CGIAR Initiative on Market Intelligence

ANNUAL TECHNICAL REPORT 2022

CGIAR Technical Reporting 2022

CGIAR Technical Reporting has been developed in alignment with the CGIAR Technical Reporting Arrangement.
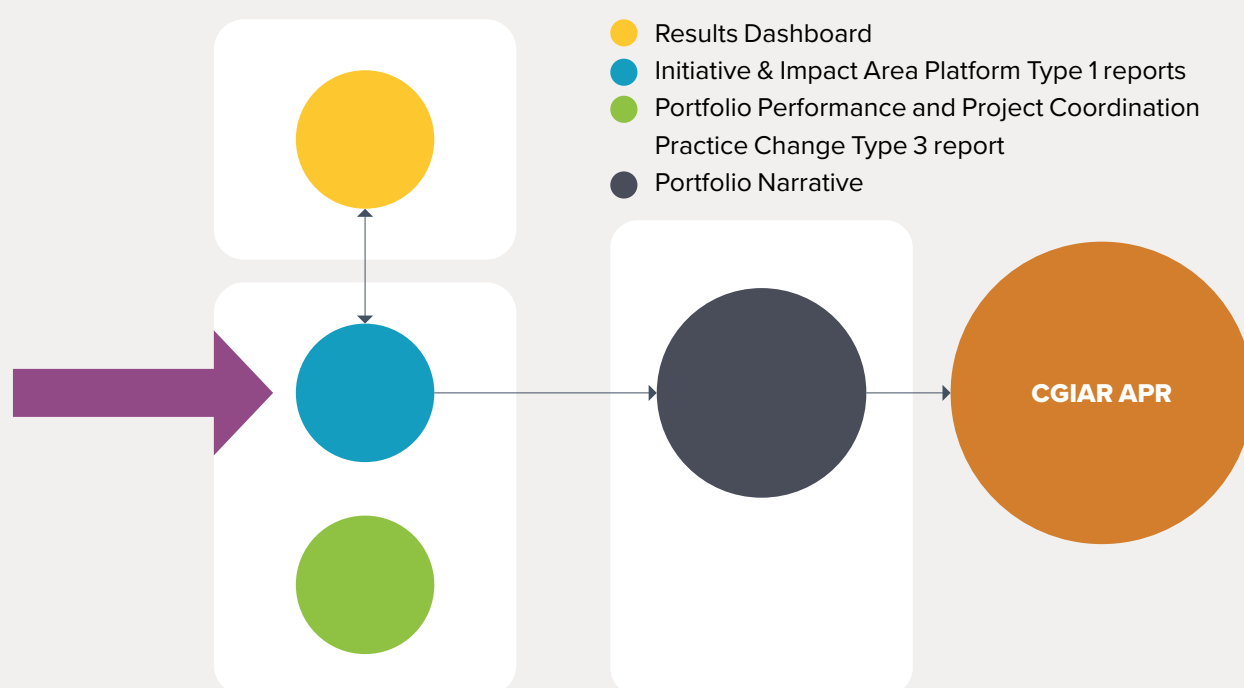
This Initiative report is a Type 1 report and constitutes part of the broader CGIAR Technical Report. Each CGIAR Initiative submits an annual Type 1 report, which provides assurance on Initiative-level progress towards end-of-Initiative outcomes.

The CGIAR Technical Report comprises:

• Type 1 Initiative and Impact Area Platform reports, with quality assured results reported by Initiatives and Platforms available on the CGIAR Results Dashboard.

• The Type 3 Portfolio Performance and Project Coordination Practice Change report, which focuses on internal practice change.

• The Portfolio Narrative, which draws on the Type 1 and Type 3 reports, and the CGIAR Results Dashboard, to provide a broader view on portfolio coherence, including results, partnerships, country and regional engagement, and synergies among the portfolio's constituent parts.

The CGIAR Technical Report constitutes a key component of the CGIAR Annual Performance Report (APR).

● Results Dashboard
● Initiative & Impact Area Platform Type 1 reports
● Portfolio Performance and Project Coordination Practice Change Type 3 report
● Portfolio Narrative

US$	2022	2023	2024
Proposal Budget from initial submission	10,000,000	13,000,000	16,000,000
Approved 2022 Budget	7,499,256		

2022 Disbursement Target based on Approved FinPlan

Section 1 Fact sheet

Initiative name	Market Intelligence
Initiative short name	Market Intelligence
Action Area	Genetic Innovation
Geographic scope	Global
Start date	Jan. 1, 2022
End date	Dec. 31, 2024
Initiative Lead	Matty Demont — m.demont@irri.org
Initiative Deputy	Vivian Polar — v.polar@cgiar.org
Measurable three-year End of Initiative outcomes (EOI-Os)	**EOI-O 1:** Seed industry and non-governmental organizations (NGOs) use market and behavioral intelligence in strategic decision-making.
	EOI-O 2: Research leaders and investors make investment decisions in genetic innovation using pipeline investment cases and the Investor Dashboard
	EOI-O 3: Trans-disciplinary teams across CGIAR and partners are empowered in co-implementation of market and behavioral intelligence and co-design of target product profiles (TPPs).
	EOI-O 4: CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes.
OECD DAC Climate marker adaptation score*	**Score 1: Significant:** The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.
OECD DAC Climate marker mitigation score*	**Score 1: Significant:** The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.
OECD DAC Gender equity marker score*	**Score 1B: Gender responsive:** On the top of the minimum requirements for 1A, the Initiative/project includes at least one explicit gender equality outcome and the Initiative/project team has resident gender expertise or capacity. The Initiative/project includes gender equality indicators and monitors the participation of and differential benefits for diverse men and women.
Website link	https://www.cgiar.org/initiative/market-intelligence/

*The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) markers refer to the OECD DAC Rio Markers for Climate and the gender equality policy marker. For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal.
The CGIAR GENDER Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.
These scores are derived from Initiative proposals, and refer to the score given to the Initiative overall based on their proposal.

Section 2 Initiative progress on science and towards End of Initiative outcomes

Overall summary of progress against the theory of change

A Cambodian farm household designs their future rice varieties through a digital tool for collecting market intelligence. Photo credit: Matty Demont/ IRR

In order for CGIAR, National Agricultural Research and Extension Systems, and small and medium-sized enterprise (CGIAR–NARES–SME) networks to use market intelligence to orient variety development and deployment, trans-disciplinary teams across CGIAR and partners must be empowered in co-implementation of market and behavioral intelligence and co-design of target product profiles (TPPs). The CGIAR Initiative on **Accelerated Breeding** took stock of CGIAR–NARES–SME germplasm development networks, and established an inventory of 36 identified networks. Building on these networks, the CGIAR Initiative on Market Intelligence organized 13 capacity sharing activities (26.5% female participation) to help set up such CGIAR–NARES–SME trans-disciplinary teams. These activities included: capacity sharing/research dissemination workshops on farmer demand and decision-making, market segment structure and demand-led breeding, seed systems for maize, wheat, dryland

cereals, and legumes in East, West, and Central Africa, involving national, regional, and international seed companies, national research organizations, government bodies, and donors; and for rice involving plant breeders and social scientists from South and Southeast Asia on gender-responsive breeding. Regional Improvement Network meetings for cowpea, pigeon pea, sorghum, millet, and groundnuts took place in West, Central, East, and Southern Africa, with national research organizations.

For the co-design of TPPs for the identified market segments by the CGIAR trans-disciplinary teams, a TPP template was developed in collaboration with **Accelerated Breeding** providing a harmonized information capture tool depicting the needs and preferences of all value chain players for a specific market segment per crop. The template and definitions for TPPs are now being used by all CGIAR Centers under **Accelerated Breeding** and

Farmer explains to the Product Profiling and Behavioral Intelligence work package leads why he prefers the maize variety of which he received a trial pack over other varieties that he is growing.
Photo credit: Berber Kramer/IFPRI

breeding projects. First TPP drafts are available in a Dropbox folder for review to ensure that they meet the needs of all stakeholders. The institutional standards and the process for market segmentation and TPP development were taken to NARES partners in Uganda, Tanzania, Democratic Republic of Congo (DRC), Sierra Leone, Mali, Chad, and Nigeria. Gender specialists were involved in the development of TPPs at the CGIAR sub-regional level. Approximately 420 seed product market segments (SPMS) covering all crops by all CGIAR Centers have been documented, and about 340 TPPs have been developed for the identified market segments. In collaboration with **Accelerated Breeding**, concepts and standardized approaches for establishing local SPMS and TPPs with increasing gender relevance were introduced to national partners in Africa and Asia in a total of 25 meetings.

To design and implement research activities to generate behavioral intelligence, a core team including both quantitative and qualitative researchers was established. Together with local NARES and private sector partners, the core team co-created and co-implemented experimental activities to understand cost-effectiveness of alternative strategies to accelerate varietal turnover across various geographical settings, by leveraging multiple ongoing bilateral projects managed by different Centers and creating a unified research agenda.

With the trans-disciplinary teams empowered to define SPMS and develop the corresponding TPPs, CGIAR and partners have started to adopt institutional standards, share market and behavioral intelligence, and monitor outcomes, which will lead to public and private sector partners to co-implement research and achieve accelerated rates of varietal adoption. A brief was published standardizing the approach to market intelligence, covering key approaches, methods, and definitions related to seed product market segmentation, opportunities for impact, future priorities, and product concepts. CGIAR and NARES partners
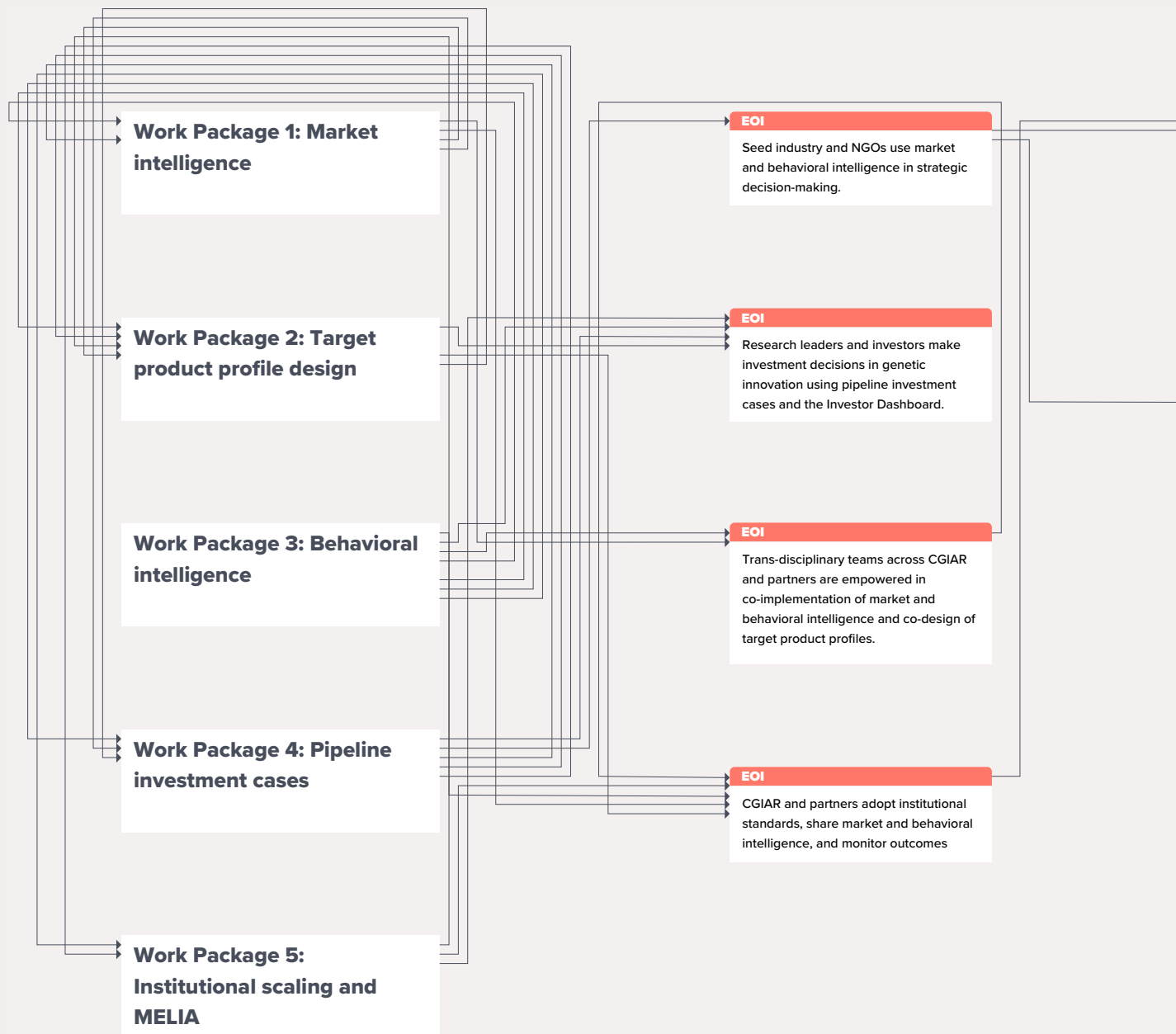
(Accelerated Breeding, National Agricultural Research Organisation (NARO) for banana, National Crop Resources Research Institute (NaCRRI) for cassava, TARI for banana, DRC for cassava, National Root Crops Research Institute (NRCRI) for cassava and yam) started to adopt the TPP template within their institutions. In addition, NARES partners in Mali, Sierra Leone, and Uganda have used the TPP template to capture country rice-specific information. Details of the SPMS and TPPs were shared with national partners in the Philippines, India, Kenya, and Tanzania. For wheat, the new approaches to define SPMS and TPPs were shared with the NARES partners in South Asia, Mexico and East Africa. Partners from wheat and rice breeding programs were trained and updated on how to define and validate SPMS and TPPs.

The market and behavioral intelligence being developed by the Initiative is also reaching the private sector. The findings of a study in Kenya providing knowledge on the behavioral mechanisms that drive varietal adoption and replacement are encouraging seed companies (Dryland Seed Ltd., Seed Co, UPL Ltd., East African Seed Company Ltd.) to test trial packs at a larger scale. Together with the CGIAR Research Initiative on **Seed Equal**, a study on maize and cowpea was conducted in Nigeria to analyze the drivers of farmers' varietal replacement choices, consumers' food product substitution choices, private firms' decisions to invest in the marketing of new and

Initiative-level theory of change diagram

This is a simple, linear, and static representation of a complex, non-linear, and dynamic reality. Feedback loops and connections between this Initiative and other Initiatives' theories of change are excluded for clarity.

Work Package 1: Market intelligence

Work Package 2: Target product profile design

Work Package 3: Behavioral intelligence

Work Package 4: Pipeline investment cases

Work Package 5: Institutional scaling and MELIA

EOI
Seed industry and NGOs use market and behavioral intelligence in strategic decision-making.

EOI
Research leaders and investors make investment decisions in genetic innovation using pipeline investment cases and the Investor Dashboard.

EOI
Trans-disciplinary teams across CGIAR and partners are empowered in co-implementation of market and behavioral intelligence and co-design of target product profiles.

EOI
CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes
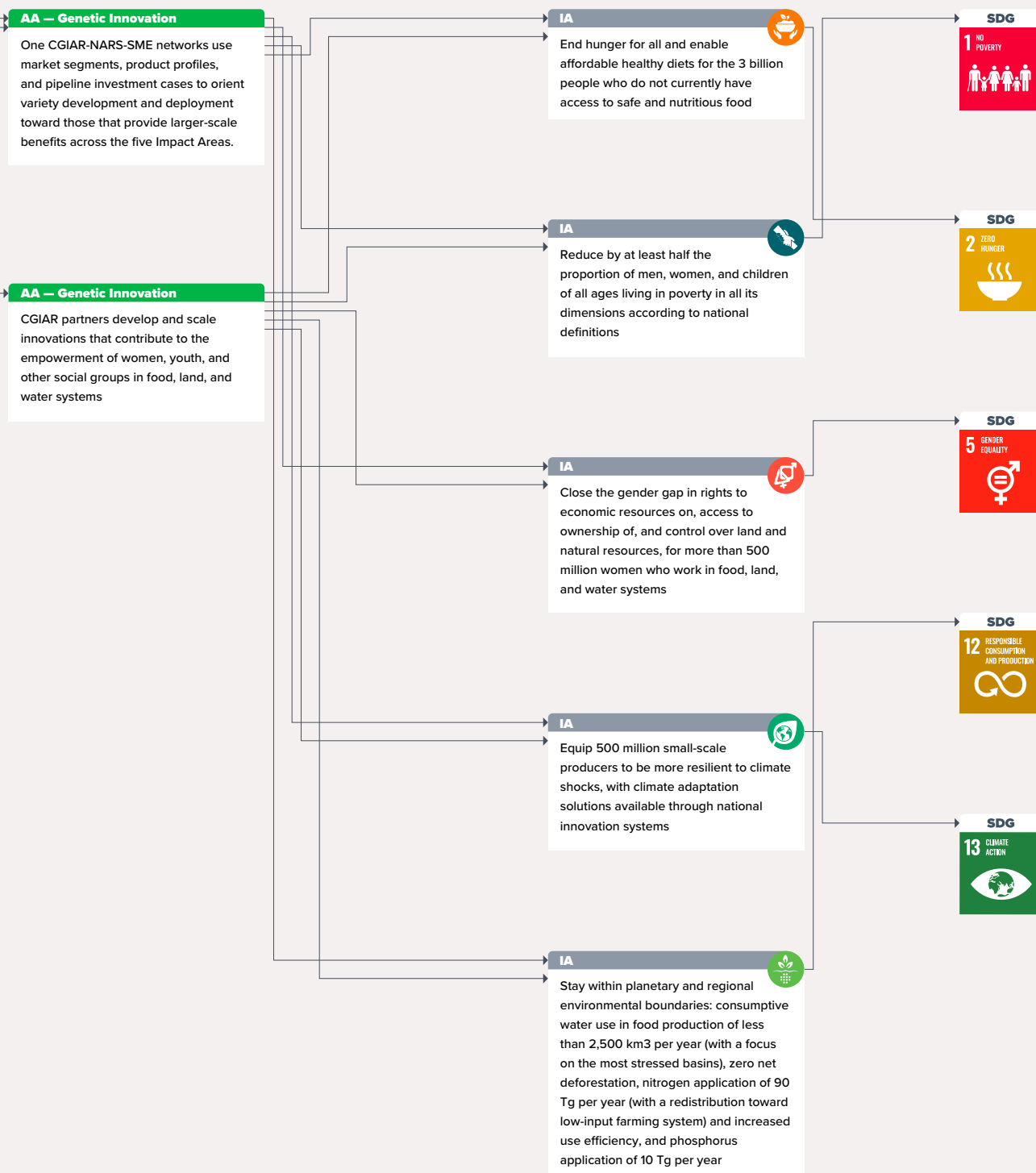
EOI — End of Initiative outcome

AA — Action Area

IA — Impact Area

SDG — Sustainable Development Goal

Nutrition, Health, and Food Security

Poverty Reduction, Livelihoods, and Jobs

Gender Equality, Youth, and Social Inclusion

Climate Adaptation and Mitigation

Environmental Health and Biodiversity

Teams from CGIAR's three Action Areas — System Transformation, Resilient Agrifood Systems and Genetic Innovation — worked to develop an improved set of Action Area outcomes in October 2022. Since this was near the end of the reporting cycle for 2022, it was decided not to update the theories of change based on these new Action Area outcomes.

The exception to this is Genetic Innovation — for this Action Area, as the new outcomes had already been widely discussed among the relevant Initiatives, and with its advisory group of funders and other stakeholders, the decision was made to update their outcomes in time for the 2022 reporting cycle.

AA — Genetic Innovation

One CGIAR-NARS-SME networks use market segments, product profiles, and pipeline investment cases to orient variety development and deployment toward those that provide larger-scale benefits across the five Impact Areas.

AA — Genetic Innovation

CGIAR partners develop and scale innovations that contribute to the empowerment of women, youth, and other social groups in food, land, and water systems

IA

End hunger for all and enable affordable healthy diets for the 3 billion people who do not currently have access to safe and nutritious food

IA

Reduce by at least half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions

IA

Close the gender gap in rights to economic resources on, access to ownership of, and control over land and natural resources, for more than 500 million women who work in food, land, and water systems

IA

Equip 500 million small-scale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems

IA

Stay within planetary and regional environmental boundaries: consumptive water use in food production of less than 2,500 km3 per year (with a focus on the most stressed basins), zero net deforestation, nitrogen application of 90 Tg per year (with a redistribution toward low-input farming system) and increased use efficiency, and phosphorus application of 10 Tg per year

SDG

1 NO POVERTY

SDG

2 ZERO HUNGER

SDG

5 GENDER EQUALITY

SDG

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

SDG

13 CLIMATE ACTION

intelligence-driven varieties and products, and the public policy environment that shapes these choices and decisions. Experiments to learn more about consumer preferences over consumption of new products were co-created with private seed sector actors and non-governmental organizations (NGOs) to make sure their needs are well-understood, building on past research from the participating CGIAR Centers and the private sector's own experiences.

Clear visualization of returns on investment will empower research leaders and investors in resource allocation decision-making and attract investment in genetic innovation. Consequently, together with the CGIAR Research Initiatives on **Digital Innovation**, **Foresight** and **Accelerated Breeding**, the development of the Global **Market Intelligence** Platform (GloMIP) and the Investor Dashboard was initiated through development and launch of the Priority Setting Dashboard for Genetic Innovation v1.0. More than 70 Impact Opportunity indicators (measuring the exposure of countries, crops, and market segments to Impact Challenges) were collated (expanded to 110 indicators in March 2023) covering the five Impact Areas and disaggregated onto the SPMS and breeding pipelines. Of these, 31 are focused on the Impact Area "Gender Equality, Youth and Social Inclusion." In 2022, 34 internal users across **Market Intelligence** and **Accelerated Breeding** were

using the Dashboard. The Dashboard produces rankings grouped at crop or regional level, indicating where opportunities for investment in genetic innovation are highest, where SPMS are missing, and which indicators align to each Impact Area. A multi-indicator meta-analysis graph provides a first glimpse of the coherence and complementarity of the entire CGIAR portfolio of breeding pipelines through the SPMS that are being targeted. To support the development of the Investor Dashboard, initial datasets were collected to conduct a pilot exercise on economic surplus analysis.
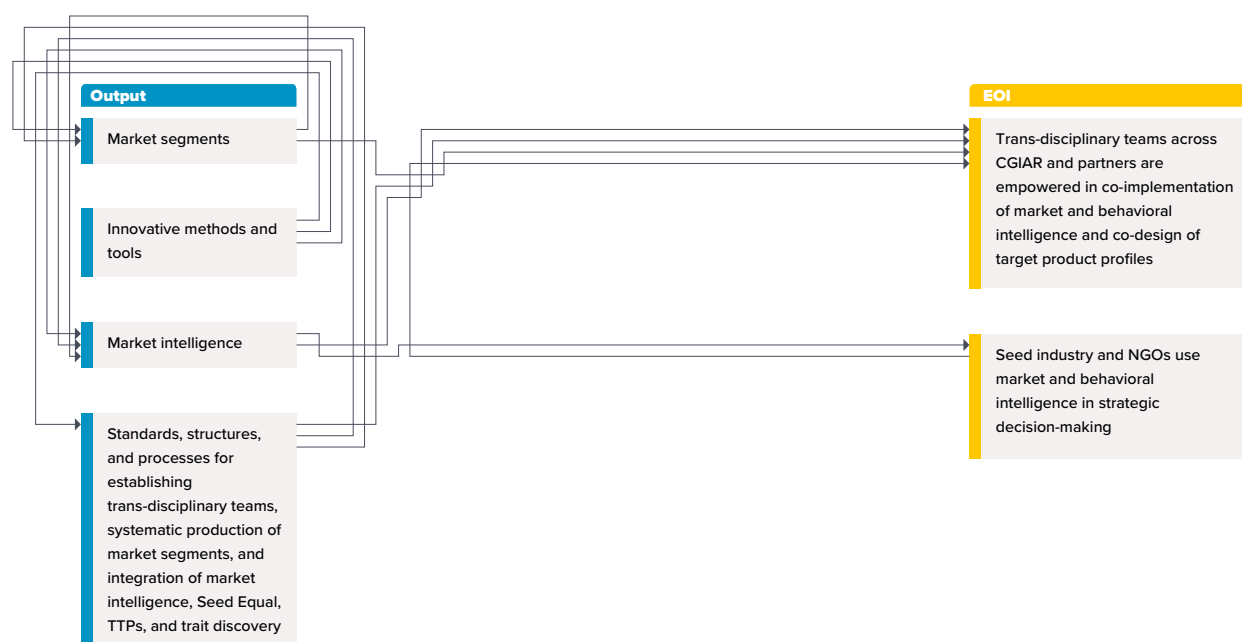
Qualitative and quantitative baseline investigations have been designed to analyze the current attitudes toward institutional change and institutional incentives faced by breeders and social scientists to utilize market intelligence information for breeding decision-making. The monitoring, evaluation, learning, and impact assessment (MELIA) team has created a preliminary design of a quantitative study which aims to use behavioral experiments to understand how breeders might incorporate market intelligence into breeding pipeline priorities and investment decisions. In addition, a methodology has been developed to assess the potential impact of different degrees of market-intelligent varieties (across the five Impact Areas).

Progress by End of Initiative outcome

EOI-O 1 **Seed industry and NGOs use market and behavioral intelligence in strategic decision-making.**	Experimental designs were co-created with the seed industry and NGOs through both in-person and online meetings to ensure that behavioral intelligence will be relevant for, and owned by, the seed industry and NGO stakeholders. The findings of a study in Kenya, providing knowledge on behavioral mechanisms that drive varietal adoption and replacement, are encouraging seed companies to test trial packs at a larger scale.
EOI-O 2 **Research leaders and investors make investment decisions in genetic innovation using pipeline investment cases and the Investor Dashboard.**	With the CGIAR Initiatives on Digital Innovation, Foresight and Accelerated Breeding, the development of the Global Market Intelligence Platform (GloMIP) and the Investor Dashboard was initiated with the development and internal launch of the Priority Setting Dashboard for Genetic Innovation v1.0.
EOI-O 3 **Trans-disciplinary teams across CGIAR and partners are empowered in co-implementation of market and behavioral intelligence and co-design of product profiles.**	Capacity sharing/research dissemination workshops were carried out in East, West, and Central Africa, involving national, regional, and international seed companies, national research organizations, government bodies, and donors, and for rice with plant breeders and social scientists from South and Southeast Asia. Regional Improvement Network meetings for cowpea, pigeon pea, sorghum, millet, and groundnuts took place in West, Central, East, and Southern Africa, with national research organizations. Within CGIAR Centers, trans-disciplinary teams have been formed and are empowered to develop TPPs for the SPMS they have identified. A core team with local NARES partners has been established to co-create and co-implement experimental activities to generate behavioral intelligence.
EOI-O 4 **CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes.**	A publication series was designed to disseminate market intelligence to CGIAR, NARES, donors, and companies quickly. A first brief was published harmonizing the institutional approach to market intelligence proposed by the Initiative. A novel video-based product concept testing (VPCT) tool was developed which can be used to identify current, missing, and future SPMS. A consistent template for TPPs was developed to support the definition of TPPs. CGIAR and NARES partners started to adopt the TPP template. Multiple ongoing bilateral projects managed by different Centers were leveraged to create a unified research agenda on behavioral intelligence and assessing the farmer- and consumer-level impacts of better, more market- intelligent varieties. To monitor outcomes, lab-in-the-field experiments with breeders have been developed to assess how access to market intelligence informs varietal choices and prioritization.

Section 3 Work Package-specific progress

Work Package 1:
Market intelligence

Work Package 1
progress against the theory of change

Innovative methods and tools

A video-based product concept testing tool was developed to investigate seven new hybrid maize seed concepts in Kenya and Uganda, and will be used to assess new rice and bean concepts in East Africa.

Standards, structures, and processes for engagement

Through **Accelerated Breeding**, all Centers took stock of their current breeding networks and partners; a total of 1,075 crop-specific germplasm development collaborations across 600 institutions in 136 countries were assessed. A draft partnership strategy is currently being assessed, and a partnership with the East African Grain Council was established. **Market Intelligence** will use these approaches for implementing its agenda.
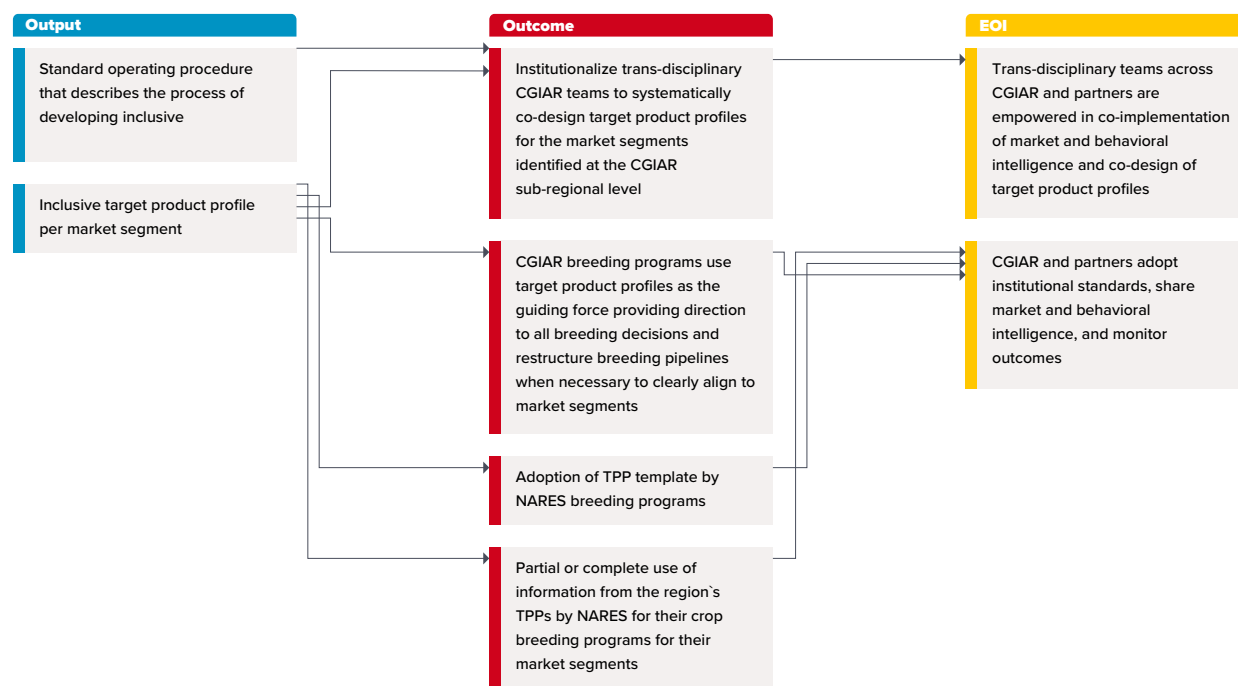
Product market segments

The Seed Product Market Segmentation Database (SPMSD) systematically identifies and describes over 400 SPMS, and additional forage hybrid market segments were identified for East Africa.

Market intelligence

A brief standardizes the approach to market intelligence. A large pilot on sweetpotato value chain actors' trait ranking was conducted in Uganda. A farmer study was undertaken on the Komboka rice variety in Kenya, highlighting the importance of market signals in crop varietal development. Intelligence on gender equality is obtained through sex-disaggregated analysis (e.g., PVS by rice farmers and value chain stakeholders in Burundi; consumer and/or producer preferences for boiled sweetpotato in Viet Nam, cooking bananas in Ghana and Tanzania; and market segments for cowpea in Nigeria).

Work Package 2:
Target product profile design

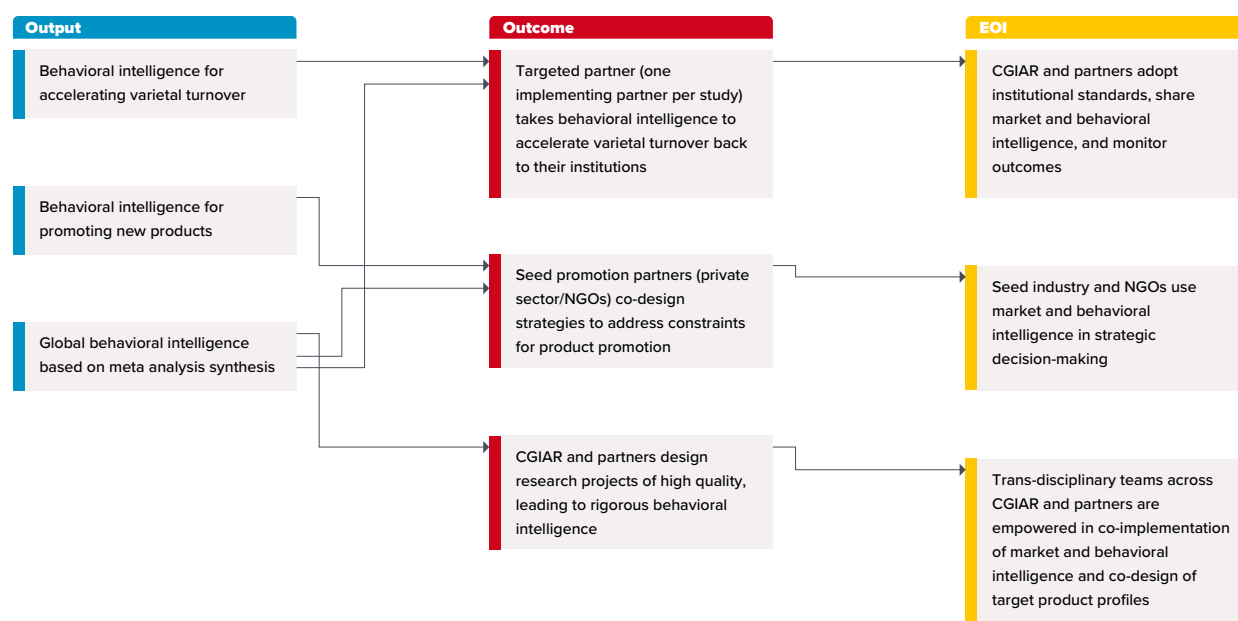| Output	Outcome	EOI
Standard operating procedure that describes the process of developing inclusive	Institutionalize trans-disciplinary CGIAR teams to systematically co-design target product profiles for the market segments identified at the CGIAR sub-regional level	Trans-disciplinary teams across CGIAR and partners are empowered in co-implementation of market and behavioral intelligence and co-design of target product profiles
Inclusive target product profile per market segment	CGIAR breeding programs use target product profiles as the guiding force providing direction to all breeding decisions and restructure breeding pipelines when necessary to clearly align to market segments	CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes
	Adoption of TPP template by NARES breeding programs	
	Partial or complete use of information from the region`s TPPs by NARES for their crop breeding programs for their market segments	

Work Package 2 progress against the theory of change

Institutional standards and processes for target product profile design

A TPP template was developed featuring a harmonized information capture tool depicting the needs and preferences of all value chain players for a specific SPMS per crop. This template is under use by all CGIAR Centers with **Accelerated Breeding** and breeding projects. First drafts are available in a Dropbox folder for review to ensure that the TPPs meet the needs of all stakeholders. The template was taken to NARES partners in Uganda, Tanzania, DRC, Sierra Leone, Mali, Chad, and Nigeria. Gender specialists were involved in the development of TPPs at the CGIAR sub-regional level. **Gender-intentional target produce profiles**

In collaboration with **Accelerated Breeding**, about 340 TPPs have been developed for the approximately 420 SPMS covering all CGIAR Centers' crops (i.e., about 80% coverage). Of these TPPs, 39 have been updated through small trans-disciplinary teams to ensure they tap into Impact Opportunities across the five Impact Areas, with a particular focus on gender intentionality. For rice, country-specific information has been captured in the standard TPP template with NARES partners in Mali, Sierra Leone, and Uganda. In addition, details of the SPMS and TPPs were shared with the national partners in the Philippines, India, Kenya, and Tanzania. For wheat, the new approaches to define SPMS and TPPs were shared with the NARES partners in South Asia, Mexico and East Africa. Partners from wheat and rice breeding programs were trained and updated on how to define and validate market segments and TPPs.

Work Package 3:
Behavioral intelligence

Output	Outcome	EOI
Behavioral intelligence for accelerating varietal turnover	Targeted partner (one implementing partner per study) takes behavioral intelligence to accelerate varietal turnover back to their institutions	CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes
Behavioral intelligence for promoting new products	Seed promotion partners (private sector/NGOs) co-design strategies to address constraints for product promotion	Seed industry and NGOs use market and behavioral intelligence in strategic decision-making
Global behavioral intelligence based on meta analysis synthesis	CGIAR and partners design research projects of high quality, leading to rigorous behavioral intelligence	Trans-disciplinary teams across CGIAR and partners are empowered in co-implementation of market and behavioral intelligence and co-design of target product profiles

Work Package 3
progress against the theory of change

Behavioral intelligence for accelerating varietal turnover

Five field experiments were co-created with NARES, NGOs, and seed companies in Uganda, Nigeria, Ethiopia, India, and Kenya to identify barriers that producers and consumers face when adopting new varieties. A shortened version of The Women's Empowerment in Agriculture Index (A-WEAI) was adapted from Excellence in Agronomy to collect information on women's and men's empowerment. Baseline surveys were designed to better understand behavioral drivers of varietal turnover for both men and women. A number of behavioral studies with a gender lens were published, e.g., on parboiled rice in Benin, women and marginalized castes in rural India, and high-milled rice in Bangladesh.
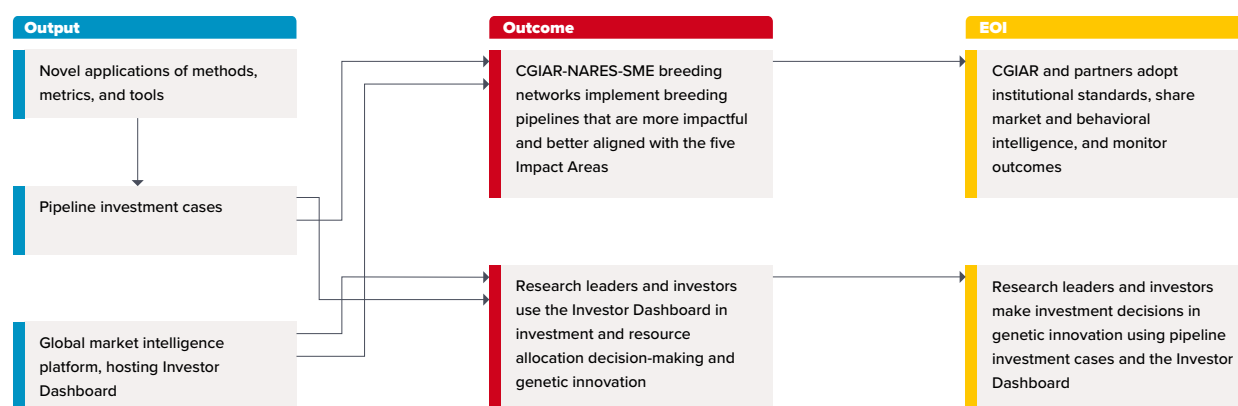
Behavioral intelligence for promoting new products

These experiments were co-created with private sector seed actors and NGOs to make sure their needs are well-understood. Through these partnerships, Work Package 3 has started identifying constraints that seed industry and NGOs face in promoting new products, and contributing to the acceleration of varietal turnover.

Global behavioral intelligence based on meta-analysis

The design of the experiments was guided by a literature review on behavioral constraints and strategies to increase uptake of new varieties, published as a Market Intelligence Brief. Pre-analysis plans and a meta-analysis research design were developed to allow for synthesizing the findings across the five field experiments.

Work Package 4:
Pipeline investment cases

Output		Outcome		EOI	
Novel applications of methods, metrics, and tools		CGIAR-NARES-SME breeding networks implement breeding pipelines that are more impactful and better aligned with the five Impact Areas		CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes	
Pipeline investment cases					
Global market intelligence platform, hosting Investor Dashboard		Research leaders and investors use the Investor Dashboard in investment and resource allocation decision-making and genetic innovation		Research leaders and investors make investment decisions in genetic innovation using pipeline investment cases and the Investor Dashboard	

Work Package 4 progress against the theory of change

Novel applications of methods, metrics, and tools

An extensive set of 70 indicators (extended to 110 in March 2023) was collected and statistical downscaling methods developed to estimate Impact Opportunities in SPMS and breeding pipelines. Of the 70 indicators, 31 are focused on the Impact Area Gender Equality, Youth, and Social Inclusion.

Pipeline investment cases

To harmonize the development of pipeline investment cases, Impact Area teams were established to review the state of the art in measuring indicators and assessing impacts of TPPs in SPMS. Initial datasets were collated to conduct a pilot exercise on economic surplus analysis.

Global Market Intelligence Platform, hosting Investor Dashboard

With the CGIAR Research Initiatives on **Foresight** and **Accelerated Breeding**, the development of GloMIP and the Investor Dashboard was initiated by the development and release of the Priority Setting Dashboard for Genetic Innovation v1.0. The Dashboard enables identifying Impact Opportunities at three levels: global, SPMS, and breeding pipeline. In 2022, 34 internal users across **Market Intelligence** and **Accelerated Breeding** were using the Dashboard. Together with **Accelerated Breeding**, standardized breeding pipeline processes and interoperability between GloMIP and the Breeding Product Development Center were established. In addition, complementary information systems were established for common bean, cassava, banana, and plantain, which will further support the development of GloMIP.

Work Package 5:
Institutional scaling and monitoring, evaluation, learning, and impact assessment

Output	Outcome	EOI
Analysis of current institutional arrangements, and institutional innovations designed and piloted for inclusive and market intelligence-informed decision-making in breeding	CGIAR-NARES-SME networks demonstrate commitment toward shared values and research topics	Trans-disciplinary teams across CGIAR and partners are empowered in co-implementation of market and behavioral intelligence and co-design of target product profiles
Analysis of how market intelligence influences investment in breeding pipelines and potential impact of inclusive and market intelligence-informed decision-making		CGIAR and partners adopt institutional standards, share market and behavioral intelligence, and monitor outcomes

Work Package 5 progress against the theory of change

Institutional arrangements/innovations

The Work Package 5 team, through close interaction with the Standing Panel on Impact Assessment (SPIA), designed methodologies for two impact evaluations of the core innovations produced through the Initiative. With Tufts University, the MELIA team will estimate impacts of breeding innovations in the CGIAR Impact Areas at farmer level by leveraging the uptake of new varieties, to test the Initiative's assumption that varieties informed by market intelligence strengthen impacts of varietal turnover for farmers and consumers. With the University of Bordeaux, the team designed a quantitative study that uses a lab-in-the-field experiment to understand how breeders might incorporate market intelligence into breeding pipeline priority setting and investment decisions, what their demand is for different types of information, and how power dynamics might shape these outcomes.

Qualitative and quantitative baseline investigations of the current attitudes toward institutional change and institutional incentives faced by breeders are in the design phase, along with a set of studies to analyze current practices around market segmentation, product profiling, and product advancement processes. Gender intentionality is a key design element in the design of baseline investigations, impact assessment, and partner interactions.

Analysis of potential impact of inclusive and market intelligence-informed decision-making

A data collection template was designed to establish a database on crop varieties for impact assessment. It will characterize crop varieties released by CGIAR Centers and adopted around the world. This will be used for impact evaluation purposes to estimate the return on investment in varietal improvement.

Farmers are showing their local maize, which they prefer for consumption; but because of drought, this variety yielded much less than varieties of which the Behavioral Intelligence work package provided trial packs. Photo credit: Berber Kramer/IFPRI

Work Package progress rating

WORK PACKAGE		TRAFFIC LIGHT / RATIONALE
1	🟢	Work Package 1 researchers from the different institutions started activities across different crops and the CGIAR SPMSD and Market Intelligence Brief series were successfully launched.
2	🟢	Work Package 2 has worked across Centers for all crops to get the initial drafts of TPPs developed with support from Accelerated Breeding.
3	🟢	Work Package 3 researchers have successfully met on a regular basis and have been making continual progress in terms of engaging local partners and collaborating on experimental design. All activities are on track to collect baseline and midline survey data.
4	🟢	All the outputs and outcomes have target years 2023 or 2024. Despite this, a prototype of the GloMIP and Investor Dashboard is already available.
5	🟢	Work Package 5 researchers have successfully met on a regular basis and have developed strong connections to the team and experiments planned in Work Package 3. The team has made progress in designing baseline investigations and documentation of current practices as the starting point for the design of institutional innovations with special emphasis on gender intentionality. All activities are on track to collect baseline data and document existing processes.

KEY

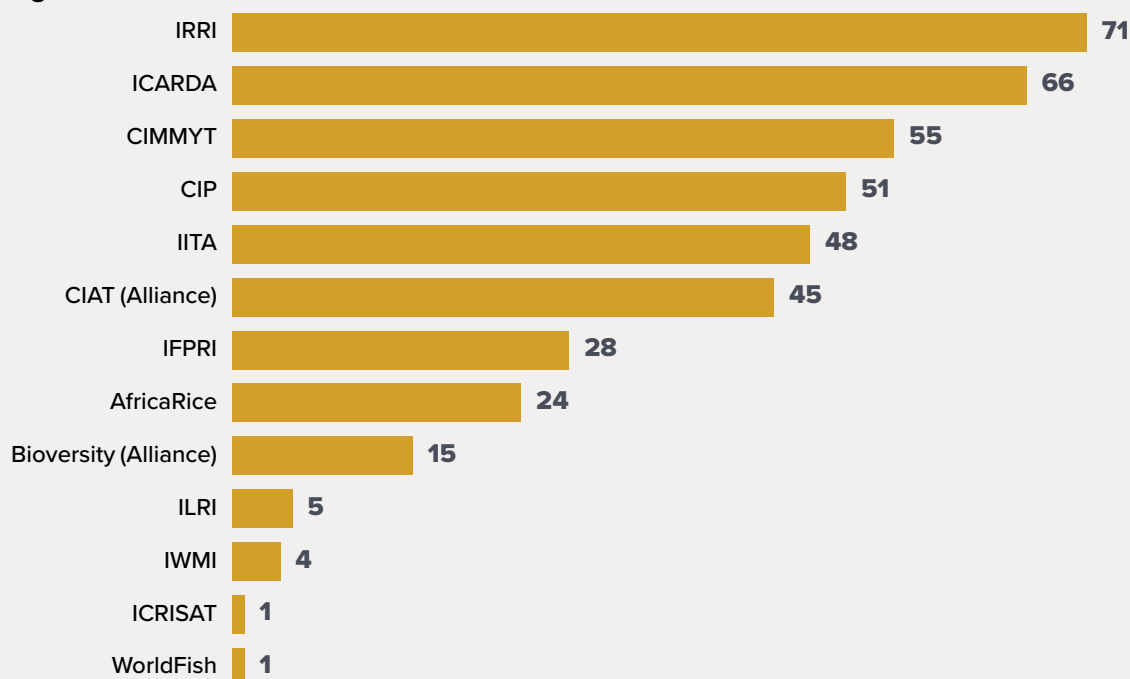| On track	🟢	• Annual progress largely aligns with Plan of Results and Budget and Work Package theory of change • Can include small deviations/issues/ delays/risks that do not jeopardise success of Work Package
Delayed	🟡	• Annual progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas • Deviations/issues/delays/risks could jeopardise success of Work Package if not managed appropriately
Off track	🔴	• Annual progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas • Deviations/issues/delays/risks do jeopardise success of Work Package

Section 4 Initiative key results

This section provides an overview of 2022 results reported by Market Intelligence. These results align with the CGIAR Results Framework and Market Intelligence's theory of change. Further information on these results is available through the CGIAR Results Dashboard.
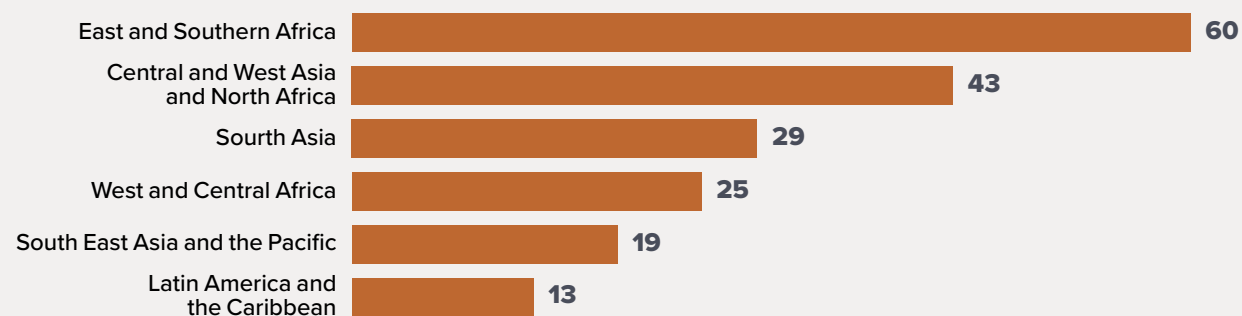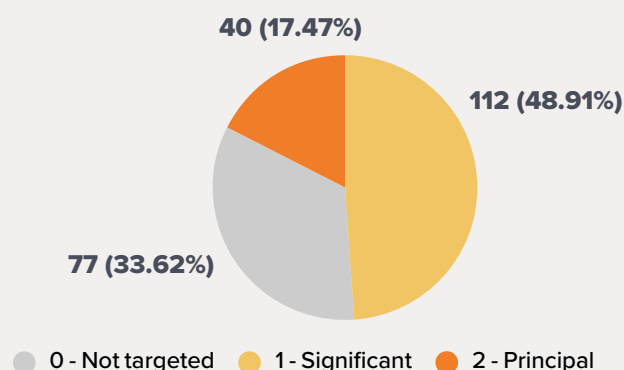
Overview

Results	Outputs				Outcomes	
229	**62** Capacity sharing for development	**99** Innovation development	**44** Knowledge products	**17** Other outputs	**3** Innovation use	**4** Capacity change

Contributing CGIAR Centers

Center	Value
IRRI	71
ICARDA	66
CIMMYT	55
CIP	51
IITA	48
CIAT (Alliance)	45
IFPRI	28
AfricaRice	24
Bioversity (Alliance)	15
ILRI	5
IWMI	4
ICRISAT	1
WorldFish	1

Results by region

Region	Value
East and Southern Africa	60
Central and West Asia and North Africa	43
South Asia	29
West and Central Africa	25
South East Asia and the Pacific	19
Latin America and the Caribbean	13

Results by gender tag

40 (17.47%)

112 (48.91%)

77 (33.62%)

- ● 0 - Not targeted
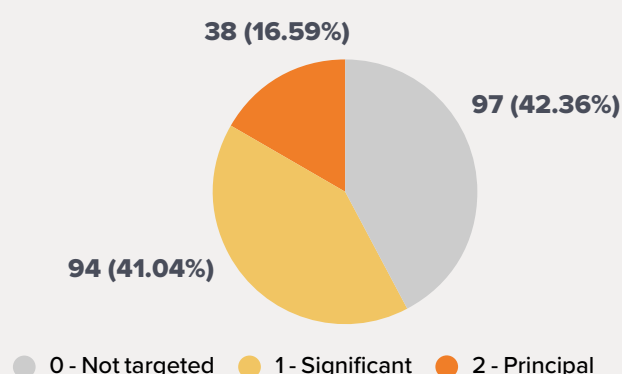- ● 1 - Significant
- ● 2 - Principal

0 = **Not targeted:** The activity/result does not target gender equality.

1 = **Significant:** The activity/result contributes in significant ways to gender equality, even though it is not the principal focus of the activity.

2 = **Principal:** Gender equality is the main objective of the activity/result and is fundamental in its design and expected results.

Results by climate change tag

38 (16.59%)

97 (42.36%)

94 (41.04%)

- ● 0 - Not targeted
- ● 1 - Significant
- ● 2 - Principal

0 = **Not targeted:** The activity does not target climate mitigation, adaptation, and climate policy goals of the CGIAR as put forward in its strategy.

1 = **Significant:** The activity contributes in significant ways to either one of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.

2 = **Principal:** The activity is principally about meeting either one of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, and would not have been undertaken without these objectives.
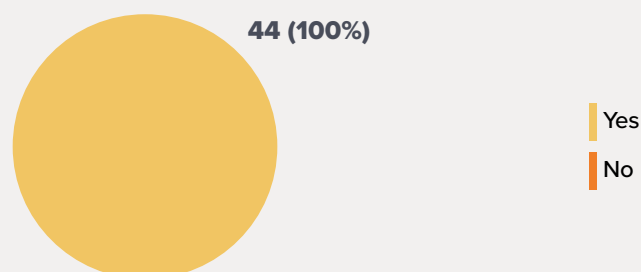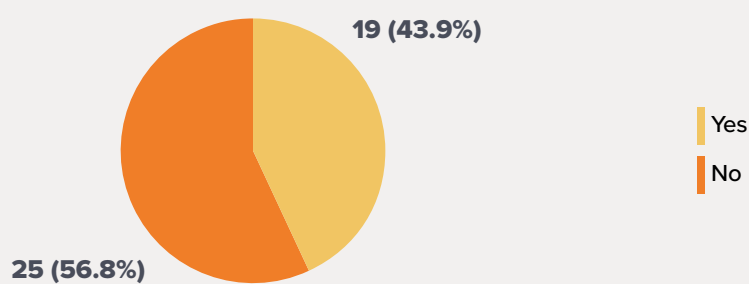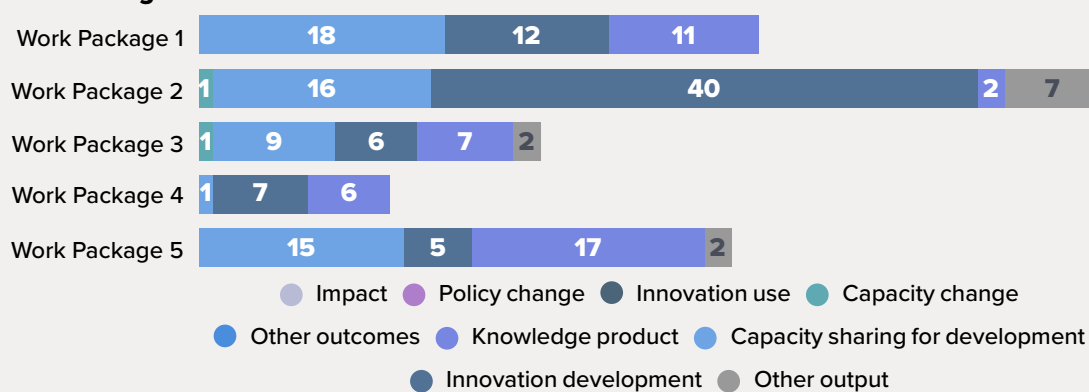
Knowledge products by category

Category	Value
Journal article	25
Other	9
Brief	5
Report	2
Internal document	1
Opinion piece	1
Working piece	1

Capacity development trainees by term

	Female	Male
Short-term trainees	2,151	2,780
Long-term trainees	100	100
Trainees by gender	2,251	2,880

- ● Female
- ● Male

Open access

44 (100%)

- Yes
- No

Web of science core collection

19 (43.9%)

25 (56.8%)

- Yes
- No

Results by Work Package

Work Package	Values
Work Package 1	18, 12, 11
Work Package 2	1, 16, 40, 2, 7
Work Package 3	1, 9, 6, 7, 2
Work Package 4	1, 7, 6
Work Package 5	15, 5, 17, 2

- Impact
- Policy change
- Innovation use
- Capacity change
- Other outcomes
- Knowledge product
- Capacity sharing for development
- Innovation development
- Other output

Innovations by readiness level

9	PROVEN INNOVATION – The innovation is validated for its ability to achieve a specific impact under uncontrolled conditions	27
8	UNCONTROLLED TESTING – The innovation is being tested for its ability to achieve a specific impact under uncontrolled conditions	5
7	PROTOTYPE – The innovation is validated for its ability to achieve a specific impact under semi-controlled conditions	6
6	SEMI-CONTROLLED TESTING – The innovation is being tested for its ability to achieve a specific impact under semi-controlled conditions	9
5	MODEL/EARLY PROTOTYPE – The innovation is validated for its ability to achieve a specific impact under fully-controlled conditions	7
4	CONTROLLED TESTING – The innovation is being tested for its ability to achieve a specific impact under fully-controlled conditions	28
3	PROOF OF CONCEPT – The innovation's key concepts have been validated for their ability to achieve a specific impact	9
2	FORMULATION – The innovation's key concepts are being formulated or designed	7
1	BASIC RESEARCH – The innovation's basic principles are being researched for their ability to achieve a specific impact	1
0	IDEA – The innovation is at idea stage	0

Results by country

Section 5 Impact pathway integration – External partners

Partners typology	# of partners	% of partners
Research organizations and universities (NARS)	36	32.4%
Research O&U (National) (Universities)	33	29.7%
Private company (other than financial)	13	11.7%
Government (National)	10	9.0%
Foundation	2	1.8%
All other categories	17	15.3%

Top five institution types

- 🟢 All other categories
- 🔴 Foundation
- 🟣 Government (National)
- ⚫ Not applicable
- 🔴 Private company (other than financial)
- 🟤 Research O&U (NARS)
- 🔵 Research O&U (National) (Universities)

Note: CGIAR Centres are excluded from the analysis. Partners and edges are sized by the number of results. Labels are shown for the partners involved in 13 or more results.

Partnerships and Market Intelligence's impact pathways

Partnerships are essential to the success of CGIAR Initiatives. Market Intelligence engaged a wide range of different types of partners supporting demand, innovation, and scaling, including: multilateral donors and foundations, NARES, private sector stakeholders, advanced research institutes, and international, regional, national, and local NGOs. Market Intelligence worked with 261 partners, with the top 5 being NARES, such as Kenya Agricultural and Livestock Research Organization (KALRO), Tanzania Agricultural Research Institute (TARI), Zambia Agricultural Research Institute (ZARI), Ethiopian Institute of Agricultural Research (EIAR), and NARO (Uganda). The partnerships contributed mainly to Sustainable Development Goals (SDGs) 1, 2, 5, 12, and 13. Most deliverables had to do with innovation, followed by scaling and demand.

Various training workshops were carried out with CGIAR breeding teams and NARES partners to empower CGIAR–NARES–SME networks on market intelligence. TPP design featured participation from several seed companies, NARES, Advanced

Research Institutes (ARIs), government bodies and funder institutions. Together with **Accelerated Breeding**, workshops with NARES identified several new market segments (e.g., banana in Uganda, Rwanda, and Tanzania and cassava in Uganda), and several NARES adopted the TPP template (e.g., NARO and TARI for banana, NaCCRI and DRC for cassava, and NRCRI for cassava and yam).

Seed industry, NGOs, and NARES partners were engaged in co-designing behavioral intelligence experiments and identification of varieties to be promoted to accelerate varietal turnover. Partners have started implementing these strategies, and behavioral intelligence generated through this joint research will help them apply findings in the future, and use the intelligence in strategic decision-making. For example, findings from an earlier study on promoting improved varieties were shared with seed companies in Kenya and used to co-design a joint study on effects of trial packs on varietal turnover.

Use of G+ tools for gender-intentional product profile development with NARES programs has been carried out in collaboration with the US Agency for International Development (USAID) Innovation Lab for Crop Improvement and Cornell University.

Section 6 Adaptive management

RECOMMENDATION	SUPPORTING RATIONALE
Market Intelligence will **deepen the collaboration with aligned bilateral programs**, and encourage new bilateral and Window 3 programs to actively align with the Market Intelligence approach.	Market Intelligence's organizational design benefits other Initiatives and aligned bilateral programs, ensuring that CGIAR's genetic innovation portfolio delivers more. It will continue to develop effective matrix arrangements with CGIAR Centers through clearer communication of their strong vision and offer, in line with the Integrated Framework Arrangement.
Market Intelligence will integrate three functions and reorganize Work Package objectives to **deliver a single information hub to inform priority-setting in the pooled and bilateral genetic innovation portfolio.**	GloMIP will integrate global, market segment, and breeding pipeline levels of prioritization in one digital tool. This will become the primary information hub for genetic innovation priority-setting, with potential to increase value and adoption. GloMIP will also support **Seed Equal** by synchronizing, targeting, and prioritizing activities through its integration of market segments and product catalog.
Market Intelligence will adopt **an Impact Opportunity-driven internal priority-setting process** during 2023.	The Initiative will adopt an internal data-driven mechanism for prioritizing its own investments, based on emerging Impact Opportunities. This approach will consider all crops and focus on the market segment as the unit of investment in market intelligence.
Market Intelligence will **further strengthen linkages between genetic innovation and key NARES partners, creating practical channels to respond to Global South demands**. This builds on the activities of the Accelerated Breeding Initiative's Transform Work Package.	Market Intelligence will scale GloMIP to help CGIAR, NARES, and donors with investment priorities, collaboration, and capacity support in breeding pipelines. Market segmentation and priority-setting will align with FAO Delivery Compacts and National Agricultural Investment Plans, responding to Global South requests for involvement in priority- and agenda-setting. Cooperation will align with the June 2022 agreement with 36 CGIAR–NARES–SME networks and other genetic innovation–NARES strategic touchpoints.

RECOMMENDATION	SUPPORTING RATIONALE
Market Intelligence will take a structured approach to **co-creating culture change across genetic innovation**, to unlock the full impact potential of the trans-disciplinary processes established by the new portfolio of Initiatives.	The Market Intelligence team will explore nurturing culture change. This fosters mutual understanding and respect between biophysical and social science communities to amplify the benefits of organizational and process changes. Innovations in this area could encourage adoption of similar trans-disciplinary processes in other organizations. These efforts will be addressed in close coordination with the genetic innovation management team and wider efforts on culture change across CGIAR.
Market Intelligence will **prioritize and accelerate the development and scaling of the inclusive, gender-intentional TPP design standards**.	Experience scoping gender-intentional TPP design standards during 2022 made clear the extremely high potential for the development and scaling of this innovation, and the very high priority in which it is held by demand partners. We will work closely with other Initiatives and action areas to maximize the scalability and benefits of this institutional innovation.
Market Intelligence will continue to **adaptively evolve its theory of change and processes** in line with GI's theory of change.	GloMIP and the institutional TPP design standard are disruptive innovations which enable operationalizing the integrated genetic innovation pipeline. Rigorous scaling of these innovations will put GI's theory of change to the test and provide insights on its assumptions, bottlenecks, scalability, and impact.

Section 7 Key result story

AfricaRice Varietal Profiles Validation Workshop for the main rice ecologies of Ivory Coast.

Collaborative inclusive target product profile development: Bridging stakeholder interests and Impact Areas across CGIAR and partner organizations

In spite of long-time efforts in CGIAR plant breeding, there is limited uptake of improved varieties and low varietal turnover. Market Intelligence developed an institutional standard applied by 142 CGIAR and 9 partner breeding programs to co-design 379 gender-intentional TPPs for 470 market segments identified at sub-regional and country level for all consultative group mandate crops. The TPPs are then used as a guiding force providing direction to all breeding decisions and restructuring/realignment of breeding pipelines when necessary.

In spite of long-time efforts in CGIAR plant breeding, there is limited uptake of improved varieties and low varietal turnover. This could be due to behavioral constraints hampering varietal replacement (e.g., lack of information, risk aversion) or suboptimal targeting and prioritization of product design. Current TPP design is strongly biased towards agronomic and stress tolerance traits,[1] with little systematic identification and integration of traits that contribute to wider social impact such as gender equality, opportunities for youth, social inclusion, climate adaptation and mitigation, and reduction of environmental footprints. Moreover, there is a lack of institutional standards and processes to systematically involve and empower trans-disciplinary teams of social and biophysical scientists in TPP design. Indeed, the recent evaluation of CGIAR Research Programs (CRPs)

stressed the need to increase inclusiveness in defining TPPs to better contextualize variety development and tailor research to diverse agricultural communities.[2]

The intervention aims to empower trans-disciplinary teams across CGIAR and its partners in prioritized CGIAR regions (West and Central Africa, East Africa, South Asia) to implement the use of market intelligence to co-design TPPs.[3] First, market segments were identified at sub-regional and country level for all CGIAR mandate crops and made publicly available in the CGIAR SPMSD. **Market Intelligence** together with **Accelerated Breeding** and **Plant Health** then developed a harmonized template to develop a TPP for a given market segment that captures traits that can contribute to the relevant Impact Areas. In addition, it developed an institutional standard to create the TPPs by setting up a process to form trans-disciplinary teams that bring the various disciplines and expertise to contribute to the TPP in an inclusive, transparent, and equitable way. Representatives from **Market Intelligence**, **Accelerated Breeding**, **Seed Equal**, **Plant Health** and regional CGIAR–NARES–SME teams of breeders, social scientists, food scientists, nutritionists, gender specialists, agronomists, plant pathologists, climate specialists, and crop modelers form part of these teams, which then identify and prioritize the key traits to include in the TPP.

Market Intelligence reached breeding networks for different crops via a team of focal points at each CGIAR Center to run a kick-off meeting where the networks were exposed to market segmentation and TPPs, as well as the objectives and goals of the innovative process. This was followed by in-country meetings with the trans-disciplinary teams to review the template and discuss the essentials of designing the TPPs for the identified market segments. A similar process was carried out with the NARES breeding teams. As a result, 142 CGIAR and 9 partner breeding programs have co-designed 340 and 39 gender-intentional TPPs respectively, out of 470 market segments, which have been made available in a Dropbox folder for review, to ensure that they meet the needs of all stakeholders. The TPPs capture key traits, characteristics, and minimum threshold trait improvements required by farmers, processors, and consumers, and descriptions of the market-leading varieties to be replaced. In 2022, all CGIAR breeding teams were reached, trained, and are now using the harmonized TPP template, in addition to nine NARES breeding teams who have now set up trans-disciplinary teams and are using the template to develop their own TPPs. By the end of the Initiative's first cycle, most partners in most target countries are expected to have implemented trans-disciplinary teams using the template to design TPPs for most mandate crops.

The TPPs guide breeding decisions and the restructuring and realignment of breeding pipelines where necessary. They will further inform pipeline investment cases to maximize investment returns in breeding, seed systems, and other Initiatives across the five Impact Areas. This will ultimately result in the development and release of improved varieties that perform better in terms of nutritional quality, income generation, water and nutrient use, stability of yields under climate change, and address the needs of both women and men as farmers, processors, and consumers. This should enhance their adoption and resulting impacts across the five Impact Areas.

References

1 Cobb, J.N., Juma, R.U., Biswas, P.S., Arbelaez, J.D., Rutkoski, J., Atlin, G., Hagen, T., Quinn, M., and Ng, E.H. 2019. Enhancing the rate of genetic gain in public-sector plant breeding programs: Lessons from the breeder's equation. Theoretical and Applied Genetics, 132: 627–645. https://doi.org/10.1007/s00122-019- 03317-0

2 CAS Secretariat (CGIAR Advisory Services Shared Secretariat). 2021. Synthesis of Learning from a Decade of CGIAR Research Programs. Rome: CAS Secretariat Evaluation Function. https://iaes.cgiar.org/evaluation/publications/2021-Synthesis

3 Donovan, J., Coaldrake, P., Rutsaert, P., Bänzinger, M., Gitonga, A., Naziri, D., Demont, M., Newby, J., and Ndegwa, M. 2022. Market intelligence for informing crop-breeding decisions by CGIAR and NARES. Market Intelligence Brief Series 1. Montpellier: CGIAR. https://hdl.handle.net/10883/22248

COVER PHOTO: Rice retailer in West Bengal, August 2013. Photo credit: Matty Demont

LINKS TO IMPACT AREAS

Primary Impact Area:

Other relevant Impact Area(s):

GEOGRAPHIC SCOPE

Region: West and Central Africa, East Africa, South Asia
Country: DRC, Sierra Leone, Mali, Chad, Nigeria, Kenya, Uganda, Tanzania, India

KEY CONTRIBUTORS

Contributing Initiative(s): Accelerated Breeding, Seed Equal, Plant Health
Contributing Center(s): IITA, CIMMYT, CIP, ICARDA, IRRI, Alliance of Bioversity International and CIAT, AfricaRice
Contributing external partner(s): Kenya Agricultural and Livestock Research Organization (KALRO), Tanzania Agricultural Research Institute (TARI), Zambia Agricultural Research Institute (ZARI), Ethiopian Institute of Agricultural Research (EIAR), National Agricultural Research Organisation (NARO), Democratic Republic of Congo (DRC), Sierra Leone Agricultural Research Institute (SLARI), IER, ITRAD, National Root Crops Research Institute (NRCRI)

LINK TO CGIAR RESEARCH PROGRAMS

The Excellence in Breeding Platform