



AIP NEWSLETTER

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

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Message from the Project Leader

Greetings from AIP!

I am pleased to share with you the Agricultural Innovation Program (AIP) for Pakistan updates for the quarter that ended on September 30, 2014. It was a productive quarter for AIP, which focused on research and capacity building activities in all the science and activity windows.



In this quarter, AIP addressed the needs of smallholder livestock farmers in Khyber Pakhtunkhwa (KP) and Sindh province through focused group discussions and capacity building trainings. It also supported parts of the flood affected villages in Punjab by providing vaccines for the animals. After successful progress in Punjab and KP, maize activities are expanding by reaching out to agricultural researchers and farmers in Sindh, Gilgit-Baltistan and Balochistan provinces. A baseline survey is being conducted to focus on maize production practices. A survey on durum wheat stakeholders was conducted under AIP, which led to a successful first national workshop in September by bringing potential durum wheat value chain actors on a single platform to discuss emerging opportunities and challenges. The project has moved to the next level of development by building capacities of smallholder vegetable farmers by initiating onion seed value chain development in Balochistan. The University of California,

Davis (UC Davis), under the project's human resource development component, organized an innovative proposal writing workshop in September to support the upcoming AIP competitive grant projects. A field day for mango growers was also organized by UC Davis in September, highlighting the value of new mango varieties and their commercialization potential.

AIP is a collaborative effort of the Pakistan Agricultural Research Council (PARC), the International Livestock Research Institute (ILRI), the International Rice Research Institute (IRRI), the World Vegetable Center (AVRDC), UC Davis and CIMMYT and it is funded by the United States Agency for International Development (USAID). We appreciate the continuous support of all our partners in the implementation of the program. Your feedback will be valued in improving our work.

Enjoy our Newsletter!

Md. Imtiaz
Project leader

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Update on AIP Activities

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.

Dairy Value Chain

Focused Group Discussions with Farmers in Sindh

AIP in this quarter conducted focused group discussions (FGD) with dairy farmers in two villages in Hyderabad district and one village in Matyari district in Sindh.

The dairy farmers from these three villages highlighted the issues faced by them in rearing their livestock, which are:

- Shortage of roughages. Those available are of poor quality, mostly matured natural grasses;
- Reliance mainly on cotton seed cake as concentrate feed, which is of low quality and moldy. Other types of concentrate feeds are not commonly available;
- Lack of awareness on nutritive value of feeds and balanced rations for dairy animals;
- Lack of knowledge on hygienic milk production to provide quality milk to the consumer;
- Most common diseases are Foot and Mouth Disease (FMD), Hemorrhagic Septicemia (HS), Mastitis, Liver fluke infestation and Contagious Bovine Pleuropneumonia;
- Animals have reproductive problems such as repeat breeding, abortions and prolapse of uterus; and
- Lack of appropriate animal shelters.



Arbab Khan Nahion Village (Sindh).



Musa Katian Village (Sindh).



Rearing replacement heifers.



Mechanical chopping to increase intake & reduce wastage.

AIP Supports a Progressive Dairy farmer in Mardan, Khyber Pakhtunkhwa (KP)

Allahhudeen is a progressive buffalo farmer from Mardan, KP province. He owned 80 milking buffaloes and was relying on traders from Punjab for his replacement of milking animals. He also paid premium prices. The AIP-Livestock team visited his farm in June 2013 and provided technical advice on feed processing (chopping) and balanced feeding to maximize milk production and also to rear his own replacement heifers.

In September 2014, the AIP-Livestock team revisited the farmer and there was improvement in milk production. He is now obtaining 28 liters of milk per day at peak lactation with balanced feeding as compared with 21 liters per day. He has also started rearing his own replacement livestock, which are heifer calves.

Discussion on Dairying Issues with the Mardan Dairy Farmer Association Khyber Pakhtunkhwa (KP)

In September, the AIP-Livestock team held a discussion session with members of the Mardan Dairy Farmer Association in Mardan, KP.

The association presented their issues, which include lack of an appropriate milk collection system, lack of awareness regarding good quality hybrid seeds and balanced diet for animals and unavailability of good quality medicines and concentrate feed.

Considering these concerns, the AIP team announced a one-day technical training in October.



The AIP team discusses issues with flood-affected livestock farmers.

Discussion with Flood-Affected Villages in Jhang District

In Jhang district of Punjab, agricultural activities were affected by the recent flood in 2014. Two dairy operational villages of the AIP faced mass destruction. A considerable number of animals expired due to shortage of feed and disease outbreak, mainly Hemorrhagic Septicemia (HS). The AIP team worked closely with the provincial livestock ministry and veterinary officers and extended support to provide vaccine for animals against HS. The team also regularly visited the livestock farmers in the flood-affected villages and shared advice or discussed issues encountered.

Small Ruminant Value Chains

Artificial Insemination in Goats Takes a Stride Forward

The training of trainers (ToT) on artificial insemination in goats, was organized in April 2014 and trained 20 field veterinarians, livestock assistants and farm managers at the Livestock Experimental Station Jaba in KP. The training was supported by the Livestock and Dairy Department KP and AIP-Livestock.

Beetal Semen Produced in Straws for Commercial Use

Beetal goat semen is produced for the first time in Pakistan with technical assistance from AIP-Livestock at the semen production unit (SPU) at Harichand and a private SPU in KP. These units are now collectively producing beetal goat semen in more than 500 straws per month. Encouragingly, both units are further conducting training on artificial insemination in goats using the protocols of the AIP-Livestock training manual.



Feed, Fodder and Rangeland

Introducing Improved Forage Varieties with High Yield Potential Under Dry Conditions with Appropriate Agronomic Practices

AIP-Livestock introduced improved production technologies and high-yielding fodder crop varieties to fodder growers (maize and Mott grass) in the medium to low rainfall areas of the Pothwar region in the Chakwal, Punjab.



Plantations of maize and Mott grass at research sites.

Selection and Promotion of Improved Cereal Crop Varieties with Increased Nutritional Value of Residues

The most promising maize varieties from the maize evaluation trials will be tested for nutritional quality for ruminants and disseminated to livestock farmers, particularly in the medium to dry rainfall areas. In August 2014, stover samples from 42 maize varieties were collected from the zonal maize evaluation trial at the National Agricultural Research Center (NARC) for screening for stover quality (crude protein, digestibility, etc.), in particular the 'stay green' varieties.



Rehabilitated land for shrub plantations.

Silvo-Pastoral Intervention

In August, a team of range scientists from AIP-Livestock visited two sites, Begal and Dhullii in Chakwal, Punjab. The team along with the local farming community selected communal land for conservation and rangeland activities. The selected land is approximately 25 hectares, which belong to 10 and 15 smallholder farmers at Begal and Dhuli sites, respectively. The farmers are taking a keen interest in rangeland rehabilitation activities.

Leucaena has been planted on the contours, and more than 3,000 saplings per hectare have been planted at both sites. Forage grasses (*Panicum maximum*, *Chloris gayana*, *Panicum antidotale*) are being grown in the alleys to provide a balanced feed regime.

Cereal 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@cgjar.org.

First National Workshop on the Introduction of Durum Wheat in Pakistan

CIMMYT, as part of AIP, aims to support durum wheat value chain development by providing technical assistance to facilitate the flow of germplasm, a fast tracking deployment of new varieties, market linkages and information networking.

AIP has given a new dimension to durum wheat value chain development by holding a national workshop on the introduction of durum wheat in Pakistan on September 23-24, 2014 in Faisalabad. The two-day workshop was organized by CIMMYT in partnership with the Wheat Research Institute, Ayub Agricultural Research Institute (AARI), Faisalabad and the Pakistan Agricultural Research Council (PARC), supported by USAID. Potential durum



wheat value chain actors, which include scientists and researchers, durum wheat producers, millers, restaurants owners and representatives from the food processing industry, seed industry and input suppliers, were brought together to discuss emerging opportunities and challenges.

Dr. Intiaz Muhammad, CIMMYT Pakistan Country Representative, illustrated the importance of durum wheat in Pakistan. He also explained how CIMMYT is working to develop this value chain across various AIP portfolios.



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.

AIP-Maize Expands Technologies and Reaches out to Smallholder Farmers in Sindh, Gilgit-Baltistan and Balochistan

After the successful development in Punjab and Khyber Pakhtunkhwa (KP) provinces, AIP-Maize is now reaching out to agricultural researchers and farmers in Sindh, Gilgit-Baltistan (GB) and Balochistan provinces with improved varieties of maize. Although these provinces are not known for their large-scale maize production, they have a great potential for maize expansion in Pakistan.

AIP-Maize is evaluating early/extra early maturing open pollinated maize varieties in Dadu (Sindh), Goner (GB) and Sariab (Balochistan) research stations. The variety evaluation is being done with the Department of Agriculture of GB and the Agricultural Research Institute (ARI) in Sindh and Balochistan.



Maize variety evaluation at Gilgit-Baltistan.

AIP-Rice

AIP-Rice is led by the International Rice Research Institute (IRRI)

For feedback and queries, contact Abdul Rehman (IRRI): a.rehman@irri.org.



Laser leveling the field before DSR.

Dry Seeded Rice: A Resource Use-Efficient Technology

During the crop year 2014, AIP-Rice demonstrated Dry Seeded Rice (DSR) technology with 59 farmers on 243 acres of land in different rice ecologies in Punjab, Sindh and Balochistan provinces. These plots were established with the support of the public sector NARC in Islamabad, Rice Research Institute (RRI) Kala Shah Kaku and Agriculture Extension Department in Punjab province-RRI-Dokri and ARI-Tandojam in Sindh province and Agriculture Research Jafarabad in Balochistan province and private sector companies in Punjab province Engro Eximp and Emkay Seeds.



Rice sowing with modified drill.

In Punjab, mainly Basmati 515 variety was used for DSR, followed by Super Basmati and PK-386. IR-6 and rice hybrid Guard 53 were sown in Sindh, and NIAB IR-9 in Balochistan.



DSR with modified drill (Sheikhupura).



DSR with Rabi drill (Sialkot).



Traditional planting showing low plant population.



Farmer with DSR drilled plot.

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.

Introducing Conservation Agriculture Planter (multi-crop bed planters)

A two-day training on the Conservation Agriculture Planter was organized by CIMMYT in partnership with PARC on July 3-4 at NARC Islamabad. The training was a mix of classroom lecture, workshop and on field experience for the use of multi-crop bed planters. It provided hands-on experience to the trainees on operation of bed planters, calibration of seed and fertilizers and maintenance of planters. The training was attended by 24 participants from diverse agricultural backgrounds, which included agronomists, agricultural engineers, farm managers and machine operators from Punjab, KP and Sindh provinces.



Training participants in a field session.



Conservation agriculture planter training opening session.



Trainees in the workshop of ABEI-NARC.



Conservation agriculture planter field practical training.



Trainees adjusting multi-crop bed planter.



Conservation agriculture planter workshop session.

Pilot Testing of Multi-Crop Bed Planter for Cotton in Sindh

On August 27, a field day to introduce the multi-crop bed planter was organized by CIMMYT in partnership with the Wheat Research Institute Sindh (WRIS) at Sakrand in Sindh province. Pilot testing drew 150 participants from the farming community, agriculture extensionists, agriculture research and private seed companies to observe the bed planting operation and bed planted cotton field. The participants discussed the uses and performance of the planter. The field day was also attended by Dr. Atta Somoro, DG of Agriculture Research Sindh; Dr. Shahid Masood, Member of PARC; and Dr. Imtiaz Muhammad, CIMMYT Pakistan Country Representative.



Field Day multi-crop bed planter - Imtiaz Hussain, CIMMYT agronomist, explains the importance of the new technology.



Field Day multi-crop bed planter - participants observing beds.



Field Day multi-crop bed planter - pilot testing.

AIP-Socioeconomics

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

For feedback and queries, contact Akhter Ali (CIMMYT-Pakistan): a.akhter@cgiar.org.

Maize Baseline Initiated

The AIP-Socioeconomics successfully started the maize baseline in Punjab, Sindh, KP, Balochistan, AJK and GB provinces. A comprehensive questionnaire was developed to collect the information on a number of socioeconomic and demographic variables that focused on the maize production practices. During the baseline, interviews with 625 farmers will be conducted, including 200 farmers from Punjab, 150 from KP, 100 from Sindh, 75 from Balochistan, 50 from AJK and 50 from Gilgit-Baltistan.

Completed Durum Wheat Stakeholders Survey

A durum wheat value chain study was successfully completed by AIP through a series of discussions and literature review. Potential value chain actors were identified, i.e., farmers, dealers, seed companies, millers, restaurant owners, food processing industry and consumers. Surveys through interviews were conducted in four provinces in Pakistan, namely Punjab, Sindh, KP and Balochistan.

A total of 295 stakeholders were interviewed.

Value Chain Actors	Number of Interviews Conducted
Farmers	100
Consumers	81
Seed companies	41
Dealers	30
Millers	19
Restaurants	19
Food processing companies	5

The findings of the study revealed that farmers are reluctant to grow durum wheat due to the non-availability of appropriate durum wheat milling units, as the existing milling units are only specific to bread wheat. Although all the stakeholders are interested to be part of the development of a durum wheat value chain in Pakistan, they still are not prepared to invest in setting up milling units for durum wheat.

AIP-Vegetables

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

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

Old Heidy Harvester Is Back From the Junkyard: Harvesting of Mungbean

Since 2012, an old Heidy harvester was resting in the junkyard of NARC. In May/June 2014, AIP-Vegetables was able to get it handed over to the Pulses Program, NARC. The harvester was made functional after extensive efforts of Agricultural & Biological Engineering Institute (ABEI) and AVRDC agricultural engineers. It is used for combined harvesting of mungbean and chickpea in demonstration plots at NARC in Islamabad.



Small Heigy combine harvester is now functional.



Harvesting of Mungbean.

Onion Seed Production in Balochistan

Unavailability of basic onion seed is a rising issue faced by the farming community in Baluchistan province. To address this issue, AIP-Vegetables has initiated the production of basic onion through its working partner the Directorate of Vegetable Seed Production of the Agricultural Research Institute, Quetta in Baluchistan province. Onion seed multiplication of varieties Chiltan 89 and Saryab Red through onion bulbs started on farmer's field in different locations of Quetta, Pishin, Mastung districts in Baluchistan province. Moreover, AIP-Vegetables and provincial partners have joined hands for capacity building of farmers in seed production and improved practices.



Land Preparation and selection process.



Chopped onion and transplanting in field.



AIP-Perennial Horticulture

AIP-Perennial Horticulture is led by UC Davis

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

Mangos, Mangos and More Mangos

A Mango Field Day was held at the University of Agriculture, Faisalabad (UAF) in Punjab province on September 10. The event gained the attention of 126 mango growers.

Researchers collected and screened 471 wild mangos from across the country prior to the event. The 10 most promising types of mangos were distributed among the registered mango growers for evaluation. They will grow the mangos in their orchards. Later, their observations will be combined with the observations of mangos grown in the mother block trials at UAF, which will be used to determine the value of mangos for commercialization.



AIP-Human Resource Development (HRD)

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

The Power of the Pen (Vocational Training)

A proposal writing workshop was organized by UC Davis on September 9-10 and was conducted by Drs. Tom Rost (UC Davis) and Samuel Rodriguez at NARC, Islamabad. The workshop was designed to support the upcoming AIP proposal invitations. An innovative approach was used through a range of interactive activities that engaged 41 researchers, including four women. The participants highly valued the content and the interactive style of the workshop. Besides the learning, the workshop also offered an opportunity to participants to network with colleagues across AIP.



Grant Writing workshop
NARC September 9, 2014

AIP-E-Pak Ag

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

ICT to Revolutionize, Equip Farmers for Technology

The public and the private sectors in Pakistan are actively engaged in promoting information communication technology (ICT) tools such as mobile phones, internet, etc., for farmers. AIP, through its sub component e-Pak Ag, led by UC Davis, supports these activities. Initially, e-Pak Ag is making efforts to screen farmers as in who is active, what actions do they take and what lessons are being learned through workshops, studies and reviews. Two workshops were organized to brainstorm and explore the farmers' needs. A workshop held on June 19 at PMAS-Arid Agriculture University Rawalpindi, attracted 84 participants (22 women and 62 men), while 211 participants (55 women and 156 men) attended the workshop on June 23 at UAF, Punjab. The participants recommended an easy access to information will help link the farming community with state of the art technology. A national portal to link the different sources together is being explored. The studies and workshops continue, as e-Pak Ag aims to bring partners together across the country.

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