







AIP NEWSLETTER

A Newsletter of the Agricultural Innovation Program (AIP) for Pakistan

Message from the Project Leader Greetings from AIP!

I am pleased to present the updates of the Agricultural Innovation Program (AIP) for Pakistan for the April to June 2015 quarter.

It was another great quarter for AIP as the commissioned projects are making great progress to achieve growth and prosperity in Pakistan's agricultural sector. AIP has introduced Rhodes grass to farmers in Khyber Pakhtunkhwa (KP) and trained 15 progressive farmers on the cultivation of Rhodes grass as a fodder crop. AIP has also reached out to smallholder wheat farmers in 24 districts in Punjab and Sindh provinces to improve the quality and productivity of wheat. More than 3,100 farmers, researchers, agriculture extensionists, and national

partners from the public and private sectors were trained on improving the wheat seed quality. A traveling maize seminar was organized in Pakistan's Punjab province, which evaluated the performance in Pakistan's diverse ecologies of 700 diverse CIMMYT maize lines and germplasm from its regional breeding hubs in Colombia, Mexico and Zimbabwe. More than 1,500 farmers from Punjab, Sindh and KP provinces observed the wheat planted under zero till conditions after mungbean/ guar/rice/maize crops during field days organized in partnership with national partners. AIP's vegetable component is making continuous efforts to maximize agricultural development in Pakistan by implementing specific solutions to the social and technological challenges faced by vegetable growers. AIP has introduced mungbean-citrus intercropping in Punjab province, spinach cultivation under shade net to ensure the profitability of plasticulture per unit area throughout the year, as well as quality vegetable seed production and healthy seedlings. In April 2015, 20 women agricultural workers who are mostly involved in handling and picking vegetables from Punjab province



were trained on avoiding health hazards to improve farm productivity. A session on quality onion seed production and packing was hosted by the project in Sindh for 20 progressive farmers. In this quarter, AIP's perennial horticulture component focused on developing farmers' skills on value addition of fruits and vegetables and trained more than 600 fruit growers during this quarter.

Under the human resource development (HRD) component, all 14 AIP scholars are now adapting to life in the U.S. and the rigors of academia.

AIP competitive grants system has received 482 preliminary proposals from all four provinces for agriculture R&D which are being evaluated.

AIP is a collaborative effort of the PARC, the International Livestock Research Institute (ILRI), the International Rice Research Institute (IRRI), the World Vegetable Center (AVRDC), the University of California at Davis, and the International Maize and Wheat Improvement Center (CIMMYT). It is funded by the United States Agency for International Development (USAID). It is with the support of all our national and international partners that we will continue to grow and further improve the agricultural productivity and economy of Pakistan.

Please check our website aip.cimmyt.org for details on our activities and upcoming events. Your comments and suggestions are welcomed.

Happy reading!

Md. Imtiaz Project leader

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Competitive Grants System

Competitive Grants system (CGS) is led by the Pakistan Agricultural Research Council (PARC)

For feedback and queries, contact Shahid Masood (PARC): shahid.masood617@gmail.com

Research to Support Enhanced Agricultural Growth in Pakistan

AIP is continuously supporting to enhance agricultural growth in Pakistan. In this regard, the first call for application of research proposals were advertised in each province approved Competitive Grants system (CGS) operational mechanism. In total 482 Preliminary proposals were received from across Pakistan including 207 in Punjab province, 48 from Balochistan province, 89 from KP and 5 from Sindh. The proposals are being evaluated by AIP secretariat.

AIP-Livestock

AIP-Livestock is led by the International Livestock Research Institute (ILRI).

For feedback and queries, contact Ibrahim Mohammed (ILRI): m.ibrahim@cgiar.org.

Improving Livestock Practices through Experiential Learning

In April 2015, more than 75 dairy farmers from Chela village, Jhang district, Punjab province were gathered by AIP-Livestock to share their findings with livestock scientists and other farmers in the village. At the event, AIP staff explained the impact of livestock practices to the audience.



Paving the Way for Quality Fodder

Stovers were screened for feed quality during CIMMYT's varietal performance trials conducted in 2014/2015. A total of 76 maize varieties, 44 of which are from Islamabad and 32 from Gilgit-Baltistan, were assessed for Total Digestible Nutrients (TDN) and Crude Protein (CP). At both sites, the TDN percentage showed more variability between varieties: 54-59% at Islamabad and 48-54% at Gilgit. In general, the CP percentage of varieties grown in Gilgit (9%), was higher as compared to Islamabad (6.1%). These findings will enable farmers to select quality stovers for animal feeding.





Dairy Farmers Made Aware of Peste des Petits Ruminants (PPR)



More than 150 men farmers from Punjab province at 3 locations, namely Jhang, Bahawalnagar and Haroonabad in Bahawalnagar district, were made aware of peste des petits ruminants disease and its control by AIP in collaboration with FAO. A similar program conducted in Bahawalnagar exclusively for women was attended by 100 dairy farmers. The awareness program was followed by vaccination of 2,264 goats and sheep against PPR.

In Haroonabad district, the small ruminants had already been vaccinated against PPR by the Punjab Livestock Department. Blood samples from 34 animals were randomly collected and sent to FAO for testing its efficiency.





AIP Introduces Stay-green Maize Seeds to Overcome Feed and Food Constraints in Sindh Province and AJK

During May-June 2015, farmer participatory snapshot surveys were conducted to identify the constraints faced by dairy farmers. Structured interviews of 154 farmers were done in Sindh province, of which 79 from Tandojam and 75 from Matyari. The main constraints were feed scarcity, lack of balanced feeding, water intake, milk marketing and poor animal health. In Matyari district, promotion of fodder under date plantations seemed to be a viable venture to overcome feed shortages.

In AJK, 100 farmers were interviewed. Herd sizes are small, but the lack of feed and water were the most important constraints identified by farmers. Moreover, lack of food grains for human consumption was also identified.

As an immediate measure to overcome both feed and food constraints, AIP Livestock intervened and provided stay-green maize seeds to set up 9 model farmers.

Seminar on Rangeland Management

On 29-30 April, a seminar on rangeland management was organized by AIP Livestock in partnership with PARC and Rangeland Research Institute NARC at Bahauddin Zakariya University, Multan, Punjab province.





The seminar covered the current status, potential and opportunities prospectus, tools for possible improvement and its contribution in the ecosystem services.

The objective of this seminar were to highlight the status of rangeland ecosystems and their services in each province and also to identify research, policy and capacity gaps in managing rangeland ecosystem goods and services for local livelihoods, nutrition and food security.

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Rapid Assessment of Small Ruminant Value Chain: Chakwal and Bahawalpur Districts

On 11-12 May 2015, a consultative meeting was arranged in Islamabad to review a study of the Small Ruminant Value Chain which was conducted in Chakwal and Bahawalpur districts of Punjab province.

The objective of the study was to analyze the existing production and supply chain systems, document the relationship and functions of different actors, identify constraints to improve productivity and competitiveness across the small ruminant value chain and identify potential areas for intervention by R&D partners.



Enhancing the Capacity of Livestock Extension Workers/Stock Assistants in Balochistan

On 3-6 June, 2015, training to enhance the capacity of livestock extension workers/stock assistants was organized by AIP-Livestock in partnership with Livestock Department Balochistan in Quetta.

The training covered appropriate low-cost animal housing, feeding, reproduction management, preventive health care and disease control of small ruminants. It enhanced the technical knowledge of the participants to improve small ruminant production and linked the extension workers with highly technical animal producers. A total of 75 extension workers/stock assistants, including 4 women, were trained.



AIP Introduces Rhodes Grass to Khyber Pakhtunkhwa Province

In April 2015, 15 progressive farmers received training on the cultivation of Rhodes grass as a fodder crop. The training was organized by AIP-Livestock, together with the Livestock and Dairy Development Khyber Pakhtunkhwa (KP) at Harichand Livestock farm in Charsada, KP province.







Farmers' Field Day at Dhulli, Chakwal District

A farmers' field day was organized by AIP-Livestock in partnership with Rangeland Research Institute and Crop Sciences Institute, NARC, on 11 April 2015 at Dhulli in Chakwal district, Punjab province.

The event highlighted high yielding fodder varieties, improved varieties of wheat, barley and canola, rangeland rehabilitation and rotational grazing and was attended by policy makers, national scientists and progressive farmers. Dr. Nadeem Amjad Member (NR) PARC, speaking to the audience, emphasized the importance of high yielding varieties for enhanced productivity and improved livelihoods.



Village-Based Seed Enterprise

In Pakistan, Punjab Seed Corporation has played a significant role in supplying wheat seed to the farmers in the province. It is also trying to furnish farmers' needs in other parts of the country.





To improve fodder seed production, development of an 'informal seed sector' is a direct way to assist farmers more efficiently.

In response to the constraints shared by the farmers, AIP-Livestock provided them with improved seed of wheat, barley and oat under a village-based seed enterprise.

Seeds were collected during the months of April to June, and the average seed yield (kg ha⁻¹) was between 2,650 to 3,646 for oats, 1,170 to 3,450 for wheat, and 1,809 to 2,646 for barley.

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Cereals and Cereal Systems **AIP-Wheat**

AIP-Wheat is led by the International Maize and Wheat Improvement Center (CIMMYT).

For feedback and queries, contact Krishna Dev JOSHI (CIMMYT-Pakistan): k.d.Joshi@cgiar.org

Changing Wheat Landscape in Pakistan Demands New Breeding Strategies

Pakistan is one of the top consumers of wheat with an average per capita wheat consumption of 120 kg annually. As more than 70% of the caloric intake is from this crop, better quality wheat could improve the nutrition and health of the people in the country.

"Better guality wheat could improve the nutrition and health of millions of Pakistanis," said CIMMYT wheat guality consultant Dr. Roberto Javier Peña during his visit to Pakistan, where he led trainings that combined conceptual and theoretical practices, hands-on skills and open discussions on grain quality and the use of selection parameters.

In April 2015, two courses on wheat grain quality were held in Islamabad and Faisalabad. The first course was held at the Food Science and Product Development Laboratory at National Agricultural Research Centre (NARC) on 6-8 April 2015 in Islamabad. It drew 16 cereal chemists and food technologists from NARC-Islamabad, AARI-Faisalabad, the University of Agriculture-Faisalabad and the Grain Quality Laboratory at Karachi. The participants learned the importance of grain quality as a selection criterion for breeders and quality testing at an earlier stage in the breeding process is vital to identify better quality wheat.

From 9-11 April, a similar event at AARI, Faisalabad, brought together 36 wheat breeders, cereal chemists, food technologists, agronomists, socioeconomists and research managers.



Wheat Grain Quality Training.

Refining Project Interventions: Wheat Review and Planning Meeting with National Rural Support Program (NRSP)

The National Rural Support Program (NRSP) is among the key implementing partners of AIP wheat. It has reached out to smallholder wheat farmers in 24 districts in Punjab and Sindh provinces to improve the quality and productivity of wheat. On 20 May 2015, a review and planning meeting with NRSP was held in Islamabad to assess the progress and chalk out future plans.

A brief overview of activities was shared with NRSP field staff from each district. Farmers' feedback, research trials data collection and issue handling were also discussed in detail. In the second part of meeting, lessons learned and challenges in the field were highlighted and possible solutions were discussed. Early planning helps refine upcoming plans and targets in the project. This activity led to set targets for the upcoming 2015-16 wheat season in consultation with all the stakeholders.



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Strengthening the Capacity of the Agricultural Sector through Wheat Seed Quality Management Training

Uptake and adoption of agricultural innovations is key to improving the productivity of wheat in Pakistan. AIP is focused on strengthening the capacity of farmers, researchers, agricultural extensionists and national partners from the public and private sectors through training.

AIP wheat carried out trainings on wheat seed quality management, hand-on skill transfer through demonstrations and farmers' field days based on popularizing new wheat varieties, quality seed management and integrating best wheat varieties with appropriate agronomy. AIP encourages the involvement of women in agricultural growth and sustainability. Out of 3,148 trainees, 17% were women.



Detail of province-wide beneficiaries of trainings and exposure visits of AIP wheat component.

AIP-Maize

AIP-Maize is led by the International Maize and Wheat Improvement Center (CIMMYT).

For feedback and queries, contact Abdurahman Beshir ISSA (CIMMYT-Pakistan): a.issa@cgiar.org

Maize Traveling Seminar to Evaluate the Performance of CIMMYT Maize Germplasm Across Punjab Province in Pakistan

On 15-17 June 2015, a traveling seminar to evaluate the performance of CIMMYT maize germplasm in Punjab province in Pakistan was organized by CIMMYT in partnership with PARC.

CIMMYT has introduced more than 700 diverse maize lines from its regional breeding hubs in Colombia, Mexico and Zimbabwe, and has evaluated them under Pakistan's diverse ecologies since early 2014. The germplasm consists of hybrids and openpollinated varieties with enhanced nutrient content (including quality protein maize and varieties enriched with pro-vitamin A) and wide adaptation that have consistently performed well over the past three seasons. This evaluation focused mainly on spring maize. Experts from 12 public and private institutions including seed companies, agricultural universities and research institutions evaluated the performance of CIMMYT materials at different sites across the province. The participants showcased their activities and also shared their experience of trial management and field data recording.



Participants in the maize traveling seminar.





Participants visiting CIMMYT maize trials.

Discussion on CIMMYT's maize germplasm at a private seed company research station.

According to AbduRahman Beshir, Maize Improvement & Seed System Specialist CIMMYT, "In early 2014, when the range of CIMMYT maize hybrids and OPVs was introduced in Pakistan, we were not sure of the performance particularly in extreme environments where the temperature often exceeds 40°C." CIMMYT is now at the product allocation phase based on partners' selection and requests. Today, it is clear that CIMMYT has much to offer its Pakistani partners in their efforts to produce hybrid maize seed locally, achieve self-sufficiency and enhance local maize breeding programs through enriched gene pools.

AIP-Agronomy

AIP-Agronomy is led by the International Maize and Wheat Improvement Center (CIMMYT).

For feedback and queries, contact Imtiaz Hussain (CIMMYT-Pakistan): i.hussain@cgiar.org

National Meeting on Conservation Agriculture (CA) in Pakistan

On 26-27 May 2015, a national meeting on conservation agriculture was organized by CIMMYT in partnership with PARC in Islamabad. At this meeting, progress on the activities and field implementation issues was shared by national partners.



The meeting was attended by 58 agricultural professionals from research institutes, agricultural extension, universities, international centers and the private sector. Dr. Shahid Masood, PARC Member, spoke about improving cereal system productivity through agronomic practices.

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Action points:

The participant's agreed to focus on:

- Locally manufacturing the zero-till (ZT) Happy Seeder and ZT multi-crop planter;
- Disseminating CA planters and techniques through service providers;
- Making small farm machinery accessible to smallholders in northern Pakistan;
- Building the capacity of national partners.



Farmers' Awareness of Conservation Agriculture Techniques

During April 2015, CIMMYT organized 15 field days on conservation agriculture techniques that were attended by more than 1,500 farmers.

Farmers from D. I. Khan, Bhakkar and Faisalabad districts in Punjab province and Nowshera in Khyber Pakhtunkhwa (KP) province observed wheat planted under ZT conditions after mungbean/guar/rice/maize crops. This technology has saved the cost of land preparation and improved grain yield by 0.3 to 0.5 t/ha. Ridge planting/bed planting of wheat have improved wheat grain yield and saved irrigation water. Farmers shared their experiences with fellow farmers in Bhakkar, DI Khan, Mianwali, Khushab, Vehari, Sahiwal and Bahawalpur districts in Punjab province and Shaheed Benazirabad in Sindh province and Nowshera in KP province.







AIP-Vegetables

AIP-Vegetables is led by The World Vegetable Center (AVRDC).

For feedback and queries, contact Mansab Ali (AVRDC); mansab.ali@worldveg.org



- covered production technology to the farmers.
- Farmers discussing plasti-culture with Vegetable's Research Associate at Chevanda-Gojra, Punjab.

Seeding New Skills

Organized by AIP-Vegetables 32 farmers from Balochistan province attended an exposure visit on vegetable growing operations in Chevanda-Gojra and Bhikhi-Sheikhupur, Punjab province, Pakistan on 11-13 May 2015.

The event aimed to increase offseason vegetable production in the region. The Balochistan Rural Support Program (BRSP) and the Vegetable Research Institute, and Ayub Agriculture Research Institute (AARI), Faisalabad, partnered in coordinating the exposure visit.

New Approaches to Mungbean Production

Mungbean and Citrus

AIP-Vegetables has introduced mungbean-citrus intercropping in Sargodha region, Punjab province of Pakistan. Around 0.2 million hectares of land in Sargodha district are under citrus cultivation. Mungbean, a leguminous short-duration crop, fits well in this system as it provides nitrogen fixation in the presence of Rhizobia in the soil, contains 25% protein in the grains, and is relatively drought tolerant. Although most farmers in the area do not cultivate any other crop in their orchards to avoid causing stress to the trees, more are beginning to recognize the benefits of intercropping with mungbean.

The Thal region of Pakistan, consisting of Bhakkar, Layyah, Khushab, Mianwali and Muzaffargarh districts, contributes 80-90% of the total mungbean production in the country. But farmers in the region use old methods of production: they do not treat seed with inoculum before planting, they sow by broadcasting, and there is little attempt at weed control. Therefore, they produce low yields even from high-yielding varieties. In 2014, AIP-Vegetables began educating farmers on the benefits of line sowing, the use of Rhizobium + Phosphate Solubilizing Bacterial inoculum, and use of post-emergence herbicides including Lactofen for broad leaves and Haloxyfop-R-methyl for narrow leaves. Though initially hesitant, farmers are now confident that their yields can increase up to 30% by following recommended practices. The area under mungbean cultivation increased in the region in 2015.



Mungbean intercropping with young citrus plants in Sargodha.



A bumper crop of mungbean in Bhakkar district. Farmers have realized that good yields can be expected if basic agronomic practices are followed.

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Mungbean and Sugarcane

AIP-Vegetables initiated intercropping mungbean with sugarcane last year in Toba Tek, Singh district, Punjab province. A field day to inform a group of 200 farmers on this cropping technology was organized in Bariyaran village in Toba Tek Singh on 9 June 2015. The participants learned about the benefits of mungbean production achieved by intercropping the legume. The farmers observed that mungbean fixes nitrogen in the soil, one of several benefits the crop can bring to sugarcane farmers. These progressive farmers were willing to adopt this method to improve mungbean production.



Farmers and scientists observe intercropping trials of mungbean and sugarcane.

Spinach Fits Well in the Plasti-Culture Cycle

In Pakistan, plastic tunnels are used from October to April to produce off-season vegetables such as tomato, cucumber and sweet pepper; the plastic covers keep crops warm in cold weather. Although farmers make a significant investment to construct the tunnels, the tunnels remain unutilized from May to September.

To maximize the use of tunnel structures year-round and increase the supply of fresh vegetables, three crops (bunching onion, spinach and coriander) were studied at different locations in 2013-14. Results from the onion and coriander crops were not encouraging, but spinach proved to be a winner.



Vegetable's Research Associate at a farmer's field in Haripur.



Vegetable's Research Associate at a farmer's field in Noorpur Thal.



After tomato seed is extracted, there's plenty of pulp to process into sauces, juices and other products.

Spinach is cultivated mostly in winter in Pakistan. Summers there can be very hot, and normally spinach will not grow at that time of the year. However, by swapping the plastic covers of tunnels with green shade net, winter crops can be kept cool during the summer. Early spinach crops produced under shade net brought a good price because the produce was available out of season. Availability of the crop coincided with the Ramadan holiday, which further boosted sales. This year, spinach has been planted under green shade net at 18 locations in KP and Punjab provinces. The introduction of spinach under shade net is ensuring the profitability of plasticulture per unit area throughout the year.

Best Practices through AIP-Vegetables

Pulp Fact, Not Fiction

In a training organized in partnership with the Agricultural Research Institute (ARI) on June 5 in DI Khan, KP province, 26 participants learned valuable skills and methods of collecting and processing tomato pulp. Tomato pulp produced during seed extraction can be processed into sauces and juice, providing women farmers and workers with a new income stream and more nutritious food throughout the year.

Sadaf Javeria, Assistant Professor of Food Technology, Gomal University, demonstrated methods of making value-added products using tomatoes.



Seed Session

On 10 June 2015, AIP-Vegetables, in partnership with the Arid Zone Research Institute (AZRI) – Umerkot, and Becon Seed Company, Kunri-Sindh, hosted a session on quality onion seed production and packing in Umerkot, Sindh.

Ali Mardan Shah, Minister for Population and Welfare, Government of Sindh, along with 20 progressive farmers from the districts of Umerkot and Mirpurkhas attended, this session. The participants were briefed on onion seed production and packing followed by a demonstration of seed packaging methods. Seed of two onion varieties, Phulkara and Nasarpuri, was packed and made available for marketing.



Minister for Population and Welfare, Government of Sindh, Ali Mardan Shah attending the briefing.

Healthy Off-Season Vegetables Seedling Production

In Punjab province, AIP-Vegetables, in partnership with Horticulture Research Station (HRS), Naushera, Khushab District, and Barani Agricultural Research Institute (BARI), Chakwal, organized a training on healthy vegetable seedling production and integrated pest management (IPM) on 6 June in Soon Valley. Twenty farmers learned about site selection, soil media, seed bed preparation, seed selection, sowing and germination, nursery management, and IPM.



Farmers observing off season vegetable production and IPM.



A farmer receives a certificate upon successfully completing the training.



Empowering Pakistani Women to Improve Farm Productivity

Women field workers receiving training to avoid health hazards at Chevanda-Faisalabad.

In April 2015, 20 women agricultural workers, mostly involved in handling and picking vegetables, received training on avoiding health hazards to improve farm productivity in Chevanda-Faisalabad, Punjab province. Participants showed interest in learning about the use of pesticides and precautionary measures. They were made aware of health and safety issues.

AIP-Perennial Horticulture

AIP-Perennial Horticulture is led by UC Davis.

For feedback and queries, contact Louise (UC Davis): iferguson@ucdavis.edu

Learning to Grow Stage by Stage

The established model demonstration block at the Koont farm, in partnership with PMAS-Arid Agriculture University Rawalpindi (AAUR), continues to provide an invaluable training ground for grape growing.

On the whole, 97 participants, including farmers, students and field staff, had the opportunity to attend three trainings during different growth stages of the grape orchard.

Title	Location	Date	No. of participants
Summer management practices of vineyard	Rawalpindi	April 16, 2015	15 men, 12 women
Pre-harvest fruit bagging of grapes	Rawalpindi	May 24-27, 2015	21 men, 5 women
Summer season vineyard management	Rawalpindi	June 1, 2015	40 men, 4 women

Collaboration on Citrus Value Chain Initiatives

UC Davis and Citrus Research Institute, Sargodha, are collaborating on seven different research projects aimed at improving aspects of the citrus value chain. These projects focus on nursery, orchard management, post-harvest and pathology aspects of citrus. Four farmer/student trainings and two Training of Trainers (ToT) were organized during this quarter, with a special emphasis on training women on value addition. Follow-up visits to the direct beneficiaries are key to ensuring that training participants have applied what they learned.



Title	Location	Date	No. of participants
Citrus crop management training	Chak 98NB, Sargodha	April 9, 2015	35 men
Industrial Home's student training for domestic citrus value-added products	Sargodha	April 4, 2015	68 women
TOT on value addition of citrus fruit	Sanat Zar Sargodha	May 13, 2015	13 women
TOT for citrus extension officers of Sargodha District	CRI/Sargodha	May 26, 2015	74 men, 13 women
Value addition of citrus fruit to domestic women	CRI Sargodha	June 9, 2015	9 men, 51 women
Citrus orchard management and handling	CRI Sargodha	June 11, 2015	51 men, 19 women



(Continued from previous page)





- Citro vendor from Punjab province.
- Follow-up visits of AIP team to a fruit stall of the direct beneficiaries of Citrus Value Chain initiative in Punjab province.

Adding Value to Stone Fruits

In collaboration with AAUR, UC Davis has conducted six hands-on trainings on value addition of stone fruits for farmers from the outskirts of Islamabad, Rawalpindi, Gilgit Baltistan and AJK. Farmers, especially women, were trained to make valueadded products from stone fruit at home.



Title	Location	Date	No. of participants
Village women training for value addition of stone fruit	AAUR	April 23, 2015	4 men, 23 women
Value Addition of Fruits for Baluchistan Farmers	AAUR	May 15, 2015	27 men, 7 women
Value Addition of Fruits at Rawalakot	Azzad Kashmir	May 20, 2015	21 men
Value Addition of Stone Fruits	Gilgit Baltistan	June 15, 2015	41 women
Value Addition of Stone Fruits	Gilgit Baltistan	June 16, 2015	19 men, 9 women
Value Addition of Stone Fruits	Gilgit Baltistan	June 17, 2015	35 men, 2 women

New projects on value chains with great potential: In this quarter, UC Davis has initiated new research projects in the following value chains.

Value Chain	Collaborator	Focus
Pistachio	ARI Quetta	Nursery, orchard management and growers association formation
Olive	ARI Tarnab	Awareness-raising among farmers about olive oil quality in relation to harvesting stage; effect of boron spray on fruit setting
Guava	ATI Sakrand, UAF	Post-harvest resource center; Farmer Field Training Centers; empower farmers; extension department of Sindh province
Ber	UAF	Mother block of best performing ber varieties for farmers in southern Punjab

AIP-Human Resource Development (HRD)

For feedback and queries, contact Thomas L. Rost (UC Davis): tlrost@ucdavis.edu

Human Resource Development and Vocational Training

Scholars Adapt to Life, Learning and Diversity in the US

All the AIP scholars are now adapting to life in the U.S. and the rigors of academia. The UC Davis team has conducted a followup survey with all the scholars to ensure they are on the road to success. The table below lists all the scholars. In this issue, two of the Ph.D. scholars will be highlighted.

Student name	Gender	Region	University	Ph.D. / M.S.	Proposed Topic
Abbasi, Juliya	Female	Punjab	UC Davis	Ph.D.	Wheat genomics
Barkat, Noorani	Female	Gilgit	TAMU	M.S.	Post-harvest fruit
Fayyaz, Laila	Female	КРК	UC Davis	Ph.D.	Tomato breeding
Habibullah	Male	Baluchistan	U Missouri	M.S.	Soils, plant nutrition
Khan, Ismail	Male	КРК	Mississippi State U	M.S.	Metabolic engineering horticulture crops
Khan, Muhammad Ehsan	Male	Punjab	WSU	Ph.D.	Wheat / stress
Manan, Fazal	Male	КРК	UMN	M.S.	Plant pathology
Naqeebullah	Male	Baluchistan	Mississippi State U	Ph.D.	Salinity rice
Noshad, Salma Bibi	Female	КРК	TAMU	M.S.	Rice genetics
Rauf, Yahya	Male	Punjab	U MINN	Ph.D.	Wheat / drought stress
Solangi, Maria Amir	Female	Sindh	U MASS	M.S.	Animal disease
Ullah, Marwa Zafar	Female	Punjab	UC Davis	M.S.	Drought stress, wheat proteins
Zahra, Sabahat	Female	Sindh	TAMU	M.S.	Maize breeding
Zia, Bazgha	Female	Punjab	Purdue	M.S	Horticulture, plant stress

IN THEIR OWN WORDS:

Perspective from Muhammad Ahsan Khan, AIP Ph.D. Scholar, Washington State University (WSU)

The 12,000 km journey has changed my vision and approach to my subject. If I am asked to sum up in one line what I have learned, I will say "for innovative research, the hypothesis in mind is more important than the machines and chemicals in the lab." It is an exciting experience. I am learning new techniques and developing in-depth knowledge that is necessary for thesis research project, active participation in lab meetings and seminar discussions. At the beginning, the heavy terminologies and fancy techniques confused me and I was a bit demoralized but thanks to my supervisor and lab fellows, they helped me a lot. With their guidance, reading books and discussions I gained ground. Seminars and lectures update me about current trends of agricultural research. The workshops provide me chances to talk to other researchers about their research strategies and how they troubleshoot their problems.

American culture is based on independence and individuality. That has invigorated my sense of responsibility. It gave me confidence and made my life more organized. Cultural diversity is the best part of social life at WSU. People from different countries sit together and



talk about their culture and practices. We don't just share our experiences; we also share traditional foods. Being far away from family at a different place and culture is still not easy. So I keep myself involved in academic and campus activities.

For my campus city I had a map of bustling streets and skyscrapers like New York, Chicago and Seattle but the reality was totally different. It is a quiet and small country side university town. At the beginning, I was little disappointed but with the passage of time and after visiting big cities, I realized the hidden benefits. Life is peaceful and economic here without distractions. "Everything is at the top of the hill" is famous saying of WSU that keeps me physically fit even I don't do sports regularly.

I am impressed by the massive agriculture, mechanized farming, automated processing facilities and food export business in the USA. After completion of my Ph.D., I will go back to Pakistan and contribute to sustainable agriculture through teaching and research. So the efforts of AIP should be harvested at the farmer's field in Pakistan.



Vocational Training

According to AIP partners, statistics remains one of the high priority skills to develop. How will the research be useful if the results cannot be easily analyzed? As a result, the AIP team (through UC Davis) continues to develop the AIP Statistics App. Based on "R" (a free-online but difficult to use software), the App offers great capacity to put the power of statistics into the hands of researchers. When an early version was demonstrated by Dr. Bell to fellow AIP members earlier in the year, there was much excitement. Beta testing is planned for later this year.

AIP-E-PakAg

For feedback and queries, contact Mark Bell (UC Davis): mark.andrew.bell@gmail.com

Agriculture extension symposium brings together stakeholders: UC Davis, in collaboration with UAF, organized a symposium on recent trends in the outreach of agricultural extension at AAUR on 21 May 2015. Ninety-two participants representing all the stakeholders of ICT and agriculture attended the symposium. This was the latest in a series of e-Pak Ag workshops on ICT in Ag facilitated by Dr. Babar Shahbaz (UAF). These workshops are steadily building an understanding of the ICT landscape, the players involved and key opportunities. According to Dr. Mark Bell (UC Davis), "Having the right information at the right place in the right format" is emerging as the key for how ICT can truly impact agriculture in Pakistan. While a lot of information exists, it needs to be the right information that addresses farmers' needs and concerns. Discussion and workshops highlight that the information has to be packaged – with the audience in mind - to be interesting, understandable and easily actionable. Secondly, the information has to be trusted, and widely, easily and readily available - i.e., the right information has to get to the right person. Thirdly, ICT can be a powerful tool to enhance information access. However, information providers and potential users need the capacity to "correctly" use cell phones, video, etc. at the village level to access information and complement traditional extension approaches.

ICT and gender action research begins: Village level studies (with both UAF and AUAR) are building a picture of ICT reality - for both men and women. The latest addition to the ICT portfolio of action research is a gender study by Dr. Aneela Afzal (AAUR) - looking at how ICT can reach school girls between 12-18 years of age to help them with home gardening and agricultural activities.

What's new on the E- Pak Ag website? AIP Partner extension materials have been added to the website epakag. Check out the newly posted information from ILRI, IRRI, and AVDRC.

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Executive Editor: Genevieve Renard Compiled by: Amina Nasim Khan Reviewed by: Dr. Md. Imtiaz Layout/Design: Marcelo Ortiz Sánchez

Contact Us:

CIMMYT - Pakistan Office CSI Building, NARC, Park Road Islamabad, Pakistan Phone: +92 51 925 55 22-24 Fax: +92 51 925 54 34 Website: www.cimmyt.org

For AIP newsletter: Amina Nasim Khan (a.nasim-khan@cgiar.org)







