



AIP NEWSLETTER

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

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Message from the Project Leader

Greetings everyone!

The Agricultural Innovation Program (AIP) for Pakistan, led by CIMMYT and funded by USAID, has made significant progress since its inception in March 2013.

The International Livestock Research Institute (ILRI) is progressing in its activities to enhance the productivity of small ruminants and address the issue of quality fodder by promoting spineless cactus. ILRI is building the capacity of local partners through trainings in the rapid assessment of value chain analysis and establishing set-ups for the development of a vaccine against *Peste des Petits Ruminants* (PPR), a deadly disease impacting goats and sheep.



is in progress. The International Rice Research Institute (IRRI) is popularizing cost-effective technologies to enhance rice productivity in Pakistan.

Farmers are also benefitting through the innovative approaches of protected vegetable production, which mainly targets the application of environmentally-friendly practices to increase productivity. Nationwide baseline studies are ongoing

in durum wheat, maize and vegetable value chains, which will not only show the current reality on the ground but also measure what is achieved due to AIP's intervention.

The provincial-based competitive grant system is formulating its guidelines based on a recent meeting held among the Pakistan Agricultural Research Council (PARC) and provincial agricultural systems.

Finally, the security situation – especially the ongoing military operation in North Waziristan Agency (NWA) – has affected some AIP activities, as we have had to postpone some meetings, field days and travel. We hope that the situation will improve and our activities will continue as planned. AIP is also exploring ways to support internally displaced persons (IDPs) from NWA and to rehabilitate them once they return to their land. Improved cereal seeds and livestock improvement technologies are among the interventions AIP could potentially target.

We anticipate more advances from AIP activities in the months to come as partners improve their staffing and resources. We appreciate your strong patronage in the implementation of AIP and welcome your input regarding our activities, which will be valuable input to refine our efforts.

Enjoy reading!
Md. Imtiaz

Project Leader
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News and Events



- ◀ In May, a group of 25 stakeholders involved in dairy production from across Pakistan received training on the seven rapid assessment (RA) tools developed/modified by AIP-ILRI.
- Focus Group Discussions (FGD) on the use of RA tools as a guide were conducted (seven men's groups and seven women's groups) in seven villages in Bahawalnagar and Jhang project sites, in June. More than 300 smallholder dairy farmers (176 men and 128 women) actively participated in the FDG.



- ◀ Similarly, a group of 25 stakeholders involved in small ruminant production from all provinces in Pakistan were trained by International Center for Agricultural Research in the Dry Areas (ICARDA) scientists on the small ruminant value chain rapid assessment (SRVC RA) tools. The training was held in Islamabad and was followed by a pre-testing of the SRVC-RA tools at the project's site in Chakwal.

- On June 4, a wheat seed value chain workshop was held at the Cereal Crops Research Institute (CCRI) in Nowshera, Khyber Pakhtunkhwa (KP). The workshop was organized by CIMMYT, in collaboration with CCRI and PARC. Forty-nine main actors in the wheat seed value chain were engaged in participatory group work to analyze gaps and identify opportunities in the KP wheat seed system. The participants suggested that farmers should be introduced to new seed varieties through demonstration plots, adaptive research including agronomic packages and involvement of stakeholders and media. ▶



- In collaboration with CIMMYT, the Maize and Millet Research Institute (MMRI) organized the three-day workshop "Advanced training course on developing climate-resilient maize hybrids and seed production" (May 29-31) at Sahiwal, Punjab. The training was supported by CIMMYT's two projects – AIP and Heat Tolerant Maize for Asia (HTMA), funded by USAID. Thirty-five participants from public and private institutions across Pakistan attended the workshop, which was followed by a field visit to the MMRI experimental farm. Participants received practical experience in identifying important phenotypic traits for climate-resilient maize and evaluated the performance of AIP, HTMA and MMRI maize trials at the institute. ▼



- ▲ On June 24, IRRI organized a training of trainers for seven field staff from the private sector on developing and validating a local rice crop check system at Engro Eximp, Muridke, Sheikhupura.





The Ph.D and M.Sc. scholarship program has moved to the next level. The announcement was extremely successful. We received 348 applications for Ph.D and 300 for the M.Sc. scholarships. A scholarship selection committee chaired by UC Davis reviewed the applications and five Ph.D finalists have been selected. They will be placed at land grant universities in the United States. In addition, finalists are now busy preparing and taking their Graduate Record Examination (GRE) and Test of English as a Foreign Language (TOEFL). These standardized exams are admission requirement for most graduate schools in the United States. Nine M.Sc. scholarship finalists were selected by the end of July.

Update on AIP Partner Activities

AIP-Maize: Enhancing maize productivity through affordable improved maize seeds and varieties in Pakistan

During this spring season (2014), the AIP-maize component evaluated the performance of about 220 recently introduced maize varieties against locally available checks. Seven public and six private sector partners participated in this variety evaluation process. Preliminary results from the harvested sites show the good selection potential of introduced maize varieties, which consisted of early to intermediate maturity, climate-resilient and bio-fortified, white and yellow kernel hybrids and open pollinated varieties. Best or comparable varieties identified will be further tested to fulfill variety release procedures. According to the AIP-maize work plan, participating partners will take the lead in the releases and commercialization of promising varieties.



Similarly, the variety evaluation will continue for the second time during Kharif season to further evaluate the performance in the season, which will give reliable data for selection. In addition, the parental lines that formed the hybrids are being introduced to Pakistan for seed increase and performance evaluation. Preparations have been finalized to conduct the following trails (Table 1) in the upcoming Kharif season:

| No. | Trial description | No. of entries | Remark/Seed source |
|-----|---|----------------|--|
| 1 | Intermediate maturity, three way cross between tropical and temperate parents | 72 | Advanced new trials from CIMMYT Zimbabwe |
| 2 | Late maturity, three way cross between tropical and temperate parents | 100 | Advanced new trials from CIMMYT Zimbabwe |
| 3 | ProA (entries enriched with VitA) of subtropical materials | 24 | New trials from CIMMYT Mexico |
| 4 | ProA lines per se evaluation of subtropical materials | 75 | New trials from CIMMYT Mexico |
| 5 | Yellow kernel normal maize single cross hybrids | 16 | New trials from CIMMYT Colombia |
| 6 | Yellow kernel QPM hybrids | 10 | CIMMYT Colombia |
| 7 | Tropical white materials for lowland ecologies (adapted to 0-1000m a.s.l) | 15 | CIMMYT Mexico |
| 8 | Tropical yellow materials for lowland ecologies (adapted to 0-1000m a.s.l) | 12 | CIMMYT Mexico |
| 9 | Intermediate maturing, white kernel hybrids | 60 | CIMMYT Zimbabwe |
| 10 | Late maturing, white kernel hybrids | 40 | " |
| 11 | Early/extra early maturing white kernel OPVs | 30 | " |
| 12 | Early/extra early maturing white kernel hybrids | 45 | " |
| 13 | Advanced white kernel QPM | 50 | " |

For feedback and query contact AbduRahman Beshir: a.issa@cgiar.org.

Conservation Agriculture Planters Dispatched to National Partners

Under pilot testing of conservation agriculture (CA) planters in Pakistan, CIMMYT has imported new seeders, including multi-crop bed planters, zero-tillage 'Happy' seeders and multi-crop zero tillage planters. During May, two multi-crop bed planters were dispatched to the Agronomy Research Station, Bahawalpur and the Wheat Research Institute, Sakrand-Sindh, for pilot testing in a cotton-wheat system. Because extensive testing will begin this Kharif (autumn) season, CIMMYT has sent bed planters to national partners: Cereal Crops Research Institute, Pirsabk; Wheat Research Institute, Faisalabad; National Agriculture Research Center, Islamabad; Barani Agriculture Research Institute, Chakwal; Maize and Millet Research Institute, Yousafwala; Adaptive Research

Farms, Vehari; and Jullundur Seeds (Pvt), Arifwala. Our national partners will test these planters at their institutes/farms and farmer fields for the planting of different crops.

To address the heavy rice residue management issue, pilot testing of zero-tillage, multi-crop Happy seeders will also be conducted during the wheat season. CIMMYT has dispatched Happy seeders to partners such as: Rice Research Institute, Kala Shah Kaku and Adaptive Research Farms in Sheikhpura and Gujranwala, which are located in the rice-wheat cropping system.

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Foundation Laid to Introduce PPR Vaccine in Pakistan

PPR is a deadly disease that claims millions of goats and sheep every year. In Pakistan, the PPR vaccine, which is thermo-stable at 35°C, is currently produced by two laboratories: VRI in Lahore and CASVAB in Quetta. By contrast, the vaccine prepared at ILRI is thermo-stable at 45°C. AIP's primary partner, ILRI, and FAO Pakistan initiated a technical audit; Dr. Jeff Mariner, a former ILRI employee, visited Pakistan in June. After detailed discussions with scientists from VRI and CASVAB, he conducted a technical audit of the PPR vaccine production process in the two laboratories. Based on his comprehensive technical audit report, an action plan that includes training and production of a first batch of vaccine based on ILRI's vaccine composition was proposed for the laboratories. The action plan will be implemented in August.



Promoting Spineless Cactus

In collaboration with Rangeland Research Institute (RRI) of the National Agricultural Research Council (NARC), AIP Livestock organized a farmers' field day at NARC on May 15 and trained farmers on the advantages of growing spineless cactus in rangeland and the methodology to establish cactus. Forty farmers from the Chakwal project site participated and showed keen interest in introducing spineless cactus in their fields. Subsequently, on their own initiative, farmers in Chakwal have planted cactus in their grazing lands.

For feedback and query contact Ibrahim Mohamed: m.ibrahim@cgjar.org.



IRRI Distributes Certified Rice Seed in Punjab and Balochistan

Basmati-515 is high yielding, has good quality attributes and a comparatively short growing duration. It is an option to supplement super basmati, which has lost its yield potential and is also prone to damage by insects and diseases. To scale up the high yielding Basmati-515 variety in Punjab, 600 kilograms (kg) of certified seed was distributed in collaboration with Engro Eximp, a private sector company, to 30 farmers (20 kg each). This seed will be planted on 120 acres of rice-growing land in four districts of Punjab: Sheikhupura, Gujranwala, Hafizabad and Sialkot.



Similarly, at the request of the Directorate of Agriculture Research Jaffarabad, Balochistan, 100 kg of high-yielding, salt-tolerant seed of low phytate rice variety NIAB IR-9 was distributed to farmers in Usta Muhammad in Balochistan.



IRRI Promotes Mechanized Rice Planting in Pakistan

The traditional method of planting rice, in which seedlings are transplanted after 30-35 days in a well-puddled and flooded field, consumes over 30 percent of the country's available water resources. The conventional planting method is inefficient: the optimum number of plants in the field is not achieved; scarce water is wasted; pumping underground water involves high energy costs; and agricultural labor to transplant the rice seedlings is increasingly unavailable.



Dry sowing of rice is grown like wheat and saves water, labor and time and improves the establishment of the following Rabi crops. The rice crop in aerobic situations does not lodge and land preparation after aerobic rice is harvested is much easier, leading to improved rice crop establishment and productivity. In the recent past, direct dry seeding has been demonstrated in Punjab, mostly by broadcasting seed. IRRI scientists have identified a proper seed drill for direct dry seeding with the help of Greenland Engineering, Daska, Sialkot, a local farm machinery manufacturer. Together, they are working to determine ways to improve the existing seed drill to plant basmati rice. High levels of seed breakage have been encountered when using the existing fluted roller-metering device. However, with the introduction of the modified seed drill, the issue of seed breakage has been solved. Therefore, IRRI is popularizing this and similar technologies in Pakistan by creating public and private partnerships. The technologies will save scarce water and energy and enhance the productivity of rice.

For feedback and query contact Abdul Rehman: a.rehman@irri.org.

The World Vegetable Center Holds Series of Trainings/Workshops with Its Partners

The customized training workshops were targeted to identify gaps, exchange experiences and to further streamline the World Vegetable Center, previously known as the Asian Vegetable Research and Development Center (AVRDC), activities among public and private partners.

| No | Title | Date | Place |
|----|--|--------------|---|
| 1 | Internal workshop on mung bean production | 21 May 2014 | NARC, Islamabad |
| 2 | Internal workshop on protected cultivation of vegetables | 22 May 2014 | NARC, Islamabad |
| 3 | Healthy vegetable seedling production | 13 June 2014 | Mingora, Swat |
| 4 | Off-season vegetable production technologies | 17 June 2014 | Naushara -Soon Valley, District Khushab |

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Baseline Surveys in Progress:

Cereals and Cereal Systems Baseline Surveys



◀ The wheat and conservation agriculture baseline surveys are in progress in all four provinces. A comprehensive questionnaire has been drafted for the maize baselines; it is to be launched in August in each of the four provinces, including Azad Jammu and Kashmir (AJK) and Gilgit-Baltistan. During the maize baseline survey, more than 500 maize growers will be interviewed. The majority of the farmers to be interviewed are located in Punjab and Khyber Pakhtunkhwa (KPK) provinces. The socio-economics team at CIMMYT is also preparing to initiate durum wheat value chain studies in Pakistan; for that effort, a separate set of questionnaires has been designed for producers, millers, food processors, seed companies, dealers, consumers and restaurants. Because this will be the first questionnaire of its kind in Pakistan, experts with experience in other countries are included to fine-tune the questionnaire.

For feedback and query contact Akhter Ali: akhter.ali@cgiar.org.

Vegetable Baseline Survey Launched

▶ A baseline survey for vegetables and mung bean value chains is in progress in all provinces, including AJK and Gilgit Baltistan. A total of 887 farmers (283 from Punjab, 91 from Sindh, 230 from KPK, 190 from Gilgat Baltistan, 53 from Balochistan and 40 from AJK) are to be surveyed. Women enumerators are also included to get accurate information from the areas where cultural norms require it.



UC Davis Moving Forward

Innovative Research and Extension Projects Receive Funding

A total of US \$82,829 in funding was awarded to 14 research and extension projects. UC Davis and the AIP Perennial Horticultural Project in-country coordinator will conduct the first review of these funded projects in September. Three projects related to grape and mango processing from PMAS Arid Agricultural University, Rawalpindi, were selected for funding. A research group at the CRI received funding for seven innovative team projects on citrus. Faculty from the Institute of Horticulture and Institute of Food Science and Technology at the University of Faisalabad received funding for four research and extension projects focusing on mangoes. These projects will investigate and demonstrate new techniques ranging from new varieties through post-harvest fresh handling and alternative processing uses of mangoes.

Vocational Training – Skills for Better Living

Broad-based skill training is the goal of the vocational training element. AIP partners chaired by UC Davis met in Islamabad in June and created a working group for vocational training. The working group collaboratively planned cross-institute vocational training activities. It established priorities that will lead to a supportive environment.

The top priority is to implement a short course on proposal writing that will enable the collaborators to prepare high-quality proposals for upcoming competitive grant submissions on AIP call. A proposal template will be developed in consultation with CIMMYT and PARC. The next priority is statistics. An extensive discussion was made to identify the needs, which focused on two types of statistics courses:

- 1) More standard designs for those implementing trials with fewer treatments (e.g., RCBD, split plot, across location, handling missing data, etc.)
- 2) More involved designs for breeders (e.g., lattice designs).

The long-term plan is to conduct courses off the open-source "R" software with a slightly longer duration (e.g. one week), given the need to design and analyze trials.

For feedback and query contact Mark Bell: mark.andrew.bell@gmail.com.

e-Pak Ag. updates

Learning together to better use new tools to help farmers

- Youth leading the way - 30% of Apps are being developed by youth under the age of 15;
- Knowledge sharing material is being developed and plans are underway to make this material more accessible and more actionable using ICT to support information access;
- 295 members of the research, extension and university communities (77 of whom are women) have been sensitized on the impact of new ICT tools (cell phone, video, social media).

For more information visit e-Pak Ag. website: <http://epakag.ucdavis.edu/>



Upcoming activities:

| No | What? | When? | Where? | Organized by | Contact |
|----|---|-------------|-------------------|--------------|--|
| 1 | Training of scientists and laboratory staff on PPR vaccine production | August 4-18 | Lahore and Quetta | ILRI | m.ibrahim@cgiar.org |
| 2 | Training of 100 livestock farmers on feeding, feed conservation, breeding and animal health | August 20 | Mansera, KPK | ILRI | m.ibrahim@cgiar.org |
| 3 | Proposal writing course | September | Islamabad | UC Davis | Mark.andrew.bell@gmail.com |

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