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**Proceedings of the
International Workshop on
Dairy Science Park
November 21-23, 2011**

**Volume II
(Recommendations)**

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FOREWORD

I am pleased to endorse the second volume of the proceedings of the International Workshop on Dairy Science Park held on November 21-23, 2011 at this University with the cooperation of all organizing partners. The overwhelming participation of delegates from various parts of the country and a variety of segments of the society, is highly acknowledged.

The daily recommendations of the workshop have been recorded by a special committee constituted by the Honorable Minister for Agriculture, Government of Khyber Pakhtunkhwa. The committee was headed by Prof Zahoor Swati with membership from this University, the Livestock and Dairy Development (Extension and Research Wings), the Khyber Pakhtunkhwa Chamber of Commerce and Industries (KPCCI) and Livestock Trainers and Consultants. The hard work of Prof M Subhan Qureshi, Dr Asad Sultan and Dr Nazir Ahmad Jr with active assistance from Prof M Jamal Khan and Prof Farhatullah is highly appreciated.

During his inaugural speech, the livestock sector was mentioned by the honorable Minister for Agriculture as an important contributor for food production and employment generation. The Minister for Livestock, during his concluding speech on the third day, has explained the sector in light of the holy Qur'an as a source of numerous benefits. The speakers of the workshop from various disciplines related to livestock science, development and business, highlighted their findings and proposed valuable suggestions. The participants were very active in discussing and analyzing the applicability of various technologies and development intervention approaches.

The committee have wisely shaped up the recommendations into various components including Business Support, Infrastructural Support, Legislative And Policy Support, Animal Production Support, Animal Health Support, Environment And Energy Solutions, Institutional Strengthening and Coordination. In fact livestock development is not a single-man-show and requires a variety of partners for its sustainable continuation. This University, with the financial assistance of the Higher Education Commission, has been supporting capacity development of the faculty of animal husbandry and veterinary sciences during the recent past. Revolving funds have been provided for semi-commercial operation of the feed mill and dairy technology units. Quails and broilers production have been another activity run under the revolving fund.

The recommendation committee has proposed various activities for productivity enhancement and industrial applications. Some projects have been identified for implementation at this University and the Livestock Trainers and Consultants. Besides the support already provided to the Faculty of AHVS, this University is also willing to sponsor some additional activities under endowment fund and will provide a liaison office to KPCCI for supporting commercially viable projects. The provincial government and other local and international donors are expected to sponsor some viable projects.

Prof Dr Khan Bahadar Marwat

International Workshop on Dairy Science Park

(November 21-23, IW-DSP-2011)

Khyber Pakhtunkhwa Agricultural University, Peshawar

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Draft Recommendations

On advice of the Honorable Minister for Agriculture, Government of Khyber Pakhtunkhwa, a committee was notified vide No. DSP/564a dated 20th November, 2011, headed by Prof Zahoor Ahmad Swati and having representation from the University, the extension and research wings of the livestock and Dairy Development Department, Livestock Trainers and Consultants and SMEDA/KPCCI.

The committee members noted recommendations presented by the speakers and participants during scientific, development and business support sessions. Press releases were issued for information of the general public on daily basis and the information were compiled by Dr Asad Sultan and Dr Nazir Ahmad Jr and forwarded to Prof M Subhan Qureshi for finalizing the same and submission to the relevant authorities. The recommendations were focused on shaping up an action plan for implementation at the academic, extension, research and business organizations.

Honorable Minister of Agriculture, Government of Khyber Pakhtunkhwa, Arbab Muhammad Ayub Jan mentioned during the inaugural session of the workshop that unemployment is one of the major issues of our province and can only be addressed effectively if we develop dairy sector as there is a huge potential for its growth in the near future and to generate employment opportunities. The Honorable Minister for Livestock Haji Hidayatullah Khan has expressed his enthusiasm for increasing the size of ADP in the province and considered the livestock sector as having numerous benefits as explained in the light of the Holy Qur'an. Both the Honorable Ministers commended the inexorable efforts of the Vice Chancellor, Agricultural University Peshawar and the Dean, Faculty of Animal Husbandry and Veterinary sciences and stressed upon preparing and pursuing the recommendations of the workshop for welfare of the people.

Before finalization of the draft recommendation, the *Business Incubation Program* of the HEC and the *Policy Action Plan for Implementation of Khyber Pakhtunkhwa Comprehensive Development Strategy 2010 on Livestock Sector*, prepared by a Think Tank on advice of the provincial government and hosted by the University, were reviewed. The recommendations are presented under several categories:

Business support

1. The Higher Education Commission of Pakistan has introduced the Business Incubation which is a business support process that accelerates the successful development of start-up and fledging companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its framework of contacts. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen local and national economies.
 - a. promote the commercial research culture through the strong venture of university-industry Tag.
 - b. boost the economic development by verge of Industrial Research output.

- c. foster the formation and development of start-up businesses to the point of obtaining significant, third-party investment support.
 - d. educate startup companies/entrepreneur about the process of new venture development to improve their potential for future entrepreneurial success.
 - e. create an entrepreneurial community to give students the experience of learning through mutual support, a process critical for successful entrepreneurship.
2. The Faculty of Animal Husbandry and Veterinary Science has worked in this direction through several programs. Broilers and quails production has been in practice for meeting the requirements of consumers at the Greater University Campus. Dairy Technology Center and Feed Mill have been run on sustainable basis for boosting the dairy enterprises in the accessible areas. The Dairy Herd Improvement Program of the Veterinary Clinics has linked private dairy farmers with the faculty.
 3. The semi-commercial activities of the faculty will be pulled under Dairy Science Park at Agricultural University Peshawar, in line with the idea generated in Egypt during conversation between Prof M Subhan Qureshi, Chief Organizer IW-DSP, 2011 and Mr Abdur Rahman Ilyas, ICRISAT, India. The enterprises owned by the the business partners will be affiliated with the park as model enterprises for technology application and further replication.
 4. Private sector will be encouraged and attracted to invest in livestock and dairy sector by providing them conducive environment and relief in policies. Government shall extend special benefits in terms of electricity charges, provision of barren land on lease basis and taxation etc, to all types of relevant enterprises.
 5. Financing partners will be provided for the program through local institutions. International investment will be explored through foreign missions, especially the Middle East, Malaysia, Turkey, Iran and other friendly countries. The Khyber Pakhtunkhwa Chambers of Commerce and Industries will look for partnership with similar bodies in the rest of Pakistan and the friendly countries.
 6. Creating an information system for all sorts of livestock activities to update farmers about market, institutions and other facilities available to them.

Infrastructural support

1. Establishment of salvage farms for rearing and caring of dry animal and to prevent them from slaughtering to maintain the genetic pool of best breeds of livestock population
2. Establishment of model dairy farms for extension, research and business demonstration purposes at regional level under partnership with the private sector
3. Establishment of modern slaughter houses with advance facilities to ensure the production of quality meat to the consumers and to be used for research purposes targeted at meat industry expansion and provision of **HALAL MEAT** to the entire Muslim community. The first model will be established at Agricultural University, Peshawar.

Legislative and policy support

1. Reviving the existing livestock policy and making a new policy compatible with local environment. Regulating the livestock production system for incorporating environmental, economic and public health concerns. Revising pricing policy for livestock and dairy products in accordance with input and output expenses in the business
2. Quality control systems shall be introduced and standards shall be defined for milk, meat and by-products to certify for entry into local and international markets. Quality control shall be introduced in milk and meat marketing.

3. New legislation shall be made to overcome problems associated with exporting livestock and dairy products
4. Devising and strict implementation of policies to control the smuggling of livestock across border to Afghanistan and other countries.
5. Periodic livestock census should be conducted to generate valid data and make right decision accordingly.
6. Regulating the slaughtering of animals to prevent the losses of potential animals, especially under-age and pregnant animals and to address public health concerns by rejecting animals carrying zoonotic risks.
7. Current marketing system is outdated and need to be re-structured and re-organized. This requires a detail analysis of the present marketing system to make it producers' and consumers' friendly and attract new investments. The income coming out of the slaughter houses and cattle market shall be spent on the business support initiatives proposed under this draft.

Animal production support

1. Integration of the four pillars into development strategy, i.e. 1) Genetics 2) Nutrition 3) Management 4) Health.
2. Local breed improvement programs should be launched and collaborated with other provinces. A provincial nucleus of different breeds of dairy animal should be established to improve their production potential and to conserve them through advance techniques. Achai conservation activities may be linked with research setup for meaningful data analysis and strategy development.
3. Camel has got extraordinary potentials to produce milk. This milk has been narrated as a panacea for different human diseases in Hadith. This miraculous milk should be investigated in modern scientific ways to be used as a good source of income and medicine.
4. Azikhili Buffaloes, a well known breed of the province has got wonderful features and milk producing potentials. It is warranted to deeply investigate their genetic make-up to fully exploit its milk production potentials and adoptability to the local climate.
5. Farmers must be educated to raise dairy goats (beetle) and sheep (damani) who are unable to raise cows and buffaloes due their rearing cost.
6. Nutritional status of livestock in the province should be improved by promoting high yielding and nutritive fodders and improving pastures conditions for grazing livestock.
7. Establishment of silos (for silage making) at commercial level to ensure the availability of feed for livestock throughout the year at affordable prices for both commercial and non-commercial farmers
8. Research work is needed to examine non-conventional feed resources in dairy animals to control and reduce high feed costs and to generate more income

Animal health support

1. Developing and testing locally produced medicines and vaccines to reduce health related costs and to create new employment opportunities.
2. The potential benefits of herbs in veterinary medicine shall be exploited on modern scientific basis to ensure safe end products for consumers.
3. Vaccine production shall be supported for qualitative and quantitative improvement against foot and against locally prevalent diseases and considered for export through incorporation of international standard.

4. Modern biotechnological techniques shall be used to minimize the reproduction and production losses in the dairy industry.
5. Efforts shall be made to investigate and minimize all sorts of stresses, especially heat stress to improve reproduction in dairy animals. Different approaches must be undertaken (nutritional and environmental) to cope with high heat stress during summer temperatures and production stress in the genetically improved animals.
6. Alternative and easy methods/tests shall be developed for minimizing losses in productivity and fertility e.g. newly emerging methods of early pregnancy.

Environment and energy solutions

1. Environment related issues should also be focused before launching any big dairy project to keep our environment safe.
2. Renewable energy solutions may be introduced for safety of environment and self sufficiency in energy production.

Institutional strengthening and Coordination

1. Various institutions in the public and private sectors are working to support the livestock related activities, however the coordination is not very affective. The major stakeholders namely academia, research, extension, civil society and industry must join hands for collaborating their activities and sharing information and resources for achieving the common goal of supporting the livestock sector to play its due role in food security and income generation. A working committee may be assigned this task.
2. An interactive forum for discussing the major issues to develop, update and implement a comprehensive policy for the development of the industry, is required. It may be mandated for frequent exchange and dissemination of information among different segments of livestock sector through successful organization of workshops, conferences and seminars.
3. Researchers and institutions need to be facilitated and strengthened to promote quality research and resolve problems of dairy sector. International standards shall be incorporated in the research system. Career development of the scientists for better delivery of services is required.
4. Creating new and re-organizing the existing extension system to provide facilities to farmers at their door steps. Extensive involvement of the extension officers in the development process.
5. Training of livestock workers, researchers and other scientist to cope with the new challenges of modern livestock and dairy sector. Short training courses for livestock farmers and school and college students (during summer vacations) in the rural areas.
6. Establishment of ISO standard laboratories to assess the quality of feed, water, drugs and other inputs for consumption by livestock and analysis of livestock products for fitness for human consumption. Devising on farm tests to check feed and water quality.
7. The ITAC Cell at the KPCCI will be assigned the task of livestock business support and linkages with the University, Livestock and Dairy Development Departments, (Extension and Research) and SMEDA. Effective linkage of the cell with other CCIs and financing agencies.
8. Incorporating the internship concept into the work plans of all relevant organizations for career development of the outgoing graduates and producing quality manpower for boosting the national economy through jobs finding in the local industry and abroad.

Proceedings

Day 1

The three days International Workshop on Dairy Science Park was inaugurated by the Honorable Minister for Agriculture, Livestock and Cooperatives Department, Government of Khyber Pakhtunkhwa, Arbab Muhammad Ayub Jan. He said that the peri-urban dairy farms provide a good source for milk and surplus animals for the slaughter house. However, this is also posing a threat to the environment by producing pollutants to the air, water and soil. This workshop is a good attempt and attracted a good number of papers, exceeding 100, from various universities and research and development organizations, out of which about 60 have been selected for oral presentation.

The conference programs show that the presentations have been categorized into various technical and development sessions. The various technical sessions are expected to give answers to the issues faced by the local farmers. Good livestock practices may be identified through the technical sessions for implementation by the extension department, NGOs and the farming community. The proceedings book has been produced as a beautiful document which will memorize you of this august gathering.

The provincial livestock department has been helping the farming community through extension and research wings. The Directorate General of Livestock and Dairy Development (L&DD, Extension) has been engaged with various assigned tasks in discharge of its responsibility towards the development of livestock sector for the benefits of the public in general and the farming community in particular, in order to raise their income and living standard and protect them from the zoonotic diseases. The network of veterinary hospitals has been engaged in health coverage and extension. Breed improvement directorate and Animal Husbandry In-service Training Institute are working for their specialized mandates.



The Vice Chancellor and Dean welcome the Minister for Agriculture



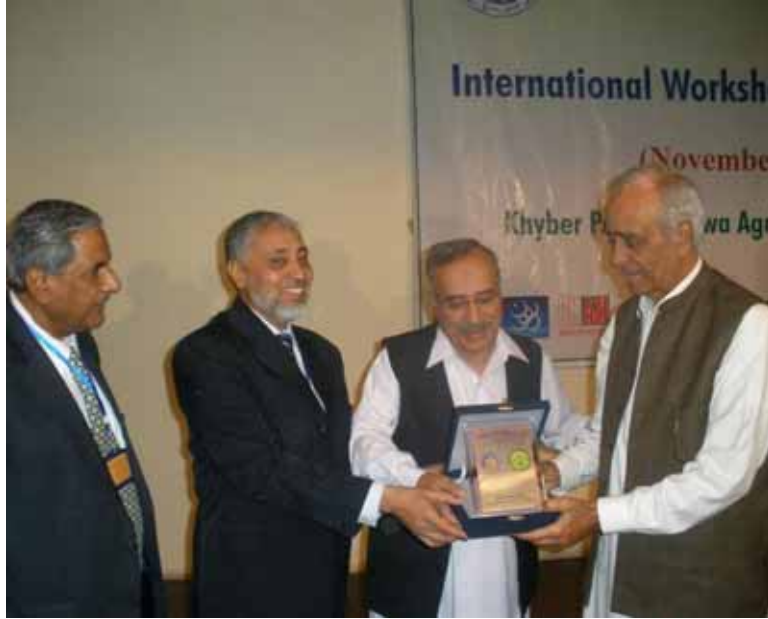
National Anthem

Veterinary Research Institute (VRI) has been engaged in extending their services in vaccine production and research on bacterial, viral and parasitic infections. Four Veterinary Research and Diagnostic Laboratories were established at D.I. Khan, Swat, Mansehra and Kohat during 1988-91. Center of Animal Biotechnology was established to undertake research in the specialized field of Biotechnology for better disease diagnosis and control in animals through advanced techniques like ELISA, Electrophoresis etc. The Research and Development Directorate has been involved in nutrition, fodders research and dairy technology.

The efforts of the University were commended for successful conduction of this grand event. Beyond its graduate and postgraduate study programs, the faculty has been successfully conducting various training courses for the farming community, para-vets and professional staff of the department and NGOs. The feed mill and dairy technology units are success stories of the faculty which will help in improving the quality of degree programs and will encourage the local farmers and industry people for entering into the business. The Faculty has been assisting the provincial government in Planning and Development and the Action Plan for livestock Development has been produced as a valuable document providing guidelines for the annual development plan.

The Minister mentioned that Khyber Pakhtunkhwa is rich in livestock resources in the form of sheep, goats, cattle and buffaloes. However, due to various reasons the animals are not utilized up to their best efficiency and the economic return is not providing sufficient income support to the farming families. Development of these holdings into viable commercial enterprises will definitely raise the milk and meat production. Supplementing the productivity with advanced technology, value addition and preservation will lead to good returns and raw materials for the industry.

The Minister congratulated the Vice Chancellor, Prof Khan Bahadar Marwat, the Dean, Prof M Subhan Qureshi and faculty members for organizing this august event and attracting participation of almost all the provincial organizations in the public and private sector. A book on ***improving the productivity of livestock: some innovative practices*** by Dr M Aftab Khan and ***Reproductive Physiology of Domestic Animals*** by Prof M Subhan Qureshi, were inaugurated on the occasion.



Shield presented to the Minister for Agriculture

It was emphasized that the SMEDA and Khyber Pakhtunkhwa Chamber of Commerce and Industries may keep close liaison with the Faculty for identifying feasible activities to be considered for investment. The recent bilateral cooperation of Khyber Pakhtunkhwa with the Islamic Republic of Iran will open new avenues for development of natural resources including livestock. With the active cooperation of academia and the industry, the Minister was confident, that we can find a place in the local formal market and the international halal food trade.

As a first step towards achieving this goal the idea of the conference organizers for establishing a model slaughter house and quality control lab at the faculty were supported, focused at value addition and export certification. The provincial government would help in removing any administrative and legal barriers in development of the sector.

The Minister thanked the Higher Education Commission, the Ghazi Brothers, Alltech Pakistan, Inter-Cooperation and others for sponsoring this event. The speakers and delegates travelling from Baluchistan, Sindh, Punjab and Azad Jammu and Kashmir have conveyed their love for the people of this province, which was highly acknowledged.

The first scientific session was chaired by Prof Dr. Muhammad Ashraf, UVAS, Lahore, co-chaired by Dr. M. Iqbal Khattak, PRO, VRI, Peshawar and moderated by Dr. Ovais Umer, UVAS, Lahore. The first paper was presented by M. Ather Khan, UVAS Lahore on prompt community based veterinary services delivery system and its impact on disease burden and production in the dairy animal. Various success stories like Idara I Kissan were reviewed and a plan was presented for introducing a disease monitoring system in the peri-urban dairy raising areas.



Delegates at the Inaugural Session

Prof Muhammad Ashraf, UVAS Lahore presented a paper on Amoxicillin bioequivalence studies of veterinary preparations in Pakistan and recommended that the locally produced antibiotics are as efficient as the imported ones and their use should be encouraged as an import substitution measure. He further added that the antibiotics disappear earlier from blood circulation and hence, their second dose may be provided earlier. Physicochemical/Bacteriological assessment and effect of an acidifier on water supplied to livestock were presented by Hina Umber Hanif, Fatima Jinnah Women University Rawalpindi, and value addition of dairy products were recommended. Effect of ivermectin on Macrophage function and Angiogenesis was presented by Dr. M. Ovais Omer UVAS and the drug was reported to accelerate angiogenesis and hence organogenesis in the earlier embryonic life. Study on Pathogenesis and molecular characterization of CCPP in small ruminants was presented by Umer Siddique, Faculty of AHVS, AU Peshawar and incidence of the diseases was reported based upon conventional as well as PCR methods. Distribution of various mycotoxins in dairy feed and silage in Pakistan were reported by Nafeesa Qudsia Hanif, Romer Lab Pakistan and the existence of this toxin in animals and poultry feed was reported to exceed the safe limits, deteriorating animals as well as human health.



Prof Ashraf, UVAS Lahore with the speakers



Minister visiting stall of Ghazi Brothers



ICI Pakistan Ltd



Feed Tech lab AU Peshawar



Alltech Pakistan



Inter-Cooperation Pakistan



Romer Lab, Nasim Traders Rawalpindi



Quails flock of Poultry Science Department, AUP



Dairy Tech Lab of AUP



Semen Lab of AUP



Minister for Agriculture with faculty members, students and delegates



The student organizers

Day 2

The second day of the International Workshop on Dairy Science Park, November 21-23, at Khyber Pakhtunkhwa Agricultural University Peshawar comprised 3 consecutive sessions, from 9:00 am to 4:00 pm. The first session covered Development and business support, the second reproduction and biotechnology and the third one was the concluding sessions.

The first scientific session was chaired by Dr Dil Aqa Waqar, Vice Chncellor, Mander Khan University Afghanistan, co-chaired by Dr. M. Sajjad Khan, PRO, Veterinary Research Institute, Peshawar and moderator was Dr Umar Sadique, Chairman AH, AUP. Speaking on the occasion Professor Dr. Ghulam Habib, ex-dean of the Faculty of Animal Husbandry and Veterinary Sciences, said that it is the need of the hour to develop a comprehensive policy for the development of dairy industry in Khyber Pakhtunkwa. This policy should be focused on both small and large scale herds. The salient features of this policy should be an easy and quick access of dairy farmers to new knowledge, reliable inputs, credit, encouragement of private sector, long term breeding policy and legislation for livestock welfare, selling, slaughtering and live animal smuggling. Early calf slaughtering should be ban. Dr. Azam Kakar from University of Bolichistan reviewed his works in biotechnology and recommended research on the application of modern biotechnology techniques in dairy industry and on processing of milk. We further need to address the marketing problems of milk and dairy products based on comprehensive research; and give solid recommendations in the light of its findings. He elaborated that milk and live animals are smuggled to Afghanistan which need to be controlled and only processed animal products should be sent to Afghanistan to generate good income for the local farmers. A paper on the effect of breed, age and sex on meat production potentials of cattle in the sub tropical conditions of Khyber Pakhtunkwa was presented by Dr Abdur Rahman, LM, AU Peshawar.



Participants



Day 2, Scientific session 1, with Dil Aqab Waqar, VC, Nangarhar University, Afghanistan

Professor Dr Sajjad from University of Agriculture Faisalabad recommended that for dairy production we should prioritize our focus on cattle as a favorable dairy animal for Khyber Pakhtunkhwa. Similarly, Azikhili buffaloes have also got potential as a dairy animal in the mountainous region of Khyber Pakhtunkhwa. The development of dairy industry should be demand driven according to local needs and will require national and international collaboration. Dr. Hamid Ahmad said that we need to develop hygienic and standardized system for Halal meat production and processing. Dr. Nazir Ahmad Khan (Jr) said that silage maize production should be incorporated in the dairy industry of Khyber Pakhtunkhwa to meet the dietary requirements of dairy animals on lower prices. He stressed that silage maize should be harvested at a proper maturity (30-35% dry matter) at harvest. As maturity at harvest has a major influence on the nutrient content, ensiling characteristics and feeding values of maize silages.

The second scientific session was chaired by Prof Dr Alam Zeb, Dean FNS, AU Peshawar with Col. Munawar Shah, RV&FC as co-chairman and Dr Nazir Ahmad, Chairman AN, AU Peshawar as Moderator. Causes of variation in fatty acid content and composition in Maize silages were presented by Nazir Ahmad Khan, AU Peshawar. He recommended producing silage with the best nutrients composition for dairy cattle feeding. A young scientist Naveed Iqbal, BUITTEMS Quetta presented Artificial Gene Analyzer (AGA)-A bioinformatic tool which provoked interesting discussion among the delegates regarding monitoring genetics during the breed improvement programs. Investment options in dairy production were presented by Dr. Sohail Ahmed Chairman ABG AUP. He recommended that the additional cost of concentrate and labor must be accommodated along the increase in milk yield and hence profit. A paper on developing microbiological and biochemical protocols for the production of fresh mozzarella cheese from water buffalo milk in Pakistan was presented by Zubia Afsheen, IBGE, Peshawar.



Day 2, Scientific session 2, speakers with Prof Alamzeb, Dean FNS, AU Peshawar

Dr M Afab Khan Ex-Chairman ABG, UA Faisalabad presented a paper on improvement in peri-urban dairy farming.

The third session of the day was reserved for development and business, chaired by Prof Dr. M. Ather Khan, UVAS, Lahore, co-chaired by Dr. Sarfraz Ahmed, NIFST, UA Faisalabad and moderated by Dr. Zahoor-ul-Hassan, AH, AU Peshawar. Composition and physio-chemical characteristics of buffalo milk with emphasis on lipids, proteins, minerals, enzymes and vitamins was presented by Sarfraz Ahmad, NIFST, UA Faisalabad. Live stock business support-The SMEDA vision was presented by M Rashid. Background and impact of the livelihoods programme of Inter-cooperation was discussed by Shabir Hussain, Team leader, The Livelihood Programme, Intercooperation Pakistan. The Flood effects and relief efforts in Khyber Pukhtunkhwa was presented by Shaukat Khan, LTC, Peshawar. Investment opportunity in livestock sector was presented by Malik Niaz KPCCI. Dr Shahzad Naveed Jadoon, GM Alltech Pakistan, Islamabad presented his company's profile and vision. The milk sector of Pakistan and its production system was reviewed by Dr. Muqarrab Ali Khan, Cynosure Consultants Inc. Islamabad.



Day 2, Business and Development Session, speakers with Prof Athar Khan, UVAS Lahore; Malik Niaz, KPCCI presenting shield to Prof Ashraf

Day 3

The International Workshop on Dairy Science Park, November 21-23, concluded at the Khyber Pakhtunkhwa Agricultural University Peshawar. During the last three days of the workshop, experts from academia, research, extension and industry, policy makers and farmers community exchanged ideas to work out a comprehensive plan for the development of dairy industry in Khyber Pakhtunkhwa Province of Pakistan.

The sessions were chaired by Prof Dr Muhammad Aftab Khan (Rtd), University of Agriculture Faisalabad, Prof M Azam Khan, Dean FLSI, BUIET, Quetta and Haji Hidayatullah Khan, Minister for Livestock, Government of Khyber Pakhtunkhwa. The Sessions were co-chaired by Prof M Naeem, Dean FCPS, Prof Sohail Akhtar Chairman LM and Prof KB Marwat, Vice Chancellor AU Peshawar. About 400 delegates attended the sessions and participated in question answers and preparation of recommendations. The delegates belonged to various academic, research, extension organizations from all the four provinces and Azad Jammu and Kashmir. The recommendations were focused at preparing a comprehensive plan for the development of dairy industry in Khyber Pakhtunkhwa Province of Pakistan.

The first session started with a research paper on milk production potential of Pakistani camel (*Camelus dromedarius*) under the dry land conditions of the Punjab, presented by Dr Arshad Iqbal, UA Faisalabad. The study revealed that camel possess an appreciable dairy potential even under the ranges or dry land conditions. This can be further exploited under good feeding and management conditions coupled with their careful selection and breeding. A paper on Azikheli Buffalo: Productive performance under traditional management system was presented by Momen Khan, L&DD Peshawar. Mean 305-day milk yield recorded was 2494.02 ± 52.44 liters. Significant effect of parity was observed on mean 305-day milk yield with higher milk production in second and third parity.



Prof Aftab Khan, Session Chairman presented shield by Prof Naeem and Dr Sohail Akhtar



Prof Azam Kakar Dean BUIET Quetta, Session Chairman with speakers of the session

A review of PASTIC search engine for scientific research was presented by Ms Ghazala Yasmeen Malik PASTIC-Pakistan Science Foundation. The services were appreciated by the scientists and students and Prof Kakar recommended reduction in the rates of services for the students. Prof Qureshi recommended linkage of various other free search engines like digital library of HEC, etc for access to the scholars and enhancement of budget for the services. Anthelmintic Activity of some ethnobotanicals was presented by Dr. Waseem Baber, UCV&AS, IU Bahawalpur. Effect of Selenium and Selenoproteins in male reproductive performance was presented by Mr. Umair Ahsen, UCVAS, IU Bahawalpur. A paper on fortification of dairy milk with docosahexaenoic acid (DHA) through feed supplementation of dairy cattle feed – a new horizon in dairy industry was presented by Umme-e-Aiman, IBGE, AU Peshawar. The study is focused on developing protocols for efficient algal meal supplementation regimes and for monitoring DHA and general nutritional status of the fortified milk. The study adopts a collaborative approach in order to benefit from the Canadian experience in custom designing the DHA-rich cattle feed.

Speaking on the third day Professor Dr. Azam Khan Kakar from BUIET University of Baluchistan reviewed the biotechnological developments in reproduction science and recommended that modern biotechnology techniques should be used to minimize the reproduction and production losses in the dairy industry. Prof Kakar is the pioneer scientist in cloning and has been member of the team developing the Dolly sheep. Dr. Momen Khan presented a paper on Azikheli buffalo as part of his PhD studies, and highlighted the need for preserving the genetic resource of this breed, as this breed thrive well in the Northern mountainous terrain of Khyber Pakhtunkhwa. Dr. Khushi Muhammad from UVAS, Lahore, a world-known microbiologist and founder of WTO

Quality Control Lab of the UVAS Lahore presented his work on locally developed vaccines which are more effective against foot and mouth disease and hemorrhagic septicemia diseases. He recommended work on research and local production of the vaccines.



Minister reaching auditorium with Vice Chancellor and Dean

Malik Ghazala of PASTIC, made a presentation on the literature searching services made available by Pakistan Science Foundation. Prof Azam recommended reduction of the cost of the services for reducing financial burden on the students and facilitating them for access to high quality papers. Prof Qureshi seconded him and added the PASTIC may expand their services through linkage with the HEC digital library and other available search engines and for enhancing budget for such activities. Prof Subhan Qureshi was next to present his paper and explained the phenomenon of stress development in dairy animals through literature review and his own findings. He proposed management strategies for keeping dairy animals stress free to improve the production and reproduction performance. Dr. Kauser Zeb concluded that non-conventional feed resources such as sugar beet pulp should be explored to minimize the nutrients of dairy animals. In addition, livestock extension work should record the field observation in a systematic way. This will help to identify the problems faced by farmers and will help to design strategies to find out solutions for these problems.

Dr. Sarzamin Khan presented his findings on hair follicles as an indicator of pregnancy diagnosis in dairy animals, a study conducted during his postdoc stay in Japan. He recommended that alternative methods should be developed for the early detection of pregnancy. Changes in body-hair weight and diameter are a potential method. However, these findings should be further studied as for development of a standardized tool for pregnancy diagnosis.

The conference was concluded on Wednesday afternoon with Haji Hidayatullah, Minister for Livestock was the Chief Guest. He said that livestock has many benefits for human beings, ranging from milk and meat to feces. He further said that livestock is money for poor people for long time and development of this industry will employ many

people. The vice chancellor at the end thanked the Minister and all the guests. He ensured his support for the implementation of the recommendations of the conference. Before the final words of the Minister, Prof M Subhan Qureshi presented the salient recommendations of the committee headed by Prof Zahoor Swati, Dean FCPS and comprising members from the extension, research, SMEDA, LTC and KPCCI.



Minister chairing the concluding session

Dr Asad Sultan and Dr Nazir Ahmad (Jr) had already recorded the recommendations during various sessions. Based on these recommendations a comprehensive work plan will be developed for the development of dairy industry. The work plan will be implemented with the help of the Agriculture Ministry of Khyber Pakhtunkhwa.

The Vice Chancellor, Prof Dr Khan Bahadar Marwat appreciated the developments made in the livestock sector across the world and compared the growth rates exhibited in Europe, the Americas, China, India and Pakistan. He reviewed the progress made through the two mega projects of Dairy Pakistan and Livestock and Dairy Development Board. He was hopeful of the out come of the workshop through the comprehensive recommendations and advised the committee for finalization of the draft and so that it could be considered at various fora for implementation. He thanked the HEC, the Director Generals Livestock (Extension and Research) and LTC for their close cooperation at all stages of preparation for the workshop. Inter-cooperation, Ghazi Brothers, Alltech Pakistan and ICI were thanked for their financial support. KPCCI and SMEDA were acknowledged. Support of all the universities and professional organizations from all the provinces, AJK and Pakistan Army were acknowledged. ICRISAT-CGIAR India, Engormix.com and other organizations were thanked for their cooperation. He congratulated the organizers for arranging such a graceful event.



Minister Livestock presented with conference bag

The two ministers Abrab Muhammad Ayub Jan and Haji Hidayatullah Khan were thanked for gracing the inaugural and concluding sessions of the Workshop, respectively. The delegates visited stalls exhibited by the above agencies in addition to Nasim Traders, Romer Lab, PSTIC-PSF, The Dairy Tech, Feed Mill, Semen lab and Poultry science Department also exhibited their semen-commercial activities through stalls. The Website administrator Mr Amin was appreciated for providing coverage to the workshop in the shape of documents, press releases and photographs. The Mr Amjad of Business recorder and Mr Farooqi of Sohni Dharti TV were thanked for their cooperation. The students met the Minister and appraised him of the internship activities at various government and private institutions for a period of six months. A financial incentive was demanded for this purpose, to which the Minister, very kindly agreed, through a special project to be initiated by the Faculty Administration. Dr Sohail Ahmad was advised by the Dean for further action. At the end the Minister was awarded a shield by the Vice Chancellor and bag with conference materials by the Chief Organizer.



Delegates of concluding session



Minister with Vice Chancellor, Dean and DG Livestock



Vice Chancellor with staff and students



HEC



AUP



L&DD



PVMA



Alltech

International Workshop on Dairy Science Park

(November 21-23, IW-DSP-2011)

Venue: Khyber Pakhtunkhwa Agricultural University, Peshawar-25120, Pakistan

REVISED PROGRAMME OF THE CONFERENCE

MONDAY NOVEMBER 21, 2011

0830 Registration of the Participants

INAUGURAL PROGRAMME

1030	Participants to be seated
1100	Arrival of the honorable Chief Guest
1110	National anthem
1115	Recitation from the Holy Quran and Naat
1130	Welcome/keynote address by Prof. M. Subhan Qureshi, Dean FAHVS
1150	Inaugural words by Vice Chancellor
1220	Address by the Chief Guest
1240	Tea break/Refreshment

TECHNICAL SESSION I

ANIMAL HEALTH

Chairman: Prof Dr. Muhammad Ashraf, Chairman Department of Pharmacology, UVAS, Lahore

Co-chairman: Dr. M. Iqbal Khattak, PRO, VRI, Peshawar

Moderator: Dr. Ovais Umer, Department of Physiology, UVAS, Lahore

	Prompt community based veterinary services delivery system and it's impact on disease burden and production in the dairy animal. M. Ather Khan , UVAS Lahore
	Amoxicillin bioequivalence studies of veterinary preparations in Pakistan. Muhammad Ashraf , UVAS Lahore
	Physicochemical/Bacteriological assessment and effect of an acidifier on water supplied to livestock. Hina Umer Hanif , Fatima Jinnah Women University Rawalpindi,
	Effect of ivermectin on Macrophage function and Angiogenesis Dr. M. Ovais Omer UVAS
	Study on Pathogenesis and molecular characterization of CCPV in small ruminants Umer Siddique , Faculty of AHVS, AU Peshawar
	Distribution of various mycotoxins in dairy feed and silage in Pakistan. Dr. Nafeesa Qudsia Hanif , Romer Lab Pakistan
	Discussion and Recommendations
	Lunch Break



Tuesday, November 22, 2011

TECHNICAL SESSION II

FOOD TECHNOLOGY	
Chairman:	Dr Dil Aqa Waqar , Vice Chncellor, Mander Khan University Afghanistan
Co-chairman:	Dr. M. Sajjad Khan , PRO, Veterinary Research Institute, Peshawar
Moderator:	Dr Umar Sadique , Chairman Animal Health
	Strategy for development of smallholder dairy sector in KPK Prof G. Habib , Advisor to Government of Punjab, L&DD Dept. Lahore
	Dairy and milk processing and its future prospects in Balochistan. Muhammad Azam Kakar , BUITEMS, Quetta.
	Breeding dairy animal for harsh environment-hypothesis of breed choices. Prof M. Sajjad Khan , ABG Department, UA Faisalabad
	Challenges of meat production & technology in Pakistan. Hamid Ahmad , PCSIR Lab, Lahore
	The effect of breed, age and sex on meat production potentials of cattle in the sub tropical conditions of Khyber Pakhtunkwa. Dr Abdur Rahman , LM Department, AU Peshawar
	Discussion and recommendation
	Tea break

TECHNICAL SESSION III

FEEDING AND ANIMAL NUTRITION	
Chairman:	Prof Dr Alam Zeb , Dean FNS, AU Peshawar
Co-chairman:	Dr. Col. Munawar Shah , RV&FC
Moderator:	Dr Nazir Ahmad , Chairman Animal Nutrition
	Causes of variation in fatty acid content and composition in Maize silages. Nazir Ahamd Khan , AU Peshawar
	Artificial Gene Analyzer (AGA)-A bioinformatic tool. Naveed Iqbal , BUITTEMS Quetta
	Investment options in dairy production. Dr. Sohail Ahmed Chairman ABG AUP
	Developing microbiological and biochemical protocols for the production of fresh mozzarella cheese from water buffalo milk in Pakistan. Zubia Afsheen , IBGE, AU Peshawar
	Improvement in peri-urban dairy farming. Dr. Aftab Khan , Ex-Chairman ABG, UA Faisalabad
	Discussion and Recommendations
	Lunch

DEVELOPMENT AND BUSINESS SESSION

Chairman:	Prof Dr. M. Ather Khan , UVAS, Lahore
Co-chairman:	Dr. Sarfraz Ahmed , NIFST, UA Faisalabad
Moderator:	Dr. Zahoor-ul-Hassan . Deptt. Animal Health, AU Peshawar
	Composition and physio-chemical characteristics of buffalo milk with emphasis on lipids, proteins, minerals, enzymes and vitamins. Sarfraz Ahmad , NIFST, UA Faisalabad
	Live stock business support-The SMEDA vision. M Rashid
	Background and impact of the livelihoods programme of Inter-cooperation. Shabir Hussain , Team leader, The Livelihood Programme, Interco-operation Pakistan
	The Flood effects and relief efforts in Khyber Pukhtunkhwa. Shaukat Khan , LTC, Peshawar

	Investment opportunity in livestock sector. Malik Niaz KPCCI
	Dr Shahzad Naveed Jadoon , GM Alltech Pakistan, Islamabad
	The milk sector of Pakistan and its production system Dr. Muqarrab Ali Khan , Cynosure Consultants Inc. Islamabad;

WEDNESDAY, NOVEMBER 23, 2011

TECHNICAL SESSION IV

LIVESTOCK DEVELOPMENT AND MANAGEMENT	
Chairman:	Dr. Aftab Ahmed Khan , Ex-Chairman ABG, UA Faisalabad
Co-chairman:	Prof Dr Muhammad Naeem , Dean FCPS
Moderator:	Dr. Shoaib Sultan Afridi , Animal Nutrition, AU Peshawar
	Milk production potential of Pakistani camel (camelus dromedarius) under the dry land conditions of the Punjab. Arshad Iqbal , Department of LM, UA Faisalabad
	Azikheli Buffalo: Productive performance under traditional management system. Momen Khan , L&DD Khyber Pakhtunkhwa,
	PASTIC search engine for scientific research. Ms Ghazala Yasmeen Malik PASTIC PAF
	Anthelmintic Activity of some ethnobotanicals. Dr. Waseem Baber , UCV&AS, IU Bahawalpur
	Effect of Selenium and Selenoproteins in male reproductive performance. Mr. Umair Ahsen , UCVAS, IU Bahawalpur
	Fortification of dairy milk with docosahexaenoic acid (DHA) through feed supplementation of dairy cattle feed – a new horizon in dairy industry. Umme-e-Aiman , IBGE, AU Peshawar
	Discussion and Recommendations
	Tea Break

TECHNICAL SESSION V

ANIMAL REPRODUCTION AND BIOTECHNOLOGY	
Chairman:	Muhammad Azam Kakar , BUIITEMS, Quetta
Co-chairman:	Prof Dr Sohail Akhter , AU Peshawar
Moderator:	Dr Sohail Ahmad , AU Peshawar
	Reproductive biotechnologies in dairy industry in Pakistan. Muhammad Azam Kakar , BUIITEMS, Quetta
	Production and evaluation of combined oil based FMD and HS vaccine. Khushi Muhammad , UVAS, Lahore
	Stress impedes reproductive physiology of dairy buffaloes. Muhammad Subhan Qureshi , Dean FAHVS
	Role of hair follicles in pregnancy diagnosis of dairy animals. Sarzamin Khan , AU Peshawar
	Successes and failures in artificial insemination in Khyber Pakhtunkhwa. Muhammad Islam , L&DD, Peshawar
	Effect of quality and frequency of drinking water on productivity and dairy buffalo. Raj Wali , LR&D, Peshawar
	Lunch

CONCLUDING SESSION

Recitation of the Holy Quran
Recommendation of the convener of the recommendation committee
Vote of thanks by the Dean FAHVS
Concluding remarks of the chief guest Minister of livestock and dairy development KPK

RECOMMENDATION COMMITTEE

1. Prof. Dr. Zahoor Ahmad Swati, Dean FCPS (Chairman)
2. Prof. Dr. M. Subhan Qureshi, Dean FAHVSC (Secretary)
3. Prof. Dr. Muhammad Jamal Khan, WAMA
4. Prof. Dr Farhatullah, PBG
5. Dr. Sohail Ahmed, Chairman ABG, AUP
6. Mr. Rizwan Ahmad, P&D, AUP
7. Dr. Umer Sadique, I/C AH, AUP
8. Dr. Nazir Ahmed, Jr AN, AUP
9. Dr. Asad Sultan, PS, AUP
10. Mr. Rashid Aman, SMEDA/KPCCI
11. Dr. Rajwali Khan, LR&D/VRI
12. Dr. Muhammad Aftab, L&DD
13. Dr. Zakir Hussain, LTC

Terms of reference:

- a) The committee will record the recommendation of the house following each presentation of technical papers presented during various sessions.
- b) Deliberations of extension, academic and business aspects of the presentations during each session will be recorded.
- c) The recommendations will be compiled and presented during the conclusion session of the workshop and will be submitted to the Vice Chancellor for approval and presentation before the honorable Minister as per his directive.

SPONSORS

The organizers acknowledge the support of the following organizations in sponsoring the International Workshop on Dairy Science Park and would like to get their inputs in giving a material shape to the Park.

Alltech Pakistan Ltd: The world fastest animal health growing company; Dr. Shahzad Naveed Jadoon is founder General Manager of Alltech Pakistan, working in four provinces and Azad Jammu Kashmir. According to Dr. T. Pearse Lyons, Founder and President “Exciting technological and environmental advancements have revolutionized Alltech this year. We hope our industry’s decision makers and influencers will help us propel that transformation further to create a new world of sustainability for the benefit of all.” Contact: Dr Shahzad N Jadoon (Alltech), sjadoon@alltech.com; Website: <http://www.alltech.com>.

Ghazi Brothers, Karachi: One of the leading distributors of Animal Health, Animal Nutrition, Animal Genetics and allied products in Pakistan. Amino Acids, Anthelmintics, Antibiotics, Anticoccidials, Antimicrobials, Antioxidants, Disinfectants, Enzymes, Feed Phosphates, Growth Promoters, Minerals, Organic Acids, Premixes, Vaccines, Vitamins and focused introduction of new products and services. With dedicated sales and technical support and national distribution network, we provide the reliability and quality you would expect from a progressive enterprise. Contact: Ghazi House, D-35, K.D.A Scheme No. 1, Miran Muhammad Shah Road, Karachi - 75350, Pakistan. Tel: +92 21 111 250 365 | Fax: +92 21 3454 3763

Inter-cooperation (IC) Pakistan, Peshawar: IC is a Swiss Foundation for Development and International Cooperation with the Head Office in Bern, Switzerland. It is a non-government, not-for-profit international organization working in development cooperation across four continents with an aim to alleviate poverty in rural areas. In Pakistan, Kalam Integrated Development Project was the first project mandated to the newly founded organization by the Swiss Agency for Development and Cooperation (SDC). During these years in Pakistan, IC has implemented over twenty two development projects, most of which were implemented on behalf of SDC. IC is consistently involved in developmental activities mostly in arid, semi arid and flood prone areas in Khyber Pakhtunkhwa. Currently IC is actively engaged in eight districts of Khyber Pakhtunkhwa Province in Pakistan and three agencies of FATA.

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- ◆ Khyber Pakhtunkhwa Chamber of Commerce and Industries, Peshawar
- ◆ ICI Pakistan
- ◆ Naseem Traders/Romer Lab Rawalpindi
- ◆ Charles Sturt University, NSW, Australia
- ◆ Agri Livestock Bureau, Faisalabad
- ◆ International Dairy Federation, Belgium

Website coverage:

- ◆ Agricultural University, Peshawar www.aup.edu.pk
- ◆ Engormix.com, Argentina; the media partner; www.engormix.com/dairy
- ◆ World Veterinary Year, 2011;
http://www.vet2011.org/calendrier_pays.php?pays_id=148
- ◆ World Veterinary Association; <http://www.worldvet.org/node/6906>
- ◆ Conference Alerts; <http://www.conferencealerts.com/seeconf.mv?q=calshmx>
- ◆ International Society for Zoological Sciences;
<http://www.globalzoology.org/Membership/FeaturedMember.aspx>
- ◆ International Buffalo Knowledge Resource Service, Philippines;
<http://www.ibkrs.net/index.php?rt=6>
- ◆ The Dairy Site News <http://www.thedairysite.com/news/31757/international-workshop-on-dairy-science>
- ◆ Animals+Pharm
- ◆ agrihunt.com
- ◆ Khyber Pakhtunkhwa Official Gateway, News and Events.
- ◆ pakissan.com

Press coverage

- ◆ Daily Mashriq
- ◆ Daily Aaj
- ◆ Daily Pakistan Observer
- ◆ The Frontier Post
- ◆ Business Recorder
- ◆ Associated Press of Pakistan
- ◆ The Weekly Technology Times, Pakistan