000	0	200,000
A06301	Entertainment Charges	200,000	48,314	151,686
A03907	Publicity& Advertisement	200,000	79,698	120,302
A03903	Seminars/Workshops	200,000	0	200,000
A03940	Others Contingencies	300,000	61,102	238,898
A137	Computer & Office Equipment	100,000	2,700	97,300
A132	Furniture & Fixture	100,000	0	100,000
A13301	Repair & Maintenance of Office Building	200,000	0	200,000
A13304	Miscellaneous	100,000	59,349	40,651
A092	Computer & Office Equipment	1,500,000	269,276	1,230,724
A097	Furniture & Fixture etc.	50,000	0	50,000
A095	Purchase of Transport	2,050,000	1,994,000	56,000
	T O T A L	**6,486,989**	**3,104,748**	**3,382,241**
	LESS PENDING LIABILITY 2007-08		**(-) (10,495)**	**(+) (10,495)**
	TOTAL EXPENSES OF 2007-08	**6,486,989**	**3,094,253**	**3,392,736**

Sd/-
Executive Director (FDTTPC)/
Director Research

Sd/-
Treasurer,
University of Agriculture,
Faisalabad

Sd/-
Resident Auditor,
University of Agriculture,
Faisalabad