



CRP Review 2020: MAIZE



Advisory
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The CGIAR CAS Secretariat is conducting independent reviews of the 12 CGIAR Research Programs (CRPs), including MAIZE.

CRP Background

MAIZE is led by the International Maize and Wheat Improvement Center (CIMMYT), with the International Institute of Tropical Agriculture (IITA) as its main CGIAR Consortium partner. Other partners include the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), International Potato Center (CIP), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Food Policy Research Institute (IFPRI), International Livestock Research Institute (ILRI), International Rice Research Institute (IRRI), and the World Agroforestry Centre, as well as collaboration with more than 300 international partners. MAIZE works with partners to achieve strategic impact on maize-based farming systems in Africa, South Asia, and Latin America and implement a strategic international research-for-development (R4D) approach, to increase incomes and food security for poor maize producers and consumers while enhancing the sustainability of maize-based production systems and the natural resource base.

MAIZE delivers through four flagship programs (FPs): Enhancing MAIZE's R4D Strategy for Impact (FP1); Novel Diversity and Tools for Increasing Genetic Gains (FP2); Stress Tolerant and Nutritious Maize (FP3); and Sustainable Intensification of Maize-Based Systems for Improved Smallholder Livelihoods (FP4).

MAIZE CRP Review

The MAIZE CRP review was an opportunity to assess the extent to which it delivers quality of science and demonstrates effectiveness in relation to its theories of change. The review focused on 2017-2019, and followed a mixed-methods approach, combining quantitative and qualitative evaluation including a review of 532 publications and 458 ISI publications, and a set of 24 semi-structured interviews, complemented by a deep-dive analysis of two Outcome Impact Case Reports (OICRs): Sub-Saharan Africa and Mexico.

Q1: To What Extent Does MAIZE Deliver Quality of Science (2017-2019 Work)?

MAIZE generally operates with satisfactory to very good quality of science.

Individuals and organizations are adequately skilled and able to deliver high project outputs. However, objectives, roles, and responsibilities are often not specified in a way that would ensure or maximize success and impact.

MAIZE has established a very strong network of partners including seed companies and National Agricultural Research Systems. It operates with good science at all levels.

MAIZE contributed to 532 peer-reviewed publications. These are high-quality publications reporting on research of equally high scientific quality. The most-cited publication, a review article on genomic selection was cited 187 times.

MAIZE generated tangible outputs (germplasm and technologies) such as 218 new stress-tolerant varieties) which improve yield performance from

Photo: Maize diversity. Cimmyt/Fonseca

4% to 150% across on-farm, research, drought-stressed, well-watered, or rainfed trials across Eastern, Western, and Southern Africa. Valuable technology transfer has taken place in the areas of doubled-haploid production and stress tolerance phenotyping. MAIZE has been able to mobilize stakeholders, resources, and knowledge to rapidly deliver valuable solutions for a critical need.

Q2: What Outputs and Outcomes Have Been Achieved, and What is the Importance of Those Identified Results?

Overall MAIZE has made good progress in achieving outputs and outcomes, though this varies within FPs and geographically. It has unique strengths in terms of the biological and social sciences underpinning germplasm development and sustainable intensification (its two pillars).

The CRP reported 29 policies and 79 innovations over the three-year period. The CRP produced 17 OICRs. Between 2017-2019 out of its 70 milestones, MAIZE completed 52 on time, while 18 were extended.

The greatest value of the FPs' theories of change (ToC) was the process followed to develop them along with their underlying assumptions, which enhanced effective collaboration between scientists from different centers and between FPs.

Cross-Cutting Themes

Capacity development (CD) In 2019, 20,710 people attended short-term training (4,552 women and 16,158 men); 114 students were being funded (20 bachelor's, 35 master's, 58 PhD, 1 postdoc);

Climate change (CC) is central to the work of MAIZE CRP. Together, FP2 and FP3 work to ensure the availability of germplasm including new varieties that can withstand drought, stress, and other threats stemming from climate change. FP4 addresses CC in its ToC and Cluster of Activities given its focus on sustainable intensification.

Gender is addressed proactively: W1/2 funds have been used to support gender strategic research and gender mainstreaming and for capacity building in gender. **Youth:** MAIZE supported research and developed a network of young professionals in maize-related sectors in Asia and the Pacific to foster communication, research, and dialogue.

Q3: Future Orientation

MAIZE has a regional role positioned between worldwide upstream resources, and local and national delivery systems. It also benefits from a

uniquely rich and diverse germplasm base that is particularly relevant to MAIZE targets

Good management and governance practice are a strong foundation for the remainder of the CRP's running. The continued commitment of, and leadership by, the CRP Director and FP co-leads is essential to ensure delivery against planned outcomes.

Key Lessons

Having one program manager for both MAIZE and WHEAT has added to the effectiveness of the MAIZE CRP and created efficiencies and value added in terms of joint learning.

Capacity building within the CRP by its MEL unit in terms of monitoring and reporting is valuable and should be continued.



Photo 1. Drought tolerant maize route out of poverty for community-based seed producer, Kenya.

Credit: Anne Wangalachi/CIMMYT

Recommendations for CGIAR

The CGIAR system office should consider mainstreaming ToC approaches and thinking across the CGIAR's research for development design and MEL.

Continue to streamline monitoring and reporting processes building the utility of MARLO for learning as well as accountability and investing in on-going capacity building of staff in using MARLO for reporting, learning, and planning.

MAIZE needs to ensure that the new varieties and technologies developed are relevant to end-users and that they reach and are adopted by them.

Read the full report: bit.ly/MAIZE-CRP2020