



Market Intelligence for More Equitable and Impactful Genetic Innovation

| Initiative Lead and Co-Lead | Primary CGIAR Action Area | Estimated 2022 - 2024 Budget |
|------------------------------|---------------------------|------------------------------|
| Matty Demont Vivian Polar | Genetic Innovation | \$30 - \$30 M |

Challenge

Throughout the CGIAR, decisions on how to invest scarce resources in genetic innovation systems are predominantly supply-driven, out of touch with user demand and governed by multiple decision makers with little coordination or common framework. There is little reliable data or feedback loops on farmers' needs and on the larger factors that shape current and future needs and demand. Consequently, even with significant outcomes and impacts, these tend to fall below potential. Investments come at high opportunity costs with limited options to prioritize and miss opportunities to address gender equality and inclusion, climate change adaptation, and human health and nutrition goals. Moreover, social science teams and local partners (NARES) typically play a limited role in prioritization decisions related to product profiling and stage gate decision-making on product advancement and delivery or on product life cycle planning, prioritization and assessment. Recently, various other organizations have recognized the need for data-driven processes to guide work in genetic innovation systems, but efforts remain fragmented, and the coverage of crops and regions is patchy. Although CGIAR commodities are often grown in the same countries and affected by similar contextual factors, there is no unified approach to understanding current and future trends, with mostly fragmented and commodity specific studies. Genetic innovation systems lack shared digital infrastructure, institutional policies and standard operating procedures (SOPs) for mobilizing and empowering transdisciplinary teams within and across CGIAR and partners to address gender-intentional and socially inclusive processes of priority setting, product profiling, and stage gate decision-making on product advancement and delivery. The latter prevents donors, investors and research managers from making impact-maximizing investment decisions in genetic innovation.

Objective

Maximize the impacts of investments in the Genetic Innovations action area by holistically gathering and analyzing women and men's demands, market opportunities, and the feasibility of producing and scaling crop varieties in local contexts. Insights from these analyses will inform discussions with breeding teams, resulting in agreed, prioritized efforts and increased accountability to timely deliver genetic gains in farmers' fields responding to the needs of consumers, farmers, and other value chain actors and considering climate change and the environment.

Specific objectives:

1. Design and implement institutional innovations that effectively and sustainably integrate transdisciplinary research on market intelligence (client demands and market opportunities), market segmentation, priority setting, product profiling, and stage gate decision-making across CGIAR-coordinated breeding networks.
2. Develop and implement a standardized process and templates for product profile development based on innovative behavioral research on preferences and demand from farmers and other value chain stakeholders, and the factors that shape varietal turnover that can inform future investments.
3. Design and implement approaches, methods, and tools to support socially inclusive data collection (across multiple dimensions) and analysis that responds to key information gaps across the five impact areas.
4. Establish a collaboration hub among CGIAR's Genetic Innovation initiatives, NARES, Innovation Labs (ILs) other international organizations, and the private sector to design and implement collaborative approaches to product profiling, and indicators to measure progress in transforming genetic innovation systems.
5. Deliver reliable, comparable and timely data on market segmentation and prioritization through an Investor Dashboard to inform researchers, research managers, and investors in prioritizing breeding and seed delivery efforts.

Theory of Change

Plant breeding has the potential to inclusively benefit the nutrition, health, and livelihoods of farmers, value chain actors and consumers while minimizing climate and environmental footprints through continual development and uptake of varieties with improved value embodying strategically targeted traits. However, rates of varietal replacement have been low partly because products have not adequately met client needs due to supply-driven decision making in genetic innovation systems, resulting in high average varietal age, low turnover rates and suboptimal impacts. Addressing these impact gaps requires a better understanding and inclusion of "perceptions of improved value" of all clients along the value chain, especially women and marginalized groups. To improve adoption of CGIAR and partner products, a separate initiative is urgently needed that not only institutionalizes collaboration between social and biophysical scientists and nutritionists across CGIAR, partners and private sector through formal processes, but also empowers these transdisciplinary teams in market segmentation/prioritization and product profiling. To achieve this, the initiative will generate real-time, forward-looking market intelligence that supports breeding investment prioritization and product profiling. Innovative methods and tools will unravel constraints to varietal uptake, and will help build investment cases that improve productivity, nutrition, gender/social inclusion, livelihoods, climate change adaptation, and environmental preservation. Institutional standards for product profile design will be implemented in collaboration with other Genetic Innovation initiatives and action areas. An investor dashboard will increase transparency on potential social returns to investment in market segments, guiding decisions and attracting donor investment in genetic innovation. Through better stakeholder-inclusive and market-driven targeting of product profiles, this initiative will contribute to increasing varietal turnover, amplifying breeding and seed systems' impacts across the five impact areas.

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Highlights

Genetic innovation investments will be driven towards impact through real-time and forward-looking market intelligence to support decision making. Standards will be developed, data collected, and insights generated to inform market segmentation, priority setting, targeting, product design and seed systems to achieve impact by CGIAR and partners across five impact areas.

The effectiveness of market segmentation, targeting and prioritization of breeding investments will be increased by using a multi layered approach that incorporates the perceptions and demands of different stakeholders (women and men, institutions, climate and environment) along the value chain to direct the global genetic innovation system towards social and environmental impact.

The relevance of breeding product profiles for farmers and other users will be increased by developing and implementing new approaches, methods and tools that collect, analyze and integrate market intelligence on decisions and constraints for varietal uptake across multiple dimensions addressing major knowledge gaps on gender, social inclusion, environmental challenges, nutrition and seed systems governance.

The efficiency of market intelligence research to guide breeding investments will be increased by conducting global and regional, cross-commodity and within-commodity analyses of current and projected demand and its drivers and by eliminating the duplication of efforts by separate commodity teams in the same countries, overlapping context and regulatory environments.

Sustainable feedback loops with initiatives in the Genetic Innovations and Resilient Agrifood Systems action areas through institutional innovations will foster transdisciplinary dialogue and horizontal collaboration with key actors working in genebanks, breeding, seed systems, and cropping systems to inform prioritization of investments, definition and monitoring of progress indicators to track changes and impact.

Work Packages

| | Scope of Work | 3-year Outcomes |
|--|--|---|
| Market intelligence | Design and implement market intelligence that characterizes current and future needs and perceptions of improved value across crops, varieties and traits in key regions. Approaches will consider priorities and needs of different actors (e.g., processors, seed businesses, consumers, women and men farmers) and potential mediating factors (e.g., policies, trade, technology, market structure, culture). | CGIAR GI initiatives and public and private sector partners collaboratively share, access and use a shared digital infrastructure for global and local market intelligence to build and prioritize investment cases, develop product profiles and address stage gate decision making. |
| Pipeline investment cases | Estimate the potential, current and future impact of breeding pipelines in targeted regions across multiple impact areas. Approaches will incorporate different types of data, perspectives (gender, nutrition, agronomy, economic, environmental) and analytical methods. An 'Investor Dashboard' will facilitate visualization of estimated impacts to support investment prioritization across crops and varieties. | Researchers, research managers and funders make more impactful resource allocation and investment decisions by using the pipeline investment cases and the investor dashboard produced by this initiative. Increased availability of information and transparent, holistic analyses on high-impact opportunities attract increased investments in under-invested and new-opportunity market segments. |
| Product profile design and prioritization | Define and implement prioritization processes which give voice to different stakeholders (e.g., NARES, private sector, breeding and social science teams) to refine existing product profiles, propose potentially new future-focused product profiles, and prioritize investments in product profiles at the regional level in response to current and future demand/needs and potential impacts. | Transdisciplinary teams of social and biophysical scientists and nutritionists across CGIAR and partners are empowered, develop, validate and prioritize product profiles for current and novel market segments. GI initiatives are empowered to achieve increased impacts through market intelligence-driven, transdisciplinarily-developed product profiles. |
| Accelerate varietal turnover | Conduct rigorous research on how women and men farmers/consumers take variety/product replacement/substitution decisions and identify factors that drive adoption and consumption of new varieties/products. Harness and test drivers that can accelerate varietal turnover and incorporate findings into regional and commodity-specific strategies with key stakeholders (private sector, NGOs, governments, donors). | Key stakeholders (private sector, NGOs, governments, donors) adopt approaches that harness drivers of adoption to accelerate varietal turnover across regional and seed systems contexts to advance regional and commodity-specific strategies. |
| Outreach and scaling within and beyond CGIAR | Establish a collaboration hub across GI initiatives and partners to (i) develop and implement institutional policies and SOPs for catalyzing inclusive decision making in breeding networks; (ii) develop alternative pathways to scaling, including digital platforms and incentive mechanisms for collaboration; and (iii) rigorously assess impacts on nutrition, poverty, productivity/profitability, gender equity and climate/environmental footprint. | CGIAR, NARES and other partners increase the impact of investments in breeding and other genetic innovations individually, by institutionalizing policies and procedures, and collectively, by participating in networks that design products by holistically analyzing knowledge and requirements of clients, share market intelligence, and monitor impacts. |

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Impact Area Contributions

| | |
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| Nutrition, health & food security | Intelligence on the triple burden of malnutrition, dietary recommendations and consumer preferences and demand elicitation will build investment cases for breeding and seed delivery, ultimately leading to farmer adoption of healthier crops and traits that improve nutrition and health and facilitate crop diversification. |
| Poverty reduction, livelihoods & jobs | Breadth and depth of poverty will inform the weighting of market segments and prioritization of investment among crops and areas, and define the optimal mix of productivity-enhancing, loss and risk-reducing and value-adding product and byproduct traits that increase farmers' and consumers' livelihoods and contribute to job and income generation in food systems. |
| Gender equality, youth & social inclusion | Gender, youth and social group-disaggregated market intelligence from all five impact areas will be embodied into crop prioritization and gender-intentional product profiles that contribute to increased gender equality, a fair balance labor-benefit for women and social inclusion of stakeholders along the value chain from producers to consumers. |
| Climate adaptation & greenhouse gas reduction | Forward-looking information on climate change will build investment cases for breeding and seed delivery, ultimately leading to farmer adoption of more resilient, neglected crops and varieties with traits that render crops more resilient to climate extremes and climate-induced pest and diseases, and contribute to climate change mitigation. |
| Environmental health & biodiversity | Forward-looking information on trends related to biotic stresses will set product profile targets for biotic stress resistance traits that reduce reliance on chemicals, reduce water use and environmental footprint and preserve in-field biodiversity. Market intelligence on value of heritage crops can assist cropping systems scientists, genebanks and farmers in valuing and preserving biodiversity. |

Impact on SDGs



Regions

Global

Countries



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Innovations

Genetic Innovation for Impact (G×I): a learning alliance of CGIAR GI initiatives, NARES and other public and private sector partners that conduct research and builds capacity for institutionalizing and empowering transdisciplinary teams through gender-intentional processes of prioritization, product profiling, and stage gate decision-making for maximizing impacts across the five impact areas.

Global digital platform for standardizing, crowdsourcing and sharing transdisciplinary market intelligence to assist CGIAR and partners in identifying intelligence gaps to set market research priorities, target market segments, building pipeline investment cases, and developing product profiles.

Behavioral research and digital tools that involve farmers, consumers and other value chain stakeholders in product profiling embodying (i) consumers' preferences and nutritional needs and farmers' livelihood needs; (ii) gender and social inclusiveness; (iii) food and by-product market trends; (iv) biotic and abiotic stressors, (v) climate change resilience and mitigation, and (vi) environmental health benefits.
<https://www.cgiar.org/news-events/news/irri-transforms-rice-breeding-processes-market-oriented-product-profiling/>

Investor Dashboard: a global online digital tool to assist researchers, research managers and investors to visualize potential returns to investment across crop species, market segments, pipelines, product profiles and impact areas. The innovation will build on existing resources and innovations to increase their scalability.

Gender-responsive tools and methods: a toolkit that guides transdisciplinary teams to work collaboratively to systematically include gender analysis information in market segmentation, targeting, crop prioritization and product profiling, scaled to support the G×I learning alliance. The tool will be adapted for an analysis of needs and preferences from youth and other intersectional groups.
<https://www.cgiar.org/innovations/g-tools-for-gender-responsive-breeding/>

Key Partners

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|----------------|---------------------------------|---|
| Demand | Academic, Training and Research | GI initiatives: Conservation and use of genetic resources (Genebanks); Accelerated Breeding: Meeting Farmers' Needs with Nutritious, Climate-Resilient Crops; Accelerating crop improvement through precision genetic technologies; SeEdQUAL delivering genetic gains in farmers' fields NARES |
| | Other | Donors (BMGF, USAID, Germany, ACIAR, UK, African Export-Import Bank, ADB, AfDB) |
| | Private Sector | Private sector (farmer, consumer and food value chain stakeholder organizations, seed sector, e.g., ACRE Africa, and insurance brokers) |
| | Regional NGO | NGOs (e.g., One Acre Fund, Precision Agricultural Development, CRS, AGRA, Syngenta Foundation for Sustainable Agriculture) |
| | Innovation | Academic, Training and Research |
| Scaling | Academic, Training and Research | Private sector (e.g., seed suppliers, Syngenta, etc.) |
| | | CGIAR GENDER Platform |
| | | GI initiatives: Accelerated Breeding: Meeting Farmers' Needs with Nutritious, Climate-Resilient Crops; Accelerating crop improvement through precision genetic technologies; SeEdQUAL delivering genetic gains in farmers' fields NARES |
| | Private Sector | Private sector (e.g., seed trade associations, agribusiness, food industry, etc.) |
| | Regional NGO | NGOs, like AGRA, Seeds2B and CRS that work in seed systems |

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