Agricultural Innovation Program (AIP) for Pakistan

MAIZE INNOVATIONS

and interventions under the USAID-supported Agricultural Innovation Program in Pakistan

Background

Maize is Pakistan's third most important cereal crop after wheat and rice. It is cultivated on more than 1.16 million hectares with an average yield of 4.2 tons ha^{-1}, which is one of the highest in south Asia. However, the maize sector in Pakistan still imports nearly 85% of the hybrid seed, which makes the retail price of seed in Pakistan (currently US $6-8 per kg) very high compared to prices in neighboring countries like India (about US $3 per kg), Bangladesh (US $3-4 per kg) and Thailand (US $2-3 per kg). Apart from the price, the genetic diversity of Pakistan's maize varieties is limited and not well-adapted to the country's heterogeneous agro-ecologies and diverse human and industrial uses.

USAID-supported AIP Maize is a public-private alliance for the development and deployment of improved maize varieties, with focus on enhancing the availability, affordability and accessibility of improved maize seeds particularly for Pakistan's smallholder farmers. The project is led by CIMMYT in collaboration with Pakistan's Agricultural Research Council.

Currently the project is operational in all provinces of Pakistan through a network of 10 public and 12 private sector partners working on maize research and development at various levels.

Manual pollination at CCRI

Focus Areas

AIP maize focuses on the following four objectives:

1. Introduction/development of climate-resilient maize (especially with drought/heat stress tolerance)
2. Introduction/development of biofortified maize (Quality Protein Maize; Provitamin A enriched) varieties
3. Introduction/development of improved maize varieties with biotic stress tolerance
4. Strengthening the maize seed sector in Pakistan through public-private partnerships

Main Achievements

- Country-wide evaluation of maize germplasm:
  - *Conducted more than 70 types of maize trials.*
  - *Tested them in about 300 sites.*
  - *Evaluated more than 2,200 maize germplasm entries.*
- Improved hybrids/OPVs identified in diverse maturity groups: extra early, early, intermediate and late.
- Produced more than 2,500 kg of parental lines and breeder seed.
- Majority (aprox. 80%) of the tested germplasms were white kernel hybrids (mostly three-way crosses) and OPVs.
- 36 hybrids and 13 OPVs (CIMMYT-derived) licensed so far to 11 public and private partners.
- Handed over CIMMYT maize parental lines and breeder seeds to enhance local seed production.
- Wider testing of biofortified maize products including Provitamin A (PVA), QPM, Zinc-enriched hybrids/OPVs.
- Released two QPM hybrids and allocated three PVA hybrids for the first time in Pakistan for registration and further seed multiplication.
- Maize germplasm tolerant to maize stem borer shared with partners and stem borer mass rearing facility launched at NARC.
- Established an open and inclusive partnership with major stakeholders engaged in maize R&D in Pakistan.

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Project Brief

In order to consolidate the gains and further expand its interventions, AIP Maize aims to:

- Continue to allocate already tested improved maize germplasm from CIMMYT based on stakeholders' requirements.
- Strengthen local skills and capacities in quality seed production and marketing of improved maize varieties.
- Aggressively promote the deployment of biofortified maize varieties, including QPM, Provitamin A, and kernel Zinc-enriched maize.
- Identify and deploy improved maize varieties/hybrids with tolerance to relevant abiotic and biotic stresses in Pakistan.
- Create awareness among local institutions on technologies to protect maize from major field and storage pests and diseases (including mycotoxins, maize stem borer, and grain weevils).

Maize trials data recording

Bed preparation in Pakistan

AIP maize in the spotlight

- ☑ The first program in Pakistan to evaluate improved maize germplasm from CIMMYT systematically through multi-location trials.
- ☑ The first program to introduce and identify biofortified maize varieties and hybrids (from CIMMYT) suitable for Pakistan, with official varietal releases of biofortified maize hybrids/varieties.
- ☑ The first program to host customized maize-related training courses involving international resource persons, and with participants from all over Pakistan.

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Disclaimer: This publication was made possible through support provided by the U.S. Agency for International Development (USAID), under the terms of contract. The write-ups herein are those of the author and do not necessarily reflect the views of the U.S. Agency for International Development."