Meka reservoir near Nekemte, Ethiopia.
Credit: Matthew McCartney/IWMI

CGIAR

Portfolio Narrative 2024

Technical Reporting 2024

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Disclaimers

We gratefully acknowledge the contributions of subject-matter experts from across CGIAR to the various sections of this report, as well as the revisions and endorsement provided by CGIAR leadership. Nonetheless, any errors or inaccuracies contained herein remain the sole responsibility of the report's authors.

Boundaries used in the maps do not imply the expression of any opinion whatsoever on the part of CGIAR concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Borders are approximate and cover some areas for which there may not yet be full agreement.

This report benefited from the use of artificial intelligence (AI), specifically through the integration of ChatGPT in the Semantic Natural Language Processing Aggregator Platform (SNAP) developed by CGIAR.
AI support was used in two main ways:

- To assist in the generation of certain narrative elements based on analysis of CGIAR's quality-assured results reported between 2022 and 2024;
- To improve clarity, grammar, and style in selected sections of the report.

The SNAP tool, powered by advanced natural language processing techniques, enabled the authors to explore and synthesize thousands of reported outputs, outcomes, and impacts. It provided thematic groupings, semantic search results, and draft summaries that helped shape content and identify relevant evidence from across the CGIAR Portfolio.
All AI-generated content and edits were carefully reviewed, verified, and validated by the authors to ensure factual accuracy, coherence, and alignment with the original intent of the data and reporting framework. The use of AI was intended to support — not replace — expert judgment and narrative development.
As SNAP is currently in beta testing and continues to be refined, user feedback is both welcome and essential to its improvement. The SNAP tool can be accessed here and feedback may be sent to performanceandresults@cgiar.org.

This report contains links to PDF documents presenting raw data as reported in the Performance and Results Management System (PRMS) by CGIAR Initiatives, Impact Platforms, and Science Group Projects, and as published in the CGIAR Results Dashboard. These documents have been integrated throughout the report as quality-assessed evidence to support the information presented. While ongoing efforts aim to improve the user interface and accessibility of these results, the linked data is provided here to ensure transparency and to substantiate the credibility of the reported information.

Acknowledgements

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Table of contents

Section 1: **Connecting impact and insight: The 2024 CGIAR Portfolio Narrative** 1

Section 2: **Science Group focus** 5

Section 3: **Country focus** 24

Section 4: **Partnerships** 40

Section 5: **Impact Area focus** 46

Section 6: **Driving delivery: Strategic enablers for agile and integrated Portfolios** 78

Section 1: **Connecting impact and insight: The 2024 CGIAR Portfolio Narrative**

The **2024 CGIAR Portfolio Narrative** is a cornerstone of CGIAR's Technical Reporting Arrangement. It offers a synthesis of Portfolio coherence, synergies, and collective progress across Initiatives, Impact Platforms, and Science Group Projects (SGPs)[1], which represent approximately 40 percent of CGIAR's Portfolio by dollar value. The report does not include Center-managed bilateral projects. As a key pillar of the Technical Report, the Portfolio Narrative integrates data and insights from CGIAR's Results Dashboard, the Type 1 Initiative, Impact Platform, and SGP Reports, and the Type 3 Portfolio Practice Change Reports to demonstrate how CGIAR has advanced research delivery, fostered partnerships, and addressed global challenges.

As 2024 marks the final year of this Portfolio and the 2022–2024 business cycle, the **2024 CGIAR Portfolio Narrative** takes a dual approach to its analysis and reporting. Alongside highlighting key achievements, strategic shifts, and operational progress for 2024, the report also provides a cumulative overview of the three-year business cycle, showcasing both the immediate outcomes of 2024 and the broader trajectory of the Portfolio's contributions to CGIAR's strategic goals. By presenting both annual and multiyear insights, the report underscores the cumulative impact of CGIAR's work and sets the stage for the transition to the 2025–2030 Portfolio.

Role within the broader Technical Reporting framework

CGIAR Technical Reporting fulfils the System-level programmatic reporting requirements set out in the Standard Provisions annexed to the Funding Agreement or Arrangement signed between each Funder and the System Organization.[2] The **Portfolio Narrative** serves as the synthesis layer of CGIAR's Technical Reporting system, and is a key component of the **2024 Technical Report**, which comprises:

- **Type 1 Initiative, Impact Platform, and SGP Reports**: These annual reports present progress toward end-of-Initiative/Impact Platform/SGP outcomes and provide quality-assured results accessible via the CGIAR Results Dashboard.
- **The Type 3 CGIAR Portfolio Practice Change Report**: Highlights operational and strategic progress in Portfolio performance and project coordination and innovation portfolio management.
- **The Type 2 CGIAR Impacts in Agrifood Systems: Evidence and Learnings from 2022-2024:** This report offers a high-level summary of CGIAR's contributions to its impact targets and Science Group outcomes, aligned with the Sustainable Development Goals (SDGs), for the three-year business cycle.

The 2024 Technical Report includes the following Initiatives, Impact Platforms and SGPs:

- All 32 Initiatives
- 5 Impact Platforms
    - Gender Equality, Youth and Social Inclusion
    - Environmental Health and Biodiversity
    - Nutrition, Health and Food Security
    - Climate Adaptation and Mitigation
    - Poverty Reduction, Livelihoods and Jobs
- 6 SGPs
    - Accelerated Varietal Improvement and Seed Delivery of Legumes and Dryland Cereals in Africa (AVISA)
    - Roots Tubers and Banana (RTB) Breeding
    - Accelerating Genetic Gain and Varietal Replacement in Rice–Phase 2 (AGGRi 2)
    - Excellence in Breeding (EiB) II: Cross-Crop Support Services for Breeding Acceleration[3]
    - Accelerating Crop Improvement through Genome Editing 2023–2025
    - Climate Adaptation Insight

1. SGPs are Center-specific awards looking to integrate holistic quality assurance and implementation processes that build on efficiencies and value-for-money approaches through One CGIAR Common Systems and Window 1 budgeting practices. They operate under an integrated structure by Science Group, following similar principles and processes to Initiatives, while recognizing the role and responsibility of Centers for project delivery, compliance, and fiduciary oversight.
2. As per the Charter of the CGIAR System Organization, Article 8.2, and CGIAR's Technical Reporting Arrangement 2022–2024.
3. EiB II reported through two Genetic Innovation Initiatives: Accelerated Breeding and Breeding Resources. For each Initiative report, they provided a concise, high-level summary (approximately one page) outlining the contributions of the Gates Foundation-funded work toward the outcomes described in the Technical Reports.

Integration with other outputs

The **Portfolio Narrative** informs the **2024 CGIAR Annual Report** – a comprehensive summary of the organization's collective achievements, impacts, and strategic outlook.

Elements of the Type 2 report fed into the **CGIAR Flagship Report**, released in April 2025 at CGIAR Science Week. The Flagship Report synthesizes CGIAR research in an accessible format, tailored to provide policymakers and decisionmakers at national, regional, and global levels with the evidence needed to formulate, develop, and negotiate evidence-based policies and investments.

Figure 1.1 illustrates these relationships, emphasizing the interconnectedness of the Portfolio Narrative with other reporting products.

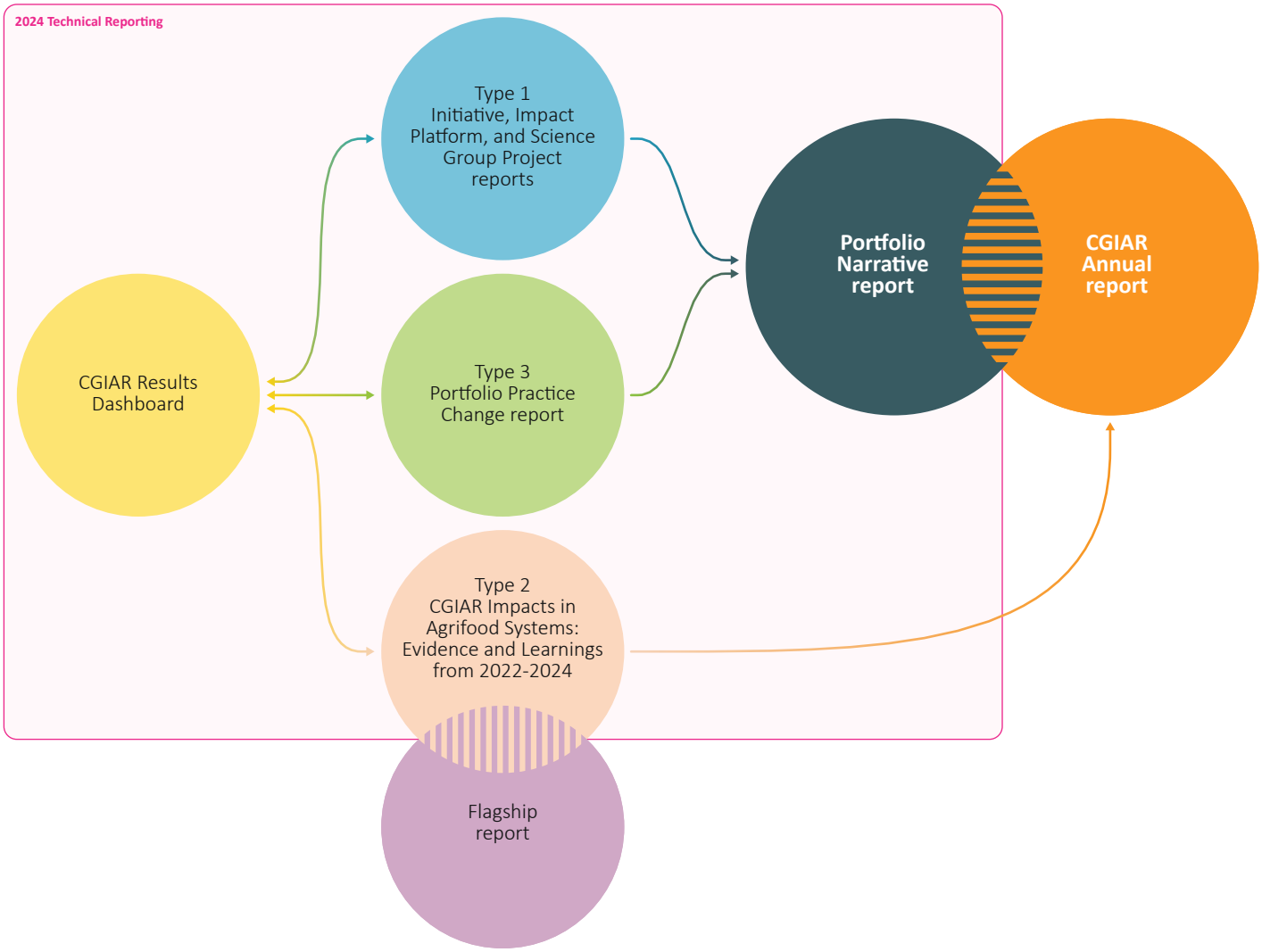


Figure 1.1. CGIAR's 2024 Technical Reporting components and their integration with other CGIAR reporting products.

Key numbers from the 2022–2024 Portfolio

Between 2022 and 2024, CGIAR Initiatives, Impact Platforms, and SGPs reported over 16,600 results out of which 1,135 were outcomes (7 percent). Most of the outcomes — 471 results (42 percent) — were reported as innovation use, reflecting the uptake and application of CGIAR-developed innovations in target geographies. This was followed by policy change outcomes (341 results, 30 percent), indicating CGIAR's strong engagement in influencing policy and achieving broader systems outcomes, and other outcomes category (321 results, or 28 percent) — corresponding mainly to external engagement.

From a geographical perspective, the Portfolio of reported outcomes spans 95 countries, showcasing CGIAR's broad global reach. The highest number of results was reported in Kenya (163), followed by Viet Nam (96), Ethiopia (86), Bangladesh (80), and India (79). Strong clusters of results are observed in sub-Saharan Africa and South and Southeast Asia, underscoring CGIAR's commitment to delivering impact in priority regions where food systems face persistent and emerging challenges.

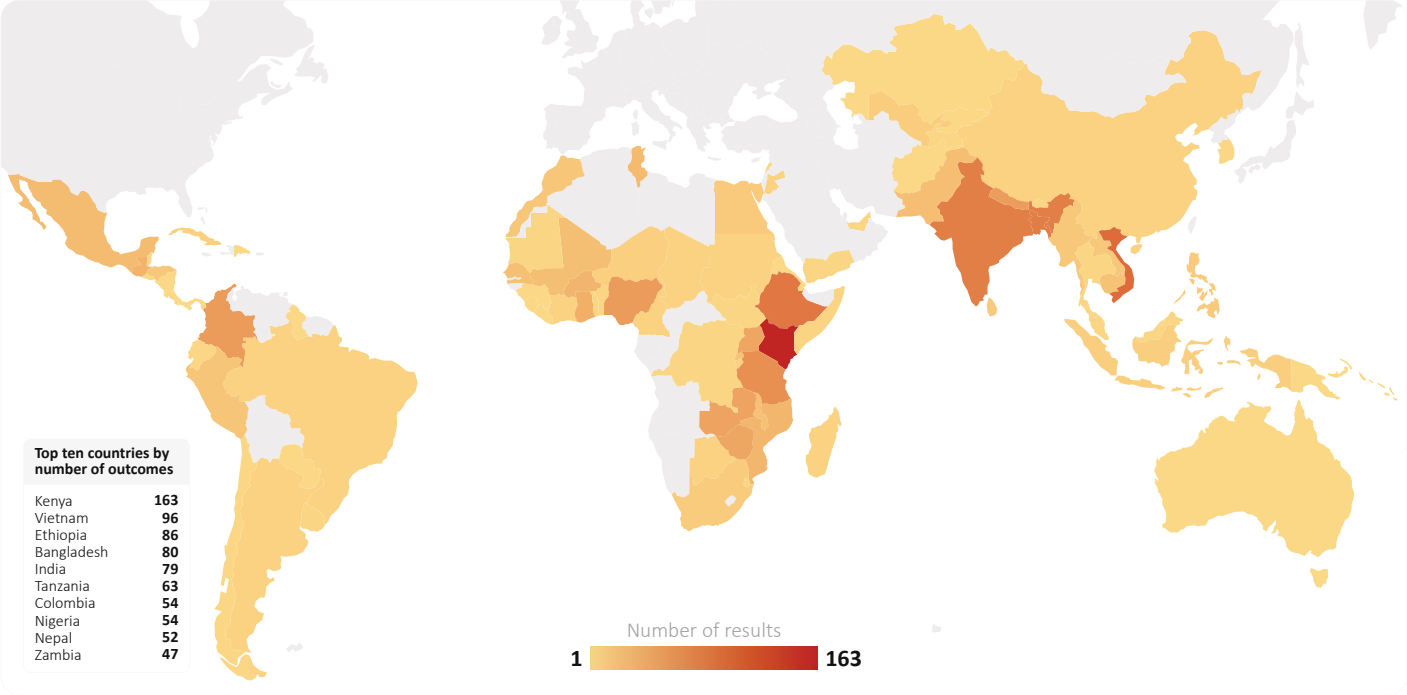


Figure 1.2. Geographic distribution of outcomes reported between 2022 and 2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Globally, CGIAR-supported innovations reached over 20.6 million farmers and 24,711 agricultural extension agents used CGIAR-supported innovations from 2022 to 2024.

CGIAR research informed USD 3.27 billion in third-party investments and contributed to 205 policy changes. These outcomes were supported by partnerships with over 4,000 organizations across governments, private-sector companies, research institutions, and non-governmental organizations (NGOs), reflecting the deeply collaborative nature of CGIAR's operating model. Nearly 60 percent of CGIAR outputs during this period were co-developed with partners.

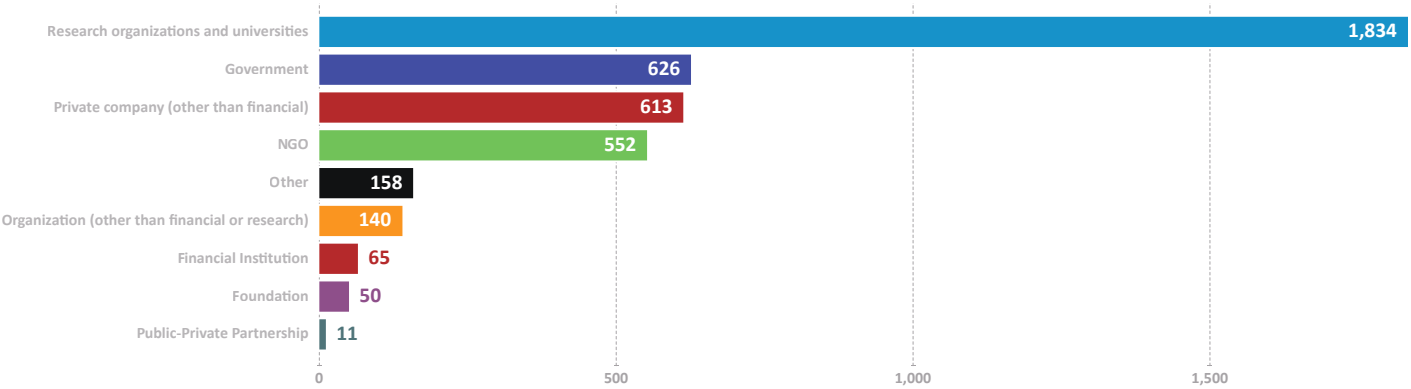


Figure 1.3. Number of reported partners by typology, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Among all countries, Kenya reported the most co-produced results (982), reflecting its central role in CGIAR's research and implementation efforts and a high concentration of collaborative activities. India (921 results) and Ethiopia (825 results) also showed strong engagement, likely due to long-standing research programs and well-established partnerships. Other countries with significant partner-based results included Nigeria (758), Bangladesh (650), and Tanzania (628) — indicating broad regional engagement across both Africa and South Asia.

Countries such as Colombia, Mexico, and Cuba also feature prominently, underscoring CGIAR's commitment to cross-regional collaboration, including in Latin America and the Caribbean.

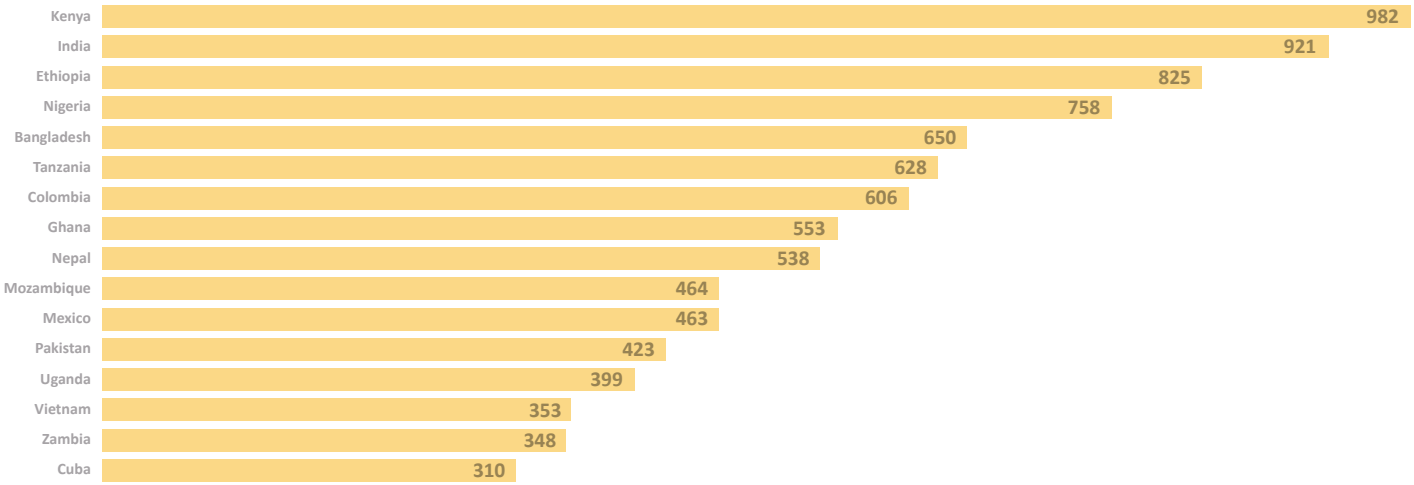


Figure 1.4. Countries with the highest number of reported results achieved through partner collaboration, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

The following sections of this report offer an in-depth analysis of each CGIAR Science Group and Impact Area, presenting key metrics from the 2022–2024 business cycle along with profiles of three countries where CGIAR's work is prominently featured.

AfricaRice genebank in Mbe, Cote d'Ivoire.
Credit: Neil Palmer/Crop Trust

Resilient Agrifood Systems

CGIAR's contributions through the RAFS Science Group

The Resilient Agrifood Systems (RAFS) Science Group is one of three CGIAR Science Groups that operated from 2022 to 2024. RAFS addresses the interconnected agricultural, environmental, and societal challenges faced by smallholder farmers in the global South, most of the activities in 26 countries. Working through all three of CGIAR's impact pathways — innovation, capacity development, and policy change — RAFS generated solution-oriented knowledge, products, and services aimed at field, farm and community levels. RAFS contributed to the diversification and sustainability of crops, trees, livestock, and fish, and considered both rural and urban locations.

Through wide-ranging partnerships, RAFS co-developed research to put innovations into the hands of those who can use them to enhance the sustainability and resilience of food systems; improve land, soil, and water health; ensure safe and nutritious foods for the wider population; and improve the productivity and incomes of farmers. We enabled durable adaption to, as well as mitigation of, climate change; job creation and reduced poverty; increased gender and social equity; and improved nutrition and health while safeguarding the environment and conserving and augmenting biodiversity.

Five subgroups of RAFS housed Initiatives. These were: Crop-based Systems (Mixed Farming Systems, Excellence in Agronomy, Plant Health); Livestock-based Systems (One Health, Sustainable Animal Productivity, Livestock and Climate); Aquatic Food Systems (Aquatic Foods), Agrobiodiversity and Urban Food Systems (Nature-Positive Solutions and Resilient Cities); and Integrated Systems and Scaling (six Regional Integrated Initiatives). Each Initiative worked in multiple countries and regions across the global South. The research Initiatives and the Science Groups closed at the end of 2024 and transitioned into CGIAR's 2025–2030 Portfolio. This report describes the cumulative achievements within RAFS, except where specifically mentioned otherwise. Figure 2.1 shows the locations of results reported between 2022–2024 by the RAFS Initiatives.

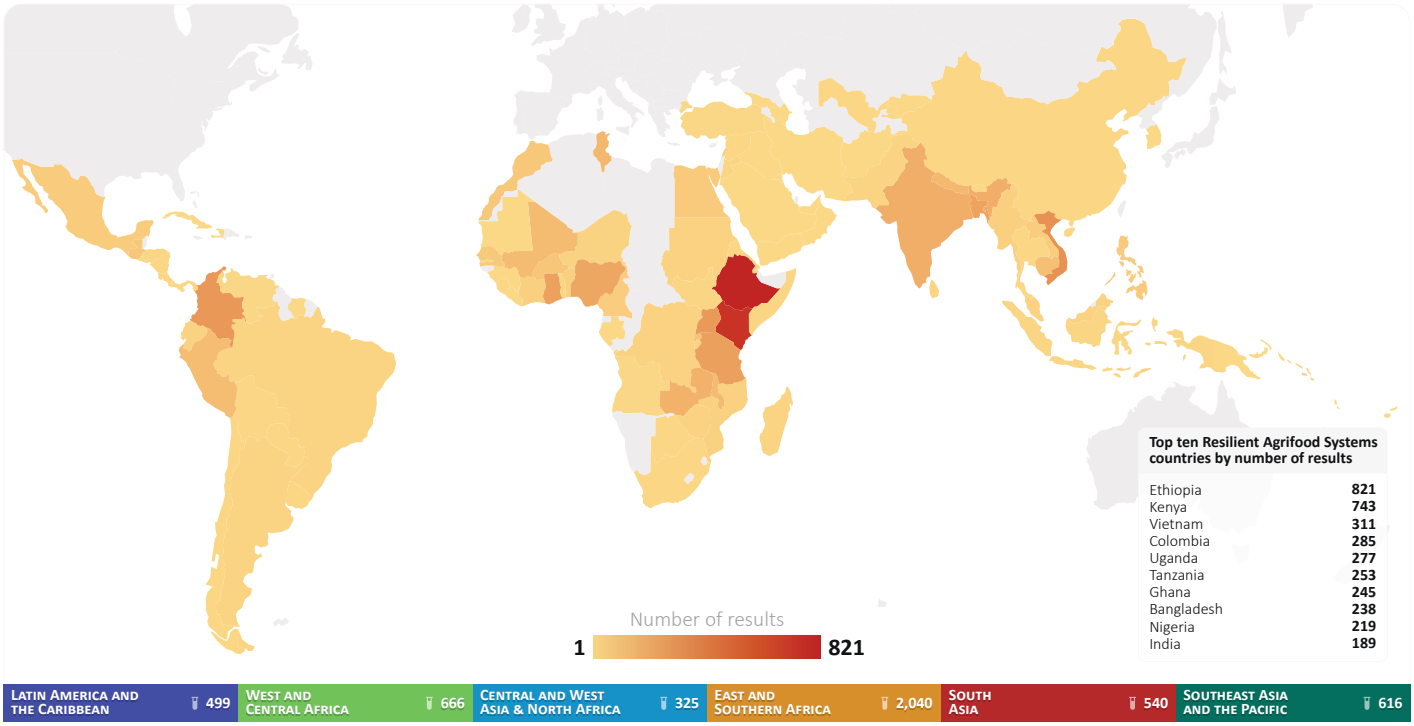


Figure 2.1. Geographic location of reported RAFS results. These results entail all activities, including but not limited to research, publications, engagement, capacity development, and policy and organizational support. More intense coloring signifies more activities reported between 2022 and 2024. One result can impact multiple countries and can therefore be represented multiple times. Source: CGIAR Results Dashboard, accessed May 6, 2025.

RAFS key themes and priorities

The RAFS Initiatives took a comprehensive approach to addressing agricultural challenges through practical on-farm innovations, digital innovations, community engagement, strategic partnerships, capacity sharing, and the development of new knowledge and innovations.

Key highlights of these topics include:

1. **Digital and technological innovations:** Digital platforms and tools, such as the GeoAgro-MiSR app[1] in Egypt and the AKILIMO tool in Africa, are being used to provide tailored agronomic advice, to optimize resource use, and to enhance agricultural productivity. These innovations were often developed in collaboration with local governments and organizations to ensure that they meet specific regional needs.
2. **Aquaculture and fisheries management:** Work in Timor-Leste and Ghana focused on integrating aquaculture into national strategies, improving local fish production, and enhancing food security through sustainable practices (Peskas fisheries monitoring system).
3. **Community-based approaches:** Activities such as the Community-Based Breeding Programs (CBBPs) for livestock in Ethiopia and participatory rangeland management (PRM) in Africa emphasized local involvement and governance to improve resource management and sustainability. These Initiatives often resulted in increased productivity, better resource governance, and enhanced community resilience.
4. **Climate and environmental resilience:** Many projects focused on integrating climate-smart practices, such as conservation agriculture, sustainable aquaculture, and low-emission livestock systems. These efforts aimed to mitigate climate change impacts, improve food security, and promote environmental conservation. The Livestock and Climate Initiative, for instance, along with the Index-Based Livestock Insurance in the Horn of Africa project, aimed to mitigate climate risks and enhance resilience through sustainable livestock management and insurance solutions.
5. **Public-private partnerships:** Collaborations among governments, research institutions, non-governmental organizations (NGOs), and private-sector entities are crucial for scaling innovations and achieving broader adoption. Examples include partnerships for scaling innovations, such as thermotolerant vaccines and digital platforms for livestock market intelligence.
6. **Empowerment and inclusivity:** Several Initiatives prioritized gender-sensitive approaches and the empowerment of women and youth. The CGIAR Research Initiative on Sustainable Animal Productivity in Uganda focused on improving women's roles in livestock production and enhancing their access to markets and resources.
7. **Data and knowledge sharing:** Efforts like the Global Agricultural Data Innovation and Acceleration Network (GARDIAN) and the development of datasets for livestock emissions and rangeland monitoring highlight the importance of data-driven decision-making. These resources support better policy formulation and implementation.
8. **Sustainability and circular economy:** Projects promoting the circular bioeconomy, such as the Circular Bioeconomy Innovation Hub in Ghana, aimed to optimize resource use and reduce waste, contributing to sustainable agricultural practices.

1. As noted in the disclaimer, this link directs to the quality-assessed raw data of the result submitted in the Performance and Results Management System (PRMS) by the CGIAR Initiatives. It is provided here as evidence supporting the associated information.

Grass pea production in Odisha.
Credit: IRRI

RAFS results

Due to the integrated nature of RAFS research, the Initiatives — and individual activities — often addressed multiple CGIAR Impact Areas simultaneously. Two-thirds of reported results addressed multiple impact areas (see Figure 2.2). Of all the results reported from 2022 to 2024, 58 percent addressed climate change, 50 percent addressed poverty, 48 percent addressed the environment and biodiversity, 41 percent addressed food security and nutrition, and 37 percent addressed gender and social inequality. The counts of results reported as addressing each Impact Area are shown in Figure 2.3.

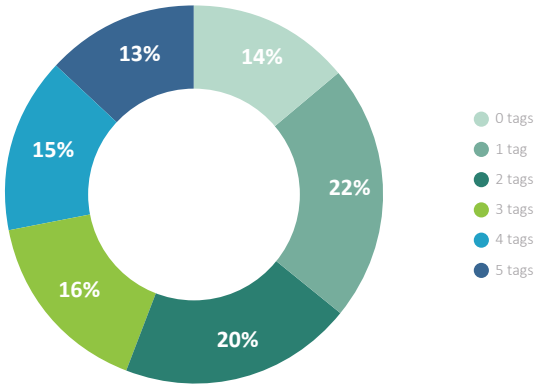


Figure 2.2. The proportion of results that address none, one, or multiple Impact Areas. Due to the integrated nature of RAFS activities, many results contribute to multiple Impact Areas. Source: CGIAR Results Dashboard, accessed May 6, 2025.

2 = Principal: Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.

1 = Significant: The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.

Figure 2.3. Number of RAFS results contributing to each Impact Area. Results are tagged as "***principal***" or "***significant***" to indicate their contribution to an Impact Area, with ***principal*** results shown in the **orange** and ***significant*** results in the yellow. Source: CGIAR Results Dashboard, accessed May 6, 2025.

A total of 5,453 results were submitted over the three-year period, with annual submissions increasing as the Initiatives became more established (Figure 2.4).

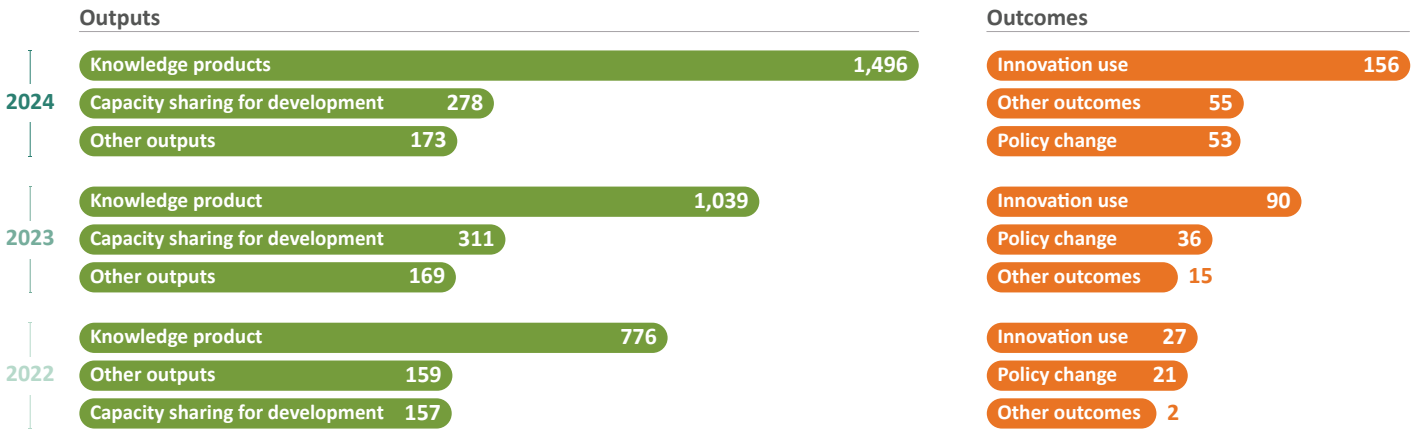


Figure 2.4. Number of reported RAFS results per year, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Knowledge products were by far the most common result type, including peer-reviewed scientific articles, reports, briefs, blogs, and others (Figure 2.5).

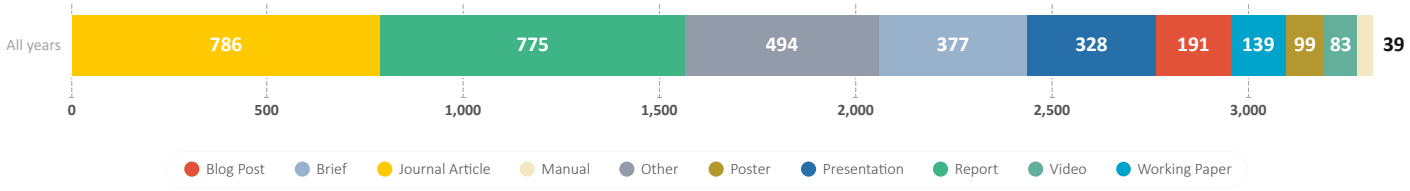


Figure 2.5. Total number of reported RAFS knowledge products, by type. Source: CGIAR Results Dashboard, accessed May 6, 2025.

A total of 560 innovations were developed, the majority focused on farm-level technical innovation (356), along with notable numbers of capacity development innovations (137) and policy or organizational innovations (60) (Figure 2.6).

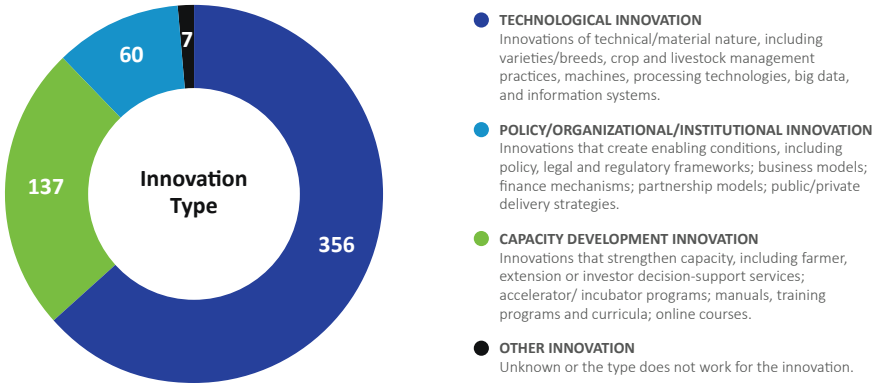


Figure 2.6. Total innovations reported by RAFS, by typology. Source: CGIAR Results Dashboard, accessed May 6, 2025.

A total of 720 capacity sharing events and processes were reported, reaching over 387,983 short-term trainees, and 3,988 long-term trainees (including Masters students and PhD candidates) (Figure 2.7).

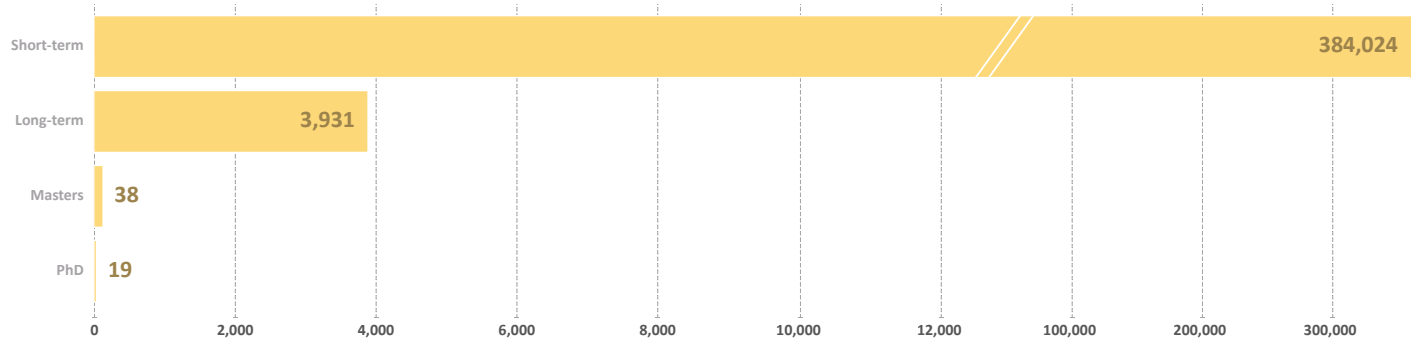


Figure 2.7. Number of individuals trained by RAFS Initiatives (2022–2024). Source: CGIAR Results Dashboard, accessed May 6, 2025.

Regarding outcomes achieved, RAFS innovations were in use by over 15.8 million farmers and farm household members, much of these due to the findings of a study on the widespread use of *Urochloa forage* across Latin America, Africa, and Asia. Other examples of innovations in use include the Circular Bioeconomy Innovation Hub (CBEIH) in Ghana, which exemplifies a collaborative, co-ownership approach to promoting circular economy initiatives, particularly in the organic waste-to-resource value chain. In 2024, the Hub organized workshops on waste valorization and piloted waste source-segregation in schools, demonstrating its commitment to sustainable practices. Related circular bioeconomy innovations include the operationalization of a briquetting machine in Ghana and urban waste recycling in Nairobi, showcasing the global reach of these efforts. In Southeast Asia, the Direct Seeders Rice Consortium (DSRC) and the International Rice Research Institute (IRRI) promoted mechanized direct seeded rice (mDSR) technologies. These initiatives included hands-on field demonstrations and training sessions aimed at improving resilience against climate change and optimizing resource use in rice cultivation.

RAFS Initiatives also worked at the policy level, with 199 policies reported as having drawn upon RAFS research and 102 budget or investment decisions informed by RAFS research. Examples of the policy and investment decisions taken include the Women in Business: Chicken Dissemination Project in Tanzania and Ethiopia, which empowers women through chicken businesses, improving food security and nutrition. This model has been adopted by policymakers in Kenya and integrated into broader nature-positive initiatives. The CGIAR Research Initiative on Livestock and Climate promoted sustainable livestock practices to mitigate climate change effects, influencing investments and policy changes across multiple countries, such as the Joint Village Land Use Planning approach in Tanzania, which secures shared grazing lands through participatory management, setting a precedent for collective landholding certification. Other examples are updated policies, such as Nigeria's National Fisheries and Aquaculture Policy and Viet Nam's rice production strategy to enhance sustainability and economic growth.

RAFS strategic partnerships

Over the three-year period, RAFS Initiatives worked with 1,903 unique partners across 113 countries. These included partners from the global South, where implementation and impact took place, as well as partners from the global North, which primarily served as collaborators in delivering results (Figure 2.8).

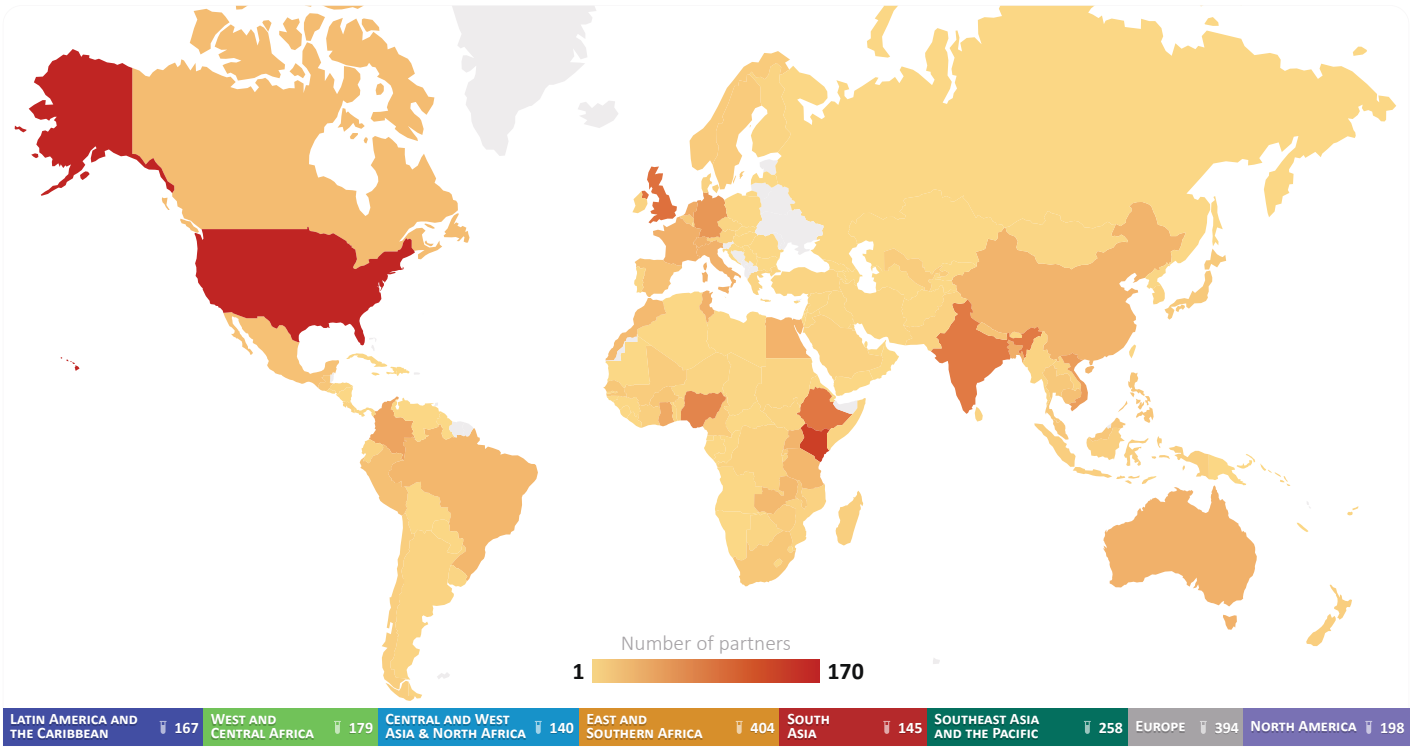


Figure 2.8. Locations of RAFS partners' head offices. Source: CGIAR Results Dashboard, accessed May 6, 2025.

The most common partner types were national universities, national agricultural research and extension systems (NARES), and governments. The number of active partnerships for all types of partners increased over the three years. Key partnership development activities included Farmer-to-Farmer Scaling Networks in Kenya and Ethiopia, which connected farmers for information exchange, and scaling climate adaptation technologies. Multistakeholder platforms (MSPs) in subsectors such as pig farming and mixed farming systems in Nepal provided collaborative spaces for stakeholders to address challenges, share knowledge, and enhance visibility. Workshops and events in Kenya, Ethiopia, and Zambia focused on building the capacity of producers to lead innovation scaling. Additionally, public-private partnerships in Ethiopia and agribusiness incubation in Tanzania highlighted the role of private-sector engagement and innovative approaches in value chain enhancement. An Excellence in Agronomy (EiA) Partnership Meeting in Nigeria focused on agronomic innovation, engaging partners, showcasing tools, and planning sustainable strategies. Overall, the emphasis was on creating inclusive, cooperative frameworks that empower stakeholders, enhance productivity, and support sustainable agricultural development.

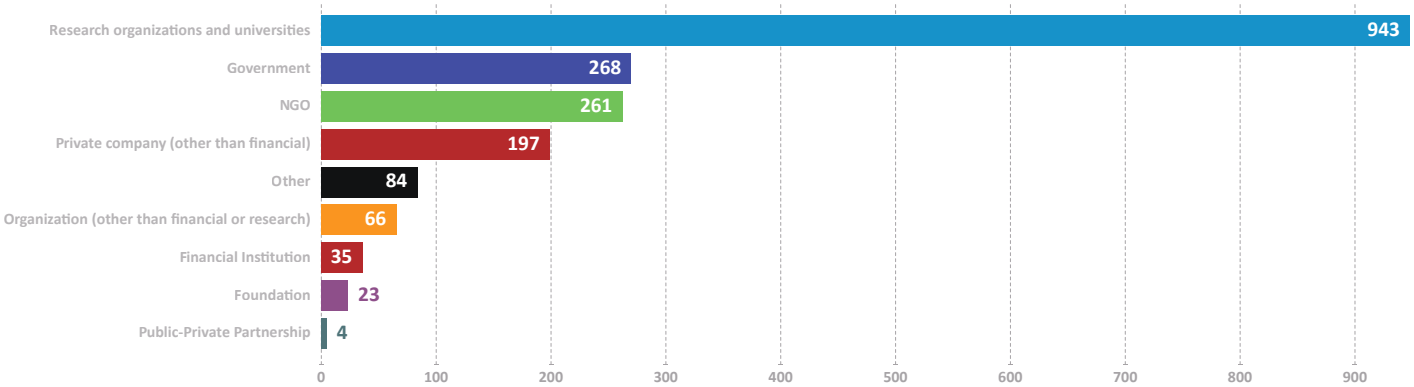


Figure 2.9. Partner organization types and the number of active partnerships. Source: CGIAR Results Dashboard, accessed May 6, 2025.

CGIAR's contributions through the ST Science Group

Like other Science Groups, Systems Transformation (ST) Initiatives worked through the three primary impact channels of CGIAR, namely innovation development, capacity sharing, and policy advice. However, it focused more on meso- and macro-level challenges, thereby giving significant attention to generating evidence on policy and institutional options that promote food, land, and water system transformations and multiple positive outcomes. Research teams developed and strengthened relationships with policy actors at multiple levels to identify priority policy goals and research that supports informed decision-making. ST scientists developed many tools and methods, including policy stakeholder mapping and analyses, political economy analysis methods, a variety of modeling tools to estimate likely impacts of policy choices, evaluation methods to test for effectiveness of policy-related interventions, and methods for assessing policy coherence.

Over the 2022–2024 period, most ST research was concentrated in Africa, though the top 10 countries by number of results spanned multiple regions. Kenya was the country with the highest number of ST results, followed by India, Ethiopia, and Nigeria, each with over 300 results mapped to them (Figure 2.10).

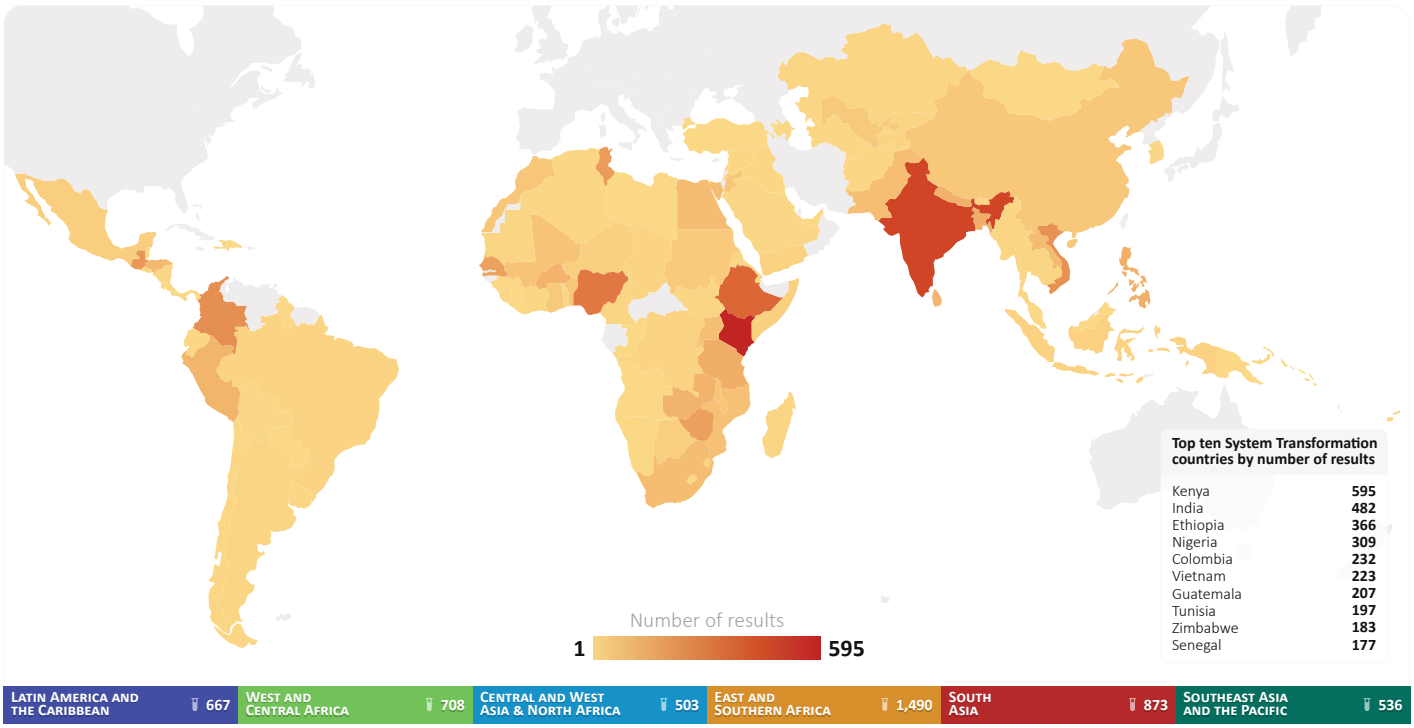


Figure 2.10. Geographic location of reported ST results. More intense coloring signifies more activities reported between 2022 and 2024. One result can impact multiple countries and can therefore be represented multiple times. Some results are not mapped to countries, e.g. models or methods with global applicability. Source: CGIAR Results Dashboard, accessed May 6, 2025.

CORIGAP Postharvest Technologies.
Credit: IRRI

ST key themes and priorities

The Systems Transformation Science Group Initiatives were organized fairly closely to the CGIAR's Impact Areas. The CGIAR Research Initiatives on Climate Resilience and Low-Emission Food Systems focused principally on climate change adaptation and mitigation, respectively. Most other Initiatives had at least some focus on climate change as well, notably Gender Equality, which looked at the intersection of women's empowerment and the climate crisis, and Fragility, Conflict and Migration, which also explored how climate change triggers or exacerbates humanitarian crises. The Agroecology and NEXUS Gains Initiatives were mapped primarily to the Environment Impact Area, focusing especially on land and water systems. The Nutrition Impact Area was well covered by the Sustainable Healthy Diets and Fruits and Vegetables Initiatives. The former conducted research primarily aimed at the consumer and the food environment components of the food system while the latter used an end-to-end approach, including interventions at the production stage. With respect to the Poverty Impact Area, the two primary Initiatives were Rethinking Food Markets and Digital Innovation — both of which had strong efficiency objectives in food systems. By working in poor communities or addressing issues affecting low-income populations, other Initiatives also maintained a strong focus on poverty reduction. The Gender Equality and Fragility, Conflict and Migration Initiatives had a primary orientation to gender and social inclusion. Finally, the Foresight and National Policies and Strategies Initiatives were designed to cut across all Impact Areas.

From 2022 to 2024, some of the more significant areas of work included:

- Development and dissemination of climate information services.
- Support to climate change negotiators and to countries in meeting their nationally determined contributions to support climate change mitigation.
- Development of locally driven processes, farm-level practices, and business models to support agroecological transitions and low-emission food systems.
- Development of innovations at various stages of agrifood value chains for nutritious foods, including perishable fruits and vegetables.
- Development of digital innovations and platforms to facilitate the collection, analysis, and sharing of data to enable actors to make more informed decisions, e.g. on managing natural resources.
- Use of evidence and models to support policymakers in developing strategies, policies, and programs related to agroecology, water management, climate resilience, social protection, economic transformation, digital infrastructure, and nutrition.
- Building capacity among diverse actors, including policy actors, to utilize ST tools for decision-making.

ST results

Systems Transformation (ST) generated 5,685 results from 2022 to 2024, of which 444 were outcomes. ST outcomes were distributed relatively equally across policy change (152), innovation use (149) or "other outcomes", including capacity change (143). Among the policy change outcomes, most contributed to policies or strategies (119) with another 36 influencing investments or budgets.

Among outputs, 3,408 were knowledge products (3,408), 740 were capacity sharing results, and 316 were innovations under development (the remainder were "other outputs" such as shorter communications and events to facilitate the uptake of research results).

The number of results reported by ST Initiatives increased annually (Figure 2.11). The number of results was relatively limited in 2022, when the Initiatives were in their start-up phase, but momentum built in the following years. The percentage increase in knowledge products between 2023 and 2024 was 37 percent, and ST Initiatives continued to report new innovations under development. With knowledge products, the increase was less pronounced for journal articles, which rose slightly from 189 in 2023 to 202 in 2024. Most of the overall growth came from other types of outputs, particularly those aimed at making research findings more accessible to potential users. More impressive were the increases in outcomes — from 2023 to 2024, the percentage increase in policy outcomes and innovation use outcomes was 178 percent and 253 percent, respectively.

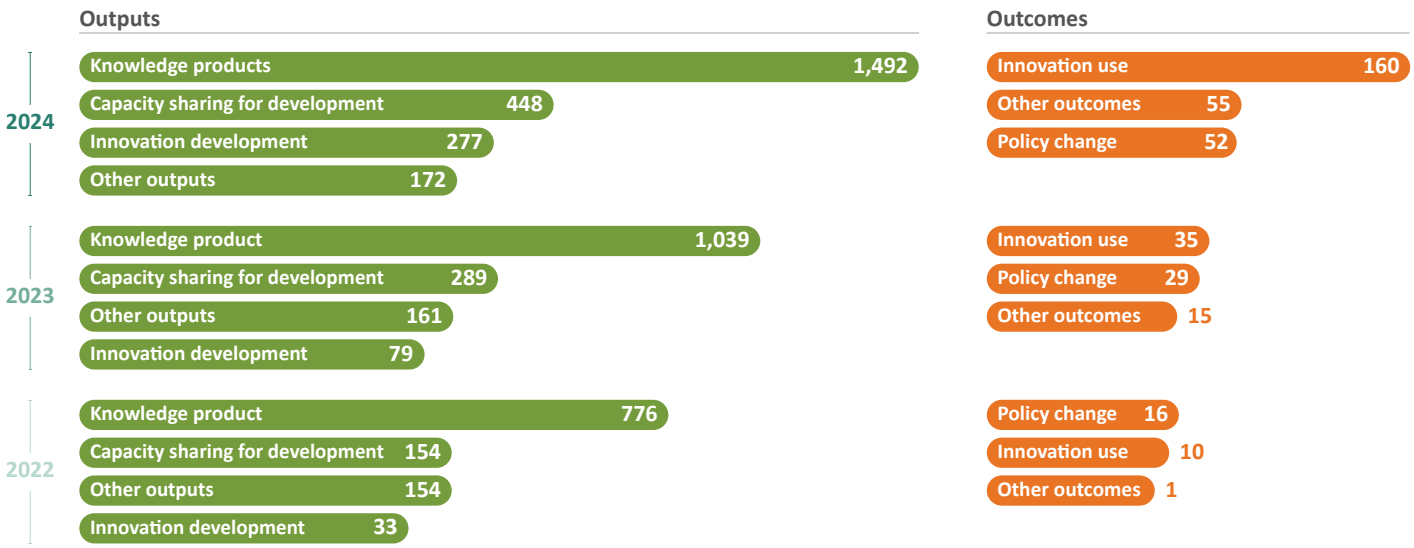


Figure 2.11. Number of reported ST results per year, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Capacity sharing for development

The CGIAR ST Science Group covered a wide array of capacity sharing activities conducted by various CGIAR Initiatives and collaborating Centers and partners across different regions. Capacity sharing activities focused on enhancing skills, knowledge, and practices in agriculture, climate resilience, gender equality, nutrition, sustainable development, and policy analysis. The ST Science Group trained 59,467 people in short-term activities and another 6,297 people in long-term activities between 2022 and 2024 (Figure 2.12). Some notable examples include:

- Water-Energy-Food Nexus concepts and tools were shared in a masterclass organized in South Africa and in a special session at the WaterNet Symposium in Zanzibar.
- Drone technology and digital tools were shared in a Drone Awareness Workshop in Bengaluru, India, and as part of the International Certificate Course on Digital Agriculture.
- Policy Analysis tools were shared in several countries.
- Agroecological practices were promoted through various initiatives, including the CLEANED tool for evaluating environmental impacts in animal production systems, training on agroecological practices for olive oil quality in Tunisia, and mechanization and water management in Zimbabwe.

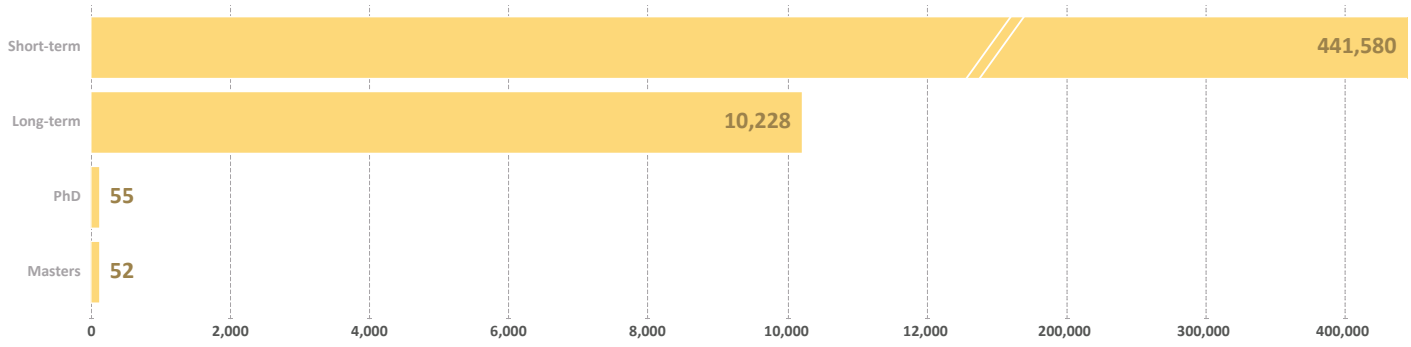


Figure 2.12. Number of individuals trained by ST Initiatives, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Innovation development and use

Innovative tools and approaches were developed to address the complex challenges of food, land, and water systems in low- and middle-income countries. These innovations focused on sustainability, resilience, and food security through integrated approaches and stakeholder engagement, including the empowerment of local-level groups to steer innovation development processes (such as in agroecology and low-emission food systems). Key advancements included enhanced biophysical and socioeconomic modeling tools, such as the IMPACT model; and water-energy-food-environment assessment tools and the integrated Future Estimator for Emissions and Diets (iFEED) framework, which analyze interactions between climate change, food systems, and policy decisions. Digital innovations are transforming agricultural and environmental management, including artificial intelligence (AI)-based drought forecasting systems, water quality monitoring tools, and digital twins for river basin management. Tools like the Environmental Flow Estimation framework and MiniSASS v2 empower both policymakers and citizen scientists in conservation efforts. Training programs and digital platforms, like the Foresight and Rapid Response Modeling System (FARRMS), provide real-time insights for crisis response and adaptive management. A strong emphasis was placed on gender equality and social inclusion, with innovations like GenderUp, the Women's Empowerment in Agriculture Index (WEAI), and the Women's Empowerment in Agrifood Governance (WEAGov) framework supporting women's roles in decision-making.

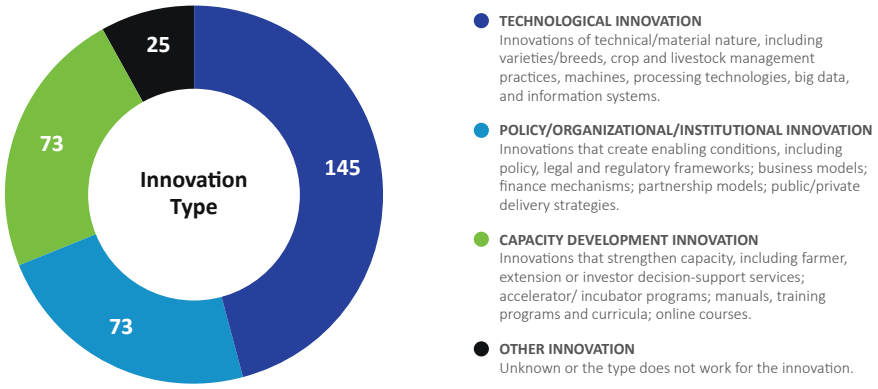


Figure 2.13. Total innovations reported by ST, by typology. Source: CGIAR Results Dashboard, accessed May 6, 2025.

To build resilience, ST collaborated with humanitarian programs to test how development-oriented interventions can supplement crisis response interventions in conflict areas. Additional research was conducted on developing insurance innovations to mitigate risk, and tools were used to help governments and communities manage groundwater and other water resources under climate variability. Risk contingent credit loans were issued to farmers in Kenya and Ethiopia. Water management tools were disseminated and are in use in Nepal, Pakistan, and Zambia and generally in the Niger and Limpopo water basins. ST developed efficient ways to disseminate information on climate-adapted innovations to smallholder farmers, including agroecological practices. Between 2022 and 2024, climate information services were delivered to large numbers of households via television, radio, and other channels — reaching an estimated 1.2 million in Kenya, 900,000 in Senegal, 654,000 in Zambia, and 587,000 in Bangladesh.

Better nutrition was promoted through research along the agrifood value chain: (i) improvement in fruit and vegetable seed systems; (ii) interventions to reduce storage costs of perishables and to reduce food loss in food value chains; (iii) new business models for agroecologically produced food; (iv) strategies for enhancing food environments to increase access to healthy foods by poor populations (including school feeding programs); (v) guidelines on safe and nutritious foods for governments, and (vi) behavioral change communications to provide consumers with better information with which to choose healthier food options.

Overall, these efforts underscored the importance of integrating participatory approaches to identify priority research needs, rigorous testing of promising interventions, use of models and tools to support policymaking and other decision-making, and digital innovations to foster sustainable, inclusive, and resilient agricultural and environmental systems.

Policy change

ST Initiatives engaged closely with policymakers, resulting in several important policy outcomes in relation to food, land, and water system transformation. ST contributed to the Kenya National Agroecology Strategy that was approved by the government in 2024. ST also contributed to the Niger River Basin Authority adopting water-energy-food-environment nexus guidelines to help them make investment decisions with a better understanding of synergies and tradeoffs. Further water management and resource sustainability policy outcomes were achieved in the Limpopo River Basin, Nepal, and Nigeria, focusing on governance, sustainability, and technological innovations (see innovation outcomes above). The CGIAR Research Initiative on Climate Resilience influenced policies in Africa and Southeast Asia, contributing to discussions on climate finance and security. Additionally, CGIAR's collaborations with the World Food Programme and national governments have strengthened climate-smart agriculture, food security, and climate security strategies in Bangladesh, Kenya, and Madagascar and in the broader Intergovernmental Authority on Development (IGAD) region of the Horn of Africa.

ST also contributed to overall enabling environments in selected countries. The CGIAR Research Initiative on National Policies and Strategies helped support the Bottom-Up Economic Plan on Jobs, Poverty and Food Security in Kenya. Digital innovation was also a key focus of the ST Science Group, with it contributing to India's agricultural data policies and AI advancements as well as supporting digital infrastructure development in Sri Lanka and India. Ethiopia and Viet Nam advanced food-based dietary guidelines and food system transformation plans, while Bangladesh is formulating its strategy based on ST inputs. The CGIAR Research Initiative on Gender Equality played a pivotal role in integrating gender equality into agrifood systems and social protection policies globally. ST research further influenced global gender policies, including the United Nations Framework Convention on Climate Change's (UNFCCC) Gender Action Plan and the Food and Agriculture Organization of the United Nations' (FAO) gender equality initiatives, helping shape national and international frameworks for women's empowerment in agrifood systems. Through these efforts, the CGIAR ST Science Group drove sustainable and equitable development, tackling challenges related to climate change, food security, and social inclusion across diverse regions.

CORIGAP Postharvest Technologies.
Credit: IRRI

ST strategic partnerships

Partnerships are critical to CGIAR, including ST. They help to ensure relevance of CGIAR research, to boost the quality of its outputs, and to facilitate the use of research results. Between 2022 and 2024, ST collaborated with 1,816 partners to achieve its joint outputs and outcomes. ST Initiatives engaged with partners to co-generate innovations as a primary purpose, followed by engagement to promote the use of research outputs. The most frequently reported partners for ST results were national research organizations and universities (1,870 results), followed by international research organizations and universities (559 results), international and national NGOs (568 results), national governments (530 results), and private-sector companies (314 results) (Figure 2.14).

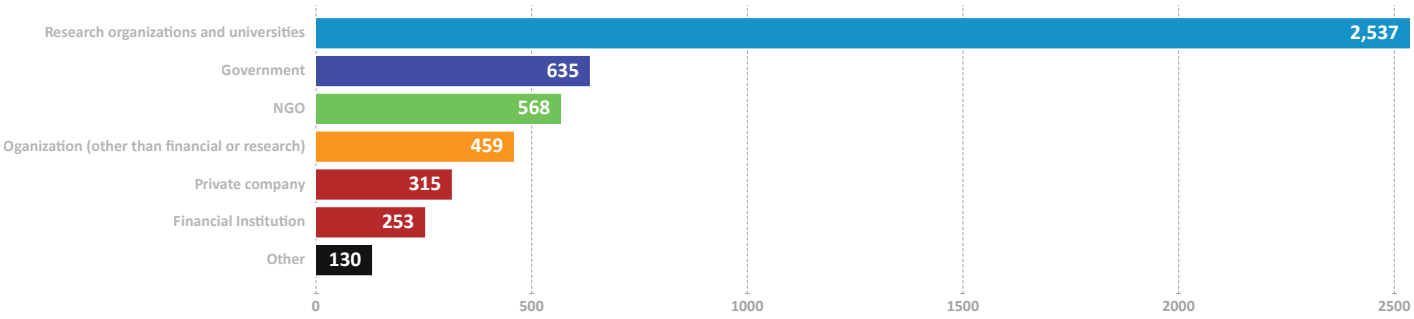


Figure 2.14. Number of ST results by partner type, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

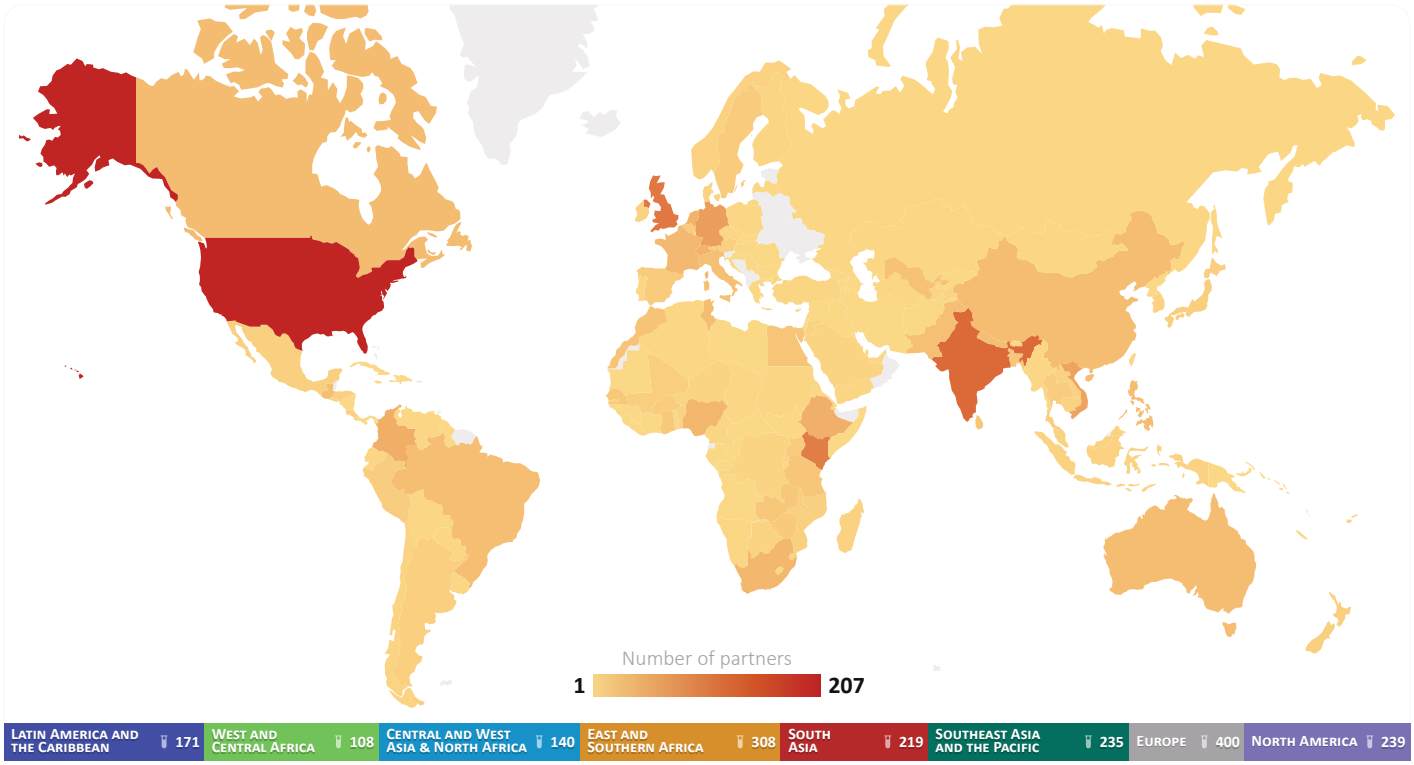


Figure 2.15. Locations of ST partners' head offices. Source: CGIAR Results Dashboard, accessed May 6, 2025.

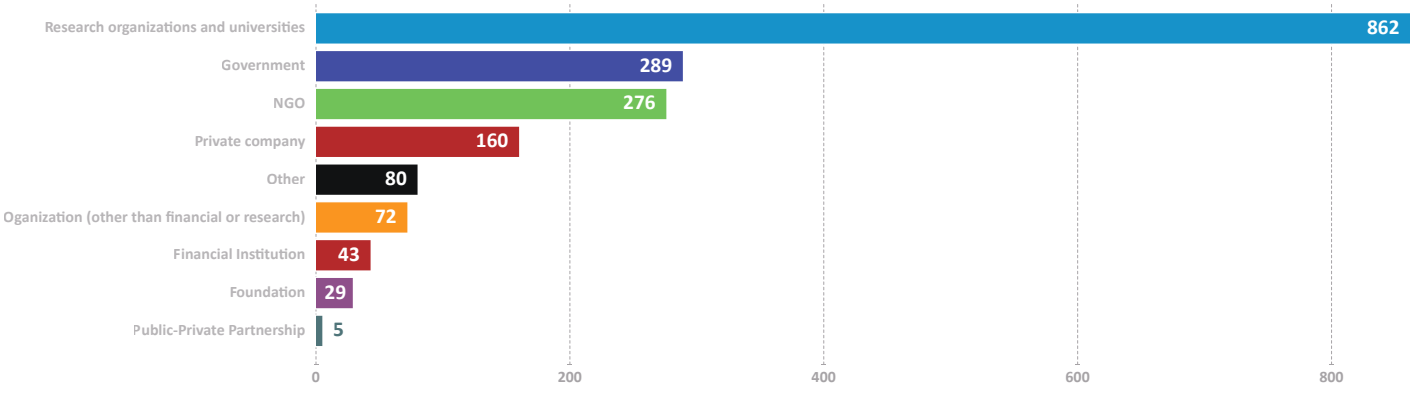


Figure 2.16. Partner organization types and the number of active partnerships. Source: CGIAR Results Dashboard, accessed May 6, 2025.

The top ten partners contributing most to ST results included seven international organizations: Wageningen University and Research, French Agricultural Research Centre for International Development (CIRAD), World Food Programme (WFP), FAO, World Vegetable Center, World Bank (WB), and German Agency for International Cooperation (GIZ). Also in the top 10 were Tunisia's Institut National de recherche Agricole and Office Elevage et Paturage and Guatemala's Ministry of Agriculture.

Some of the partnerships within ST were longstanding, having been established and nurtured by CGIAR Centers and supported by CGIAR Research Programs before the three-year period of the Initiatives (for example, work with WUR, WB, FAO, and numerous universities and NARES in low- and middle-income countries). Other partnerships were formed more recently, including that with the World Vegetable Center and national organizations involved in vegetable and fruit value chains in countries such as Benin. Partnerships also expanded in the areas of resilience building and digital innovations. The CGIAR Research Initiative on Digital Innovation partnered with the Inter-American Institute for Cooperation on Agriculture (IICA) and Sustainably Growing Africa's Food Systems (AGRA) to advance digital adoption, addressing challenges in interoperability, data privacy, and AI ethics.

In the climate resilience space, CGIAR, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and Mali's National Agency for the Great Green Wall leveraged climate information services to support agropastoralists. Supported by the CGIAR Research Initiative on Climate Resilience and the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), the Initiative introduced a "business-to-business-to-client" model to improve climate data dissemination. On the global stage, CGIAR played a key role in climate action, actively contributing to the 29th United Nations Climate Change Conference (COP29) and UNFCCC processes. ST partnered with WFP, the United Nations High Commissioner for Refugees (UNHCR), the Intergovernmental Authority on Development (IGAD), and several national research, development, and humanitarian partners to strengthen programming across Africa that will not only address critical food deficits for refugees and other crisis-affected populations but also enhance livelihoods and resilience in the longer term.

Researchers at the Alliance of Bioversity International and CIAT work at the black soldier fly (BSF) research lab at the Alliance campus in Palmira, Colombia. BSF farming rapidly transforms organic food waste into compost and excess BSF larvae is processed into an ingredient for high-protein animal feed. NATURE+ widely deployed the low-cost, easy-to-implement technique at research sites. Credit: Douglas Gayeton/The Lexicon.

Genetic Innovation

CGIAR's contributions through the GI Science Group

The Genetic Innovation (GI) Science Group finished the 2022–2024 Portfolio period by intensifying its integrated efforts to accelerate results, focusing on prioritized breeding pipelines supported by market intelligence and strengthened seed systems. In 2024, CGIAR and partners identified over 450 market segments and 294 Target Product Profiles at the regional and national levels. This laid foundations for strategic priority setting with national partners to direct limited resources to breeding efforts where varietal development had the greatest likelihood for positive impacts across CGIAR's five Impact Areas. Building on past breeding work, between 2022 and 2024, prioritized Target Product Profiles guided the development and successful registration of over 900 varieties across 21 CGIAR crops in collaboration with over 1,200 partners. The CGIAR Research Initiative Seed Equal supported the integration of 234 promising cereal crop varieties into the seed chain, supporting farmers to adopt high-quality, improved seed varieties. Underpinning GI's work were CGIAR's genebanks, which distributed 337,330 germplasm samples to 124 countries (with 46 percent of these going to users outside CGIAR, primarily to advanced research institutes, universities, and national breeding programs).

GI key themes and priorities

GI was an integrated pipeline of five Initiatives that worked together, starting at product conceptualization and going all the way to seed systems, while supporting breeding and biodiversity through sustainable management of genebanks.

Along this pipeline, CGIAR's Market Intelligence Initiative supported the Accelerated Breeding Initiative by providing data on market segments and together they developed Target Product Profiles that align with farmer, processor, and consumer demands; respond to changing climatic conditions; are gender-responsive; and improve yield. Using this market intelligence, Accelerated Breeding optimized breeding investments by ensuring that breeders focus on well-defined, achievable, and demand-driven targets. Accelerated Breeding guided systematic mapping of the CGIAR Centers' breeding pipelines to market segments and Target Product Profiles, establishing a strategic link between breeding efforts and market needs. This work is now consolidated in Accelerated Breeding's Breeding Portal, a platform that connects with Market Intelligence's Global Market Intelligence Platform (GloMIP). During the 2022–2024 Portfolio period, Accelerated Breeding also optimized CGAIR breeding. Standardized stage plans streamlined workflows across Centers, enabling breeders to operate in a coordinated and efficient manner.

Accelerated Breeding's optimization efforts were underpinned by the Breeding Resources Initiative. Over the past three years, Breeding Resources worked to institutionalize shared services that provide high-quality solutions for breeders and researchers — both in CGIAR Centers and NARES breeding networks. Some of these services included genotyping, biochemical testing, genome sequencing, and nursery support. Significant progress was made with development of the Enterprise Breeding System (EBS), an open-source tool that helps crop breeders make data-driven decisions. EBS is now widely adopted, improving data management and accelerating the development of better performing crop varieties. Additionally, in 2024, the Breeding Resources and Accelerated Breeding Initiatives collaborated to create Bioflow, an advanced breeding analytics pipeline that automates complex calculations, allowing breeders to save time and focus on making informed decisions.

The Seed Equal Initiative sat at the end of the pipeline and supported the acceleration of the delivery of genetic gains to farmers' fields. By leveraging existing CGIAR efforts and building partnerships to facilitate the movement of genetically improved products, Seed Equal supported the integration of 234 promising cereal crop varieties into the seed chain. These varieties were tested, validated, and scaled through farmer-led trials, helping to promote widespread adoption of high-quality, improved seed varieties.

In addition to providing CGIAR and partners with genetic diversity (337,330 germplasm samples to 124 countries), and being custodians of biodiversity, the 11 CGIAR genebanks increased the relevance of their collections to users, improved the availability of their collections to users, and managed seed collections that either met or improved on performance targets for availability, safety duplication, documentation, and quality management.

Popular barley varieties were tested to assess trait preferences among a group of women processors in Ethiopia.
Credit: Dina Najjar, ICARDA

GI results

The GI Initiatives made significant strides toward transforming agricultural breeding and seed systems by collaborating with partners and aligning their efforts with CGIAR's overarching objectives of increasing productivity, enhancing sustainability, and promoting inclusivity in agricultural innovation.

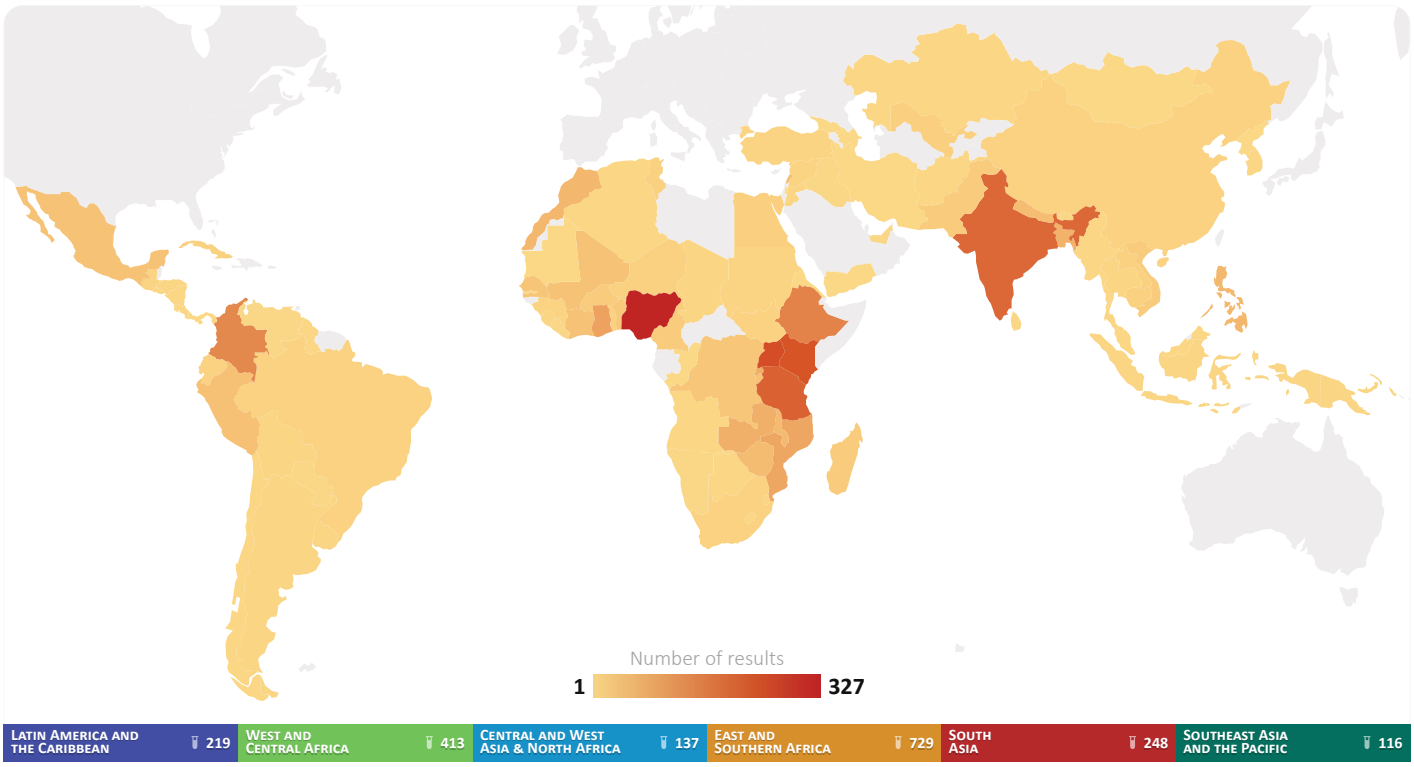


Figure 2.17. Geographic location of reported GI results. More intense coloring signifies more activities reported between 2022 and 2024. One result can impact multiple countries and can therefore be represented multiple times. Some results, such as models or methods with global applicability, are not mapped to countries. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Market Intelligence

The CGIAR Research Initiative on Market Intelligence made significant progress in enhancing the effectiveness of agricultural breeding and seed systems. It focused on institutionalizing standardized market intelligence methodologies and promoting intelligence sharing among CGIAR and NARES partners. Eight segmentation criteria were defined and used for segmenting 25 CGIAR crops and 2 World Vegetable Center crops covering 49 market segments. These efforts streamlined the design of Target Product Profiles, ensuring that breeding programs were driven by market demand. Tools like Tricot, participatory foresight analysis, and GloMIP were introduced to improve decision-making and guide breeding priorities.

Market Intelligence's frameworks, particularly GloMIP's Impact Opportunities portal, facilitated focused investment in high-priority breeding pipelines aligned with CGIAR's five key Impact Areas. This enabled more efficient resource allocation in the Accelerated Breeding programs, ensuring that breeding efforts targeted areas of highest need. Behavioral intelligence also played a crucial role by informing strategies such as crop insurance bundling and gender-responsive seed promotion, which helped accelerate varietal adoption and turnover across diverse regions.

Additionally, the Initiative emphasized transdisciplinary collaboration, with approximately 90 percent of Target Product Profile teams working across multiple disciplines. This approach fostered inclusive decision-making and enhanced alignment with the needs of various stakeholders, particularly by integrating gender-responsive protocols. Overall, the Market Intelligence Initiative made significant strides in driving institutional transformation, developing behavioral insights, and aligning breeding programs with CGIAR's Impact Areas, ultimately improving how agricultural innovations address global challenges.

Accelerated Breeding

The Accelerated Breeding Initiative focused on enhancing the efficiency and effectiveness of breeding programs through several key strategies. It utilized tools like GloMIP to support prioritization and to ensure targeted investment in breeding pipelines. Across the Portfolio, CGIAR breeding Centers mapped 157 breeding pipelines to 418 distinct market segments, aligning them with 418 Target Product Profiles that define the traits of improved varieties. By aligning breeding pipelines with market segments, the Initiative directed resources toward high-impact areas, promoting varieties that would more likely be adopted by farmers. Across the Portfolio, CGIAR and partners developed over 900 improved varieties across 21 crops.

A central feature of Accelerated Breeding was the development of a Breeding Portal, a data management platform designed to provide real-time, transparent access to breeding activities. This system allowed teams to update and share data seamlessly, fostering better collaboration and alignment across breeding efforts. Additionally, Target Product Profiles were continuously reviewed to ensure they addressed in-demand traits, were feasible to develop, and considered gender-responsive needs.

Accelerated Breeding also achieved notable improvements in breeding efficiency. The average breeding cycle time was reduced from 54 to 41 months, accelerating the identification of optimal breeding materials and increasing the pace of genetic gains. Furthermore, genomic selection techniques were increasingly employed, allowing breeders to predict variety performance earlier in the process, identify promising breeding materials more effectively, and focus resources on the best candidates.

To introduce new traits, 74 percent of breeding programs used trait introgression, integrating valuable traits into elite genetic backgrounds. Accelerated Breeding expanded its use of large-scale on-farm trials, with the number of trials at more than 30 sites nearly tripling from 2022 to 2024. These trials provided critical data to inform variety release decisions, ensuring that farmers' feedback was incorporated and boosting confidence among seed system actors and governments.

Key innovations in the Accelerated Breeding Initiative were introduced to improve alignment between CGIAR breeding efforts and national priorities. National Product Design Team meetings brought together CGIAR and NARES scientists, private-sector representatives, universities, farmer groups, food processors, and social scientists to define market segments and Target Product Profiles tailored to national needs. Between 2022 and 2024, almost 100 such meetings were held, generating over 400 individual Target Product Profiles that guided CGIAR and partners' breeding work. These national Target Product Profiles ensured that CGIAR breeding activities directly responded to country priorities and fostered greater ownership and use of new varieties. This collaborative decision-making process helped strengthen local breeding programs and increased the relevance of improved varieties.

Additionally, CGIAR breeding partnerships, especially those in sub-Saharan Africa, generated an estimated USD 40 billion in annual economic welfare gains . To facilitate stronger partnerships, the TRANSFORM Work Package conducted a global assessment of breeding networks, leading to targeted capacity-building plans and the identification of funding opportunities to expand breeding efforts. High-level leadership consultations ensured alignment with national priorities, while the systematization of breeding partnerships promoted equitable and transparent collaboration in germplasm development. These efforts empowered NARES researchers and seed producers, allowing them to make more decisions about which varieties were delivered to farmers, increasing the likelihood of widespread adoption.

During this Portfolio period, significant progress was made toward more equal and collaborative partnerships. A total of 100 NARES breeding programs underwent systematic reviews to increase effectiveness, and 95 meetings were held to systematize product design approaches at the national level. This inclusive process allowed local partners to have a stronger voice in defining regional Target Product Profiles, with 83 percent of CGIAR crop teams in sub-Saharan Africa and South Asia reporting greater NARES involvement. Survey results showed that over 85 percent of NARES were familiar with product design teams and market segmentation, with more than 50 percent attending meetings where Target Product Profiles and candidate variety advancements were discussed. This increased collaboration and inclusivity helped further strengthen the breeding networks and their impact on local agricultural systems.

Breeding Resources

Between 2022 and 2024, the Breeding Resources Initiative significantly advanced the development of high-impact crop varieties by ensuring that the necessary tools and technologies were available across CGIAR and NARES breeding networks. Efficient breeding requires use of advanced technologies for guiding crosses, managing data, and optimizing breeding operations. The Initiative facilitated this by providing global shared services with 26 institutions, half of which were NARES partners. Since the launch of the CGIAR Service Request Portal in late 2023, a total of 444 genotyping requests were submitted. The most requested services included irrigation support (49 percent) and seed processing, preparation, and postharvest infrastructure support (25.5 percent).

Lab technician inspecting plants in a tissue culture facility.

A key development in Breeding Resources was the introduction of a modern Learning Management System, which aimed to make training more scalable and accessible. By partnering with top agricultural universities and collaborating with industry leaders, the system ensures that training content remains cutting-edge and practical. The Learning Management System serves as a centralized platform for both in-person and virtual training. As of 2024, the platform had successfully trained over 4,400 users, far surpassing its target of 495.

In 2024, Bioflow was launched as a new tool that enables breeders to understand and use evolutionary forces such as mutation, gene flow, migration, and selection in decision-making. This tool automates many tasks that previously took hours or days, reducing them to just 5–10 minutes. It is particularly beneficial for programs with limited biometric and quantitative genetics support, especially within NARES. Bioflow also helps standardize key performance indicators across the CGIAR-NARES breeding networks, ensuring consistent, valuable reports for stakeholders like those required by the Accelerated Breeding Initiative.

Breeding Resources also made significant strides in enhancing EBS, which now seamlessly integrates with additional tools such as Bioflow and the CGIAR Breeding Analytics Pipeline, which streamline breeding workflows. Collaboration with the Global Shared Services team ensured that services are consolidated within the CGIAR Service Request Portal, further strengthening the digital ecosystem for breeders. By the end of 2024, EBS stored 33,215 breeding experiment data points, exceeding its target of 8,000. The Rice program , which adopted EBS in 2022, was instrumental in this achievement, and its success set the stage for integrating EBS into the Maize and Wheat programs in 2023.

Finally, Breeding Resources supported members of the CGIAR-NARES network to access the Breeding Analytics Pipeline through the CGIAR Service Request Portal, which includes free cloud computing services for users. Training and demonstration support are also available through the portal, ensuring that both CGIAR and NARES partners are well equipped to utilize the tools. While those outside the network do not have access to cloud storage, they can still use the demonstration server, which provides the same capabilities as the full platform.

Seed Equal

The Seed Equal Initiative worked to enhance the production, distribution, and adoption of quality seeds for improved varieties by leveraging digital tools and forming strategic partnerships. Since its inception, Seed Equal facilitated the circulation of over 10,000 metric tons of quality seeds , including varieties of rice, wheat, maize, and pearl millet, in collaboration with breeding institutions and seed multipliers. In partnership with the Accelerated Varietal Improvement and Seed Delivery of Legumes and Dryland Cereals in Africa (AVISA) Science Group Project, it supported the production of certified seeds in sorghum, pearl millet, and finger millet, reaching over 200 improved products in diverse ecosystems. A total of 234 promising cereal crop varieties were integrated into the seed chain, tested, validated, and scaled through farmer-led trials and training of trainers (ToT) programs, helping to ensure the widespread adoption of high-quality, improved seed varieties.

Seed Equal emphasized capacity building among seed system actors, especially targeting smallholders and women farmers. Through ToT programs, over 100,000 clients were directly reached, equipping them with knowledge on seed production and varietal awareness. The Demand-Led Seed System (DLSS) approach was implemented across multiple countries in Africa, driving seed production based on grain demand and facilitating varietal turnover. Seed Equal also developed innovative partnerships with diverse stakeholders, including women-led producer companies and decentralized seed networks, significantly enhancing women's seed production and delivery capacity.

The Initiative introduced cutting-edge strategies for seed tracking and monitoring genetic gains in farmers' fields. Digital tools like VarScout and SeedTracker are being tested and scaled to offer low-cost varietal identification, seed traceability, and quality assessment. Additionally, Seed Equal worked to create a more inclusive and sustainable seed sector by expanding opportunities for women and youth entrepreneurs, particularly in fragile and conflict-affected regions. Through collaborations with governments, the Initiative aimed to improve public policies and regulations to support pluralistic seed sector development.

Demand-driven seed systems were strengthened by facilitating partnerships across seed producers, grain traders, and public-private entities. Investments in seed value chains led to a significant increase in the production and delivery of certified seed, with volumes growing by 37.5 percent in 2024 compared to 2022. Multistakeholder platforms played a crucial role in connecting market actors, promoting new varieties, and improving seed distribution. The Initiative also advanced seed production of vegetatively propagated crops through innovative propagation techniques and made significant progress in policy reforms to improve seed sector investment, regulation, and quality assurance in various countries.

Genebanks

Between 2022 and 2024, the Genebanks Initiative made significant strides in the sustainable conservation of crop germplasm collections managed by the CGIAR Centers. These genebanks house over 700,000 accessions of more than 3,000 plant species, serving as key resources for researchers, breeders, and farmers worldwide. With collections located in diversity hotspots, the genetic material is freely available under the Plant Treaty , enabling global agricultural resilience and sustainability. Four CGIAR Centers (AfricaRice, the International Center for Tropical Agriculture [CIAT], the International Institute of Tropical Agriculture [IITA], and the International Rice Research Institute [IRRI]) now manage seed collections that meet performance targets, while two others (ICRISAT and the International Maize and Wheat Improvement Center [CIMMYT]) are expected to meet these goals by 2026.

Progress was made in seed quality management, resulting in an improved Genebank Process Model that applies to seed, tissue culture, and field collections. As of 2024, 87 percent of collections are available for distribution, up from 66 percent in 2022. In total, 337,330 germplasm samples were distributed to 124 countries, with nearly half of these going to external users, including advanced research institutes and national breeding programs. These distributions are rigorously controlled and comply with international regulations through Germplasm Health Units.

The Initiative also embraced cutting-edge technologies to enhance conservation and improve the relevance of collections. These included genomics for trait identification, AI for resilience screening, and cryopreservation for crops that cannot be stored as seeds. AfricaRice pioneered an automated protocol for rice grain characterization, and efforts are underway to create a unified digital portal for easy access to information on CGIAR genebank collections. Phytosanitary services were strengthened, with Germplasm Health Units processing over 369,000 samples to facilitate international trade, ensuring the health and safety of the germplasm.

GI strategic partnerships

CGIAR's impact pathway for breeding is dependent on effective partnerships with research and scaling partners. In particular, GI's NARES partners support the backbone of CGIAR's breeding and seed systems work. Cumulatively, collaborative partner work delivered by CGIAR and NARES between 2022 and 2024 led to stronger, more equitable partnerships and more efficient breeding.

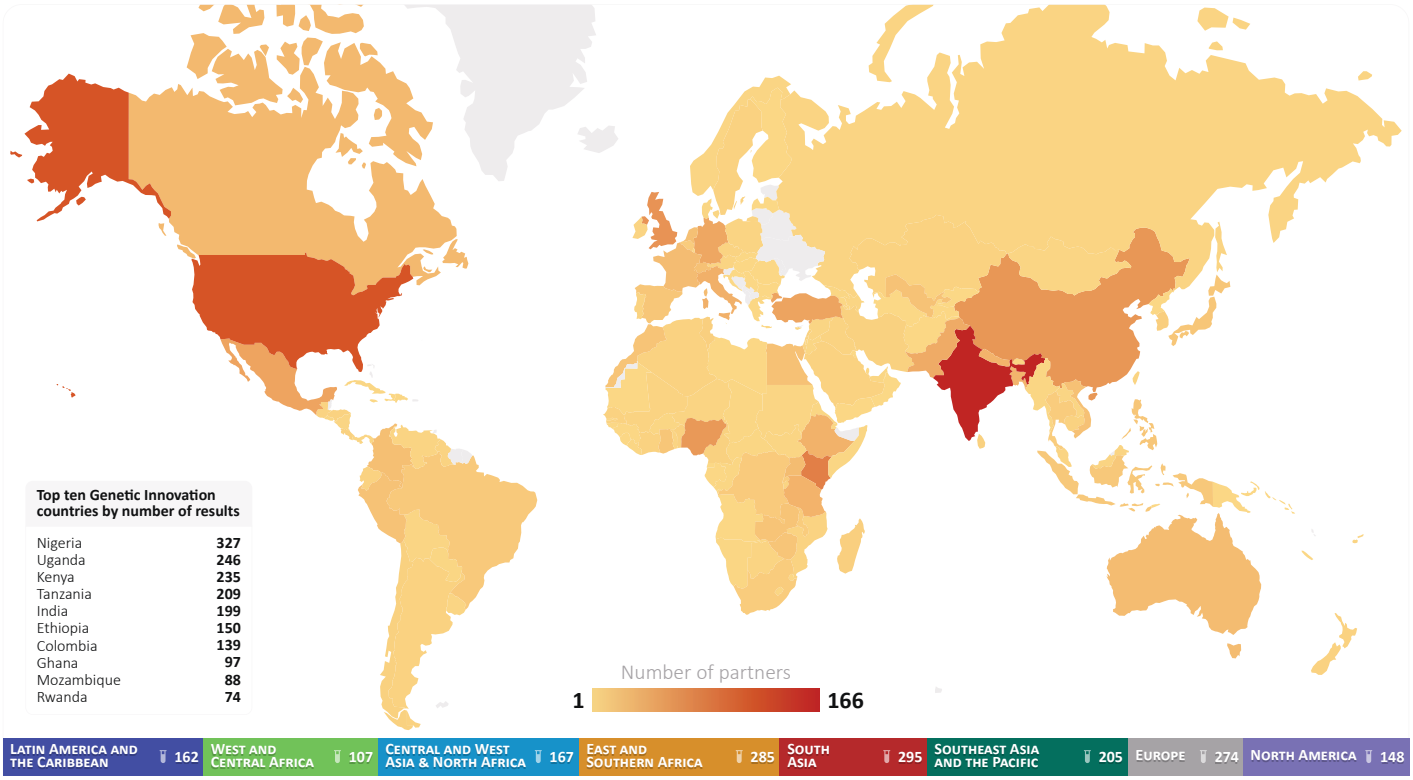


Figure 2.18. Locations of GI partners' head offices and top 10 countries with the most reported results by GI Initiatives. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Between 2022 and 2024, key innovations were introduced to better align CGIAR breeding efforts with national priorities. National Product Design Team meetings brought together a wide range of stakeholders, including NARES and CGIAR scientists, the private sector, universities, farmers, processors, and social scientists, to define national market segments and Target Product Profiles. These meetings, nearly 100 of which were held, generated over 400 Target Product Profiles that guided CGIAR breeding pipelines, ensuring that breeding efforts closely aligned with country needs and priorities. This approach also helped foster local ownership, as NARES researchers and seed producers made decisions about which varieties to deliver to farmers.

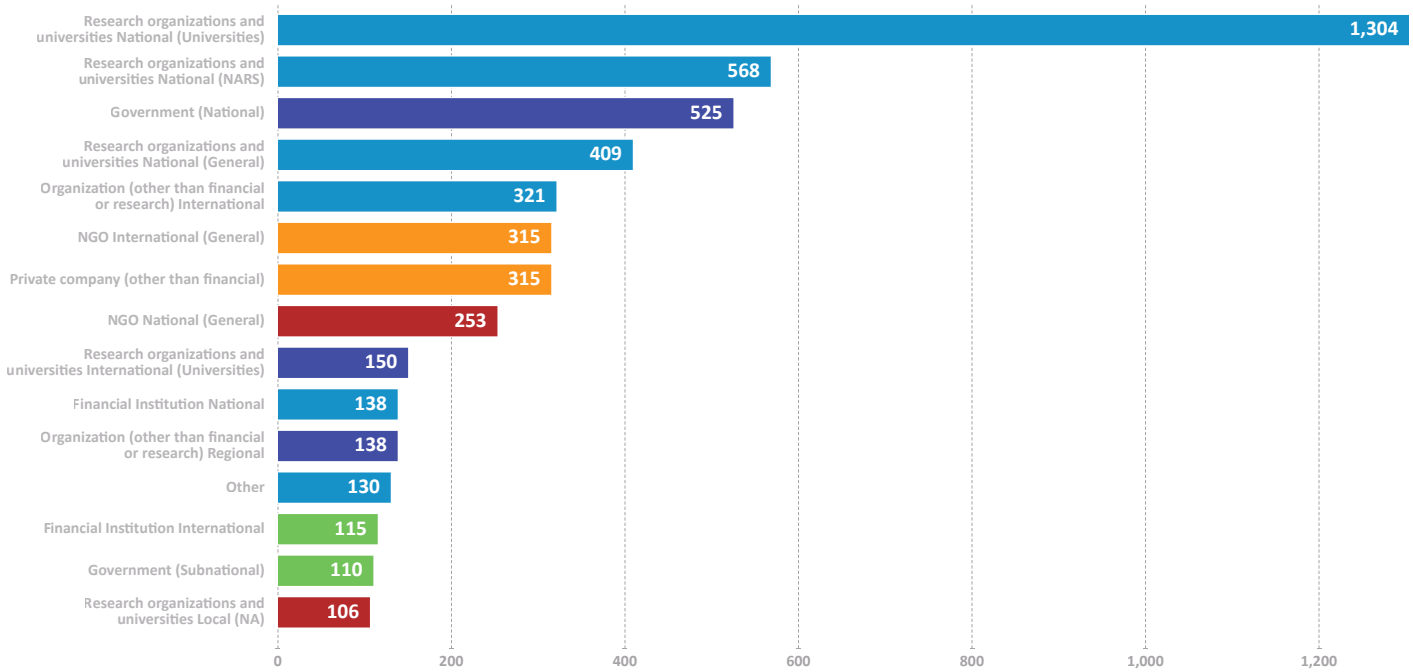


Figure 2.19. Number of reported results by partner typology. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Regional Integrated Initiatives

CGIAR contributions through the RIIs

Building on the strong foundations laid in 2022 and 2023, CGIAR's Regional Integrated Initiatives (RIIs) continued to provide solutions to address the unique climatic and socioeconomic challenges facing agrifood systems in six regions prioritized as crucial leverage points to make progress toward CGIAR's Impact Area targets in 2024.

RIIs tackled specific challenges identified by stakeholders, serving as pivotal platforms for collaboratively developing, testing, and implementing innovations, enhancing capacity, and influencing policy changes alongside local and regional partners. The RIIs brought together the strengths of 1,537 partners over the three-year period between 2022 and 2024, engaging in innovative and participatory research for development. Together, the RIIs and partners generated 3,502 results in over 100 countries.

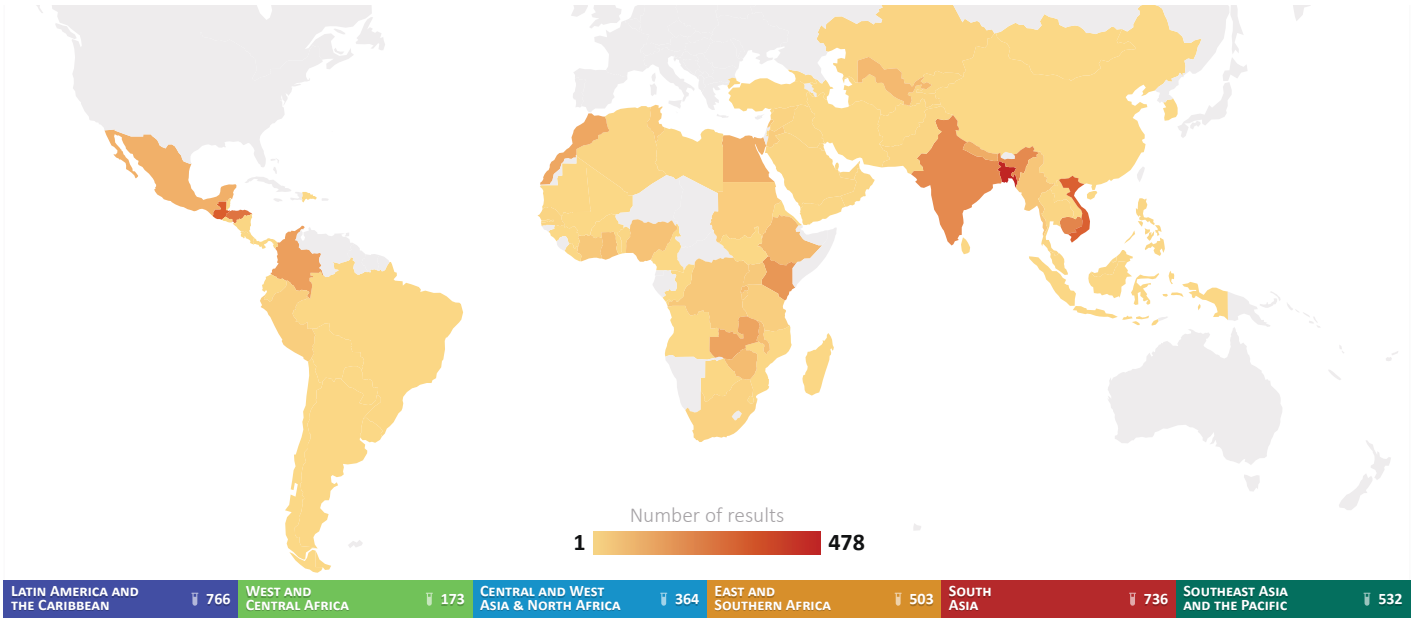


Figure 2.20. Geographic distribution of reported RII results. More intense coloring signifies more activities reported between 2022 and 2024. One result can impact multiple countries and can therefore be represented multiple times. Some results, such as models or methods with global applicability, are not mapped to countries. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Reflecting the deeply embedded nature of the Initiatives, the vast majority of partnerships were with national universities, NARES, and national governments (Figure 2.21). While these results are reported for Kenya, it's important to note that the top 10 partners are worldwide and not necessarily based in Kenya.

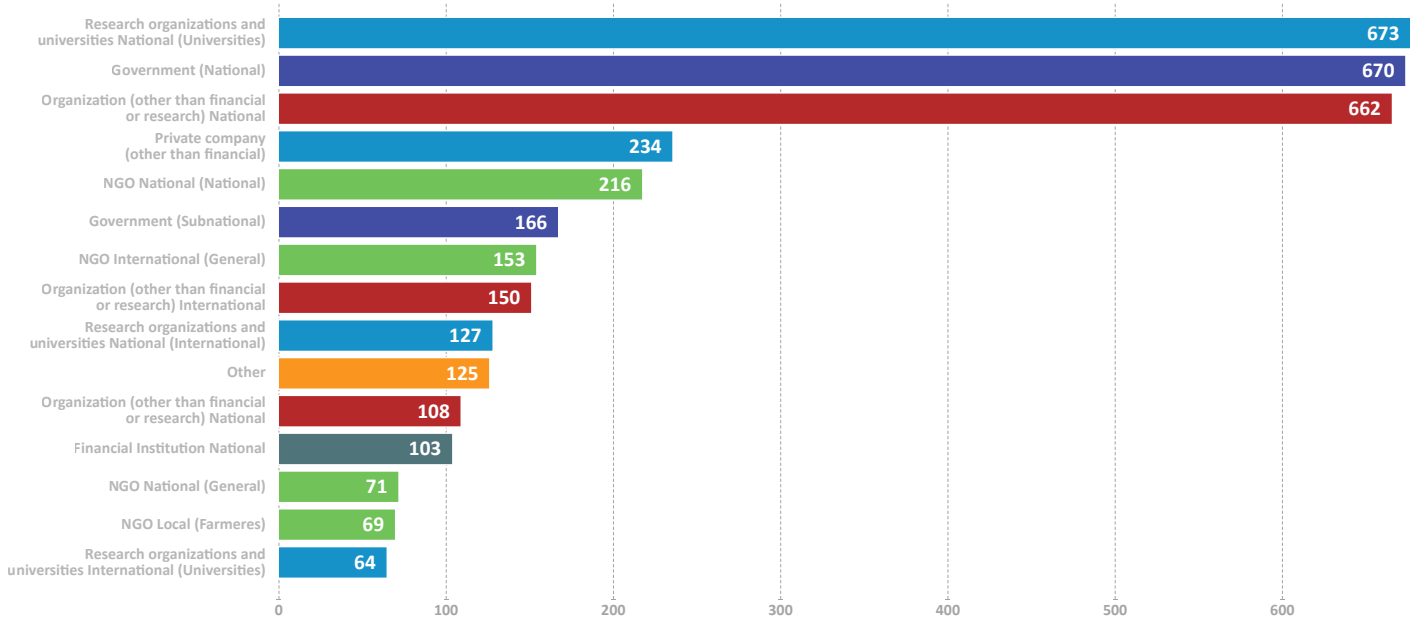


Figure 2.21. Number of reported results by partner typology. Source: CGIAR Results Dashboard, accessed May 6, 2025.

RII key themes and priorities

The RIIs addressed various important themes across diverse geographies. These included supporting the adaptation of agriculture to a changing climate, developing digital technologies, providing policy support and partnership development, and boosting social equity.

Climate and crop management innovations: In Bangladesh, interactive voice messaging based on weather forecasts was utilized to warn mung bean farmers of rainfall patterns, reaching thousands of farmers and significantly reducing yield losses. This system, refined under the Cereal Systems Initiative in South Asia (CSISA) and the CGIAR Research Initiative on Transforming Agrifood Systems in South Asia (TAFSSA) and integrated with multiple governmental and agrometeorological systems, has issued hundreds of thousands of calls, allowing farmers to take timely action to protect their crops. Additionally, a partnership with private firms such as M-World and Euglena GG Limited was established to sustain this digital advisory service, highlighting a successful model for integrating climate advisories into agricultural practices. These efforts are part of a larger strategy to build climate resilience and have contributed to Bangladesh's National Adaptation Plan, emphasizing the sensitivity of agriculture to climate variations.

The Government of Viet Nam adopted the Climate-Smart Mapping and Adaptation Planning (CS-MAP) approach promoted by IRRI to enhance climate change adaptation in agriculture. The CS-MAP approach, tested in Viet Nam since 2017, helps policymakers identify climate risks and propose solutions, reaching approximately 1.3 million households in 41 provinces. It is also being utilized in Bangladesh's coastal regions and Cambodia's Mekong Delta to provide location-specific adaptation plans for crop production. It aligns with Viet Nam's National Strategy on Green Growth for 2021–2030 and is outlined in the Ministry of Agriculture and Rural Development's (MARD) Decision 3444. The CS-MAP system will be developed for all localities to address climate risks, particularly in rice production, by integrating local knowledge and scientific research. Rice straw management options to reduce burning and subsequent pollution in Viet Nam aimed to enhance environmental sustainability and agricultural productivity. Meanwhile, New Zealand increased its climate finance commitment, contributing USD 18.6 million to the CGIAR Research Initiative on Asian Mega-Deltas. This Initiative supported resilience and food security in major Asian river deltas, including those in Bangladesh, Cambodia, India, Myanmar, and Viet Nam.

Efforts to enhance Climate Information Services addressed the needs of farmers in Guatemala, who face climate-related challenges such as drought and heavy rainfall. Local Technical Agroclimatic Committees play a crucial role by providing tailored agroclimatic information, improving decision-making for farmers. Innovations include easy-to-understand bulletins, bi-weekly updates via social media, participatory approaches reaching 2,000 people, and radio spots. Participatory integrated agroclimatic services, developed in collaboration with WFP, have benefited 75,000 farmers in Guatemala, helping them make informed decisions and improving yields. The MICI-SAN platform maps food security and nutrition projects, enhancing donor coordination and strategic decision-making.

Policy and partnerships: MARD in Viet Nam, supported by the Asian Mega-Deltas Initiative, integrated Agro-climatic Bulletins (ACBs) into regional agricultural policies, particularly in the Mekong River Delta. These bulletins, developed with input from the Alliance of Bioversity International and CIAT, provide seasonal, monthly, and 10-day climate forecasts to aid farmers and agricultural institutions in climate risk management. Implemented in eight provinces, including seven in the Mekong Delta and one in the South Central Coast, ACBs are disseminated via various channels, reaching approximately 130,000 farmers primarily through Zalo messaging.

A genebank worker takes seed packets to the shelves in the AfricaRice genebank in Mbe (Côte d'Ivoire).

Credit: Neil Palmer/Crop Trust

MARD's recognition of ACBs as a technical advancement led to their inclusion in official work plans and budgets for 2023–2024, with significant funding allocated for their expansion and digital transformation. This initiative aligns with Viet Nam's national digital transformation program and has been instrumental in changing farming practices, helping farmers reduce input use and improve yields. International partners, such as the Asian Development Bank and CIAT, have supported these efforts, demonstrating the importance of ACBs in enhancing climate resilience and agricultural productivity across Viet Nam and neighboring Cambodia. The government of Viet Nam integrates IRRI's guidelines into its "One Million Hectares Program," which promotes sustainable practices like mechanized direct-seeded rice and straw management.

The CGIAR Research Initiative on AgriLAC Resiliente strengthened agrifood innovation networks in Latin America, promoting strategic alliances to address climate change and food security. The AgriLAC Resiliente Initiative furthered the adoption of nutrition-sensitive technologies, benefiting 43,960 people and enhancing food security and livelihoods in Colombia, Guatemala, Honduras, and Mexico. In Honduras, a national rain gauge network empowered communities to use climate data for decision-making. In Guatemala, a digital ecosystem, including the Aclimate platform and agroclimatic bulletins, supports sustainable farming and climate risk management. Public-private partnerships have improved climate data management in Guatemala, reducing data collection and validation times and enhancing data integrity. The use of Human-Centered Design has led to the co-design of agroclimatic products tailored to farmers' needs, supporting crop management.

Collaborative efforts, such as those between public sectors and CGIAR, are central to scaling innovations. These include partnerships for mechanization and digital advisories in South Asia and Africa, as well as seed distribution programs in Latin America. In Egypt, WorldFish is promoting Integrated Agriculture-Aquaculture systems with the Lake and Fish Resources Protection and Development Agency (LFRPDA) to support sustainable aquaculture practices.

Digital and technological advancements: The development of tools like the Rice Activity Monitoring and Reporting System (RiceMoRe) in Viet Nam and the Agvisely app in Bangladesh highlight the role of technology in providing real-time agricultural advisories.

In Nepal, a digital groundwater monitoring system developed by TAFSSA and CSISA is replacing outdated methods, enhancing resource management. Uzbekistan and Tajikistan are leveraging tools like the Climate Data Extractor to address climate change challenges, with Uzbekistan also taking steps to improve potato production and climate-resilient agriculture.

The Scaling Scan tool, developed by CIMMYT and PPPLab, is central to these efforts, helping teams assess scalability factors like finance, collaboration, and awareness. CGIAR's Scaling Readiness framework supports these initiatives, emphasizing innovation tracking, partnership development, and strategic management.

Gender and social inclusion: Initiatives emphasized gender-sensitive approaches, such as the development of guidelines for gender-inclusive digital agriculture tools in Bangladesh and the empowerment of women through agricultural cooperatives in Morocco.

The Asian Mega-Deltas Initiative, in collaboration with the Alliance of Bioversity International and CIAT and the Village Link Company Limited, significantly improved access to climate advisories for farmers and fisherfolk in Myanmar. Through monthly and weekly advisories, 5,000 rice farmers and numerous fisherfolk in the Irrawaddy Delta received vital climate information. The Initiative, which targets women significantly, also includes microfinance information to mitigate weather-related loan risks.

The Can Tho Province government in Viet Nam is endorsing a mechanized rice straw composting business model to enhance sustainable agriculture practices. This model, involving women farmers, provides economic benefits through straw selling and aligns with national efforts to reduce greenhouse gas emissions.

The Asian Mega-Deltas Initiative successfully expanded Agro-climatic Bulletins (ACBs) into Cambodia, targeting women farmers, and is being scaled further with international support to enhance climate adaptation practices.

RII results

Knowledge, capacity, and innovation

The RIIs and partners produced 1,564 knowledge products, including 503 reports and 270 peer-reviewed articles. Capacity sharing was a major focus of the RIIs, with 897 events reported and 88,452 trainees. A total of 267 innovations were developed, and 130 innovations were reported as in use. In total, 10.4 million farming households were using RII innovations. Figure 2.22 shows the number of results reported and shows a general trend of increasing delivery over the course of the three-year cycle.

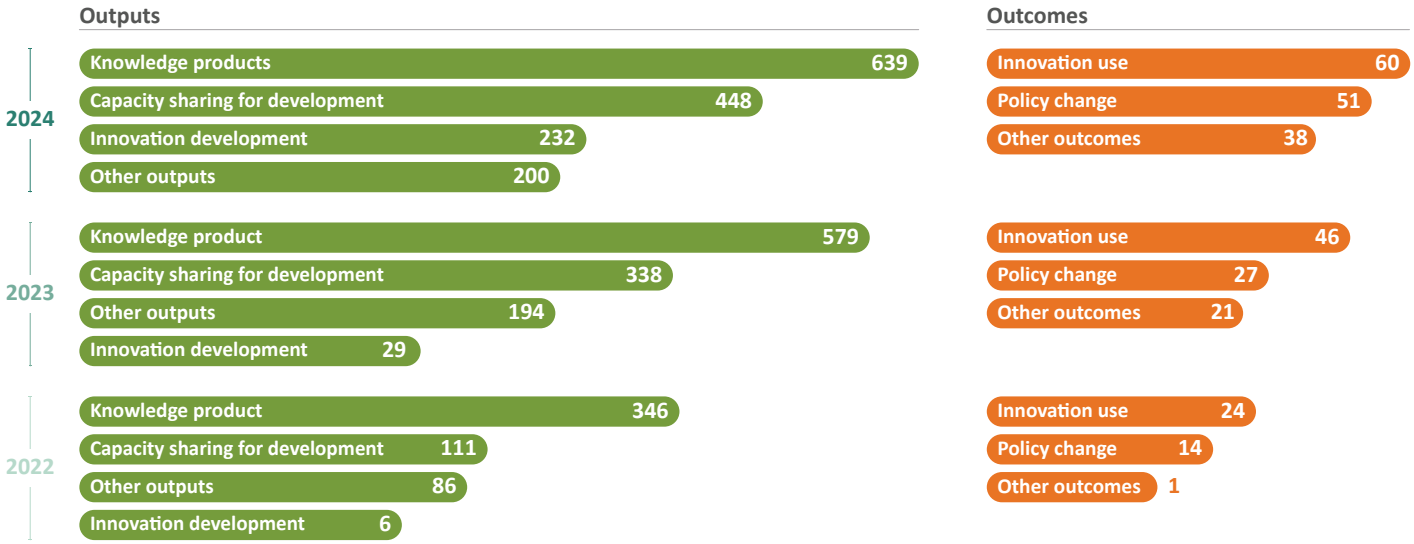


Figure 2.22. Number of results reported by RII, by year (2022–2024). Source: CGIAR Results Dashboard, accessed May 6, 2025.

Kenya

What CGIAR is doing in Kenya

The agricultural landscape in Kenya is undergoing significant transformation, driven by national strategies such as the Bottom Up Economic Transformation Agenda, community-driven projects, a vibrant private sector and a research and innovation system aimed at enhancing food security, resilience, and sustainable practices. For the 2022–2024 Portfolio period, a key focus was on the interconnectedness of agricultural practices, climate change adaptation, and socioeconomic factors affecting smallholder farmers and pastoral communities.

CGIAR's Research Initiatives in Kenya made significant strides in enhancing agricultural practices, improving food security, and promoting sustainable development. Below are key outcomes and achievements categorized by thematic areas.

- **Climate resilience and sustainability:** The CGIAR Research Initiative on Climate Resilience introduced frameworks to support climate-smart agricultural practices while facilitating access to climate finance, amounting to USD 84 million for climate adaptation projects. It scaled up access to climate information to millions of farmers through the popular TV show Shamba Shape Up. The integrated Future Estimator for Emissions and Diets (iFEED) is a comprehensive tool for developing climate-resilient policies by combining climate modeling with nutritional security assessments. The impact of climate variability on agricultural productivity is profound, particularly for women in the informal dairy sector. Innovative practices, such as the Dairy Profitability Simulator and community seed banks, were evaluated for their effectiveness in enhancing resilience and food security among smallholder farmers. The Livestock and Climate Resilience Initiative worked with pastoral communities to develop improved rangeland management plans and to access rangeland monitoring information. Workshops revealed how climate change exacerbates vulnerabilities in marginalized communities. Evidence-based tools, such as the Climate Security Sensitiveness Scoring Tool, are recommended to effectively address these risks.
- **Community engagement and empowerment:** A Citizen Science initiative empowered farmers in Nandi and Bomet counties to collect data on livestock production, contributing to improved dairy management practices. A Black Soldier Fly Farming initiative is a community-led project converting organic waste into fertilizer and livestock feed, enhancing soil health and farm productivity. The ongoing Ukraine crisis and rising global commodity prices have exacerbated poverty and food insecurity in Kenya. CGIAR Initiatives on Low Emissions Food Systems, Agroecology and Nature Positive Solutions each facilitated community driven institutional models to develop context specific solutions to enhancing sustainability and resilience. The International Food Policy Research Institute (IFPRI) is actively involved in capacity-building workshops, equipping policymakers with tools like the Food Security Simulator to tackle these challenges.

John Omondi tends to his farm in Kenya.
Photo credit: Chris de Bode/CGIAR

- **Innovative financial solutions:** These solutions were developed to enhance the resilience and productivity of smallholder farmers and pastoralists. The integration of insurance-linked credit products showed promise in improving access to finance, particularly for women-headed households that face additional barriers. Index-based Livestock Insurance for pastoralists was boosted by a World Bank grant to scale its use in Kenya and other countries in the horn of Africa. The popular television Shamba Shape Up program is also promoting agricultural education and financial literacy among farmers, addressing various challenges through community engagement and technology.
- **Innovative agricultural practices:** The Mbili Mbili intercropping system promotes intercropping of legumes and cereals, optimizing yields and providing safety nets against crop loss, yielding up to 37 percent higher returns than traditional practices. In addition, conservation Agriculture (CA) principles were implemented to enhance productivity in maize-legume systems, improving economic and nutritional returns. Integrated agroecological practices and circular economy approaches were introduced with partners in several counties.
- Gender empowerment and social inclusion workshops**:** These workshops focused on mentorship among agripreneurs and strategies for implementing gender-sensitive agricultural practices.
- **Pro-women's empowerment in agriculture index:** Research indicates there are significant gender disparities in the informal dairy sector, with older men benefiting more from milk trading than women and younger men. The findings emphasize the need for interventions that promote gender equity in agricultural practices. Additionally, research on the role of women in aquaculture revealed challenges in agency and leadership despite high empowerment scores.
- **Nutrition and food security training programs:** These programs aimed to enhance farmers' knowledge on incorporating livestock-derived foods into diets, thereby improving nutritional outcomes. In the dairy sector, the promotion of improved forage varieties is crucial for enhancing productivity among smallholder farmers. Despite government efforts, challenges such as high seed costs, regulatory barriers, and limited farmer knowledge hinder widespread adoption. Research indicated that relationships with private milk buyers and informal information channels significantly influence farmers' decisions. Strategies to stimulate market expansion through partnerships with seed companies and government support are essential, alongside increased training on the benefits of forages.
- **Food safety and hygiene:** Incentives for hygiene compliance integrated hygiene inspections with performance-based bonuses for meat inspectors, enhancing compliance and food safety standards in the meat and poultry sectors.
- **Nutrition education:** Studies highlight the role of indigenous wild edible plants in contributing to dietary diversity and food security in Kenya. Community engagement and nutrition education were emphasized as vital for enhancing food security and promoting healthier diets, showcasing the need for integrating traditional knowledge with modern practices..

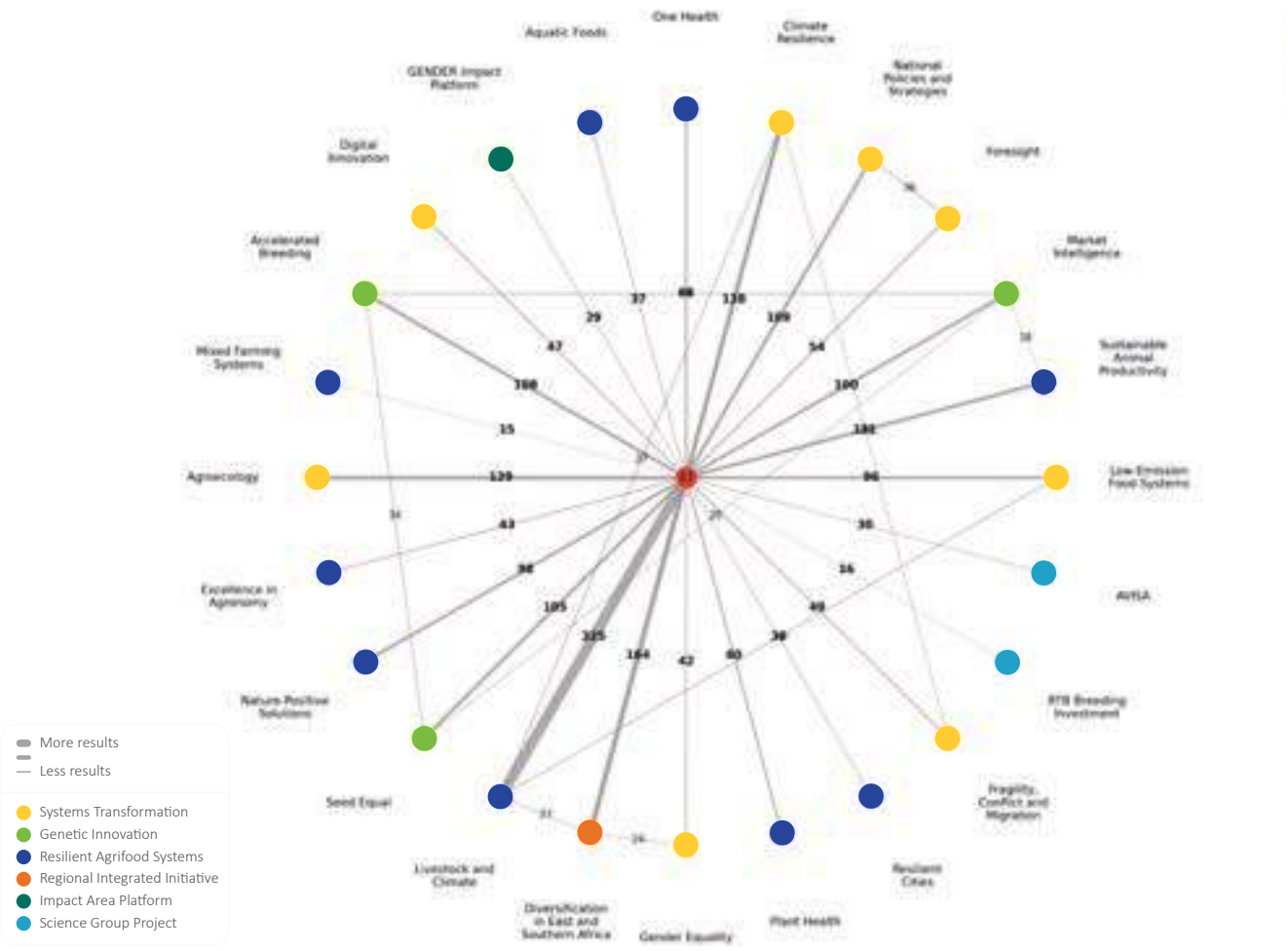


Figure 3.1. Kenya's pooled Portfolio network based on results submitted between 2022 and 2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

CGIAR results in Kenya

Between 2022 and 2024, CGIAR initiatives reported a wide spectrum of results across Kenya's agricultural sector, from advancements in seed systems and agroecological practices to improvements in plant health, livestock resilience, and policy engagement. During the 2022-2024 reporting period, a total of 1,383 outputs were reported in Kenya, of which 793 (57%) were knowledge products, 245 (18%) were capacity sharing for development and 143 (10%) were innovations at various stages of development. A large number of outcomes (157) were achieved by CGIAR in the country during 2022-24, with over a third (58) reflecting multi-country interventions, demonstrating CGIAR's widespread work in Africa. CGIAR innovations in Kenya related primarily to improved seed systems and agronomy; agroecology and nature positive solutions; livestock and mixed crop-livestock systems; participatory development, scaling, finance, and credit; digital innovations; and gender equality and social inclusion. Policy outcomes also followed many of these same thematic areas. Examples of specific policy contributions included strengthening seed certification regulations for vegetatively propagated materials, contributing to a National Agroecology Strategy under the leadership of Kenya's Ministry of Agriculture and Livestock Development, and supporting national and local responses to climate change.

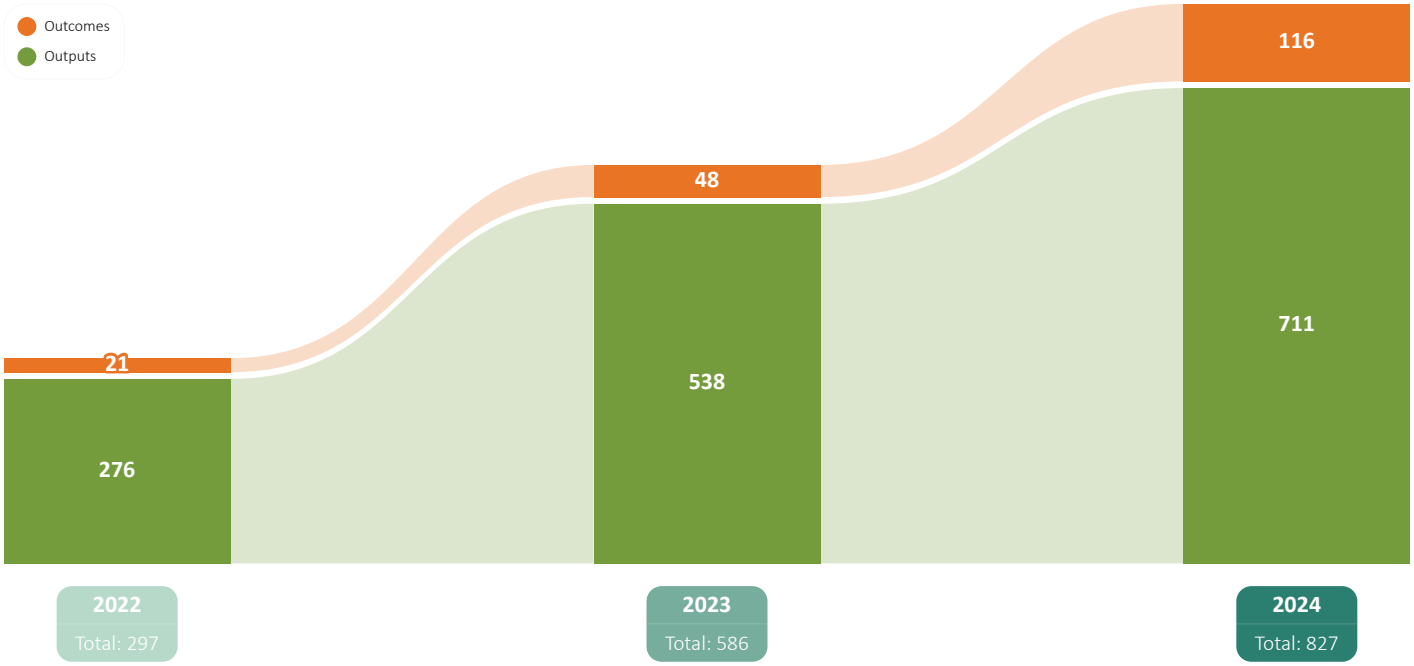


Figure 3.2. Progress in reported results by type across the three reporting years, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6 2025.

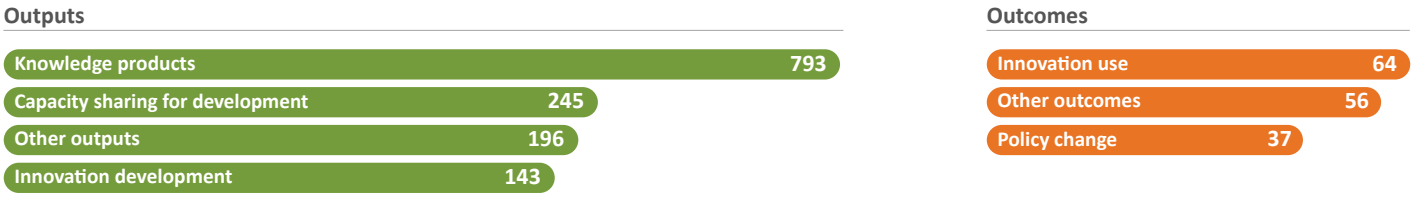


Figure 3.3. Cumulative number of reported results by level (outcome vs. output) and typology. Source: CGIAR Results Dashboard, accessed May 6 2025.

Capacity sharing for development

CGIAR Initiatives in Kenya focused on enhancing agricultural practices through various capacity development activities and training workshops. Below is an overview of these efforts.

- Crops and agricultural practices
    - CIMMYT-IFPRI workshop: Explored solutions to increase the adoption of new crop varieties, particularly in maize. It explored how stakeholders — from seed companies and agro-dealers to farmers and policymakers — can collaborate to increase varietal turnover in the agricultural sector, and shifted participants' perceptions on how to market seeds.
    - Training for women and youth: Educated 300 individuals in Nairobi on sustainable vegetable seedling production, resulting in significant income generation.
    - MELIA workshop: Trained 24 participants in MEL techniques to improve agricultural outcomes.
    - Genome editing workshop: Focused on technical collaboration among scientists.
    - Research management training: Targeted young scientists in managerial roles.

- Livestock and dairy sector
    - Dairy genetics training: Improved data management for veterinary services.
    - Citizen science training: Engaged farmers in livestock data collection.
- Gender equality and social inclusion initiatives: Documented experiences of agripreneurs and identified barriers faced by women in adopting agricultural technologies.
- **Training for women vendors**: Enhanced business practices and food handling skills among women in the dairy sector.
- Participatory Rangeland Management **(PRM)**: Focused on community engagement to improve rangeland conditions.
- Climate-smart agriculture **training**: Implemented sessions on sustainable practices and integrated pest management.
- Speed & smart breeding technologies **workshop**: Aimed to optimize crop breeding efficiency using tools like the Breeding Costing Tool.
- **Mycotoxin mitigation training**: Focused on reducing aflatoxin exposure through improved cooking methods.
- Impact evaluation training: Workshops at the Kenya Institute for Public Policy Research and Analysis focused on causal inference and randomized controlled trials for young professionals.
- Impact evaluation training: Aimed to strengthen the capacity of local partners to conduct evidence-based research and encourage faculty at the University of Nairobi to include impact evaluation methods in their courses, fostering accountability in development and reaching the next generation of practitioners and researchers.
- Social Accounting Matrices **(SAM) training**: Educated partner institutions on SAMs through a ToT approach.

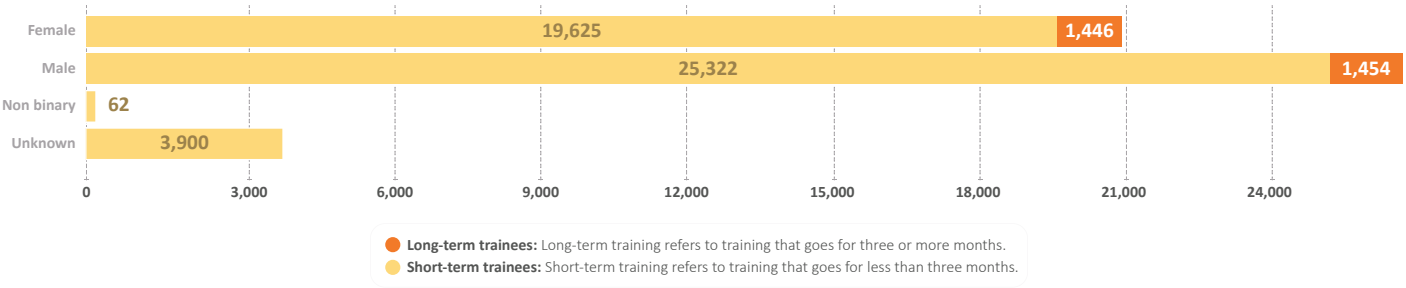


Figure 3.4. Number of people trained in Kenya, by gender. Source: CGIAR Results Dashboard, accessed May 6, 2025.

The capacity development activities and training workshops conducted by CGIAR in Kenya reflected a comprehensive approach to enhancing agricultural productivity, promoting gender equality, and fostering sustainable practices. These initiatives are crucial for building resilience in the agricultural sector and improving food security across the region.

Droughts and failed rains pose risks to agriculture, food security, peace, and securty in Kenya.

Innovation pipeline

The innovation pipeline in Kenya encompasses various agricultural initiatives aimed at enhancing productivity, sustainability, and food security.

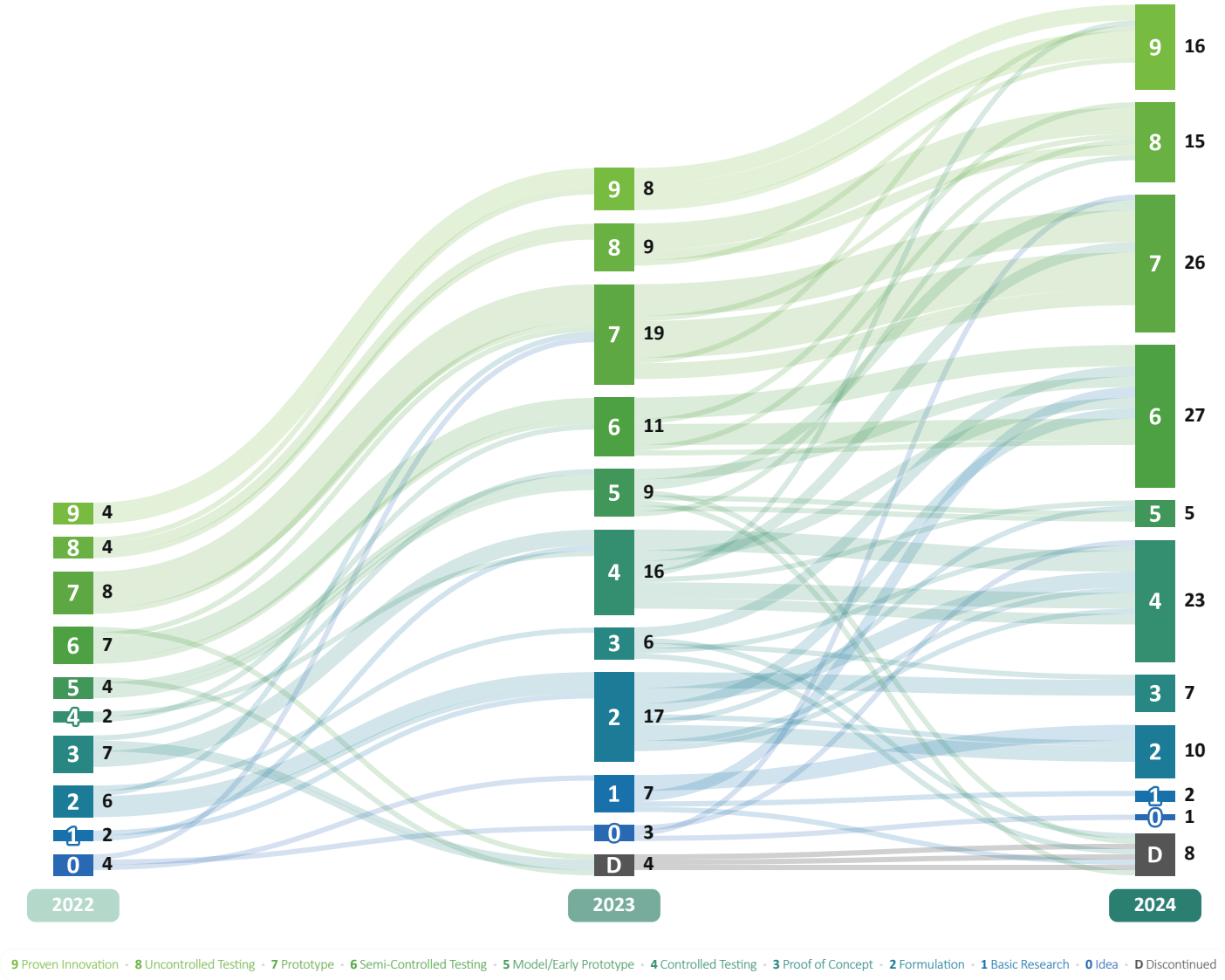


Figure 3.5. Trends in Innovation Readiness levels in Kenya from 2022 to 2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Below are key components of this pipeline, highlighting specific innovations and their impacts.

- The Ukama Ustawi Scaling Hub played a pivotal role in promoting sustainable agricultural innovations across Eastern and Southern Africa. By fostering public-private partnerships, the Hub accelerated the adoption of agricultural innovations among end users, which is crucial for enhancing productivity and sustainability in the region. Additionally, it focused on capacity development by enhancing skills within CGIAR and partner organizations, facilitating the scaling of innovations and the dissemination of scientific knowledge. Engaging in regional policy dialogues, the Hub aimed to create an enabling environment for sustainable agriculture, emphasizing crop diversification and value chain development. Community-centric approaches were also integral to the Hub's strategy, as it implemented participatory management strategies that foster inclusiveness in decision-making processes. This holistic approach not only supported agricultural innovation but also ensured that the voices of local communities were heard and considered in agricultural development.
- In Kenya and the Greater Horn of Africa, innovative agricultural practices are making significant strides. The development of a nanoparticle-based East Coast fever vaccine aims to reduce cattle morbidity from the ***Theileria parva*** parasite, advancing livestock health and productivity. Furthermore, a gender-sensitive Antimicrobial Resistance Framework addresses the critical issue of antimicrobial use and resistance in agriculture, recognizing the different impacts on genders within agricultural settings. Initiatives empowering women in dairy farming through peer learning and leadership development are also noteworthy, as they promote inclusive climate adaptation strategies.
- The introduction of data dashboards and decision-support tools enhances decision-making and preparedness strategies by helping to monitor environmental costs and to manage agricultural diseases. These tools are essential for improving agricultural resilience and for ensuring food security in the face of climate change.
- Moreover, initiatives focusing on improving the productivity and sustainability of smallholder farmers in sub-Saharan Africa highlight the importance of multistakeholder platforms that connect various actors in the agriculture value chain. These platforms promote collaboration and inclusivity, particularly among women and youth, thereby enhancing community engagement and participation. Innovative agricultural practices, such as intercropping and conservation agriculture, were promoted to improve farmer resilience and economic returns.

Strategic partnerships in Kenya

CGIAR's Initiatives in Kenya fostered numerous partnerships with local agencies, government bodies, and various stakeholder groups to enhance agricultural practices, promote sustainability, and address food security challenges. Below is a detailed overview of these partnerships and their contributions.

- **Collaboration with local governments and agencies**
    - Murang'a County Government: The Seed Equal Initiative collaborated with the Murang'a County Government to enhance common bean value chains by introducing micronutrient-rich varieties, aiming to improve nutrition and boost local economies.
    - County Climate-Smart Agriculture Multi-Stakeholder Platforms (CSAMSPs): These platforms were established to empower local officials, NGOs, and farmers to collaboratively address resource-based conflicts and implement climate adaptation strategies.
    - Training for county livestock officers: Training sessions were initiated for county livestock officers on community-based breeding approaches to enhance livestock management in participatory sites.
- **Engagement with NGOs and community organizations**
    - Pioneer Positive Deviance approach: This model emphasizes collaboration among adaptation pioneer households, government entities, NGOs, and private businesses to foster social inclusion and knowledge exchange, resulting in sustainable agricultural solutions tailored to local needs.
    - Farmer-to-Farmer field days: Organized in collaboration with local NGOs like GROOTS, these events promoted peer-to-peer learning among farmers by showcasing innovative agricultural practices and techniques related to climate adaptation.
- **Partnerships with research institutions**
    - KALRO has been involved in various training initiatives, including a Research Management Training in Plant Breeding conducted by the Accelerated Breeding Initiative (ABI) for representatives from NARES. This training equips participants with essential management skills to enhance agricultural research outputs.
    - The CGIAR Initiative on National Policies and Strategies (NPS) collaborated with KIPPRA to promote analytical tools that support effective decision-making. This partnership is vital for integrating research findings into policy frameworks, thereby enhancing the impact of agricultural initiatives.
    - Tegemeo Institute has been involved in discussions on agricultural data sharing to enhance decision-making and support smallholder farmers. CGIAR initiatives emphasize the importance of digital and financial services in providing better access to information, which is crucial for effective agricultural practices.
- **Private sector engagement**
    - Scaling Fund : This initiative emphasized collaboration among private-sector actors, farmers, and government officials to effectively bridge research and practical application in agriculture.
    - AgriTech4Kenya challenge: A program aimed at spurring innovation and collaboration within the agritech sector, engaging numerous agribusinesses to refine their solutions and attract investment.
- **Community engagement and capacity building**
    - Various training and mentorship programs were established to equip young farmers with skills in modern agricultural practices, including digital farming and agroecological methods.
    - Vendor Business School initiative: This initiative empowered informal food vendors, particularly women dairy vendors in Nairobi, by enhancing their business and food safety practices.

ILRI Research Associate Irene Nganga works with local pastoralist communities to undertake a particpatory rangeland resource assessment, Wajir, Kenya.

Credit: Kristen Tam/ILRI

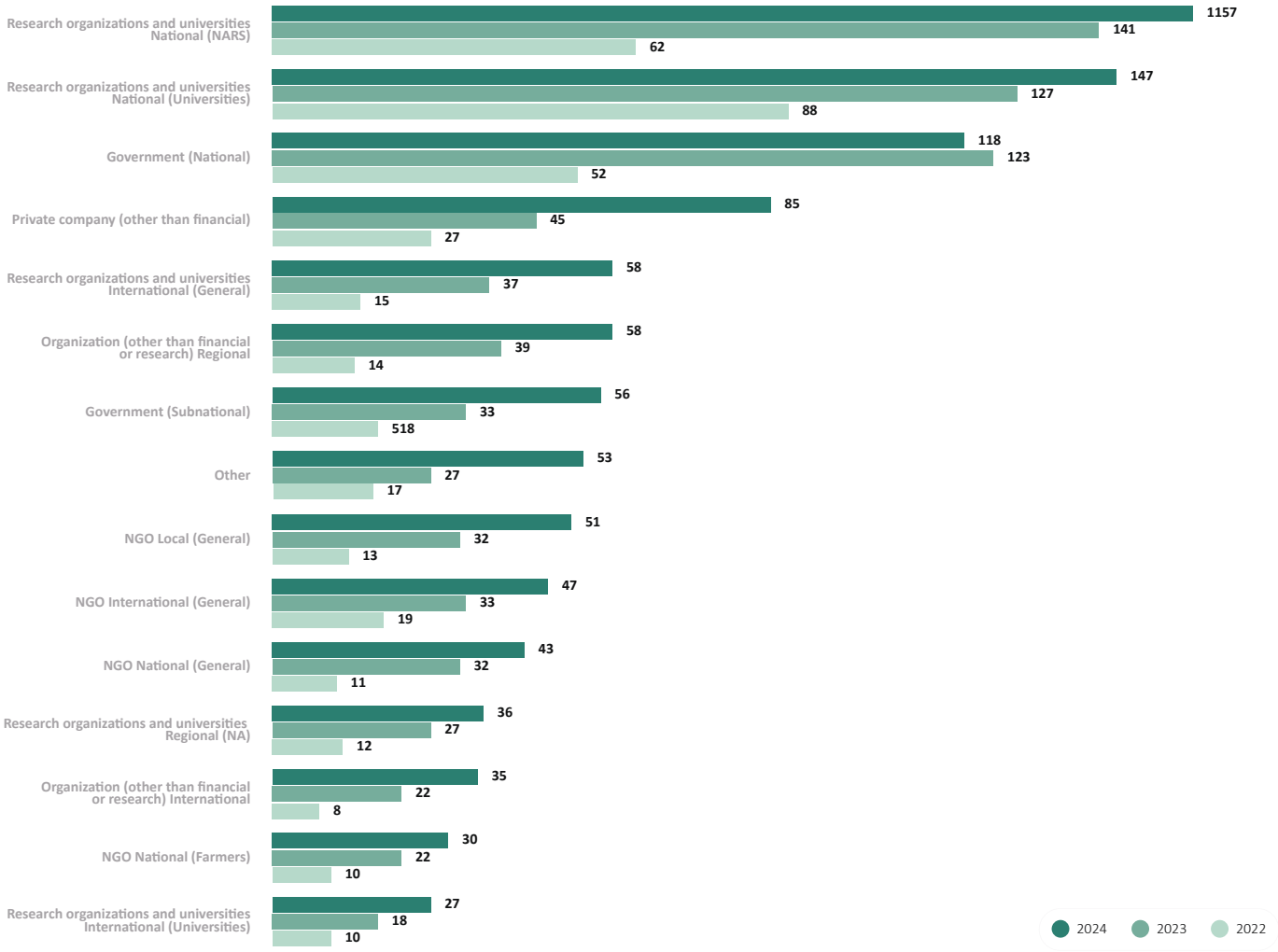


Figure 3.6. Number of reported results in Kenya with partner involvement, by partner type. Source: CGIAR Results Dashboard, accessed May 6 2025.

Overall, Kenya's Ministry of Agriculture and Livestock Development and the Kenya Agricultural and Livestock Research Organization (KALRO) had the highest number of CGIAR Initiatives partnering with them to produce results between 2022 and 2024.

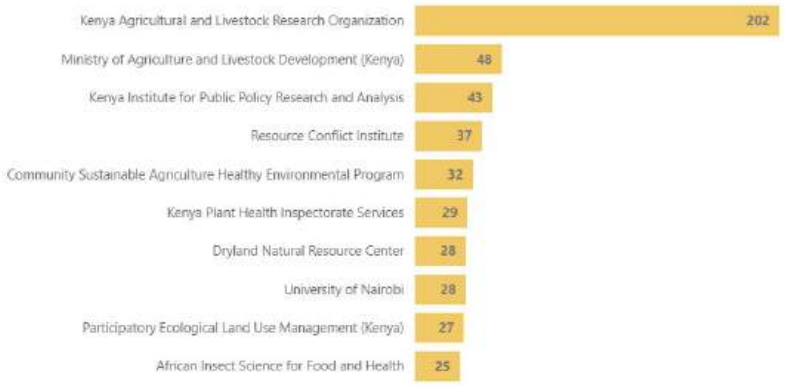


Figure 3.7. Top 10 partners in Kenya by number of reported results, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

The Initiatives operating in Kenya were co-created with partners and therefore demonstrated strong alignment with the country's needs and priorities. The partnerships formed during the three-year implementation period of this Portfolio in Kenya significantly contributed to enhancing agricultural resilience, promoting sustainable practices, and addressing food security challenges. Out of the 1,540 results reported for Kenya, 595 (approximately 38.6%) are associated with at least one partner headquartered in Kenya.

Solomon Islands

What CGIAR is doing in Solomon Islands

CGIAR's engagement in Solomon Islands is led by WorldFish, which has maintained a continuous legal and operational presence in the country since 1985. Over this four-decade partnership, WorldFish has evolved from a mariculture-focused technical program into a leading research and implementation partner for aquatic and island food systems transformation. Between 2022 and 2024, CGIAR work in Solomon Islands contributed to national development goals through research, innovation, and policy engagement aligned with the Solomon Islands National Fisheries Policy (2019–2029), the Ministry of Fisheries and Marine Resources (MFMR) Corporate Plan, and the National Community-Based Resource Management (CBRM) Strategy.

CGIAR-supported work during this period focused on five primary areas: community-based resource governance, innovation in postharvest fish handling, Indigenous food system revitalization, youth livelihood development, and integrated research and learning through the Nusatupe Island Food System Innovation Hub. These efforts were implemented through close collaboration with the Ministry of Fisheries and Marine Resources (MFMR), Provincial Fisheries Offices, Solomon Islands National University (SINU), Kastom Gaden Association (KGA), rural training centers (RTCs), and local community institutions.

In 2024, Solomon Islands was confirmed as a core country in CGIAR's newly launched Food Frontiers and Security Program, which seeks to transform island food systems across the world. This development marked a significant elevation of CGIAR's profile in Solomon Islands, positioning the country as a Pacific regional leader in research for development in island food systems. There are 57 Small Island Developing States in the world, which are home to 65 million people. The new Food Frontiers and Security program draws on learning from Solomon Islands to support island food systems at this scale.

Solomon Islands' contributions to CGIAR's global priorities are particularly evident across four of the five CGIAR Impact Areas:

- **Climate Adaptation and Mitigation**, through scaling of inclusive, ecosystem-based fisheries governance;
- **Nutrition, Health and Food Security**, through Indigenous food advocacy, postharvest innovations, and food environment interventions;
- **Poverty Reduction, Livelihoods and Jobs**, through women-led and youth-focused enterprise models; and
- **Gender Equality, Youth and Social Inclusion**, through the integration of inclusion frameworks in program design, delivery, and policy engagement.

CGIAR activities between 2022 and 2024 in Southeast Asia and the Pacific also directly supported progress toward multiple Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption), SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 17 (Partnerships for the Goals) (Figure 3.8).

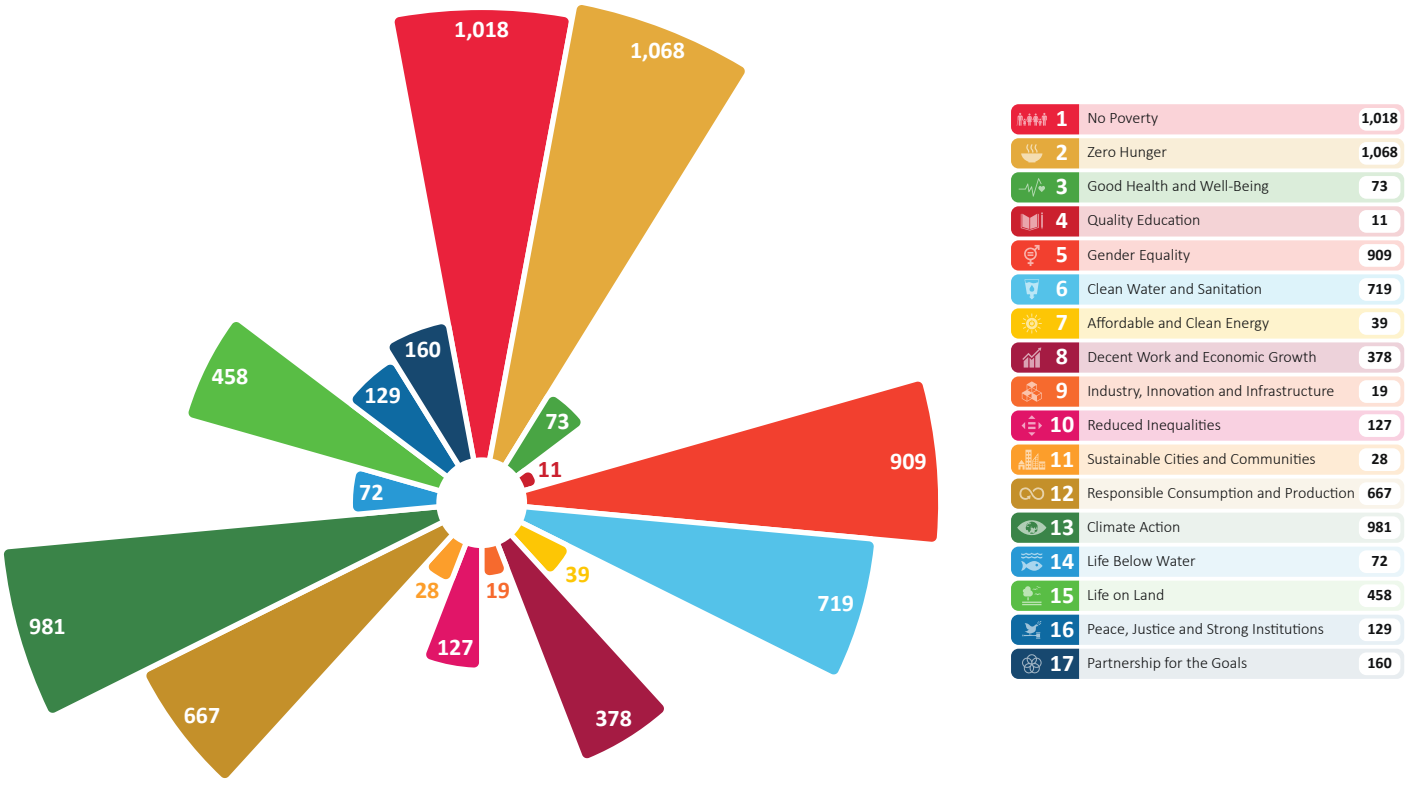


Figure 3.8. How reported results from Southeast Asia and the Pacific contribute to the SDGs.

Key topics in Solomon Islands

CGIAR's work in Solomon Islands is characterized by a systems-based approach that integrates scientific research, Indigenous knowledge, capacity development, and co-design with national and community actors. Several key thematic areas emerged during the 2022–2024 period.

Community-based resource management (CBRM)

Community-based resource management (CBRM) remains the dominant strategy for fisheries governance in Solomon Islands and a central theme in CGIAR-supported work. Between 2022 and 2024, WorldFish and MFMR jointly implemented a national CBRM awareness campaign, targeting both provincial fisheries officers and community leaders. Community reviews of CBRM were conducted in Malaita and other provinces, leading to updates of management plans, capacity assessments, and policy briefs. Innovations in disability-inclusive planning and cost evaluations of CBRM scale-up were piloted with MFMR and NGO partners.

WorldFish supported MFMR in reviewing the National CBRM Strategy (2021–2025), with specific emphasis on making the next phase (2025–2030) more inclusive, scalable, and systems-integrated. Lessons from Solomon Islands were also shared in regional forums, including the peer-to-peer FishSMARD learning platform , supporting peer exchange with Kiribati, Vanuatu, and Timor-Leste.

Innovation in fish handling and postharvest preservation

Solomon Islands faces persistent challenges related to food safety, fish quality, and cold chain access, particularly in remote communities. CGIAR-supported work focused on practical, place-based innovations to address these issues. WorldFish partnered with SINU and MFMR to co-develop a national fish handling training module, piloted in multiple provinces and supported by printed materials and trainer guides. Solar-powered freezer enterprises were piloted with women's savings groups in Malaita, generating evidence on gendered enterprise innovation and local food security impacts.

Complementary assessments documented gaps in fish handling infrastructure and knowledge, informing a national roadmap for fish quality improvement. Capacity development efforts focused on practical techniques such as gutting, filleting, icing, and hygiene, and were delivered through RTCs, fisheries officers, and local trainers.

Revitalizing Indigenous and island food systems

WorldFish and the Kastom Gaden Association co-led a national initiative to revive interest in Indigenous foods, particularly aquatic and coastal products threatened by dietary transitions and climate change. In 2023, Provincial Indigenous Food System Forums were held in Isabel and Western Province, bringing together community elders, youth, and researchers to document local food practices, knowledge, and constraints.

A national cookbook featuring Indigenous aquatic food recipes is under development, supported by CGIAR research. This work emphasized the cultural, nutritional, and environmental dimensions of food and sought to embed Indigenous knowledge into food policy and education. Activities were framed within the concept of food system sovereignty and local resilience.

Youth engagement and livelihood innovation

Youth unemployment and limited livelihood options in rural areas remain persistent development challenges in Solomon Islands. CGIAR-supported efforts created new pathways for young people to engage in fisheries-related enterprise, leadership, and technical careers. The 2022–2023 Fis Bisnis pilot in Malaita introduced youth to fish value chain opportunities, while in 2024, 16 youth completed internships at the Nusatupe Innovation Hub, with placements made including those in seaweed farming, coral restoration, and food processing.

Training programs were designed with input from youth councils and local facilitators, blending technical instruction with business development, leadership, and communication. Young interns also contributed to monitoring, storytelling, and co-designing workshops, strengthening links between research and implementation.

The Nusatupe Island Food System Innovation Hub

The Nusatupe Innovation Hub, launched in 2023, is a national platform for co-design, experimentation, and learning related to island food systems. Located in Western Province, the Hub hosts demonstration sites for aquaponics, coral gardening, seaweed farming, and nutrition-sensitive gardening. It also serves as a venue for community workshops, provincial exchange events, and youth internships.

The Hub is envisioned as a long-term asset for national research and learning. In 2024, WorldFish completed a strategic planning process for the Hub, supported by consultations with MFMR, SINU, and RTC partners. The strategy includes future partnerships with schools, private-sector actors, and civil society.

Budgets allocated to Solomon Islands

CGIAR financial investments in Solomon Islands between 2022 and 2024 were structured through bilateral projects, co-financed research platforms, and global CGIAR programs. While not among the largest budget allocations in the CGIAR Portfolio, the Solomon Islands program demonstrates efficient and high-impact deployment of resources through embedded delivery and long-term partnerships.

WorldFish activities were supported by funding from the Australian Centre for International Agricultural Research (ACIAR), the International Development Research Centre (IDRC), and the CGIAR Trust Fund. Budget allocations were focused on five thematic areas: CBRM scaling and governance, postharvest and infrastructure innovation, Indigenous food systems and nutrition, youth livelihood development, and the operationalization of the Nusatupe Hub.

CGIAR's model of co-location, secondment, and in-kind support allowed for efficient delivery. Staff were based within MFMR and provincial offices, and training was conducted using national facilities. This reduced overhead costs and ensured alignment with service delivery platforms.

The most notable financial milestone in 2024 was the inclusion of Solomon Islands as a core country in the Food Frontiers and Security Program. This Window 2 funding designation by ACIAR brought new investment to expand integrated island food system research and positioned the country as a hub for regional learning across the Pacific.

CBRM youth training, Solomon Islands.
Credit: Meshach Sukulu

CGIAR results in Solomon Islands

Between 2022 and 2024, CGIAR-supported activities in Solomon Islands delivered a range of measurable outputs across four major categories: knowledge generation, innovation, capacity sharing, and contributions to policy and strategy.

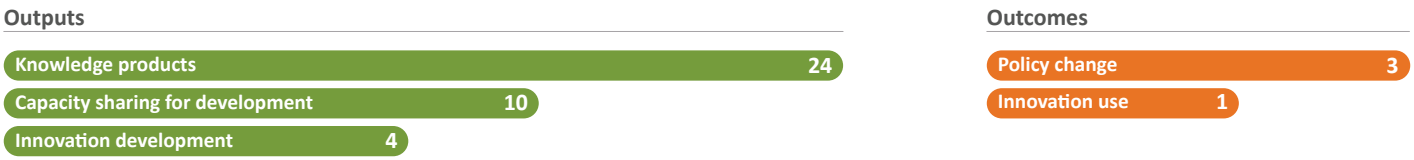


Figure 3.9. Reported results in Solomon Islands by level and category, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Knowledge products

WorldFish and partners produced a series of policy briefs, training tools, scientific publications, and learning reports. These included a national assessment of fish handling systems, a review of training impacts in Malaita, and technical briefs on solar freezer innovation, smoked fish value chains, and Indigenous food system futures.

A 2023 peer-reviewed article documented the gendered livelihood impacts of solar-powered freezers, contributing to the academic literature on socially inclusive innovation. These outputs informed MFMR planning, SINU curriculum design, and provincial strategy development.

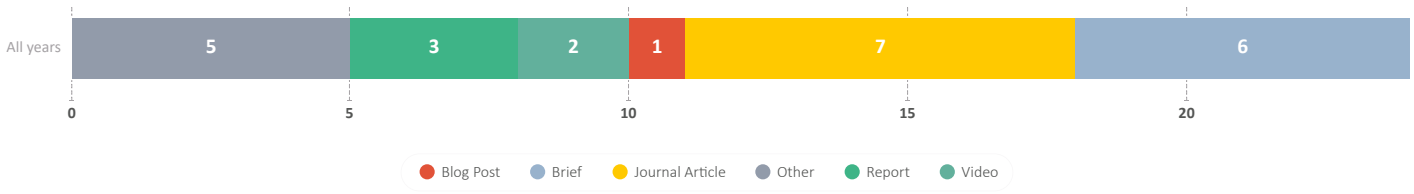


Figure 3.10. Number of reported knowledge products by type. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Innovation development and use

CGIAR investments supported innovation development tailored to the island context. Solar freezer enterprises, co-developed with women's collectives, proved effective in enhancing food safety and income generation in remote areas. A new national fish handling module was developed by SINU and adopted by Provincial Fisheries Offices for provincial rollout.

At Nusatupe, new demonstration systems were introduced, including aquaponics units, coral restoration plots, and compost-based agriculture. These served as both training tools and proof-of-concept for integrated island food systems.

Capacity sharing

More than 300 individuals participated in structured training activities between 2022 and 2024, including young interns, fish vendors, provincial officers, and students. Training topics included hygiene and preservation, Indigenous nutrition, coral gardening, seaweed farming, and inclusive governance.

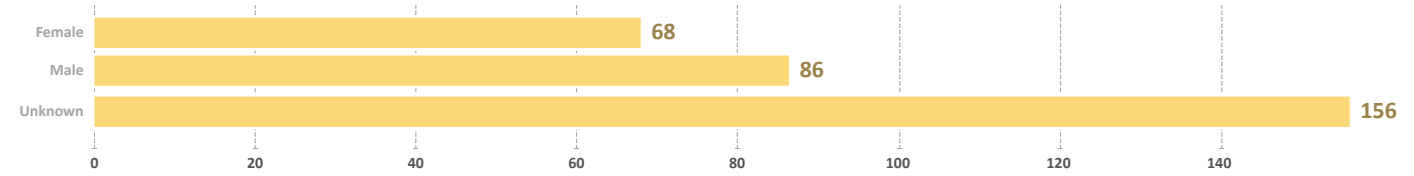


Figure 3.11. Number of individuals trained in Solomon Islands, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Capacity development also extended to partner institutions. SINU instructors, RTC staff, and MFMR officers received facilitation training to support delivery and local ownership of learning systems.

Contributions to policy and strategy

CGIAR research directly informed policy in multiple areas. WorldFish contributed to the drafting of the MFMR Provincial Fisheries Development Plan (2025–2030) and led internal reviews of the National CBRM Strategy. Policy briefs on infrastructure revitalization, inclusive service delivery, and scale-up costs were submitted to MFMR and provincial stakeholders.

Evidence was used to brief the incoming government in 2024, for example on national investments in rural infrastructure, and contributed to MFMR's corporate planning cycle. Solomon Islands' experience with inclusive CBRM was also documented as a case study for regional learning.

Strategic partnerships in Solomon Islands

CGIAR's credibility and long-term impact in Solomon Islands is grounded in strategic, equitable partnerships with national, provincial, and community institutions.

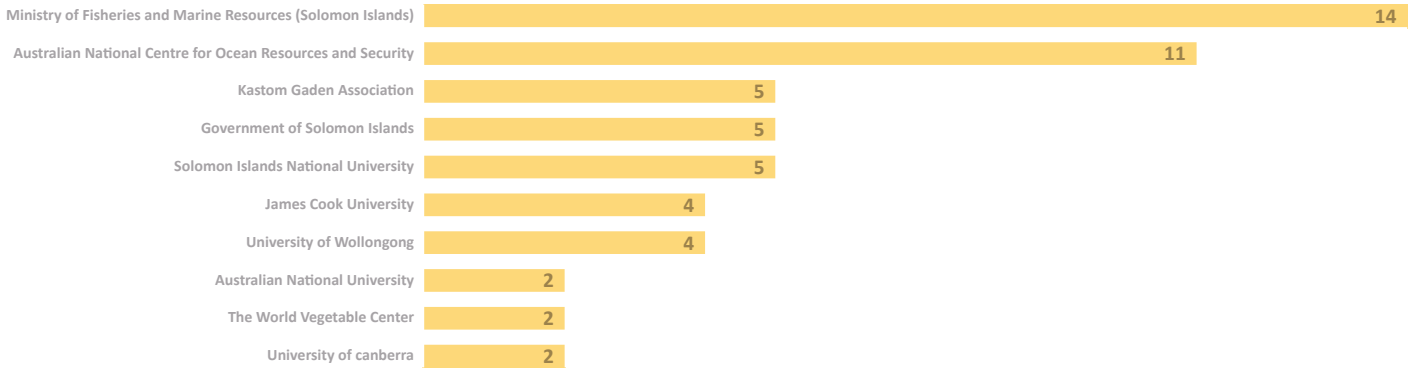


Figure 3.12. Top ten partners which contributed to results in Solomon Islands, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

MFMR is the primary national partner, co-hosting seconded WorldFish staff and leading on CBRM, governance, and strategy development. **Provincial Fisheries Offices** in Malaita, Western Province, Isabel, and Temotu serve as mandated agencies for training, monitoring, and community engagement.

SINU is the national academic partner in curriculum development and capacity building. SINU has worked closely with CGIAR researchers to co-design training tools and integrate research findings into academic programs, as well as to support national agencies in their services.

Kastom Garden Association (KGA) is a trusted civil society partner for work on Indigenous food systems, nutrition, and food forums. KGA's networks and legitimacy have enabled CGIAR research to be grounded in community voices and cultural knowledge.

RTCs host learning activities and serve as access points for youth and community members. They co-deliver fish handling, gardening, and business training in coordination with WorldFish and MFMR.

Youth and women's organizations, including the West 'Are'Are Rokotanikeni Association, have been key to co-implementation of enterprise pilots, advocacy, and leadership development.

CGIAR also partners with **regional and international institutions**, including the University of Wollongong and The Pacific Community. These partners support regional exchanges, multicountry research, and technical training.

Over the past three years, CGIAR's work in Solomon Islands has demonstrated how sustained, embedded engagement can yield meaningful outcomes for people, policy, and ecosystems. Building on four decades of presence through WorldFish, CGIAR has supported nationally integrated programs that advance equitable, climate-resilient, and nutrition-sensitive island food systems. From strengthening community-based governance and postharvest innovation to revitalizing Indigenous food systems and investing in youth leadership, the Portfolio has delivered evidence, capacity, and tools that are being used across all levels of government and society. The 2024 inclusion of Solomon Islands in CGIAR's new Food Frontiers and Security Program represents both a recognition of past achievements and a commitment to deepening CGIAR's role as a trusted partner in the Pacific. With a foundation of strong partnerships and a growing platform for systems innovation, CGIAR is well positioned to support the country's transformation toward more sustainable and inclusive food futures.

Look and learn trip to Santupaele community, Western Province, as part of a youth-targeted CBRM training.
Credit: Meshach Sukulu

Bangladesh

CGIAR in Bangladesh (2022–2024): Transforming agrifood systems through cross-Initiative collaborative research, innovation, and partnerships

Between 2022 and 2024, Bangladesh was — and will continue to be — one of the most active countries in CGIAR's global research and scaling Portfolio. Its long-standing partnership with CGIAR, along with its strategic importance in global agricultural and food systems development, has stemmed from its intensive production systems, strong economic growth, and potential for innovation. At the same time, its vulnerability to climate extremes and increasing national interest in policy and technological reform have reinforced the need for sustained engagement. Between 2022 and 2024, CGIAR collaborated with governmental ministries, national research institutes, NGOs, private-sector actors, and multilateral organizations to co-create innovations, strengthen evidence-informed policymaking, and scale solutions that addressed food system challenges.

Building on this strong foundation, this synthesis outlines CGIAR's research-for-development contributions in Bangladesh between 2022 and 2024 across six interconnected themes. It presents both Initiative-level achievements and the added value of cross-Initiative collaborations, which enabled shared learning, more efficient use of resources, and integrated service delivery to smallholders, value chain actors, and policy stakeholders. CGIAR's collaborative approach ensured that research outcomes were relevant, scalable, and embedded within national systems.

Transforming agrifood systems: Creating evidence to support the scaling of sustainable, nutrition-sensitive, and inclusive innovations

CGIAR's Research Initiative on Transforming Agrifood Systems in South Asia (TAFSSA) formed a core part of CGIAR's work on production systems and food environments in Bangladesh. It aligned research and scaling efforts with national goals related to nutrition, food security, rural poverty, and climate adaptation. Implemented through partnerships with the Ministry of Agriculture, the Bangladesh Agricultural Research Institute, the Bangladesh Wheat and Maize Research Institute, and the Department of Agricultural Extension, in addition to hundreds of NGO and private-sector and local development partners, TAFSSA supported research and scaling activities across multiple agroecological production zones and food systems in Bangladesh.

TAFSSA's integrated agrifood systems assessment in Rajshahi and Rangpur Divisions applied a plate-to-farm approach to generate a holistic picture of food system dynamics. It captured interconnected data on diets, adolescent nutrition and aspirations, food purchasing behavior, market structure, farming practices, gender roles, and climate adaptation. The findings showed persistent gender gaps in diet diversity, with women consuming less diverse diets than men, and highlighted the influence of junk food marketing on adolescent consumption patterns. Most households relied on purchased food, with men primarily responsible for shopping, while local markets were characterized by poor food quality and frequent spoilage. Nearly all households engaged in farming, yet women reported limited voice in both agricultural and health decisions. The assessment also showed that climate shocks were widespread, and although adaptation strategies were in use, asset constraints and limited financial access remained major barriers. These insights provide critical evidence to inform future programming that supports more resilient, equitable, and nutrition-sensitive agrifood systems.

Women working in fields.

TAFSSA also strategically collaborated with the Cereal Systems Initiative for South Asia (CSISA) to support the uptake of climate-smart agricultural innovations, scale-appropriate farm mechanization, and climate information services. Together, these efforts supported over 1 million farmers and underpinned the transition to improved practices on 9,742 hectares across Bangladesh and Nepal. The partnership leveraged CSISA's experience with machinery supply chains and private-sector engagement, and TAFSSA's network of extension and farming systems researchers to pinpoint new scaling leverage points, particularly around machinery manufacturing value chains and evidence-based agronomic practices.

TAFSSA team members administering the integrated agrifood systems survey in Bangladesh. Credit: Samuel Scott

A flagship innovation stewarded by TAFSSA, together with CSISA and the CGIAR Research Initiative on Asian Mega-Deltas, was the Agvisely decision-support system, which integrated climate forecast data and agronomic recommendations for over nine crops. Developed with the Bangladesh Meteorological Department and the Department of Agricultural Extension, over 587,000 farmers applied climate-informed crop management practices in 2024, demonstrating the power of cross-Initiative collaboration.

In northern Bangladesh, TAFSSA supported participatory research on diversified cropping systems and household nutrition. Field trials compared cereal-only rotations with systems designed to support diversified, healthy diets and increased income generation including legumes, vegetables, and oilseeds. Alongside these trials, farmers used budgeting tools and seasonal crop management calendars to improve decision-making. Training programs targeted tomato seedling production and linked farmers to input dealers and local buyers.

The CGIAR Research Initiative on Sustainable Healthy Diets complemented these production-side efforts by focusing on food availability, affordability, and behavior change. It conducted food environment diagnostics, identified bottlenecks in healthy food access, and supported the development of enabling policies. Collaborations between the Sustainable Healthy Diets Initiative and TAFSSA helped identify scalable, nutrition-sensitive innovations and embed them in market and extension platforms.

The CGIAR Research Initiative on Mixed Farming Systems strengthened farm-level resilience and income stability by supporting the integration of crops and livestock. It provided farm inputs and training to over 10,000 households aimed at improving farm-level nutrient recycling, fodder production, and animal health.

Scaling climate resilience and mitigation

Bangladesh's exposure to floods, salinity intrusion, and rainfall variability positioned it as a central country for CGIAR's climate adaptation research. The Asian Mega-Deltas Initiative focused on the Ganges-Brahmaputra Delta in South Asia, including Bangladesh's coastal districts, addressing landscape-level water management, institutional governance, and adaptation planning. It partnered with the Bangladesh Water Development Board, Center for Environmental and Geographic Information Services, and farmer-level water management associations to implement participatory adaptation planning across salinity-prone areas of the southern coast.

The Asian Mega-Deltas Initiative organized stakeholder workshops in Khulna, Barishal, and Chattogram and worked closely with local governments and farmers to apply the Climate-Smart Mapping and Adaptation Planning (CS-MAP) tool. These exercises informed strategies for managing drainage, tidal intrusion, and crop suitability under climate stress. Data generated through CS-MAP also informed research and scaling interventions under the CGIAR Research Initiative on Low-Emission Food Systems and TAFSSA, enhancing cross-Initiative learning.

A partnership among the TAFSSA and Asian Mega-Deltas Initiatives and the Bangladesh Meteorological Department led to the development of a calibrated multi-model ensemble for seasonal rainfall forecasting. This collaboration fed into Agvisely and Asian Mega-Deltas' climate advisory platforms, allowing farmers to make informed decisions based on probabilistic forecasts. Through interactive voice response systems stewarded by the Asian Mega-Deltas Initiative and TAFSSA, associated forecasts reached thousands of farmers — many of them women — with actionable guidance on how to avoid crop losses and damage from extreme weather events.

The Low-Emission Food Systems Initiative collaborated with the TAFSSA and Asian Mega-Deltas Initiatives to reduce agricultural greenhouse gas emissions and embed mitigation strategies in national planning. A key success was the integration of Alternate Wetting and Drying for irrigated rice into Bangladesh's National Adaptation Plan (2023–2050). Demonstration plots, training sessions, and policy dialogues supported the wider use of Alternate Wetting and Drying across extension systems. The Low-Emission Food Systems Initiative also worked with the TAFSSA and Sustainable Healthy Diets Initiatives to assess emissions and nutritional trade-offs of dietary shifts, connecting climate and nutrition outcomes across programs.

These are a few of many examples where CGIAR's Initiatives and partners shared climate data, extension platforms, and modeling tools to deliver integrated, low-emission, climate-resilient solutions at national and subnational levels.

Advancing aquatic food systems and financial inclusion

CGIAR's aquatic food systems work focused on improving productivity, inclusivity, and resilience in aquaculture and fisheries. The Aquatic Foods Initiative introduced genetically improved carp strains — such as rohu and silver carp — through partnerships with hatcheries and farmer networks. These fish demonstrated significant gains in growth and feed conversion, increasing profitability for small-scale producers.

CGIAR partnered with KIU-Bangladesh to expand access to financial services through a digital bookkeeping and lending system. The KIU App allowed aquaculture farmers to track sales and expenses, create digital credit profiles, and connect with banks to access financing. Similarly, a shrimp value chain assessment identified bottlenecks in seed quality, traceability, and biosecurity. CGIAR responded by co-developing training materials for nursery management and pond improvement for high-value species like Vetki and Bagda. These materials were integrated into the Asian Mega-Deltas Initiative's training approaches for farmers and the Gender Equality Initiative's outreach efforts benefited marginalized producers.

The Aquatic Foods Initiative applied the AsiaFish model to forecast supply-demand dynamics and inform national nutrition strategies. This work, conducted in partnership with the TAFSSA and Asian Mega-Deltas Initiatives, highlighted the role of aquaculture in filling protein gaps and estimated that climate-informed aquaculture decisions could prevent USD 14 million in annual losses.

Towards improved gender and social inclusivity in Bangladesh

The CGIAR Initiative on Gender Equality worked across Bangladesh to strengthen women's agency, address structural constraints, and shift gender norms. It embedded gender-transformative approaches in research design, evaluation, and delivery, ensuring that agricultural innovations contributed to broader equity goals. Collaborating with the TAFSSA, Sustainable Healthy Diets, and Mixed Farming Systems Initiatives, Gender Equality supported participatory action research to identify barriers to women's participation in agriculture, livestock management, and aquaculture. Programs such as POPI's ECATTO and CARE's SHOUHARDO–III — implemented with local partners — helped increase women's access to resources, leadership, and income-generating opportunities. These collaborations allowed for the co-creation of scalable empowerment approaches grounded in local realities.

To track impact, the Gender Equality Initiative applied the Women's Empowerment in Agriculture Index (WEAI) and Pro-WEFI tools to assess domains such as decision-making, access to credit, group participation, and time use. Data from these tools helped other CGIAR Initiatives adapt technologies and delivery mechanisms to ensure relevance for women.

Through joint collaboration with Asian Mega-Deltas and Aquatic Foods, the Gender Equality Initiative supported women's participation in social learning processes, field trials, and climate-smart technology evaluations. These collaborations enhanced the inclusivity of innovations such as Alternate Wetting and Drying, climate advisory tools, and the KIU bookkeeping platform. CGIAR's cross-Initiative approach enabled gender equality to be embedded as both a goal and a pathway to impact across climate, nutrition, and agricultural transformation efforts.

Participatory risk mapping and adaptation planning in the coastal region of Bangladesh.
Credit: IRRI

Scaling through innovation ecosystems and strategic partnerships

CGIAR scaled its innovations through a combination of public-private partnerships, formal collaborations with government institutions, and locally embedded delivery models. The CSISA-Mechanization Extension Activity (CSISA-MEA), strategically aligned with TAFSSA and collaborated with machinery firms, banks, and financial institutes to scale machinery adoption across 18,199 hectares in Bangladesh. More than USD 1.2 million in machinery sales were recorded, and efforts were made to reach underserved farmers — including women — through fuel-efficient, labor-saving equipment. CSISA-MEA worked to ensure tools were designed and delivered with attention to women's labor burdens and safety. Extension materials were translated into local languages and shared via community groups, with results shared through links to government at subdistrict and national levels for alignment with policy goals.

CGIAR also signed memorandums of understanding with institutions, including the Bangladesh Livestock Research Institute and the Food Planning and Monitoring Unit. These agreements facilitated co-ownership of research outputs and supported integration into the Plan of Action for Food Systems Transformation (2024–2025), a national policy launched with support from the Sustainable Healthy Diets Initiative.

Digital inclusion was a major focus of the Digital Innovation Initiative and joint work by the Sustainable Healthy Diets, Gender Equality, and TAFSSA initiatives. The Multidimensional Digital Inclusivity Index was piloted in Bangladesh to assess digital equity across regions and user groups. Participatory dashboards were developed with local governments and service providers to enhance accountability, feedback loops, and monitoring of access to agronomic services.

Strategic governance spotlight: CGIAR Advisory Committee in Bangladesh

The CGIAR Advisory Committee in Bangladesh is unique in CGIAR's global efforts. The Advisory Committee has been in place for over eight years and has played a central role in aligning CGIAR's research with national priorities and fostering institutional ownership. Its 9th Advisory Committee Meeting, held in Dhaka in November 2024, convened senior officials from the Ministry of Agriculture, and the Ministry of Fisheries and Livestock. Key institutes from these ministries include the Bangladesh Agricultural Research Council , the Bangladesh Agricultural Research Institute, the Bangladesh Rice Research Institute, the Bangladesh Institute of Nuclear Agriculture, the Bangladesh Fisheries Research Institute, and the Bangladesh Wheat and Maize Research Institute. Together with CGIAR, the Advisory Committee collaborates closely to align research priorities, share evidence, and support the delivery of integrated solutions across Bangladesh's agrifood systems.

Chaired by Dr. Nazmun Nahar Karim, of the Bangladesh Agricultural Research Council, and convened by Dr. Timothy J. Krupnik, CGIAR Country Convenor, the meeting reviewed cross-Initiative progress from 2022 to 2024 and facilitated dialogue on joint resource mobilization and research-to-policy alignment as CGIAR moves into its 2025–2030 Research Portfolio. The Advisory Committee emphasized the importance of integration across Initiatives and called for harmonized monitoring systems, data sharing, and continued multistakeholder coordination.

The Committee emphasized the critical importance of cross-Initiative collaboration to improve efficiency, coherence, and policy relevance across CGIAR's work in Bangladesh. Participants noted that while individual Initiatives had achieved measurable successes, greater impact could be achieved by systematically integrating research outputs and tools — such as climate advisory platforms, gender-responsive measurement frameworks, and digital extension systems — across programs. The meeting called for enhanced coordination mechanisms to harmonize data systems and monitoring frameworks, enabling more consistent learning and adaptive management. Members proposed the development of shared implementation roadmaps and joint learning agendas to align research timelines and targets with government planning cycles and policy priorities.

There was also strong consensus on the need to expand partnerships beyond traditional public research actors. This included deeper engagement with national and subnational government agencies, civil society organizations, and private-sector partners involved in seed systems, mechanization, nutrition, and agricultural finance. Advisory Committee members highlighted opportunities for CGIAR to play a stronger role in facilitating inclusive innovation ecosystems by brokering partnerships, informing investment decisions, and linking research to practice at scale. Participants further emphasized that sustained capacity building — particularly in digital tools, gender equity approaches, and systems-based research methods — was essential to ensure that national institutions could carry forward CGIAR-supported innovations beyond project cycles. By strengthening institutional ownership and cross-programmatic integration, the Committee agreed CGIAR would be better positioned to support Bangladesh in achieving its food systems transformation goals.

The collaboration between CGIAR and the Government of Bangladesh highlights Bangladesh's position as a regional and global leader in applying science to systems transformation.

Looking back and looking forward

Between 2022 and 2024, CGIAR's Initiatives in Bangladesh delivered measurable contributions to climate resilience, nutrition, gender equality, sustainable agriculture, and digital inclusion. These achievements were made possible by deep collaboration among CGIAR Initiatives, national institutions, and local partners.

Cross-Initiative work improved efficiency and coherence. TAFSSA and CSISA-MEA jointly scaled appropriate mechanization options in agriculture. Sustainable Healthy Diets and Gender Equality embedded equity into food environment reform. Asian Mega-Deltas, Low-Emission Food Systems, and Aquatic Foods shared climate risk tools to reach millions with adaptation strategies. Across these efforts, CGIAR's ability to coordinate across themes was key to impact.

Bangladesh is a global example of how coordinated research-for-development investments — rooted in national systems and built on trusted partnerships — can accelerate agrifood systems transformation. CGIAR's work in Bangladesh reflected a systems approach that addressed immediate constraints, strengthened institutions, and laid the groundwork for long-term resilience and sustainability. This approach will be strongly carried forward into the 2025–2030 CGIAR Portfolio, with over 10 CGIAR Programs and Accelerators anticipated to continue stewarding these partnerships into the future.

Section 4: **Partnerships**

Strategic partnerships are fundamental to CGIAR's mission of transforming food, land, and water systems in a climate crisis. In an increasingly interconnected global landscape, no single institution can tackle the complexity of agrifood system challenges alone. Effective partnerships enable CGIAR to leverage complementary expertise, mobilize resources, expand research impact, and accelerate innovation adoption. This section explores the evolving role of partnerships in CGIAR's Portfolio, emphasizing systematic approaches to partnership engagement, the diversity of actors involved, and the value created through collaboration.

Between 2022 and 2024, CGIAR significantly expanded its collaborative network, forging partnerships across research, innovation, scaling, and advocacy domains. The number of partners grew from 1,939 to 3,038 — a notable increase of 57 percent (Figure 4.1). This rapid growth highlights CGIAR's deepened commitment to collaborative alliances, with partners playing a central role in the design, implementation, and evaluation of its research and development efforts and their subsequent outcomes. It is worth noting that these figures do not account for the bilateral partnerships managed by individual CGIAR Centers, for which detailed data were not available. Including these bilateral efforts would further increase the total number of partners.

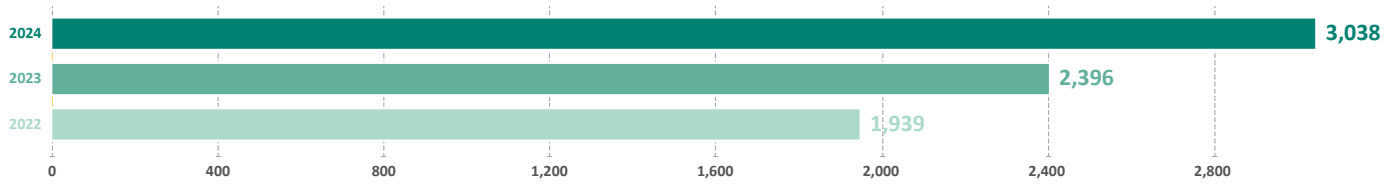


Figure 4.1. Number of CGIAR partners, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6 2025

Climate-Smart Village set-up under the Adaptation and Mitigation Initiative in Agriculture (AMIA) of the Department of Agriculture.
Credit: CIAT/Miguel Mamon

In 2024, each Initiative, Impact Platform, or SGP collaborated with an average of 2,458 partners (Figure 4.2). However, this Portfolio-wide average masks a considerable degree of variation across Initiatives. Unsurprisingly, there is a strong correlation between the size of the budget of an Initiative, Impact Platform, or SGP, and the scope of its partnership networks. Overall, the Initiatives under the Genetic Innovation Science Group showed a higher level of partnership engagement than those in other Science Groups.

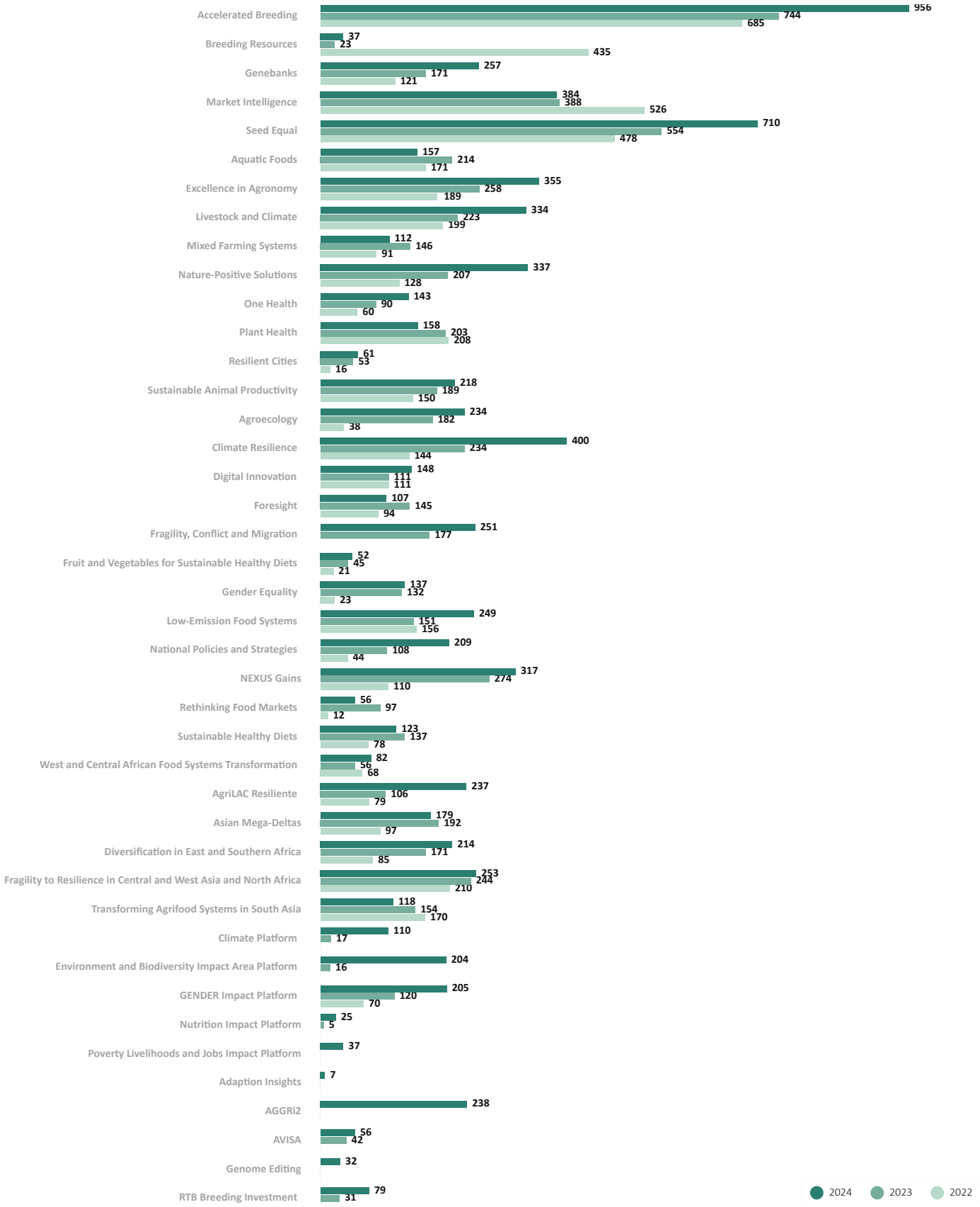


Figure 4.2. Breakdown of partners by Initiative/Impact Platform/SGP, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

In 2024, national-level government research and development agencies and universities remained the largest partner group for CGIAR, accounting for approximately 45 percent of total partnerships (Figure 4.3). Non-research national-level government agencies represented 16 percent, while private companies made up 15 percent. The remaining partnerships were with NGOs, international organizations, financial institutions, foundations, and other entities. Between 2022 and 2024, there was a significant increase in the total number of partners across all categories.

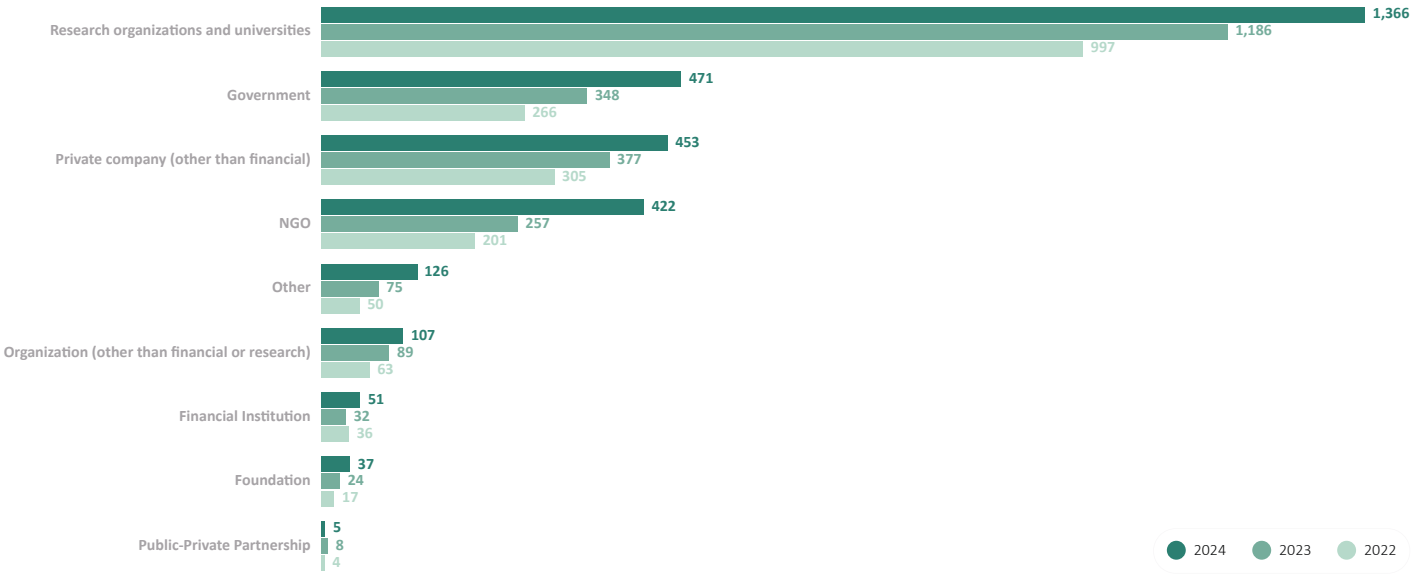


Figure 4.3. Total number of partners by type, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

An analysis of the geographic distribution of CGIAR's partners reveals key insights. In 2024, 71 percent of CGIAR's partners were from the global South, reflecting a modest increase from 69 percent in 2022 (Figure 4.4). The majority of CGIAR's government partners, NGOs, and private companies are based in the global South. However, a notable portion — approximately 34 percent — of the research organizations and universities CGIAR collaborates with are in the global North.

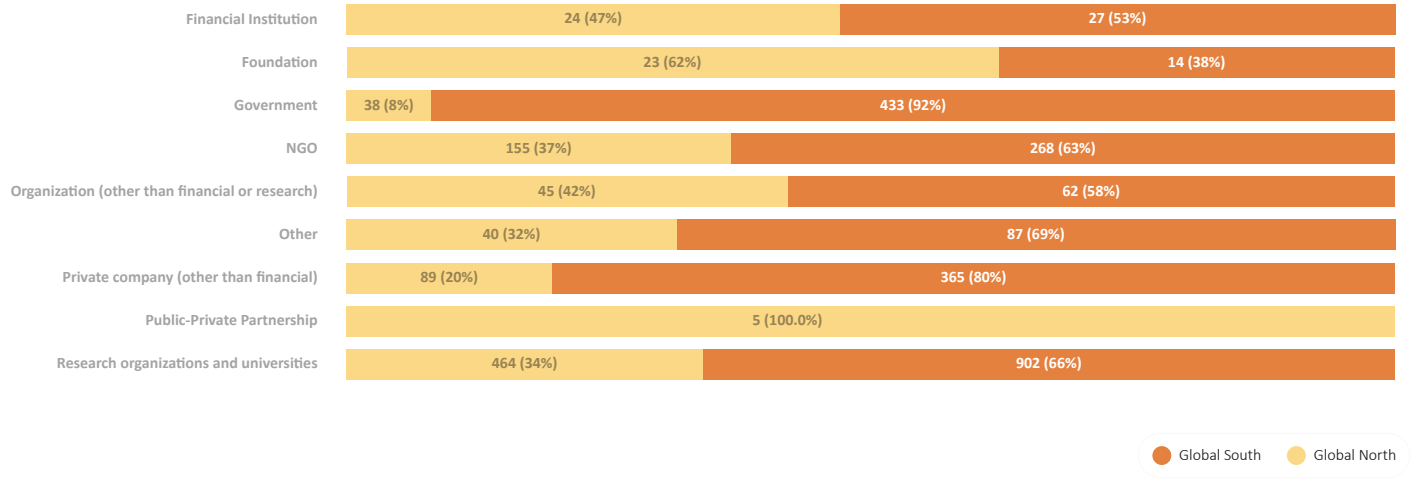


Figure 4.4: CGIAR partner types categorized by global North and global South origins, 2024. Source: CGIAR Results Dashboard, accessed May 6 2025.

CGIAR's partners can be grouped into four main categories: demand partners, innovation partners, scaling partners, and others.

Demand partners have explicit or implicit needs related to specific developmental challenges or opportunities. CGIAR provides these partners with scientific and technical support, as well as policy and investment guidance. In return, demand partners offer in-depth knowledge of local contexts and subject matter expertise, working closely with CGIAR to shape relevant interventions. Key partners in this category include the Kenya Agricultural and Livestock Research Organization, Uganda's National Agricultural Research Organisation, and the Bangladesh Rice Research Institute.

Innovation partners collaborate with CGIAR to co-design and co-develop innovative solutions while enhancing innovation readiness. These partnerships focus on advancing scientific research, applying new technologies, and testing and adapting innovations to address specific local needs. Key innovation partners include Wageningen University and Research in the Netherlands, CIRAD, and several leading national agricultural research institutes in the global South.

Scaling partners are those with which CGIAR works to promote the large-scale adoption and application of innovations. These include technologies, methodologies, practices, and policies, along with advocacy by both public- and private-sector entities to influence business practices and policy. Key partners in this category include major national agricultural research institutes in Africa and Asia, along with international organizations like FAO and WFP.

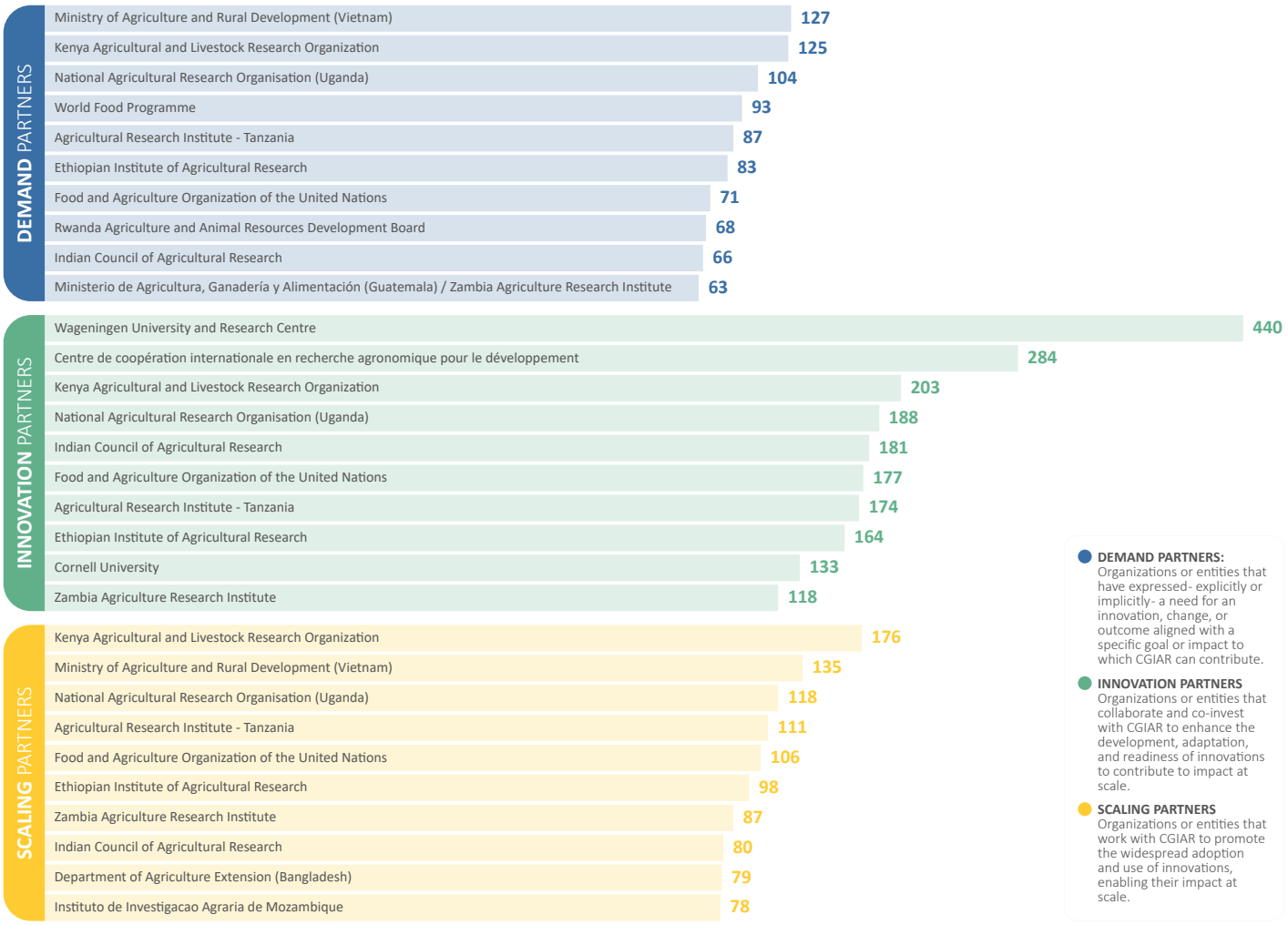


Figure 4.5. Top partners by delivery type, 2024. A partner can contribute to a result with more than one delivery type. Therefore, the total of all types can be more than the total number of results associated with a partner. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Pastoralist Naiapuaki Kilel Saninlu from Livestock and Climate supported intervention area in Kiteto district Tanzania sharing experiences of innovation joint village land use planning at the UNCCD COP16 in Saudi Arabia, December 2024.

Credit: Fiona Flintan/ILRI

In 2024, Initiatives, Impact Platforms, and SGPs reported that 49 percent of knowledge products, including journal articles, book chapters, working papers, videos, and briefs, were developed in collaboration with partners (Figure 4.6) and that 75 percent of CGIAR innovation products were created through close collaboration with partners (Figure 4.7). Research organizations and universities are CGIAR's primary collaborators in producing both knowledge and innovation products.

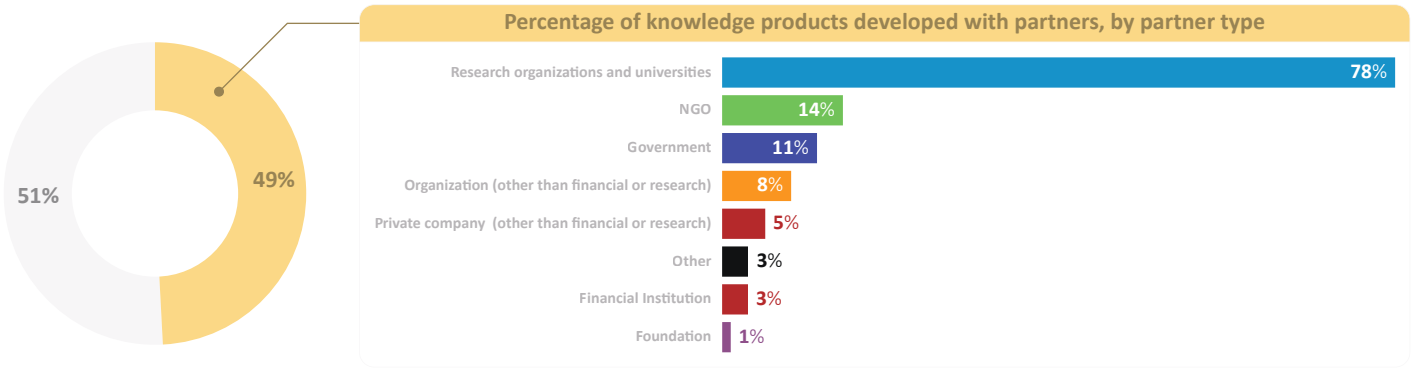


Figure 4.6. Percentage of knowledge products developed with partners, by partner type, 2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

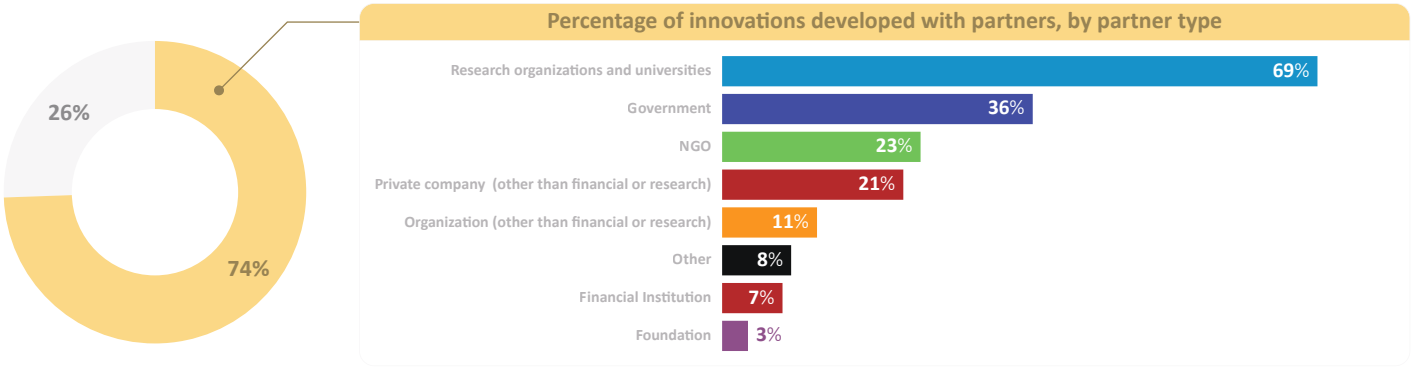


Figure 4.7. Percentage of innovation products developed with partners, 2024. A result can be associated with multiple types of partners and therefore counted more than once. A "partner" is classified as an organization or individual stakeholder that CGIAR collaborates with to achieve its goals. Partners can also be beneficiaries of CGIAR's interventions. Source: CGIAR Results Dashboard, accessed May 6, 2025.

CGIAR's evolving partnership engagement in 2024

In 2024, CGIAR reinforced its commitment to strengthening partnerships with the formal approval by the CGIAR System Board of the Engagement Framework for Partnerships and Advocacy, version 2.0 (EF 2.0). This updated framework emphasizes leveraging collective resources and expertise and scaling research innovations through more strategic collaborations. It seeks to move beyond transactional relationships, ensuring partnerships are built on shared goals and contribute to greater impact on food, land, and water systems.

Alongside EF 2.0, CGIAR also drafted a Partnership Strategy in 2024 to refine and systematize how it engages with partners. Developed in consultation with internal and external stakeholders, the strategy responds to recommendations from the High-Level Advisory Panel and addresses the lack of a unified, organization-wide framework for designing, managing, and evaluating partnerships. By adopting a more structured, strategic, and equitable approach, the strategy enhances the relevance and scalability of CGIAR's research and innovation efforts.

Key shifts under the Partnership Strategy include moving from ad hoc partnerships to intentional, long-term collaborations, establishing clear success metrics and partnership health assessments, and fostering co-creation with a diverse range of partners, particularly from the global South. It also ensures that partnerships are better aligned with national agricultural priorities and deliver measurable value.

The draft strategy's principles were piloted and tested across several Science Programs and Accelerators in 2024, with broader implementation anticipated following formal approval in 2025. To operationalize the strategy, CGIAR will follow a structured process encompassing partnership scoping, design, implementation, and evaluation. Ultimately, this approach aims to ensure CGIAR's partnerships are not only effective but also drive sustained, transformative impact through continuous learning, adaptive management, and stronger institutional coordination.

A key component of CGIAR's strengthened partnership approach is its Capacity Sharing for Development (CapSha) function, which enhances engagement with partners in the global South. CapSha marks a shift from traditional, one-way capacity development to a model rooted in mutual learning, co-development, and the exchange of evidence, innovations, and technologies across individual, institutional, and system levels. This approach fosters deeper collaboration and ensures that capacity strengthening is demand-driven and impactful. As part of this effort, CGIAR is piloting "Research Engagement" prototypes with national agricultural research systems (NARS) partners in Ethiopia, Rwanda, and Senegal. These pilots employ a learning-by-doing approach, enabling NARS partners to lead research efforts that align with national priorities while contributing to jointly defined impact outcomes with CGIAR Research Initiatives and Science Programs. Set to conclude in 2025, these country pilots will generate critical insights to inform the scaling and institutionalization of CapSha's approach.

With the rapidly evolving private-sector landscape, particularly in the global South, and the increasing role of the private sector in driving innovation and scaling solutions for smallholder farmers and agrifood systems, it is crucial that CGIAR stay attuned to trends in private-sector agricultural research and development. To support this, in 2024, CGIAR partnered with the University of Minnesota's GEMS (Genetics, Environment, Management, and Socioeconomics) Informatics Center, utilizing its advanced data analytics capabilities to compile firm-level agricultural research and development data around the globe. The data products generated through this collaboration will enable CGIAR to identify new opportunities for partnerships with non-traditional private-sector players and to strengthen its approach to research and innovation scaling. These insights will enhance CGIAR's ability to strategically engage with partners from the private sector moving forward.

Farming brothers Mohen and Raj Narayin Singh are partners in a CIMMYT project in Bihar, India, where they trial new practices and share their successes with other farmers.
Credit: P. Kosina/CIMMYT

Gender Equality, Youth and Social Inclusion

Gender Equality, Youth and Social Inclusion results

Between 2022 and 2024, 40 percent of results (6,585) reported by CGIAR addressed gender equality as a significant (29 percent) or principal (11 percent) objective. In 2024 alone, 41 percent of results (3,440) addressed gender equality as a significant (31 percent) or principal (10 percent) objective — a marked increase from 35 percent of results in 2022. However, gender equality remains the least addressed among CGIAR's Impact Areas.

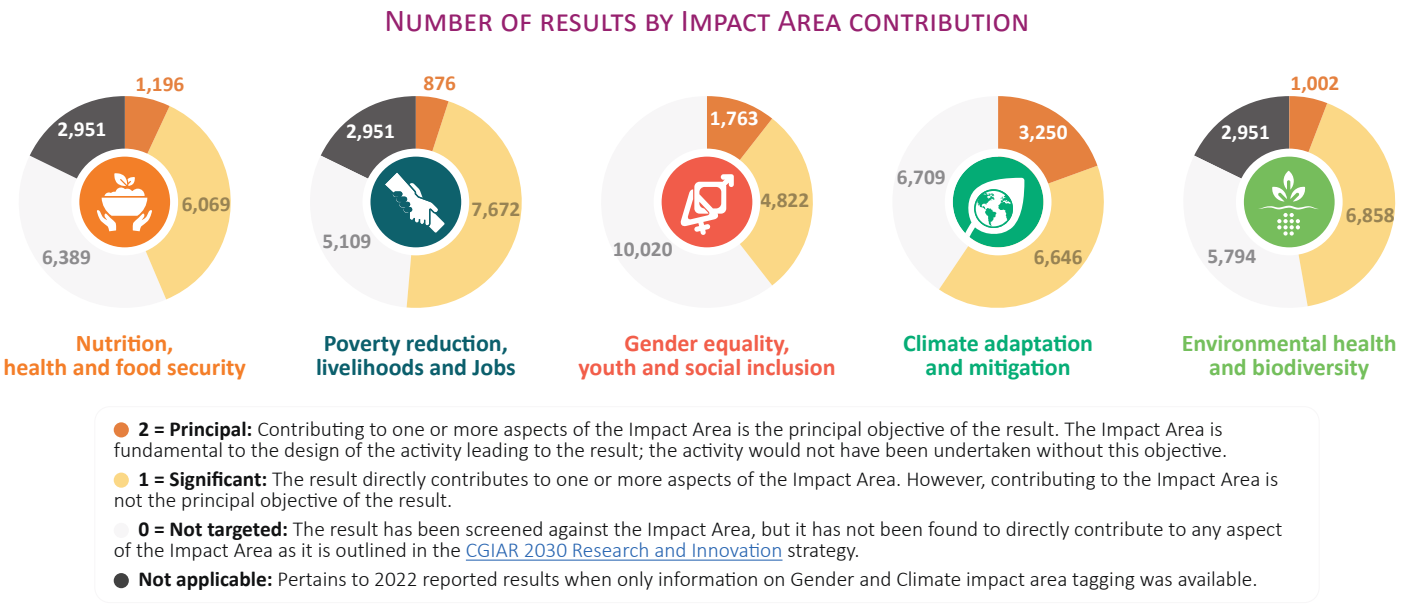


Figure 5.1. Impact Area focus across all results shows gender equality to be least represented overall, although well represented in the share of principal results, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Regional distribution of gender-principal results followed CGIAR-wide patterns, both across the years and in 2024. Most outputs and outcomes related to gender equality focused on Eastern and Southern Africa (563 overall, 316 in 2024), followed by South Asia (330 overall, 184 in 2024), West and Central Africa (221 overall, 109 in 2024), Latin America and the Caribbean (92 overall, 46 in 2024), Southeast Asia and the Pacific (91 overall, 39 in 2024), and Central and West Asia (53 overall, 28 in 2024). There was some variation in this regional distribution across Science Groups, with Genetic Innovation showing a slightly greater focus on West and Central Africa, and Resilient Agrifood Systems focusing slightly more on Southeast Asia and the Pacific.

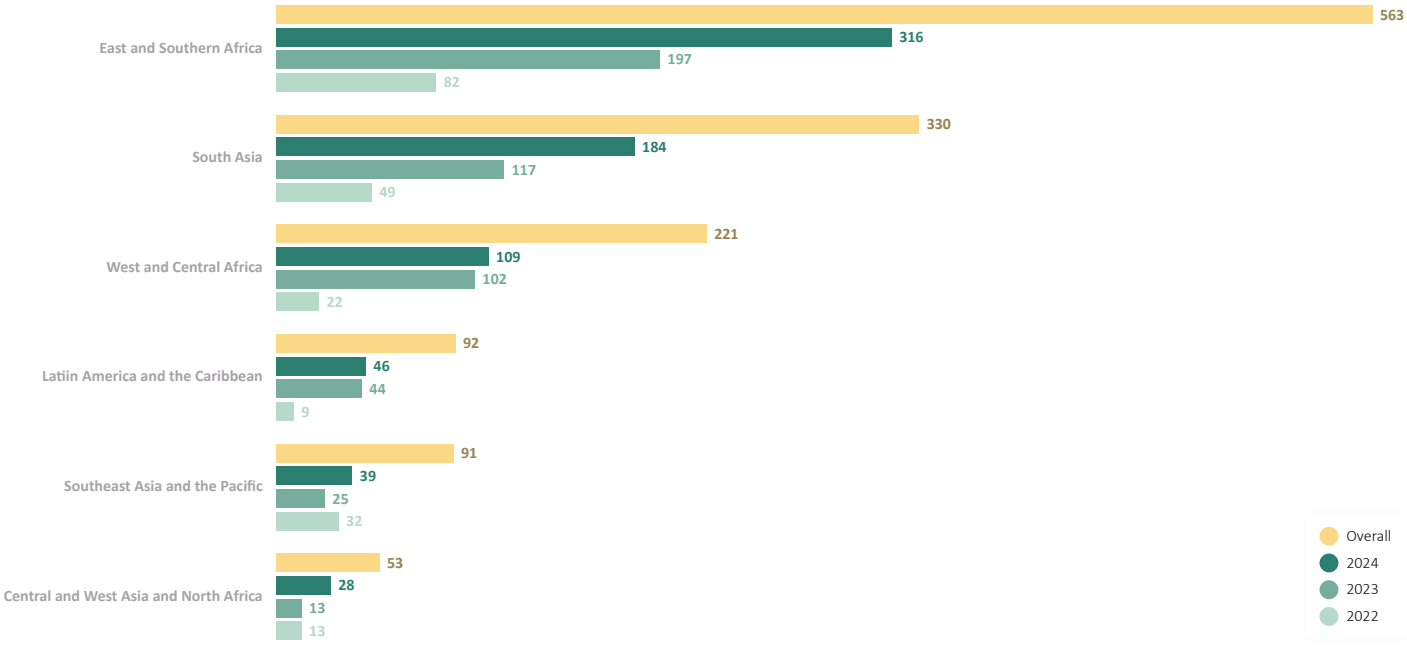


Figure 5.2. Geographic distribution of results with a principal focus on gender, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

A focus on gender equality was often combined with attention to other Impact Areas. Between 2022 and 2024, the greatest synergies were with climate change (targeted in 72 percent of gender-related results) and poverty reduction (68 percent). Of particular relevance is the correlation between principal foci on gender equality and climate change, suggesting a substantial number of results focused on gendered climate impacts, resilience, and mitigation and adaptation strategies.

All Initiatives and most Impact Platforms produced at least 10 results addressing gender equality, but this focus was not equal across Initiatives (Figures 5.3 and 5.4). The Gender Equality Initiative generated the most results related to this Impact Area, 91 percent of which had a principal focus on gender equality. The Gender Equality Initiative and GENDER Impact Platform together produced 14 percent of all results touching on gender equality in the overall period (2022–2024) and 13 percent in 2024, and almost half of the results having a principal focus on gender equality . Other CGIAR Research Initiatives with a consistent focus on gender included Fragility, Conflict, and Migration; Seed Equal; Diversification in East and Southern Africa; and Climate Resilience. It is also notable that almost all Initiatives increased their focus on gender between 2022 and 2024.

	2022–2024		2024	
INITIATIVE	**# RESULTS**	**% RESULTS**	**# RESULTS**	**% RESULTS**
Gender Equality	534	99	296	99
Fragility, Conflict and Migration	505	64	334	67
Seed Equal	367	60	197	67
Diversification in E&S Africa	318	59	199	61
Climate Resilience	562	58	330	69
Rethinking Food Markets	133	58	80	59
Sustainable Healthy Diets	166	57	90	69
Mixed Farming Systems	331	57	180	64
Market Intelligence	324	51	142	54

Figure 5.3. Initiatives with the most focus on gender equality (as a significant or principal objective) in their results. Source: CGIAR Results Dashboard, accessed May 6, 2025.

	2022–2024		2024	
INITIATIVE	**# RESULTS**	**% RESULTS**	**# RESULTS**	**% RESULTS**
One Health	16	7	10	8
Genebanks	47	11	26	12
Foresight	60	12	31	16
Breediing resources	25	21	10	28
Low-Emission Food Systems	144	24	58	22
National Policies and Strategies	168	25	93	33
Fruits and Vegetables	48	25	40	44
Agroecology	197	27	118	25
Fragility to Resilience in C&W Asia and North Africa	139	29	85	44

Figure 5.4. Initiatives with the least focus on gender equality (as a significant or principal objective) in their results. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Of the 15,351 reported CGIAR outputs from 2022 to 2024 (7,371 in 2024), 38 percent addressed gender equality (11 percent "principal" and 27 percent "significant"). In 2024 alone, of the 7,371 reported CGIAR outputs, 41 percent addressed gender equality (11 percent "principal" and 30 percent "significant"). The focus on gender equality was somewhat lower than the focus on other Impact Areas for outputs (overall 43 to 58 percent for other Impact Areas; in 2024 the discrepancy was higher — 57 to 66 percent for other Impact Areas). The greatest share of gender-related outputs was for knowledge products (59 percent overall, 55 percent in 2024), followed by capacity sharing for development results (18 percent overall, 16 percent in 2024), other outputs (13 percent overall, 13 percent in 2024), and innovation development (10 percent overall, 16 percent in 2024) (Figure 5.5).

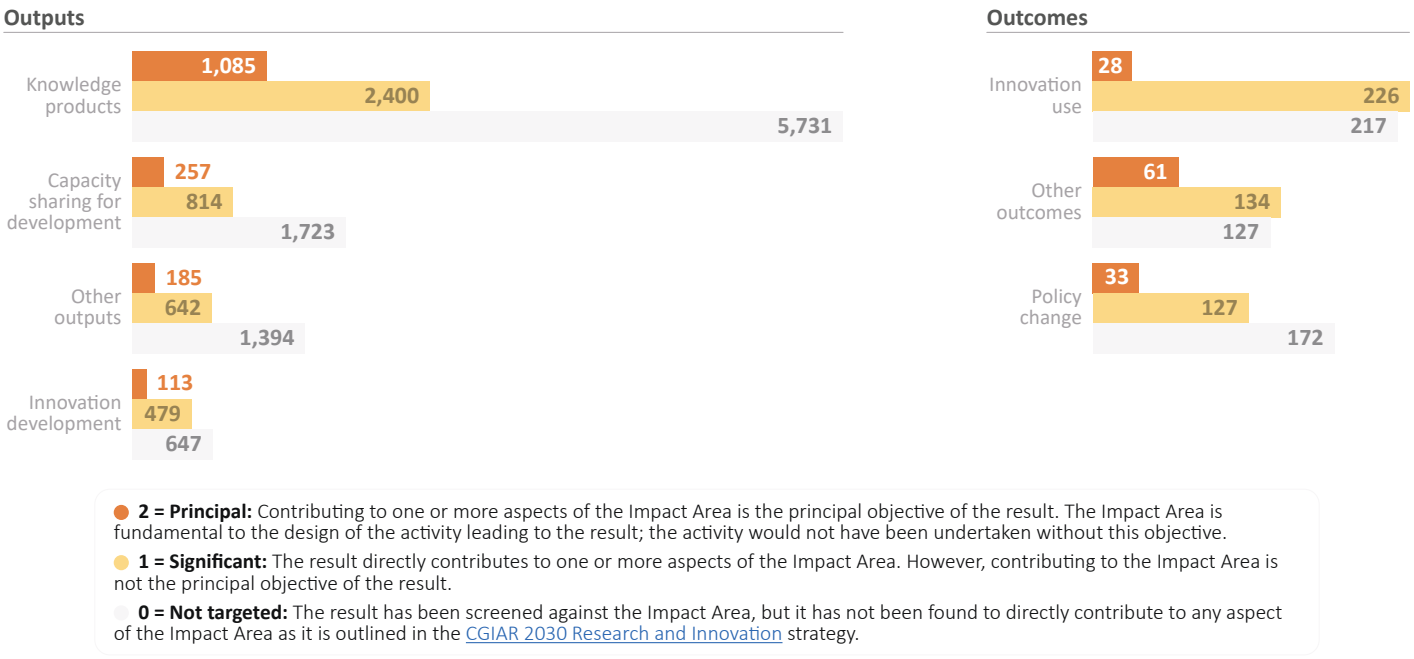


Figure 5.5. Number of outputs and outcomes that targeted gender equality, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

A trainer in Ethiopia's SNNPR. Photo credit: ILRI

Gender-focused knowledge products included a wide range of academic publications, reports, case studies, and training manuals. Knowledge products with a principal focus on gender explored in-depth how gender shapes farming system outcomes, with attention to topics such as gender and social norms, gender-transformative approaches, intersectionality, and intrahousehold dynamics. Results included, for example, gendered value chains, market segmentation, and customer profiling for breeding programs in Africa; a guide for women's agricultural cooperatives in Morocco; a case study that explores the socio-technical dimensions of the adoption of biofortified mustard among women farmers in India; a methodological guide for participatory mapping of territorial networks for men and women producers in Colombia; and a novel methodology for mapping hotspots where climate hazards, women's heavy participation in agriculture, and gender inequalities intersect, including situational analyses in Zambia and Bangladesh and impact studies in both countries.

Capacity development with gender equality as principal objective especially targeted NARS (24 percent for the 2022–2024 period and 23 percent in 2024), international and national NGOs (17 percent for the 2022–2024 period and 20 percent in 2024), and government partners (9 percent for the 2022–2024 period and 9 percent in 2024). These capacity development activities focused on market segmentation and product profile development, intersectionality in applied research, gender-responsive research and outreach methodologies (including human-centered design), and women's empowerment, including gender-transformative

approaches. A small number of training programs/sessions also directly built the skills of women and youth in areas such as vegetable seedling production, fish farming, and agribusiness generally.

Innovation development results that focused on gender equality were delivered mostly in Africa (close to two-thirds of results), followed by Asia (one-third of results). They related mainly to measuring women's voice and agency, as well as gender norms; designing effective social protection interventions; designing and implementing socio-technical innovation bundles for strengthening resilience of women farmers; analysis of gendered crop and variety preferences, or incorporation of gender in market intelligence; and product profile design. For example, the Gender Equality Initiative designed learning labs in Ethiopia, India, and Kenya where all relevant value chain actors looked at both practice and research to learn what combinations work where and why, to build resilience and empower women, men, and young farmers, and to provide this learning to the next users who could scale these bundles.

Of all CGIAR outcomes reported from 2022 to 2024, 54 percent (605) related to gender equality (11 percent "principal" and 43 percent "significant"). In 2024 alone, the same proportion was reported. The focus of outcomes on gender equality was closer to the focus of outcomes on other Impact Areas (52–78 percent). Almost half of the reported outcomes on gender equality were innovation use results, including the application of gender-responsive agronomic practices, biocontrol agents, or advisory services, and some seed distributions. For instance, by November 2024, 55 percent of all Target Product Profiles from current CGIAR breeding pipelines was informed by gender studies, gender specialists, or gender-disaggregated on-farm feedback. In Tanzania, gender accommodative approaches were adopted to enhance the business and chicken management skills of women vets , and gender transformative approaches were adopted to address gender norms that make women's involvement in chicken business socially inappropriate. In Bangladesh, a study on gender inclusion in digital applications by the CGIAR Research Initiatives on Asian Mega-Deltas and TAFSSA adopted a comprehensive approach to assess the gender sensitivity and inclusivity of digital agricultural tools. Community-based livestock breeding, which contributes to women's empowerment, was scaled to 90,000 new beneficiaries in Ethiopia, while new machinery dealerships and spare parts firms focused on women-friendly equipment in South Asia. While some activities were gender-intentional in their targeting practices, most results addressed gender indirectly through expanded production and dissemination of gender-responsive seed and other technologies and inclusion of women in distributions and promotional efforts. A number of these activities demonstrated growing focus on digital technologies and services, for example, workshops on inclusive Information and Communication Technology for Agriculture (ICT4Ag) services in India, assessment of inclusivity in digital platforms in Uganda, gender-responsive co-design of socio-technological bundles in Ethiopia, and utilization of the Multidimensional Digital Inclusiveness Index in Africa and Asia.

Askale Lombamo and her husband Abamo Lombamo in their garden in Doyogena District, Ethiopia.
Credit: ILRI

Policy change results (23 percent of gender-related outcomes) were linked to development and implementation of national, regional, and global policies on agriculture and resource management. Several Initiatives contributed to shaping government responses to gender-related matters in the agrifood sector, for instance, in Kenya, Ethiopia, Zambia, and Zimbabwe. The GENDER Impact Platform helped shape global policies, including FAO's global report on the Status of Women in Agrifood Systems, the Voluntary Guidelines on Gender Equality and Women's and Girl's Empowerment in the Context of Food Security and Nutrition, and the guidelines for measuring gender-transformative change in agrifood systems. The Platform also engaged deeply at UNFCCC climate change conferences in 2022, 2023, and 2024. However, there was less attention to gender-related outcomes from innovation use and policy change — especially when gender was a principal objective — than to other Impact Areas (Figures 5.6 and 5.7).

Innovation use

Figure 5.6. Impact Area focus across innovation use results, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Policy change

Figure 5.7. Impact Area focus of policy change results, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Other outcomes

A third of gender-related outcomes were "other outcomes", many of which had a principal focus on gender (Figure 5.8). These included shifts in discourse resulting from significant meetings and other high-level sharings of results, establishment of new partnerships, changes in capacities, or changes in approaches/programs by non-government institutions. For example, partners in Argentina, China, Indonesia, and South Africa carried out foresight analysis for food system transformation using CGIAR tools and methods. African universities are institutionalizing courses developed with the support of the GENDER Impact Platform.

- **2 = Principal:** Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.
- **1 = Significant:** The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.
- **0 = Not targeted:** The result has been screened against the Impact Area, but it has not been found to directly contribute to any aspect of the Impact Area as it is outlined in the CGIAR 2030 Research and Innovation strategy.
- **Not applicable:** Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

Figure 5.8. Impact Area focus of "other outcome" results, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Science Groups

Attention to gender equality is evident across CGIAR's three Science Groups. In GI, gender equality was addressed in 38 percent of results from 2022 to 2024, including 37 percent of outputs and 56 percent of outcomes. Of the outputs, almost half were knowledge products. Most knowledge products related to gender-responsive seed systems and seed adoption strategies, as well as gendered trait preferences in various crop breeding. In 2024, for instance, the Accelerating Breeding Initiative published a book chapter on gendered value chains, market segmentation, and customer profiling for breeding programs; the Market Intelligence Initiative developed a standardized protocol for piloting gender intentionality in breeding; and the Seed Equal Initiative published lessons on gender bias in bargaining from a study in Uganda. Gender-related outcomes included, for example, establishing fairness and decentralization in seed access across smallholder communities and commercialization and scaling of newly developed products from breeding programs, such as hybrid maize.

In RAFS, 37 percent of results (36 percent of outputs and 51 percent of outcomes) focused on gender equality. Nearly two-thirds of the gender-related outputs (61 percent) were knowledge products, touching on, for example, climate change and resilience, livelihoods, gender norms, and youth engagement. In 2024, for instance, the Livestock and Climate Initiative developed a multi-method participatory approach to address socially differentiated needs and preferences for complementing livestock insurance with other services among pastoral communities in northern Kenya. Most gender-related outcomes (60 percent) were innovation use results, including gender-sensitive livestock climate information services, nutrition and climate advisories, and community conversations. For instance, 10,045 new women and 1,796 new men received nutrition and climate advisories in Senegal, playing a crucial role in enhancing resilience and adaptation to climate variability, particularly for farmers and pastoralist communities. In addition, the women's group of Watinoma (Burkina Faso) added five new crops to its production catalogue.

In ST, 43 percent of results (42 percent of outputs and 58 percent of outcomes) were related to gender. Knowledge products, covering topics such as climate change adaptation and resilience; agrifood system value chains; the water-energy-food nexus; digital inclusion and innovation; fragility, conflict and migration; and socio-technical-innovation bundles comprised the majority (66 percent) of outputs. In 2024, for instance, the Climate Resilience Initiative developed a sourcebook for program designers that emphasizes the importance of integrating social equity and gender considerations into climate resilience planning. The Initiative on Rethinking Food Markets introduced a randomized controlled trial to see the impacts of cool transportation that connects three vegetable markets in northeast Nigeria and two large demand centers in the country's southern regions. Outcomes included contributions to policy and program design among partners as well as the rollout of inclusive agricultural services. For example, the World Bank utilized Gender Equality Initiative-supported evidence to integrate the prevention of gender-based violence into national large-scale social protection programs across low- and middle-income countries.

Scaling partners such as AGRA, the Cooperative for Assistance and Relief Everywhere (CARE International), and KALRO began integrating CGIAR evidence on socio-technical innovation bundling into their institutional policies and agricultural programs. By testing and refining bundling strategies, the Gender Equality Initiative provided key insights into the configurations that maximize adoption among women farmers. These insights have informed scaling pathways, enabling large-scale dissemination of socio-technical innovation bundles for climate resilience and economic empowerment.

Gender Equality, Youth and Social Inclusion strategic partnerships

Gender-focused results emerged from extensive partnerships between Initiatives and local and international partners. Most gender-focused work was done in partnership with national universities (1,437 results), NARS (1,273 results), national governments (mostly agricultural departments and ministries) (838), private companies (444), and international NGOs (403).

Partnerships with universities and research organizations contributed to a large number of gender-related knowledge products (1,883), while government partners contributed to almost a half of gender-related innovation use outcomes. NGOs and private-sector partners each contributed to about one-third of gender-related innovation use outcomes. NARS partnerships were especially common in GI (991), with almost half of the gender-related GI results emerging from these partnerships. Overall, 6 of the top 10 partners contributing gender-related results were NARS partners, suggesting strong collaboration with local research and extension teams on gender-related outputs and outcomes.

Climate Adaptation and Mitigation

CGIAR contributions through the Climate Adaptation and Mitigation Impact Area

Climate change is one of the most urgent challenges faced by the global community. Smallholder farmers in the global South — many of whom work with CGIAR — are among the most vulnerable communities and the most severely impacted by climate change. Agriculture and agrifood systems, which are responsible for nearly one-third of global greenhouse gas emissions, present as a key area for advancing research that supports resilient livelihoods and sustainable, equitable agricultural practices. In response, the Climate Adaptation and Mitigation Impact Area was committed to addressing these intertwined challenges through transformative research and innovation, guided by three overarching climate change adaptation and mitigation objectives:

1. Implement all national adaptation plans and nationally determined contributions to the Paris Agreement.
2. Equip 500 million smallscale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems.
3. Turn agriculture and forest systems into a net sink for carbon by 2050, with emissions from agriculture decreasing by 1 Gt per year by 2030 and reaching a floor of 5 Gt per year by 2050.

Climate Adaptation and Mitigation key themes and priorities

Between 2022 and 2024, CGIAR made notable strides in addressing the climate crisis through impactful research — supporting smallholder farmers, national governments, and global climate frameworks — while also leading efforts in climate-smart agriculture, low-emission food systems, and adaptation strategies. In 2022, just over half of CGIAR's reported results were classified as climate relevant — as having either a "significant" or "principal" climate focus — demonstrating its growing focus on tackling this pressing global challenge. By 2023, nearly 60 percent of CGIAR's results were categorized as climate relevant, reflecting the increasing integration of climate considerations into its Research Portfolio. This trend continued through 2024, where 64 percent of CGIAR results were tagged as climate "significant" or "principal". This consistent upward trend since the launch of the Initiatives in 2022 underscores CGIAR's deepening commitment to leading innovation and development in global climate research.

Over this period, the scope of CGIAR's climate-related research continued to broaden significantly, with an increase across impact-, solution-, and method-oriented knowledge products. CGIAR's work spans a wide range of research domains — from enhancing the resilience of staple crops such as maize and rice, to assessing the effects of dietary changes and consumption patterns on global emissions. It also includes advancing climate models to better predict rainfall seasons, examining the food-water-energy nexus and its implications for food and human security, and developing solutions to address soil salinization. CGIAR research on climate change cuts across multiple agrifood sectors as well, including crop, forestry, livestock, fisheries, aquaculture, and human systems, addressing intersecting challenges related to policy, finance, and socioeconomic dynamics.

This expansion since 2022, along with CGIAR's overarching multidimensional approach, highlights its commitment to addressing the complex and evolving challenges of climate change in agrifood systems. By advancing solutions — with a focus on the global South — across diverse scientific domains, finance, policy, and institutional systems, CGIAR reinforces its position as a global leader in climate research and innovation. Its adaptive nature allows it to consistently produce targeted, science-driven research that responds to emerging needs in both climate adaptation and mitigation, ensuring that multidisciplinary evidence remains central to guiding transformative climate action.

A snapshot of CGIAR work on adapting and mitigating climate change

CGIAR's research between 2022 and 2024 reflected a focus on climate-related challenges in agrifood systems, with efforts spanning the documentation of climate impacts, the development of new methods, and the implementation of solutions for both adaptation and mitigation.

In 2022, the focus was more centered on understanding and documenting the impacts of climate change on agrifood systems and natural cycles, as well as the contribution of agriculture to climate change. Research efforts emphasized the effects of climate variability, particularly droughts, extreme heats, rainfall, and flooding on agricultural productivity, household vulnerability, and ecosystem health.

In 2022, CGIAR scientists focused particularly on various impacts of droughts, with studies highlighting the impacts of climate-induced droughts on food security in rural communities in Tunisia. The impacts of climate change continued to be studied throughout 2023 and 2024, such as an examination of the effects of heat stress on durum wheat across different field conditions and thus identified potential sources of genetic resistance traits.

Other research outputs studied the socioeconomic consequences of climate change, highlighting the differentiated impacts on men and women. CGIAR research on rural communities in Bolivia demonstrated that climate change exacerbates the burden of domestic work, particularly for women, who often face heightened vulnerabilities due to restricted access to land, finance, and knowledge. However, the role of women in fostering climate resilience is undeniable. Empowering them through climate-smart agricultural practices, inclusive governance, and targeted social protection is a key strategy for strengthening adaptation efforts. A truly effective response to climate change must also recognize the intersections of gender with other social factors, such as age, ethnicity, and class.

Research also examined how farming practices contribute to greenhouse gas emissions, laying the groundwork for future mitigation strategies and highlighting the critical need for global emissions reductions. Other CGIAR research showed how the combination of farmer's nutrient management with hydrological variability governs greenhouse gas emissions in the rice-based cropping systems of eastern India, highlighting the need for context-specific mitigation strategies.

Through 2022, 2023, and 2024, CGIAR built on this foundation by advancing methodological tools to monitor, assess, and respond to climate impacts. This included enhanced climate modeling to more effectively assess the interconnectedness of climate extremes such as floods, landslides, droughts, cyclones, or heat waves. Early warning systems for drought were also developed, including tools for improved monitoring and forecasting in Zambia and the Limpopo River Basin.

Additionally, new techniques for assessing emissions from soil, livestock, and land use were tested in diverse agroecological settings, improving the precision of climate impact assessments of agriculture on global greenhouse gas emissions. These methodological advances provided critical insights for shaping evidence-based policy and farm-level interventions.

Climate-Smart Village set-up under the Adaptation and Mitigation Initiative in Agriculture (AMIA) of the Department of Agriculture.

Credit: CIAT/Miguel Mamon

Across 2023 and 2024, the emphasis significantly shifted toward the design and deployment of innovative solutions to address climate challenges in food systems. Research prioritized scalable technologies and practices that promote climate adaptation, resilience and sustainability, such as climate-smart agriculture, community-based sustainable water management, agroforestry research, and innovative energy solutions in agriculture such as solar-powered irrigation systems in Bangladesh or sub-Saharan Africa. Breeding and the development of climate-resistant crop varieties were among the most studied adaptation solutions, with several studies documenting the development of drought-tolerant varieties of wheat, maize, rice, and sorghum.

CGIAR scientists also explored integrated strategies that reduce emissions while delivering adaptation co-benefits, simultaneously strengthening livelihoods and ecosystem services. Key interventions offering pathways for substantial emissions reductions included hydrogen-powered fertilizers, carbon pricing, reducing emissions from land use and deforestation,, alongside sustainable livestock and aquaculture practices. This body of work underscored the importance of systems-level transformations, particularly through cross-sectoral collaboration and inclusive innovation pathways. Developing countries face unique challenges in implementing low-emission strategies, often hindered by limited resources and data gaps. CGIAR Initiatives like Low-Emission Food Systems aimed to support these regions by reducing emissions from food systems without hampering development goals. For instance, efforts in India focused on carbon farming to transform agriculture from a net emitter to an absorber of carbon.

Workshops and capacity building sessions played a vital role in fostering climate adaptation strategies. In Jamaica, targeted capacity building efforts enabled farmers to adopt climate-resilient irrigation technologies and access vital climate and water information services. Across sub-Saharan Africa, the identification of adaptation strategies for small-scale aquaculture underscored the urgent need to strengthen local capacities to ensure sustainable and effective implementation. Climate security is another key dimension, as climate-induced displacement and sociopolitical instability continue to affect vulnerable regions. Integrating peace and security considerations into climate adaptation and mitigation efforts remains crucial, with cross-sectoral collaborations focusing on innovative financing and localized solutions, particularly in the Middle East and North Africa region.

Together, CGIAR's climate-focused outputs over the 2022–2024 period illustrate a comprehensive research trajectory, from reporting on climate risks and understanding systemic vulnerabilities, to developing robust tools and methods, and ultimately delivering actionable, scalable solutions. This progression reflects the organization's commitment to building resilient agrifood systems that can thrive in the face of a changing climate.

Climate Adaptation and Mitigation results

Between 2022 and 2024, CGIAR produced 9,896 climate-related results, with 6,646 of these being "climate-significant", meaning that 40 percent of the results made a significant contribution to the Climate Impact Area's objectives. Another 3,250 climate-related results were "climate-principal", indicating that 20 percent of CGIAR's climate results between 2022 and 2024 had a primary focus on meeting the Climate Impact Area's primary objectives. Between 2022 and 2024, there was a steady increase in climate-related results that were climate-significant and climate-principal, as illustrated in Figure 5.9. In 2024, 64 percent of results were climate-significant and climate-principal, demonstrating CGIAR's commitment to expanding and enhancing its depth of research on critically relevant topics.

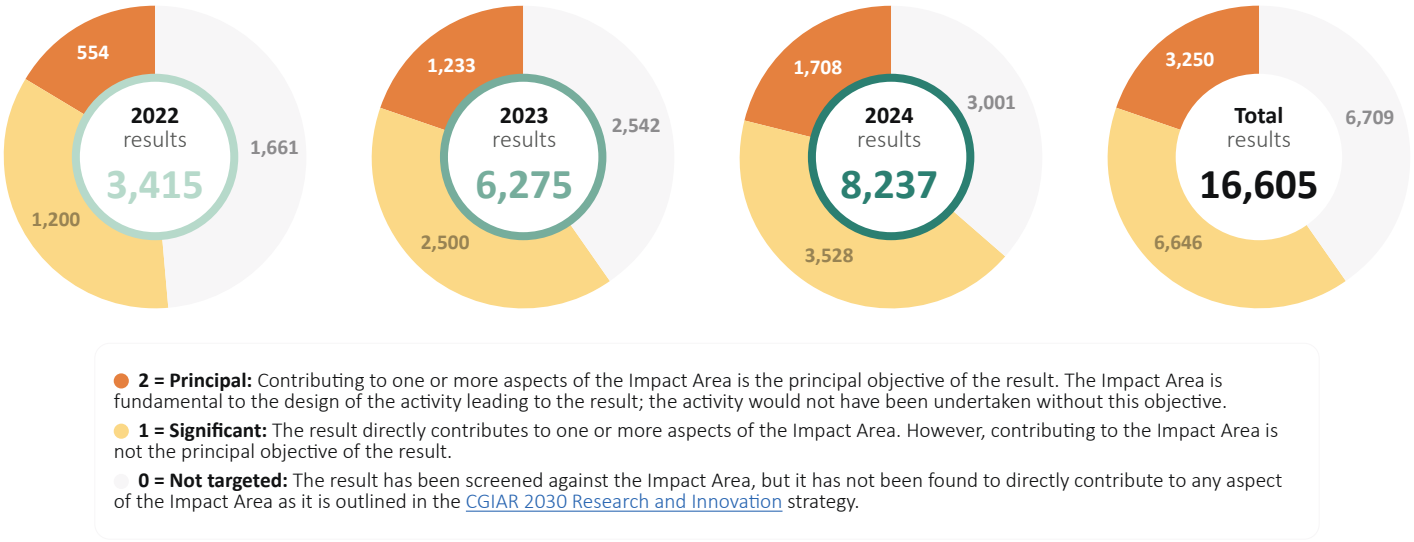


Figure 5.9. Overview of CGIAR's climate-related results, by year and the total results from 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Figure 5.10 shows the regional distribution of climate mitigation and adaptation-related results for the 2022–2024 reporting period. CGIAR-wide outputs and outcomes within the Climate Impact Area focused on Eastern and Southern Africa (2,575), followed by Latin America and the Caribbean (1,293), South Asia (1,288), Southeast Asia and the Pacific (1,015), West and Central Africa (996), Central and West Asia (641), Europe (64), and North America (12).

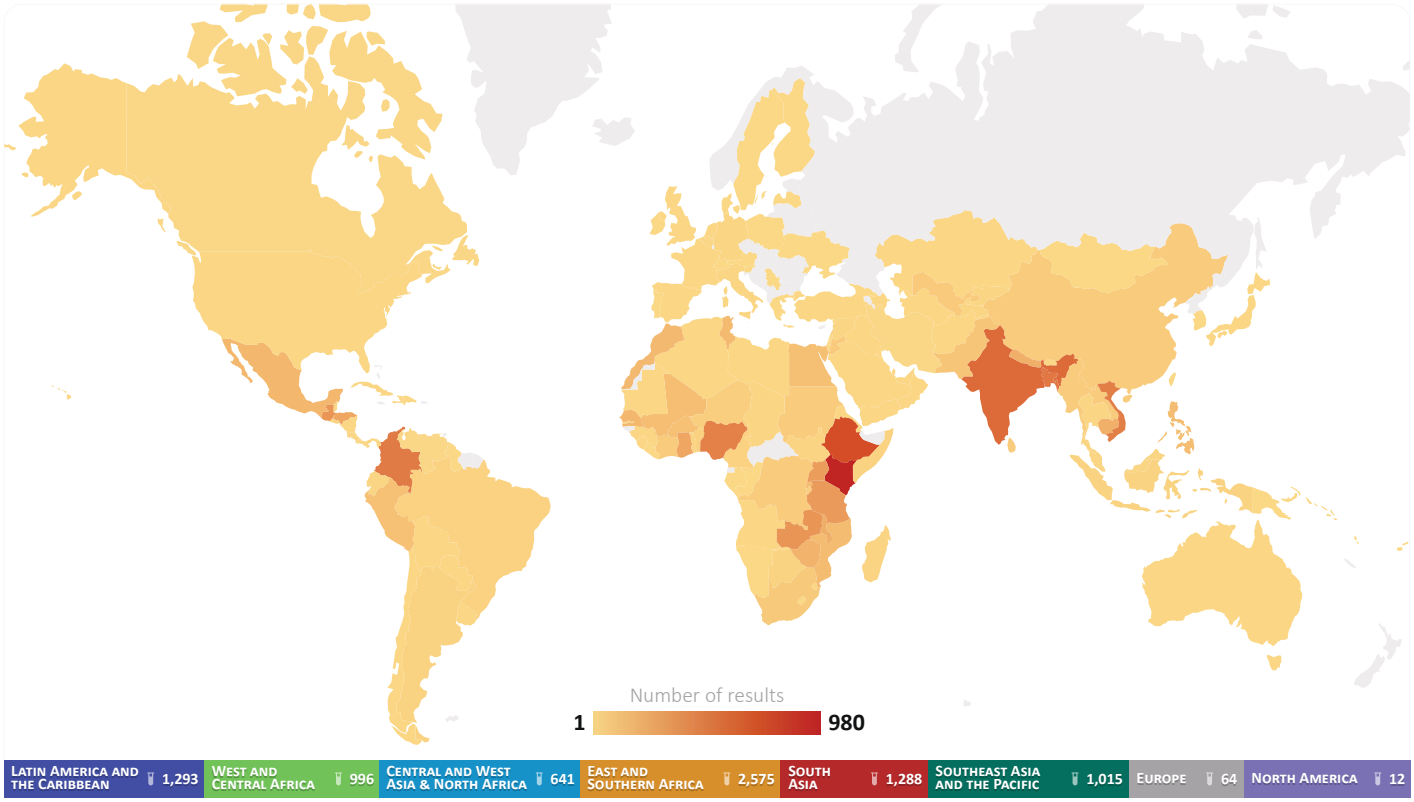


Figure 5.10: Geographic distribution of climate-relevant results reported between 2022 and 2024. Source: CGIAR Results Dashboard, accessed May 6 2025.

Across the Systems Transformation Science Group, the pattern is largely consistent with what is obtained for CGIAR-wide outputs and outcomes within the Climate Impact Area. Reporting trends shifted slightly, with South Asia becoming the second-most represented region, ahead of Latin America and the Caribbean. West and Central Africa and Southeast Asia and the Pacific followed as fourth and fifth most represented regions, respectively. These regions were then followed by Central and West Asia, Europe, and North America, while Eastern and Southern Africa remained the most represented region.

Across the Resilient Agrifood Systems Science Group, results from Eastern and Southern Africa were the highest represented region, followed by West and Central Africa, Latin America and the Caribbean, Southeast Asia and the Pacific, South Asia, Central and West Asia, Europe, and North America.

Across the Regional Integrated Initiatives, the variation in this regional distribution between principal/significant results is different from the CGIAR-wide pattern, with Latin America and the Caribbean as the highest represented region followed by Southeast Asia and the Pacific, Eastern and Southern Africa, South Asia, Central and West Asia, and West and Central Africa.

Climate-related outcomes

Over the 2022–2024 period, 331 outcomes were reported as having made principal contributions to the Climate Impact Area, with 103 of these results associated with innovation use, 138 with policy change, and 84 with other outcomes (Figure 5.11).

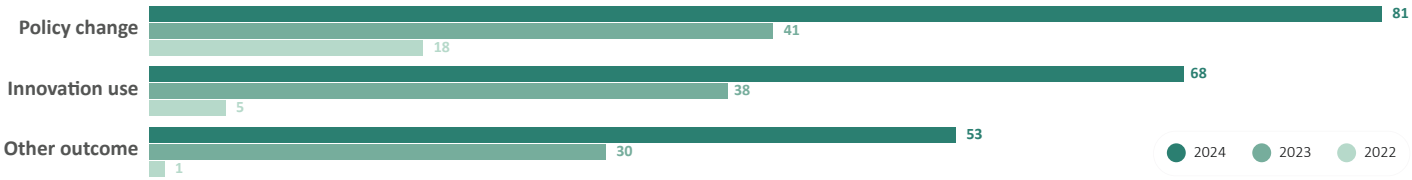
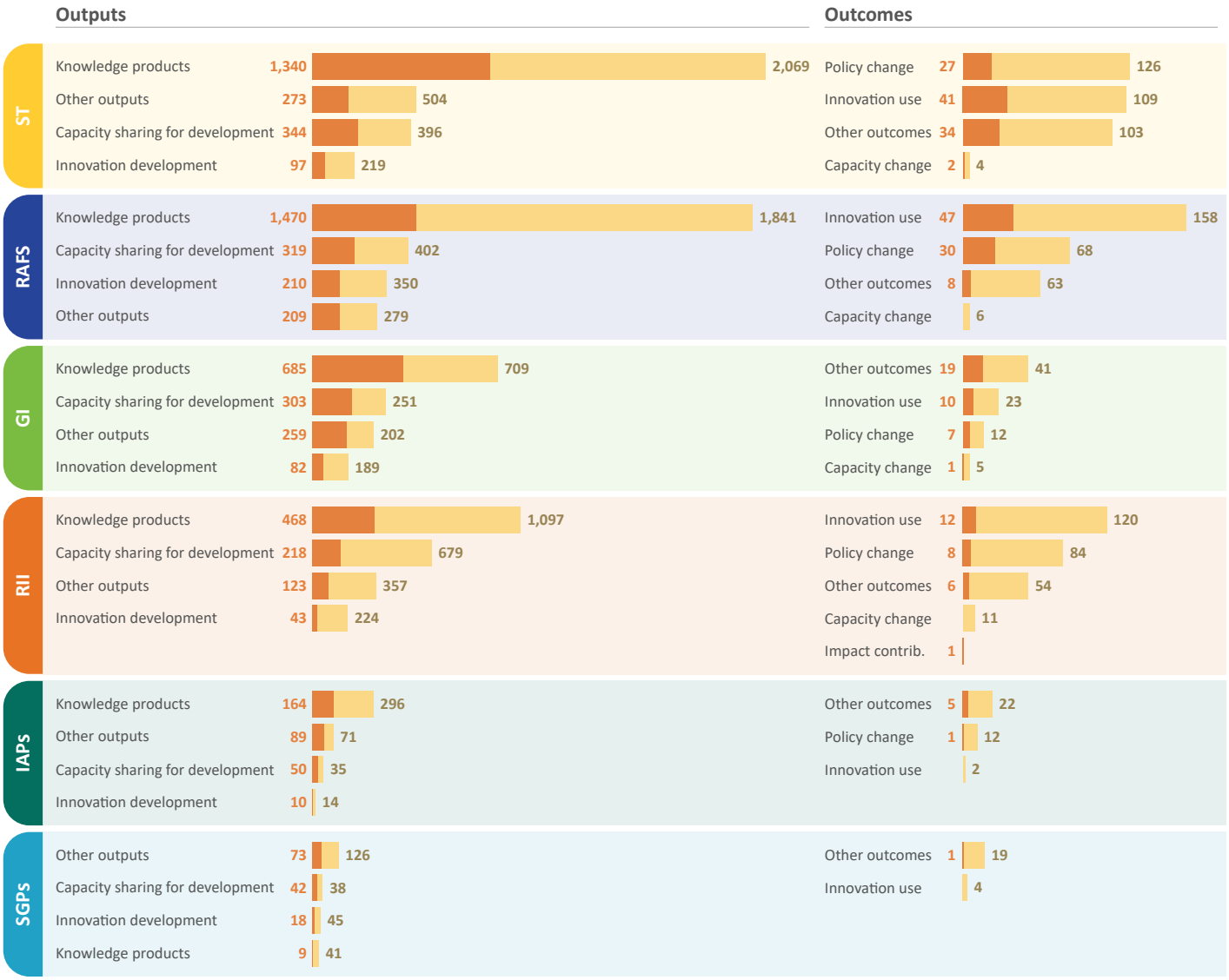


Figure 5.11. Number of outcomes tagged as climate-principal between 2022 and 2024. Source: CGIAR Results Dashboard, accessed May 8, 2025.

AMD innovations, such as rice straw-based circular economy, mechanized direct-seeded rice, MRV tools for carbon market, and drone technologies, will be mainstreamed in Viet Nam's One Million Hectares program.

CGIAR climate-relevant results across Science Groups, 2022–2024

The Systems Transformation Science Group generated the highest number of climate-relevant outputs, with 5,688 products accounting for 33 percent of the total. This was closely followed by the Resilient Agrifood Systems Science Group, which contributed 5,460 products (30 percent). Most climate-relevant outputs were knowledge products, totaling 5,705 and representing 53 percent of the climate-relevant results. Among outcome types, innovation use was the most frequently reported, with 407 outcomes — equivalent to 4 percent of climate-relevant results across the Science Groups (Figure 5.12).



2 = Principal: Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.

1 = Significant: The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.

Figure 5.12. Number of climate-relevant results by Science Group over the 2022–2024 period . Source: CGIAR Results Dashboard, accessed May 6, 2025.

CGIAR climate-relevant knowledge products, 2022–2024

A total of 5,288 climate-related knowledge products were delivered between 2022 and 2024 (being either "climate-principal" or "climate-significant"). Journal articles and reports dominate across all years, respectively accounting for 1,327 (25 percent) and 1,218 (23 percent) of the knowledge products. Other types of knowledge products (729, 14 percent), briefs (600, 11 percent), presentations (441, 8 percent), and blog posts (408, 8 percent) were then the most reported products. Remaining results included working papers, posters, videos, and manuals. Reports on climate-related topics were the most produced type in both 2023 (490 products) and 2024 (675 products), followed by journal articles accounting for 329 and 435 products respectively. In contrast, journal articles were the most frequently produced products in 2022 (454 products), with reports ranking second (162 products). This highlights the importance of peer-reviewed products, as journal articles represented 18 percent of all products in 2023 and 2024, and 47 percent in 2022, while many reports also underwent peer review.

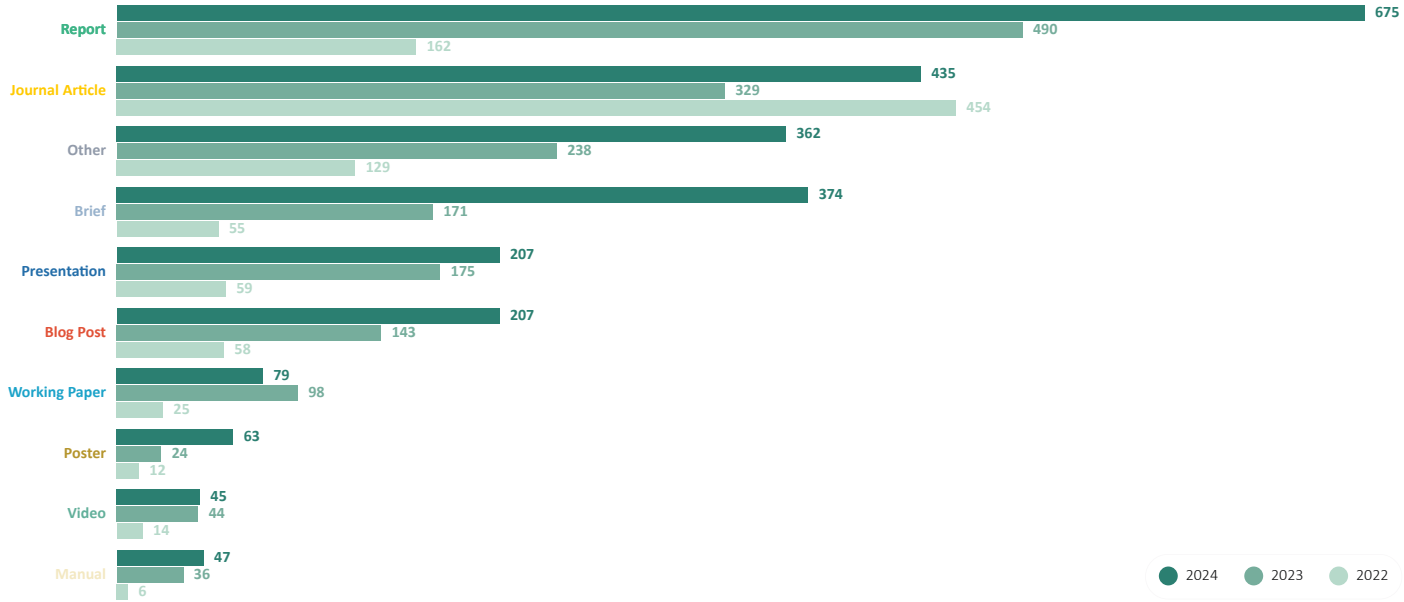


Figure 5.13. Number of climate-relevant knowledge products, by type, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

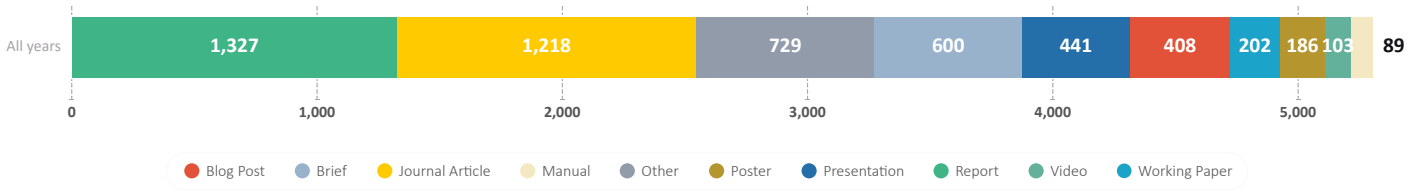


Figure 5.14. Total number of climate-relevant knowledge products, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Climate Adaptation and Mitigation strategic partnerships

Between 2022 and 2024, CGIAR worked with 1,641 partners to deliver research and innovations that impacted climate adaptation and mitigation. Most of these partnerships were primarily established with national research institutions and universities, with a significant share of collaborations also involving governments (Figure 5.15). Additional partners included non-financial private-sector entities, international and national NGOs, subnational government bodies, and international research institutions and universities.

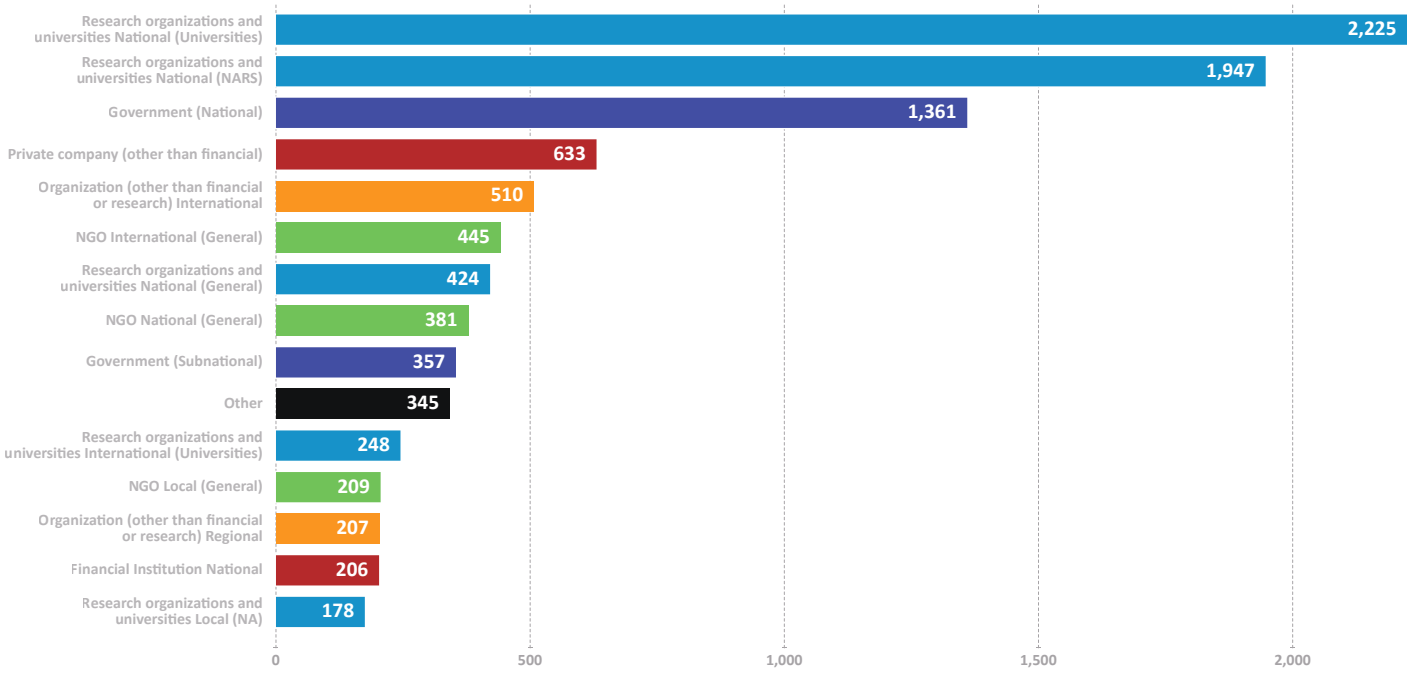


Figure 5.15. Number of climate-relevant results delivered over the 2022–2024 period with key contributing partners, broken down by partner typology. Source: CGIAR Results Dashboard, accessed May 6, 2025.

CGIAR's climate change science rationale: A deep dive into 2022, 2023, and 2024 outputs

In 2022, a total of 974 knowledge products were tagged as climate-significant or climate-principal, including 400 outputs classified specifically as climate-principal. Most of these were either reports (162, mostly non-peer-reviewed) or journal articles (129, peer reviewed), with the remainder published in other formats such as blog articles, presentations, briefs, or brochures.

In 2023, the number of climate-tagged knowledge products increased significantly from 974 to 1,787. Among the latter, a total of 105 peer-reviewed knowledge products were identified as climate-principal.[2] Most of these were journal articles (95), with the remainder being book chapters (9) and a report (1).

In 2024, the number of climate-tagged knowledge products again increased significantly, from 1,787 to 2,527. Among the 2,527 knowledge products tagged as climate-significant or climate-principal, 167 peer-reviewed outputs were identified as climate-principal. Most of these were journal articles (163), with the remainder being book chapters (4).

This brings the total number of climate-significant or climate-principal knowledge products to 5,288 for the 2022–2024 period, totaling 682 climate-principal outputs analyzed across the three years (400 in 2022, and 105 and 167 peer-reviewed outputs in 2023 and 2024, respectively).

The CGIAR climate-principal knowledge products from each year can be grouped into three main categories based on their objectives:

- Science for **understanding the impacts** of climate change on crops, livestock, trees, ecosystems, regions, and people (women, men, and youth):
    - 2022: 62 outputs
    - 2023: 44 outputs
    - 2024: 116 outputs
    - Total: 222 outputs
- Science for **providing solutions** for adapting to or helping to mitigate climate change:
    - 2022: 119 outputs
    - 2023: 53 outputs
    - 2024: 128 outputs
    - Total: 300 outputs
- Science for collating **methodologies** or innovating new methods to understand various aspects of climate change:
    - 2022: 135 outputs
    - 2023: 40 outputs
    - 2024: 125 outputs
    - Total: 300 outputs

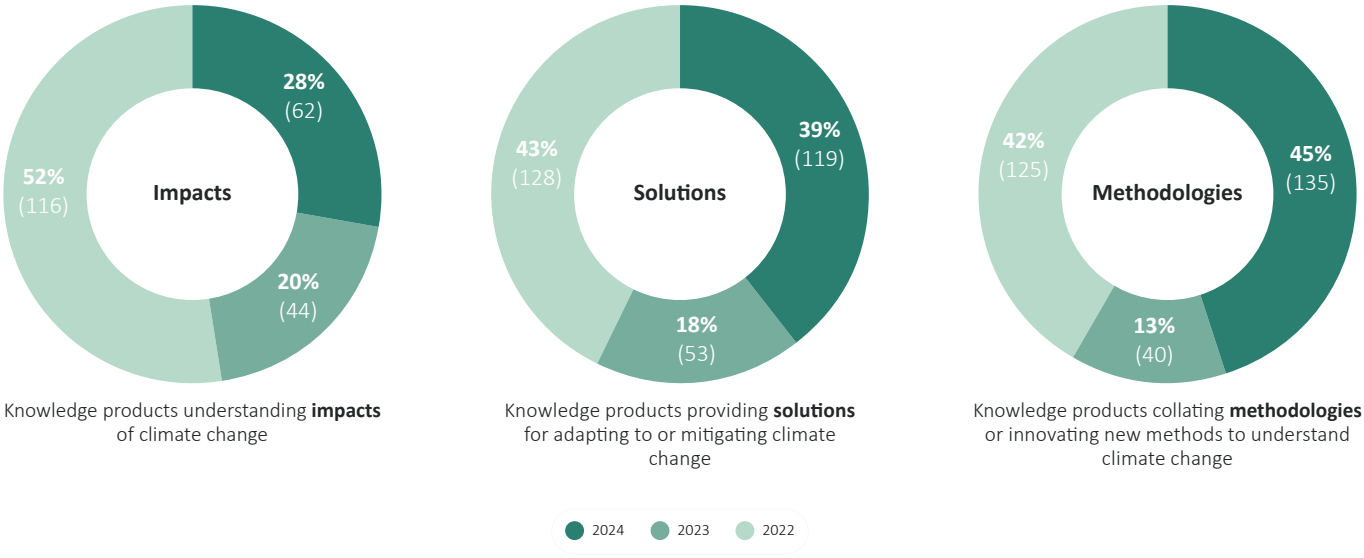


Figure 5.16. Climate-principal knowledge product categories, as identified by the CGIAR Climate Impact Platform team.

2. Unlike in 2022, the focus of analysis in both 2023 and 2024 was peer-reviewed climate-principal outputs. This selective approach ensures an emphasis on high-quality, peer-reviewed research and enables the maintenance of a clear and consistent narrative centered around climate-principal contributions.

In 2022, methodologies stood out with the most outputs, followed by solution-oriented outputs and impact products. This is understandable given that this was the first year of implementation of the Initiatives and developing methodologies was a top priority for many. In contrast, a slightly greater number of outputs was focused on solution-oriented approaches in 2023 and 2024, whereas publications focused on understanding climate impacts or developing methodologies were relatively balanced. This emphasis reflects the considerations of the second and third year of implementation for CGIAR's Initiatives, suggesting a focus on methods and solutions development and application, which was put into practice through these efforts.

Additionally, not all products fall within the three categories because they either (i) did not relate to a scientific output or (ii) addressed multiple categories. In 2022, for example, 84 outputs could not be classified into these three categories, covering themes such as Initiative launches, opinion pieces, and blog articles. In 2023, 12 outputs fell outside the main categories, addressing broader considerations like the SDGs, research gap assessments, or strategies to improve food systems and diets.

CGIAR science that contributed to understanding the impacts of climate change

In 2022, 2023, and 2024, CGIAR science examined the impacts of climate change on food systems; crops; livestock and fish; natural systems; human systems, including gender; and climate security, including migration. Figure 5.17 illustrates that 2024 did not explore impacts on both human and natural systems but rather introduced a new area of research — impacts of agriculture on climate change via greenhouse gas emissions — expanding the depth of impacts explored.

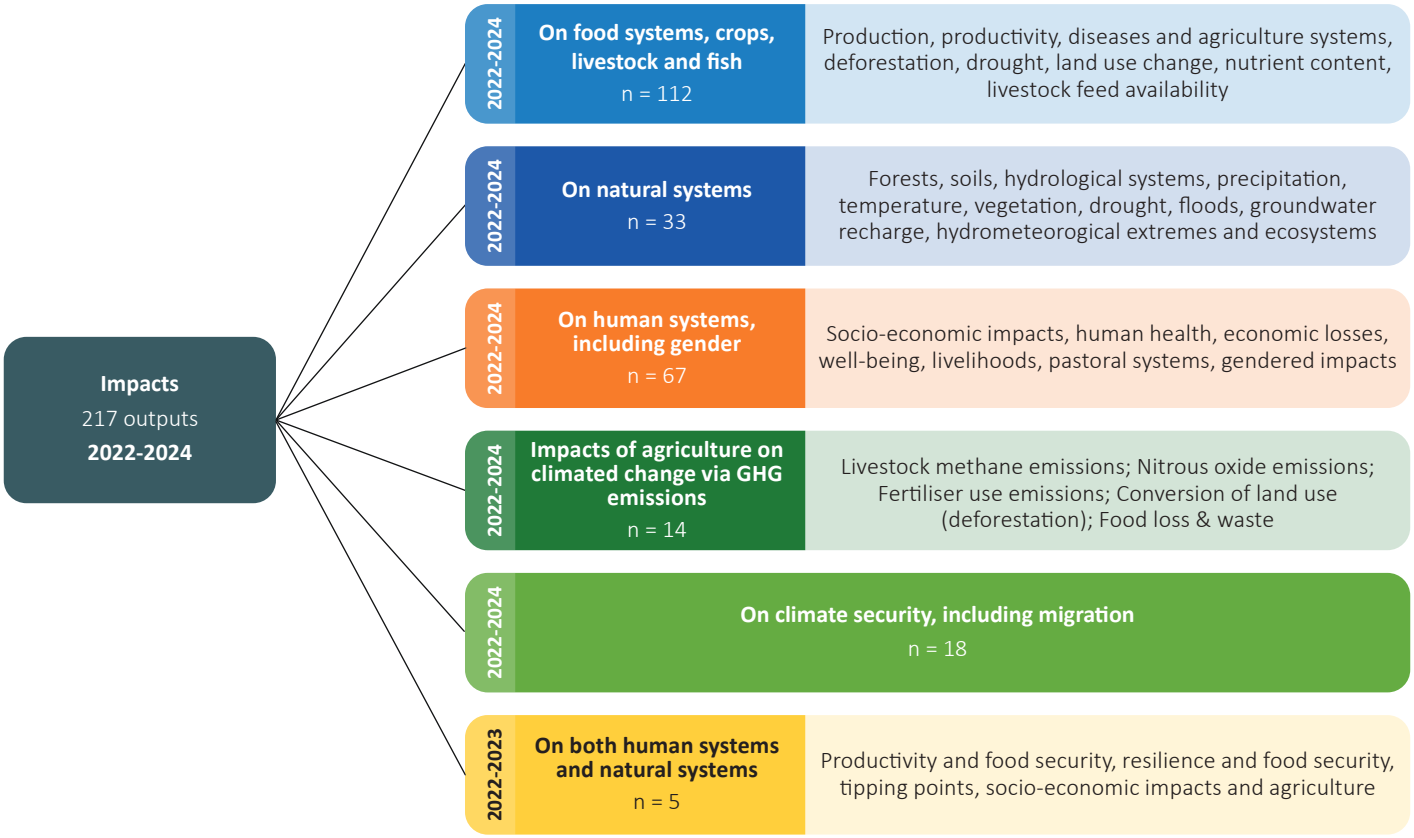


Figure 5.17. CGIAR 2022–2024 climate-related outputs focused on evaluating climate change impacts across various systems.

Water being pumped out of the River Nile into irrigation canals to feed water intensive crops of bananas growing in plantations in Upper Egypt.
Credit: Shutterstock/CGIAR

Some illustrative examples of **climate impact-oriented** science include the following:

2022

- Monitoring extreme rainfall in Ghana.
- Assessment of soil salinity changes under climate change in the Khorezm Region, Uzbekistan.
- Impact of historical climate variability on rice production in Mainland Southeast Asia across multiple scales.
- Climate change and land use change impacts on future availability of forage grass species for Ethiopian dairy systems.

2023

- Understanding changes in the hydrometeorological conditions towards climate-resilient agricultural interventions in Ethiopia.
- Cascades of tipping in impacts.
- Climate change, income sources, crop mix, and input use decisions: Evidence from Nigeria.
- Soil nitrous oxide and methane fluxes from a land-use change transition of primary forest to oil palm in an Indonesian peatland.

2024

- Climate extremes walking together: Evidence from recent compounding climate hazards after Remal.
- Multi-environment analysis of nutritional and grain quality traits in relation to grain yield under drought and terminal heat stress in bread wheat and durum wheat.
- Breeding rice for salinity tolerance and salt-affected soils in Africa: A review.
- The water-energy-food-ecosystem nexus in North Africa dryland farming: A multi-criteria analysis of climate-resilient innovations in Morocco.

CGIAR science that provides mitigation and adaptation solutions

Similar to the methodology category, 300 research outputs were classified as "solutions" across the 2022–2024 period, emphasizing CGIAR's focus on documenting and reporting on solutions put into practice through its research. These solutions were categorized as adaptation, mitigation, adaptation and mitigation, policies and institutions, and finance solutions, as illustrated in Figure 5.18.

These solutions were of various kinds, including breeding, technologies, institutions, and policies that support small-scale producers in adapting to climate change, such as crop- or water-related adaptation strategies, and emissions reduction across food sectors like livestock and fertilizers.

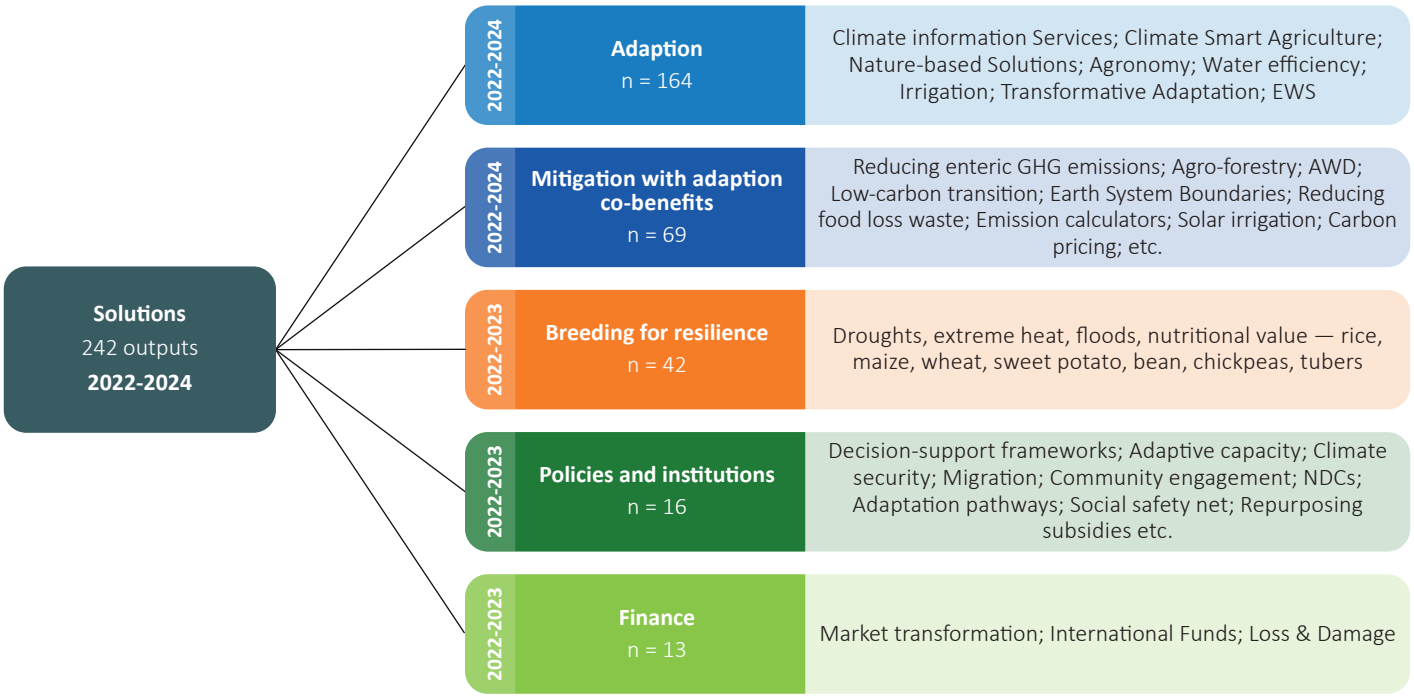


Figure 5.18. CGIAR 2022–2024 climate-related outputs focused on climate solutions.

The following are specific illustrative examples of scientific outputs that provide **solutions** for **adapting** to or **mitigating climate change** in agriculture:

2022

- Silvopastoral systems for offsetting livestock emissions in the tropics: A case study of a dairy farm in Costa Rica.
- Genomic regions associated with salinity stress tolerance in tropical maize (Zea Mays L.).
- Improving nitrogen use efficiency and reducing nitrogen surplus through best fertilizer nitrogen management in cereal production: The case of India and China.
- Climate change and seed system interventions impact on food security and incomes in East Africa.

2023

- Flood-tolerant rice for enhanced production and livelihoods of smallholder farmers of Africa.
- Transformative adaptation: From climate-smart to climate-resilient agriculture.
- Evaluating greenhouse gas mitigation through alternate wetting and drying irrigation in Colombian rice production.
- Priority science can accelerate agroforestry as a natural climate solution.

2024

- Approaches and progress in breeding drought-tolerant maize hybrids for tropical lowlands in West and Central Africa.
- Puzzlingly low utilization of solar irrigation pumps by smallholders in Nepal undermines cost-effectiveness.
- Shaping India's climate future: A perspective on harnessing carbon credits from agriculture.
- Crop calendar optimization for climate change adaptation in yam farming in South-Kivu, eastern Democratic Republic of Congo.

CGIAR's science on methods for measuring various aspects of climate change

Between 2022 and 2024, 298 scientific outputs presented methodologies for measuring various aspects of climate change. In 2022, methods-focused outputs made up most of CGIAR's publications (135), which aligned with the launch of the Initiatives that year. In 2023, methods remained significant, comprising nearly half of all outputs (40 out of 106), though the year also saw a broader mix of methodological and non-methodological studies. In 2024, there was a considerable increase in methods-related outputs over 2023, with 123 out of 167 scientific outputs focused on methods. This trend of methods-focused outputs remaining significant in CGIAR's Portfolio reflects CGIAR's commitment to enhancing research and innovation. Figure 5.19 further details the methods developed by CGIAR for studying climate change.

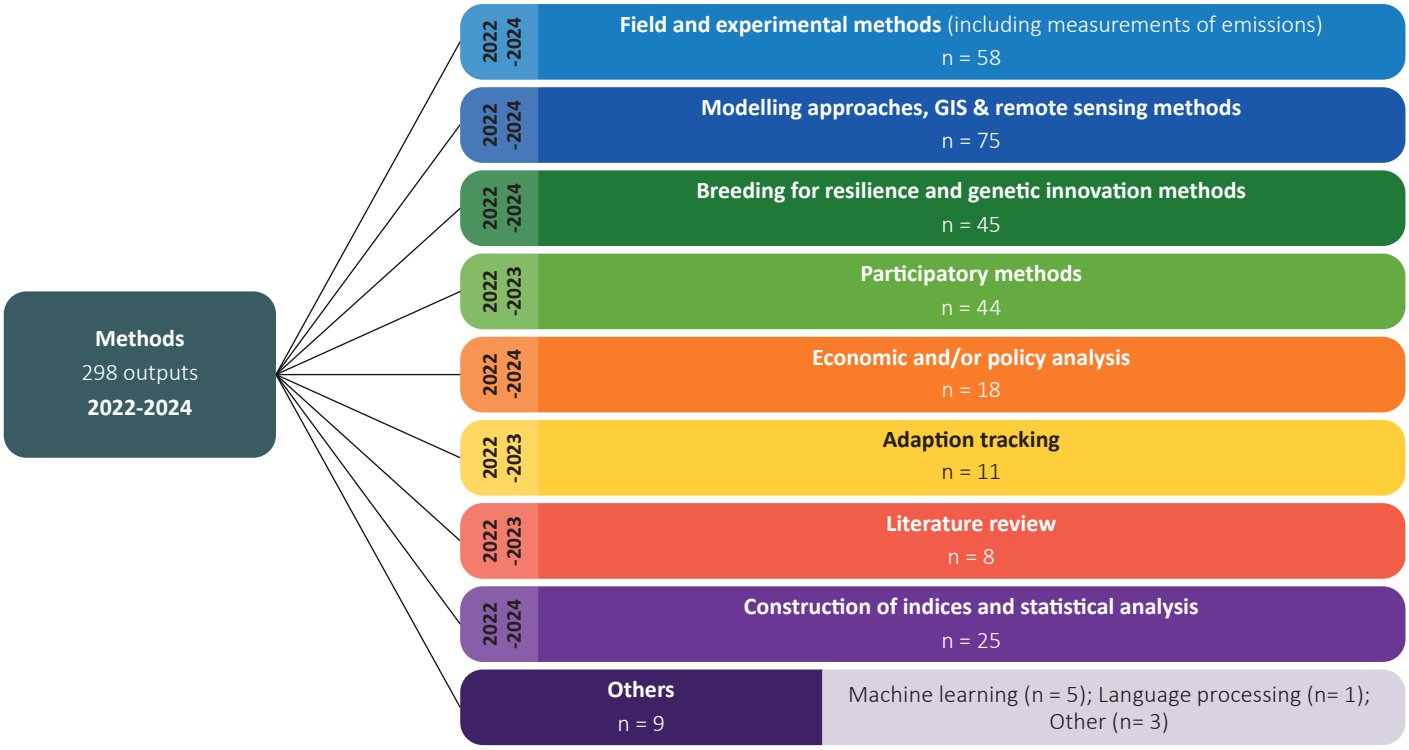


Figure 5.19. CGIAR 2022–2024 climate-related outputs that collate and innovate methods on various aspects of climate change.

Some illustrative examples of CGIAR's science on **methods** include the following:

2022

- Quantification of methane emitted by ruminants: A review of methods.
- A simplified approach for producing Tier 2 enteric-methane emission factors based on East African smallholder farm data.
- The art of letting go: Transforming participatory research on adaptation practices among local livestock keepers in East Africa in times of COVID-19.
- In-season crop yield forecasting in Africa by coupling remote sensing and crop modeling: A systematic literature review.

2023

- Integrating GIS and remote sensing for land use/land cover mapping and groundwater potential assessment for climate-smart cocoa irrigation in Ghana.
- Where women in agrifood systems are at highest climate risk: A methodology for mapping climate-agriculture-gender inequality hotspots.
- Bias correction and spatial disaggregation of satellite-based data for the detection of rainfall seasonality indices.
- Extrapolation suitability index for sustainable vegetable cultivation in Babati district, Tanzania.

2024

- Mechanized wet direct seeding for increased rice production efficiency and reduced carbon footprint.
- Linking weather and climate information services (WCIS) to climate-smart agriculture practices.
- Genotypic screening for salinity tolerance of rice genotypes from eastern and southern Africa at seedling stage.
- Spatial and temporal distribution of optimal maize sowing dates in Nigeria.

Nutrition, Health and Food Security

CGIAR contributions through the Nutrition, Health and Food Security Impact Area

Food and nutrition security lies at the heart of many pressing public health challenges, including the double burden of malnutrition and the rise of diet-related noncommunicable diseases (NCDs) affecting individuals, households, and communities . Recent *State of Food Security and Nutrition of the World* (SOFI) reports highlight a worrying slowdown in efforts to reduce hunger and malnutrition in low- and middle-income countries. At the same time, rates of overweight and obesity are rising rapidly, underscoring the urgent need to transform our food systems for better nutritional outcomes.

CGIAR, the world's largest agriculture innovation network, is committed to delivering science and innovation that drives transformation of food, land, and water systems in the face of climate crisis. Guided by its 2030 Research and Innovation Strategy, CGIAR aims to influence global trends and contribute meaningfully to SDGs including SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), and SDG 6 (Clean Water and Sanitation).

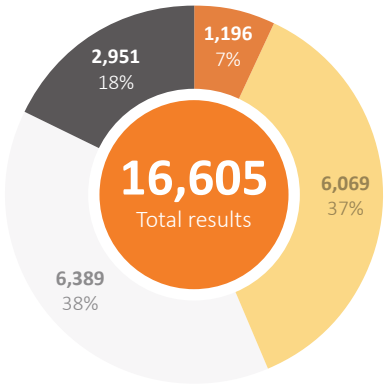
Through collaborative action across its Centers and partners, CGIAR's innovations are designed to:

- End hunger and enable affordable, healthy diets for the 3 billion people currently lacking safe and nutritious food.
- Reduce global cases of foodborne illness (600 million annually) and zoonotic diseases (1 billion annually) by one-third.

A young farmer harvests fresh vegetables in Himachal Pradesh, India.
Credit: Neil Palmer, CIAT

Nutrition, Health and Food Security key themes and priorities

Although the Portfolio period covered here was launched in 2022, systematic disaggregation and tagging against the Nutrition, Health and Food Security Impact Area began only in 2023. Notably, many reported results contribute to multiple Impact Areas, demonstrating the capacity of CGIAR's research and innovations to deliver broad benefits cutting across disciplines and geographies.



- **2 = Principal:** Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.
- **1 = Significant:** The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.
- **0 = Not targeted:** The result has been screened against the Impact Area, but it has not been found to directly contribute to any aspect of the Impact Area as it is outlined in the CGIAR 2030 Research and Innovation strategy.
- **Not applicable:** Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

Figure 5.20. CGIAR results tagged to the Nutrition, Health and Food Security Impact Area, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Between 2022 to 2024, 43 percent of the results reported across CGIAR (7,265 out of 16,605 total results) were aligned with the Nutrition, Health and Food Security Impact Area — classified as having either significant (36 percent) or principal (7 percent) objectives in this domain. Some 18 percent of the results did not contribute to this Impact Area while the remaining 39 percent were not specifically targeted to deliver outcomes in nutrition, health, and food security.

Notably, in 2024, there was a substantial increase in contributions: 782 results (10 percent) were reported as principal and 3,873 results (47 percent) as significant — both showing marked growth compared to 2023 (8 percent as principal and 39 percent as significant).

- **2 = Principal:** Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.
- **1 = Significant:** The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.
- **0 = Not targeted:** The result has been screened against the Impact Area, but it has not been found to directly contribute to any aspect of the Impact Area as it is outlined in the CGIAR 2030 Research and Innovation strategy.
- **Not applicable:** Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

Figure 5.21. Comparison of result tagging across the five Impact Areas, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6 2025

Despite these gains, the cumulative percentage of principal and significant contributions to this Impact Area remained among the lowest of the five Impact Areas. This highlights a significant opportunity to scale and align CGIAR's work more strongly with global efforts to reduce hunger and malnutrition. It is also important to recognize that many of the non-targeted results may still contribute indirectly to improved nutrition, health, and food security outcomes, underscoring the need for more robust evaluation methods to validate these connections.

Additionally, results reported in 2022 were not mapped to this Impact Area as the tagging system was introduced only in 2023. Similar patterns have been observed for other Impact Areas, such as Environmental Health and Biodiversity and Poverty Reduction, Livelihoods and Jobs.

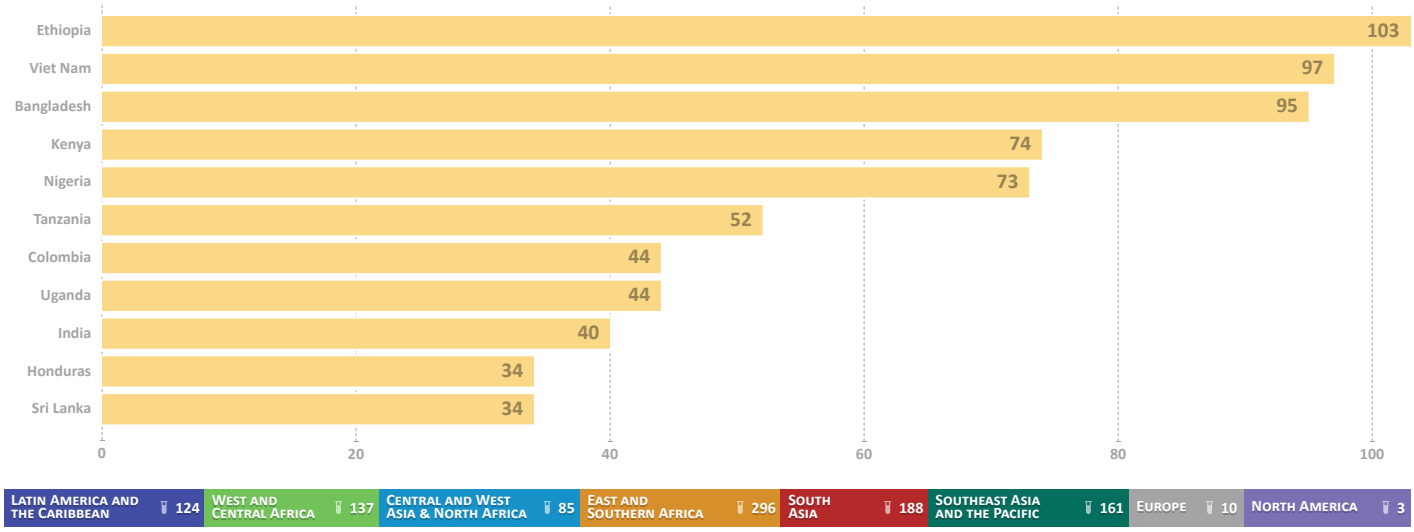


Figure 5.22. Disaggregation of results principally tagged to the Nutrition, Health and Food Security Impact Area based on regions and countries, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

In Africa, efforts focused on both nutrition and climate resilience. The International Center for Agricultural Research in the Dry Areas (ICARDA) advanced wheat breeding programs that developed high-yield, climate-resilient varieties, while CIAT and the Pan-Africa Bean Research Alliance led development of biofortified bean varieties tailored to meet diverse market demands. In Southern and Eastern Africa, sweetpotato breeding targeting high-provitamin A varieties aimed to improve nutrition and generate income opportunities — particularly for women farmers. Additionally, Aflasafe, a biocontrol technology, was scaled across several African countries to reduce aflatoxin contamination in staple crops like maize, groundnut, and sorghum — enhancing food safety, protecting public health, and improving access to markets.

Ethiopia emerged as a leader in food systems transformation with the launch of its first *Food-based Dietary Guidelines* in 2022, developed by the Ethiopian Public Health Institute with support from CGIAR. These guidelines have become a cornerstone of the country's national nutrition and food policy efforts. Implementation of the guidelines is being driven by the Healthy Diet Coalition, while the recent formation of the Ethiopian

Food Systems Transformation and Nutrition Inter-ministerial Steering Committee in May 2023 highlights the government's strong commitment to this agenda.

In Asia, several Initiatives integrated sustainability and nutrition into food systems. In Timor-Leste, integrated agriculture-aquaculture systems promoted sustainable aquaculture practices and addressed climate impacts through cropping systems. In Bangladesh, Cambodia, and Viet Nam, programs embedded nutrition-sensitive approaches into agrifood systems to combat malnutrition and enhance health outcomes.

In Viet Nam, the CGIAR Research Initiative on Sustainable Healthy Diets played a pivotal role in advancing the country's food systems transformation agenda. In 2023, two Country Coordination Unit meetings were held to align research with national policy, while the Initiative also supported the development and rollout of the Food Systems Transformation National Action Plan (FST-NAP) — a government-approved roadmap aiming for transparent, responsible, and sustainable food systems by 2030. A key milestone was the Partnership Agreement for Food Systems Transformation, bringing together over 40 stakeholders to enhance cross-sector collaboration. Viet Nam's strong commitment was further reflected in its active participation in international forums such as COP28 and the One Planet Network Global Conference.

In Latin America, a range of initiatives improved agricultural practices and strengthened food security. In Chiapas, Mexico, validated technologies for agronomic and postharvest practices helped farmers make informed decisions. In Colombia, new methodologies equipped rice producers in the Caribbean region with tools to better understand market dynamics, while in Honduras, a standardized approach to coffee sales, combined with technical assistance, enhanced productivity and supported marketing.

In Guatemala, InnovaHUB workshops aligned agricultural strategies with stakeholder needs, emphasizing food security and policy alignment. CGIAR's AgriLAC Resiliente Initiative supported the integration of climate resilience into agricultural systems across the region, including participatory risk management strategies in Guatemala's dairy sector.

Between 2022 and 2024, CGIAR made significant progress modernizing crop breeding to better meet farmer and market demands. A key achievement was the alignment of breeding pipelines with Target Product Profiles, supported by a Breeding Scheme Manager and an integrated Breeding Portal. These tools enabled 58 percent of breeding programs to revise their schemes using approaches like AlphaSimR, with many adopting rapid-cycle genomic selection to shorten breeding cycles to as little as 24 months. By 2024, CGIAR had defined 607 Target Product Profiles, aligned with 418 breeding pipelines, collectively targeting over 400 million hectares of smallholder farmland. These efforts also prioritized gender-responsive breeding and market-segment-specific targets.

CGIAR's breeding innovations — such as genome-assisted selection, rapid generation advancement, and the Biometrical Genetics Workflow tool — have accelerated genetic gains in key food crops. Over 40 CGIAR-NARES breeding teams have been trained in genomic selection, phenotyping, and data management, strengthening local capacity and scientific collaboration. Regional training programs have also enhanced skills in genomics and plant breeding, supporting climate-resilient and food-secure farming systems. These advances reflect CGIAR's commitment to inclusive innovation and strong partnerships across the public, private, and non-profit sectors.

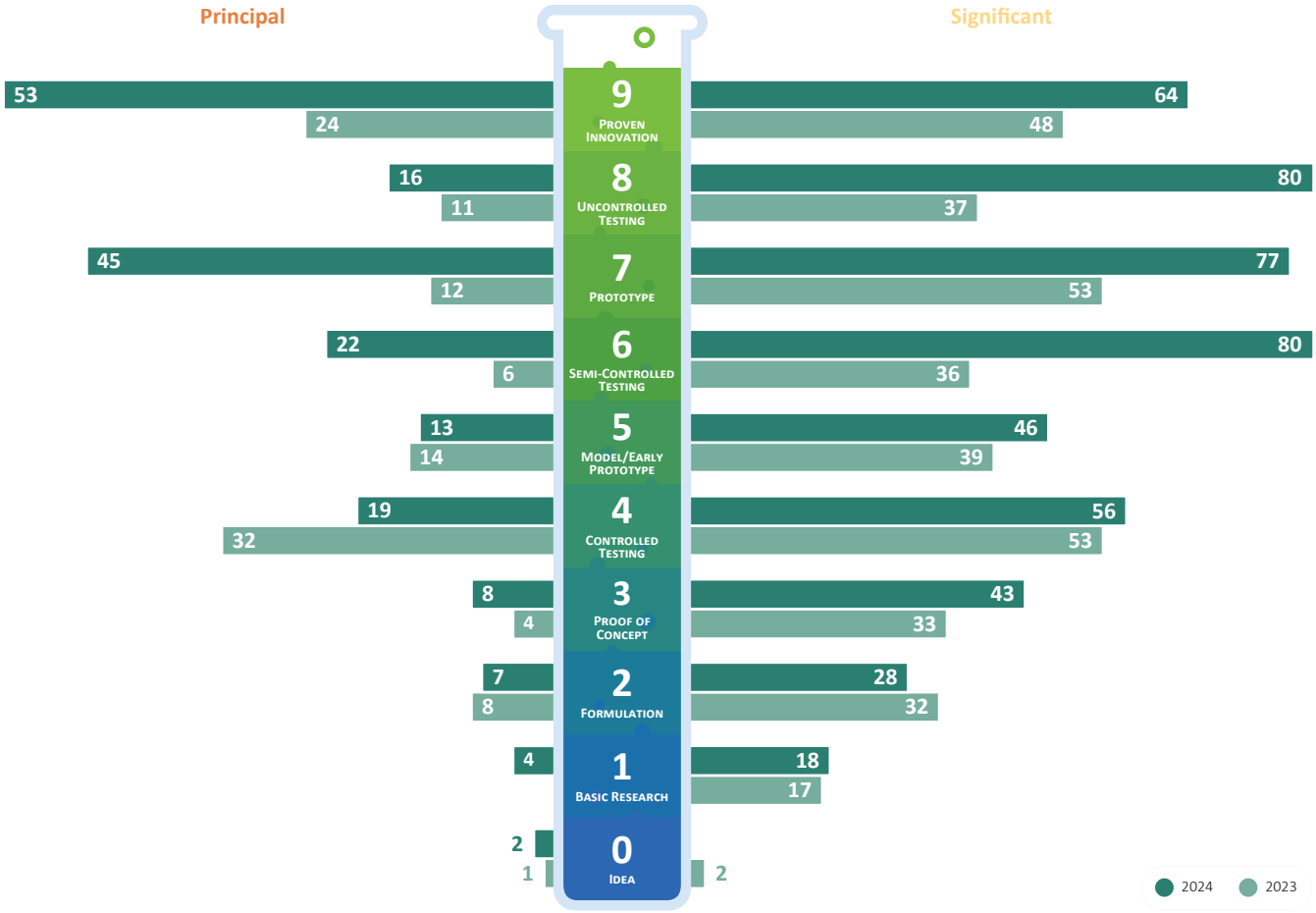


Figure 5.23. Levels of Innovation Readiness reported to have made principal (left) and significant (right) contributions to the Nutrition, Health and Food Security Impact Area, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6 2025.

Figure 73 highlights the range and readiness of **innovations** and research efforts across Africa, Asia, and Latin America aimed at improving nutrition, health, and food security. A key innovation was development of bean-based composite flours, which are designed to combat protein and micronutrient deficiencies while supporting small-scale industries and local economic growth. Biofortified crops — including beans, maize, and cassava — were promoted for their potential to address widespread deficiencies in iron, vitamin A, and zinc, particularly in sub-Saharan Africa.

Advanced breeding techniques, such as marker-assisted selection and genomics, were applied to enhance the nutritional value of staple crops while improving resistance to pests and diseases. Emerging technologies like AI and machine learning accelerated crop improvement by enabling faster, more precise screening of nutrient-rich and resilient varieties. Complementary innovations including precooked and dehydrated beans, which reduce cooking times and energy use, can support environmental sustainability and empower communities, especially women and youth.

CGIAR continued to play a key role in shaping global food systems transformation by contributing to major international dialogues and events. At a global food safety symposium hosted by Michigan State University, and a science-policy dialogue by the Netherland's Ministry of Foreign Affairs, CGIAR's research was prominently featured. CGIAR also led a dialogue honoring Dr. M. S. Swaminathan's legacy and contributed insights on agrifood innovation at Future Food Asia. At UNFCCC COP29, the United Nations General Assembly 79 and the African Food Systems Forum, CGIAR emphasized the critical links among food systems, nutrition, and climate resilience in advancing sustainable development goals.

As the CGIAR 2022–2024 Research Portfolio concluded, key lessons informed the next phase. Among these lessons was that a clearer understanding of the tagging systems — supported by a community of practice — is essential to capture the full scope of CGIAR and partner contributions to nutrition, health, and food security. Expanding tagging parameters to explicitly include health and food security will enhance accuracy and insights. Importantly, results not currently tagged to this Impact Area may still contribute meaningfully to global efforts to combat hunger and malnutrition, highlighting the need for more nuanced evaluation of crosscutting outcomes.

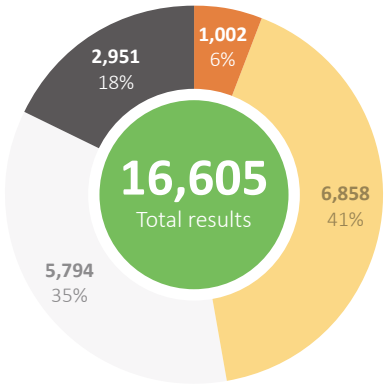
Climate-Smart Village set-up under the Adaptation and Mitigation Initiative in Agriculture (AMIA) of the Department of Agriculture.
Credit: CIAT/Miguel Mamon

Environmental Health and Biodiversity

CGIAR contributions through the Environmental Health and Biodiversity Impact Area

Between 2022 and 2024, CGIAR made significant strides in advancing environmental sustainability, biodiversity conservation, and climate resilience through its Environmental Health and Biodiversity Impact Area. This Impact Area effectively coordinated collaborative efforts among CGIAR Centers, global initiatives, and strategic partners. Six CGIAR Research Initiatives — Excellence in Agronomy, Agroecology, Nature-Positive Solutions, Nexus Gains, Genebanks, and Plant Health — were central to driving impact across landscapes. Excellence in Agronomy scaled conservation agriculture in Morocco with a national target of one million hectares by 2030, contributing to reduced soil degradation and improved carbon sequestration. The Agroecology Initiative promoted sustainable food systems through participatory approaches such as the Agroecological Living Landscapes, influencing practices in Kenya and Latin America. Nature-Positive Solutions advanced silvopasture and cacao agroforestry systems in Colombia, reducing deforestation while enhancing biodiversity. The Nexus Gains Initiative introduced climate-resilient technologies like the Bhungroo irrigation system and digital drought monitoring tools in South Africa and Nepal, enhancing water-use efficiency and community resilience. Genebanks safeguarded genetic diversity, with over 607 Target Product Profiles developed for climate-resilient crops and livestock, aligning with the Kunming-Montreal Global Biodiversity Framework. Meanwhile, the Plant Health Initiative addressed pest and disease threats through rapid response systems and digital diagnostics, mitigating crop loss risks and enhancing food security. Together, these efforts were reinforced by innovations such as eDNA-based biodiversity monitoring, the miniSASS mobile app, and AI-driven analytics, positioning CGIAR as a global leader in environmental governance and sustainable agricultural transformation.

Women farmers harvest pigeon peas from an agroecological field, showcasing climate-resilient practices.
Credit: KENLAP



- **2 = Principal:** Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.
- **1 = Significant:** The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.
- **0 = Not targeted:** The result has been screened against the Impact Area, but it has not been found to directly contribute to any aspect of the Impact Area as it is outlined in the CGIAR 2030 Research and Innovation strategy.
- **Not applicable:** Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

Figure 5.24. Number of results tagged to the Environmental Health and Biodiversity Impact Area, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

A water source flows fresh and clean from a mountain to the valley through a wooden channel.
Credit: Shutterstock/CGIAR

Environmental Health and Biodiversity key themes and priorities

In line with the CGIAR Research and Innovation Strategy, the Environmental Health and Biodiversity Impact Area made strong progress toward its two primary targets: staying within planetary and regional environmental boundaries (e.g. water use, deforestation, nutrient application) and maintaining the genetic diversity of seeds, cultivated plants, farmed and domesticated animals, and their wild relatives. Guided by five high-level impact indicators — improved land management, water-use efficiency, reduced deforestation and increased tree cover, nutrient-use efficiency, and plant genetic resource management — this Impact Area demonstrated measurable results in 2022–2024. Soil health indicators and regenerative agriculture practices were expanded in countries like Ethiopia and Morocco, while participatory land-use planning in East Africa enhanced tenure security and land productivity. Water innovations, such as Bhungroo irrigation and digital drought monitoring, improved resilience in South Africa and Nepal. Nature-positive forestry and agroforestry models, including silvopasture in Colombia and cacao-based systems, supported tree cover and biodiversity. Meanwhile, CGIAR's genebanks and breeding programs delivered over 607 Target Product Profiles focusing on climate resilience and advancing genetic resource conservation. These achievements underline CGIAR's commitment to targets and its contribution to global sustainability frameworks, including the Kunming-Montreal Global Biodiversity Framework and the SDGs.

For 2024, CGIAR's Environmental Health and Biodiversity Impact Area sustained its momentum through innovation, strategic engagement, and collaborative science. A major milestone was the launch of the CGIAR Bank of Indicators on Environmental Health and Biodiversity, which now provides standardized methods for data collection and global comparability. The Environmental Health and Biodiversity Impact Area Community of Practice played a pivotal role in shaping global policy discourse on biodiversity and land restoration, contributing to high-level events and producing key publications on native plant species and soil ecosystem resilience. CGIAR also enhanced internal capacities through cross-disciplinary collaboration and targeted workshops, while digital innovations like AI analytics and eDNA-based monitoring further refined environmental assessments and informed decision-making.

Environmental Health and Biodiversity results

Between 2022 and 2024, CGIAR achieved notable progress in environmental health and biodiversity across diverse regions, delivering results aligned with five high-level impact indicators. On improved land management, CGIAR advanced regenerative agriculture and scaled conservation agriculture, with Morocco targeting one million hectares by 2030, while participatory land-use planning in East Africa enhanced rangeland productivity and tenure security. For nutrient-use efficiency, digital platforms like GeoAgro-Misr in Egypt supported thousands of farmers with data-driven fertilizer recommendations. Water-use efficiency improved through innovations such as the Bhungroo Irrigation Technology and the Digital Twin Drought Monitoring Tool in South Africa and Nepal, alongside index-based flood insurance in Zambia to mitigate climate-related risks. Reduced deforestation and increased tree cover were supported by community-led conservation in Turkana, Kenya, and sustainable land-use practices like silvopasture and cacao agroforestry in Colombia. On plant genetic resource management, CGIAR's breeding programs and genebanks developed resilient crop and livestock varieties, enhancing genetic diversity under climate stress. These integrated, science-driven efforts demonstrate CGIAR's commitment to achieving targets and driving sustainability across food, land, and water systems.

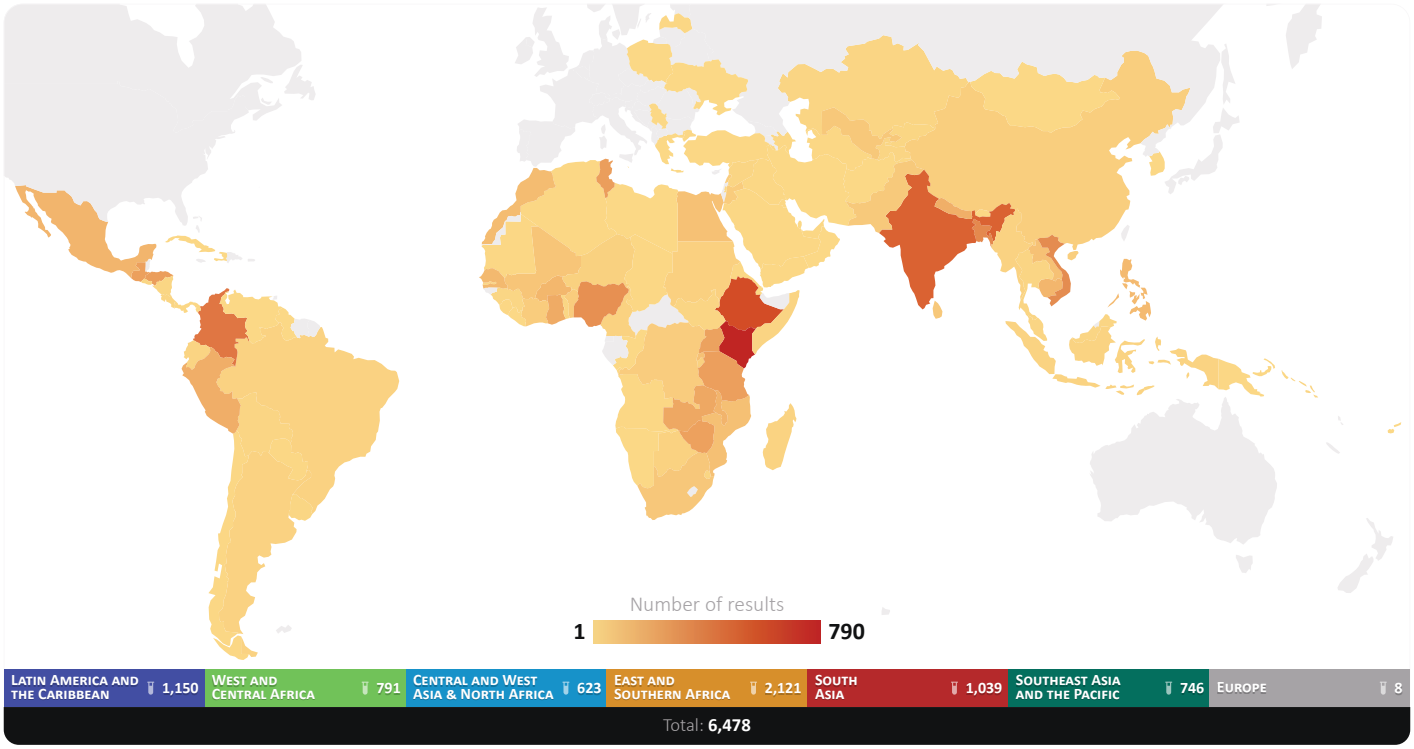


Figure 5.25. Geographic distribution of results related to the Environmental Health and Biodiversity Impact Area, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Environmental Health and Biodiversity strategic partnerships

Strategic collaborations played a pivotal role in amplifying CGIAR's impact between 2022 and 2024. CGIAR formed critical partnerships with international and regional organizations such as International Fund for Agricultural Development, Forum for Agricultural Research in Africa, The Nature Conservancy, International Union for Conservation of Nature, Catholic Relief Services, United Nations University, Commonland, Eco-Agriculture, Global Landscapes Forum, International Land Coalition, Coalition of Action for Soil Health, and the UN Decade on Ecosystem Restoration, which substantially influenced the global biodiversity framework, the land degradation neutrality target, and other sustainability policies. CGIAR also actively engaged with national governments to integrate its research findings into National Biodiversity Strategies and Action Plans, particularly in Ethiopia, Kenya, Morocco, and Tanzania. Collaborative efforts with the Swedish International Development Agency resulted in development of comprehensive environmental risk management frameworks. CGIAR's prominent presence in global forums like the UN Convention on Biological Diversity COP16 and the UN Convention to Combat Desertification COP16 significantly boosted its visibility and influence in international environmental governance. The successful establishment of the Kenya Landscape Actors Platform further fostered community-driven biodiversity conservation and gender-transformative strategies, showcasing how global challenges are being addressed using local solutions.

Participants pose for a group photo following the CGIAR Agriculture Innovation session at the UNCCD COP16 conference in Riyadh, 2024. Credit: David Mugo, ILRI

Vegetable farmer in Badulla district, Sri Lanka.

Poverty Reduction, Livelihoods and Jobs

CGIAR contributions through the Poverty Reduction, Livelihoods and Jobs Impact Area

Research conducted through the Poverty Reduction, Livelihoods and Jobs Impact Area contributed to achieving SDG 1 (No Poverty), 8 (Decent Work and Economic Growth), and 10 (Reduced Inequalities). Its goals aligned with CGIAR's 2030 Research and Innovation Strategy to lift people above the extreme poverty line (USD 1.90 a day) and to reduce poverty in all its dimensions, especially in rural areas. The specific targets of the Poverty Reduction, Livelihoods and Jobs Impact Area were:

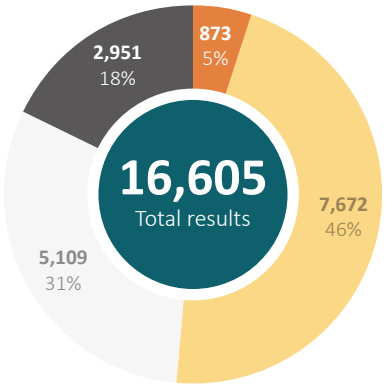
- Lifting 500 million people in rural areas above the extreme poverty line by 2030; and
- Reducing poverty in all its dimensions by half by 2030.

This section analyzes progress toward these goals made in the (two-year) 2023–2024 reporting period rather than the (three-year) 2022–2024 reporting period because 2023 marked the first year of specific reporting on poverty reduction, livelihoods, and jobs, with the quality-assessed data available on the CGIAR Results Dashboard.

Poverty Reduction, Livelihoods and Jobs key themes and priorities

In 2024, 4,911 results (60 percent) out of over 8,200 reported results significantly contributed to poverty reduction, livelihoods and jobs, while 642 results (8 percent) had a principal focus on these areas. For the entire Portfolio period of 2022–2024, the results are similar, with 7,672 results (46 percent) tagged as poverty-significant and 873 results (5 percent) tagged as poverty-principal. This demonstrates that Initiatives, Impact Platforms, and SGPs contributed to poverty reduction, livelihoods, and jobs while simultaneously addressing other Impact Areas and SDGs to maximize synergies.

It is also important to note that 2,685 results (33 percent) in 2024 were not tagged as having a significant or principal focus on poverty reduction, livelihoods, and jobs. However, the contributions of these untagged results to the crosscutting dimensions of the Impact Area may have been indirect.



- **2 = Principal:** Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.
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- **Not applicable:** Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

Figure 5.26. Number of reported results tagged as having a principal or significant focus on the Poverty Reduction, Livelihoods and Jobs Impact Area, 2023–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Interestingly, 2,464 results exhibit a specific focus on SDG 1 (No Poverty) (70 percent), 1,038 results target SDG 8 (Decent Work and Economic Growth) (29 percent), and only 454 results focus on SDG 10 (Reduced Inequalities) (1 percent).

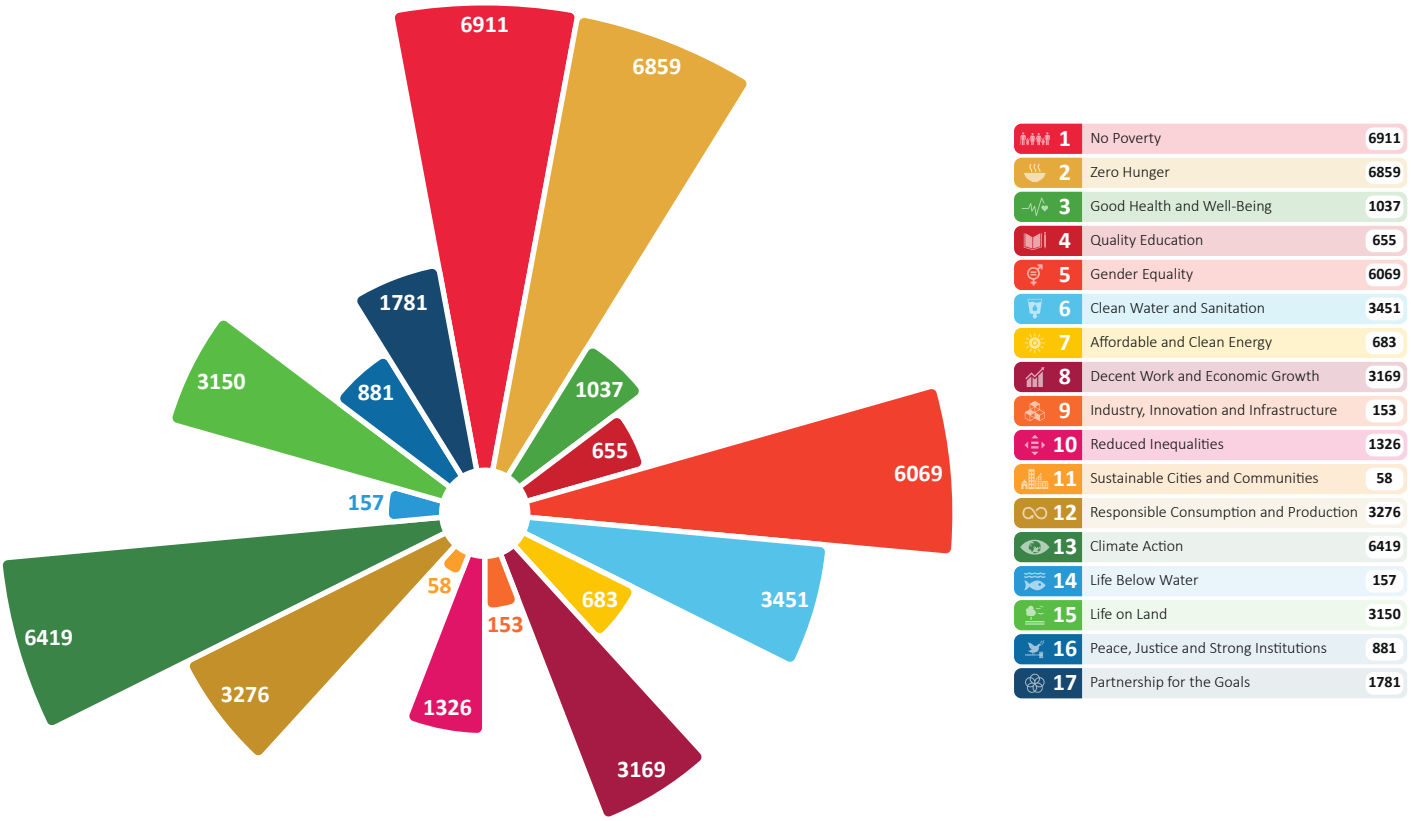


Figure 5.27. Results related to the Poverty Reduction, Livelihoods and Jobs Impact Area and their contribution to the UN SDGs. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Of the 8,109 results reported in 2024 (compared with 6,275 in 2023 and 3,415 in 2022), only 738 (less than 1 percent) were at the outcome level, while 7,371 results were knowledge products. In total, 8,545 results were reported with a focus on poverty reduction, livelihoods, and jobs for the Portfolio implementation period.

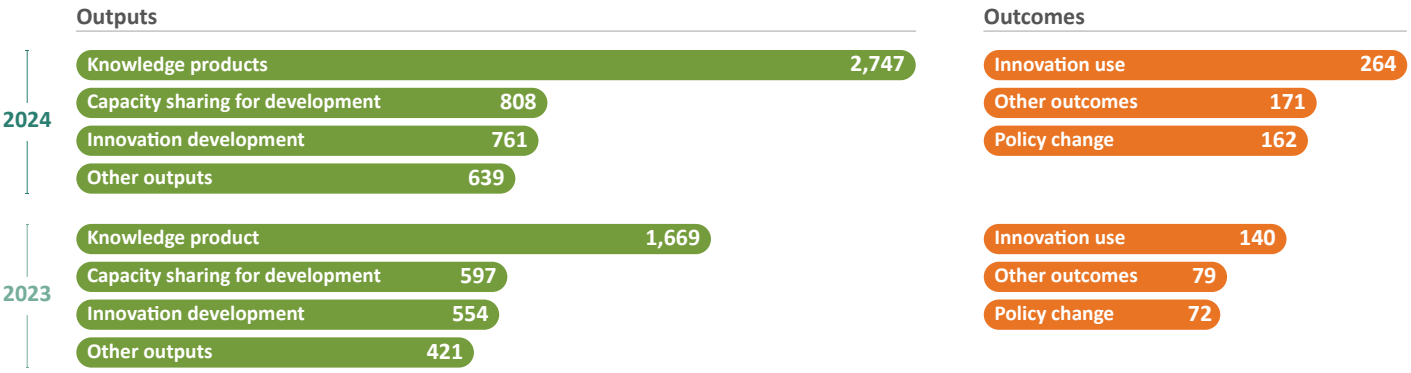


Figure 5.28. Number of results related the Poverty Reduction, Livelihoods and Jobs Impact Area, by category, 2022–2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Over the 2023–2024 period, a total of 4,416 knowledge products were specifically relevant to poverty reduction, livelihoods, and jobs, representing 48 percent of the 9,216 total knowledge products delivered — with the main types including reports (1,121) followed by journal articles (839), other types of knowledge products (663), briefs (546), and presentations (376). Knowledge products constituted the majority of outputs, followed by capacity sharing for development results, with 1,391 reported. “Other outputs” accounted for 1,045 reported results, while innovation development results focused on poverty reduction, livelihoods, and jobs yielded only 867 results.

At the outcome level, 355 innovation use results were reported with a focus on poverty reduction, livelihoods, and jobs (of which only 38 were principal), against 221 policy change results (of which only 32 were principal), and 224 other outcomes (of which 27 were principal), including capacity change results.

The following examples illustrate results that had a principal focus on poverty reduction, livelihoods, and jobs.

- The integration of agricultural and socioeconomic initiatives across various regions demonstrated significant potential for enhancing economic benefits for poor communities. These efforts were primarily focused on improving food security, fostering economic growth, and promoting social inclusion in low- and middle-income countries. Key initiatives included enhancing agricultural productivity through research and development, promoting sustainable practices, and integrating social protection programs to increase resilience against climate shocks.
- The Growth, Poverty, and Undernutrition Monitoring Model by IFPRI connects macroeconomic changes with micro-level household data to understand poverty and hunger dynamics and track progress toward SDGs. These models project how economic shifts influence poverty and hunger, aiding countries in tracking progress toward SDGs.
- Innovative financial solutions were developed to enhance access to finance for smallholder farmers, focusing on multidimensional interventions such as combining cash and input loans. In Africa, supplemental cash loans were bundled with input loans to address liquidity issues, while in Bangladesh, profit-sharing models were developed to mitigate risks for both farmers and financing companies.
- In Egypt, a transition from food subsidies to cash transfers is projected to enhance welfare for the poorest, despite fiscal challenges. Similarly, in Bangladesh, targeted cash transfers and petroleum subsidies were being explored to mitigate the impacts of global price shocks. These policy shifts highlight the intricate balance between economic stability and social welfare in semi-subsistence economies. Evidence suggests short-term poverty reduction, though long-term impacts are less clear. Complementary programs combining cash transfers with additional services show promise in sustaining benefits, as seen in Bangladesh.
- In Sudan, ongoing conflict has severely impacted the economy, employment, and household welfare, emphasizing the need for targeted interventions to stabilize employment and support the agrifood sector.
- CGIAR contributions included interventions on Market Systems and Economic Empowerment in Rwanda with a focus on agricultural innovations like improved fertilizer recommendations for smallholder potato farmers, aiming to increase yields and reduce poverty. Similarly, in Kenya, CGIAR promoted tropically adapted poultry breeds to boost smallholder productivity, income, and food security, with a focus on empowering women and youth through livestock-related business models demonstrating the synergies and interconnections across Impact Areas.
- In South Asia, various CGIAR-led initiatives emphasized the importance of involving young people in agrifood systems to achieve sustainable food security and poverty reduction.
- The Ultra-Poor Graduation intervention, led by World Vision and funded by the United States Agency for International Development , aimed to transition ultra-poor internally displaced households in Baidoa, Somalia, from extreme poverty to self-reliance through gender-sensitive, sustainable livelihoods. The program includes cash payments, livelihood restoration, savings group formations, asset transfers, and vocational training. Preliminary results indicate improved household resilience to shocks and enhanced food security, asset holdings, and women's welfare, particularly in reducing intimate partner violence.

Fisher, Solomon Islands.
Credit: Jan van der Ploeg

Throughout the Portfolio implementation period, there were efforts to renew the attention of CGIAR researchers and partners to issues related to decent employment conditions in agrifood systems. The global landscape of employment, particularly in agriculture, is undergoing significant transformation driven by targeted interventions and innovative practices. These efforts aim to address critical issues such as gender disparities, youth employment, and poverty alleviation, while leveraging technology and training to enhance productivity and social inclusion.

Several CGIAR Initiatives reported a high number of results across various result categories related to this Impact Area for the entire Portfolio implementation period. The CGIAR Research Initiative on Fragility, Conflict, and Migration reported the highest number of poverty-relevant outputs, with 113 tagged as principal in 2024. For example, the From Fragility to Stability series, supported by this Initiative, explored strategies to enhance well-being in fragile and conflict-affected settings, integrating humanitarian aid with development and livelihood support. Similarly, results delivered by this Initiative highlighted that the ongoing conflict in Sudan has severely impacted the economy, employment, and household welfare, emphasizing the need for targeted interventions to stabilize employment and support the agrifood sector.

The Accelerated Breeding Initiative reported 91 principal results related to this Impact Area for the same year, 2024, followed by Rethinking Food Markets with 63; Seed Equal and Mixed Farming Systems with 45 each; Diversification in Eastern and Southern Africa with 43; Market Intelligence with 38; Asian Mega-Deltas with 36; National Policies and Strategies with 24; Aquatic Foods, Plant Health, and One Health with 17 each; Transforming Agrifood Systems in South Asia and Nexus Gains with 16 each; Sustainable Animal Production, Digital Innovation, and Nature-Positive Solutions with 14 each; and Sustainable and Healthy Diets with 12. These results show the concentration of past investments on poverty reduction efforts within these specific areas of work.

These results also underscore the crucial need for collaborative efforts among international organizations, governments, and local communities to create equitable and resilient food systems capable of withstanding economic and environmental shocks. They also stress the global importance of exploring synergies between sustainable development practices, gender-sensitive approaches, and technological innovations in addressing poverty, food security, and climate resilience.

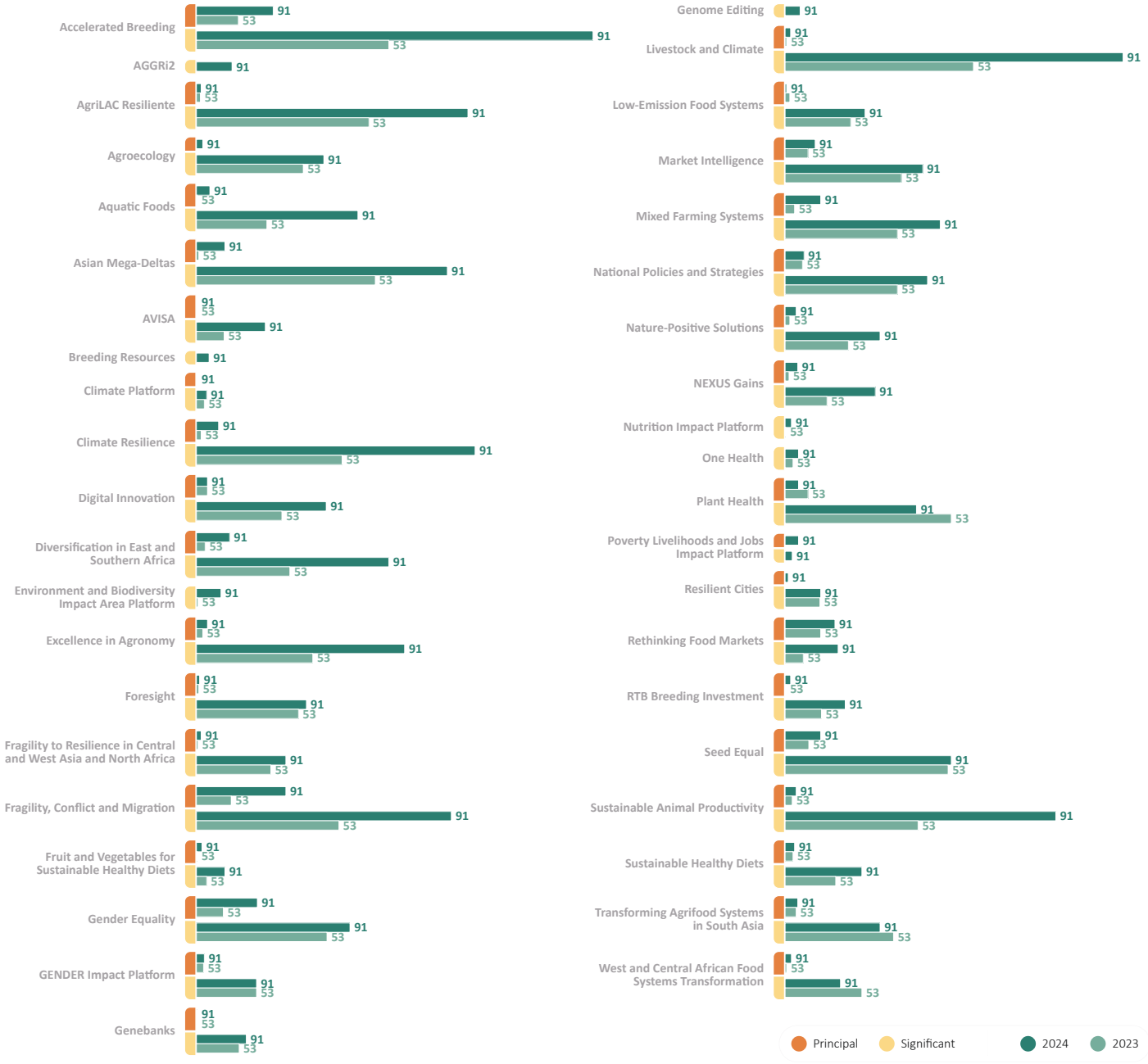


Figure 5.29. Number of results related to the Poverty Reduction, Livelihoods and Jobs Impact Area, by Initiative and by Impact Area tag, 2023-2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

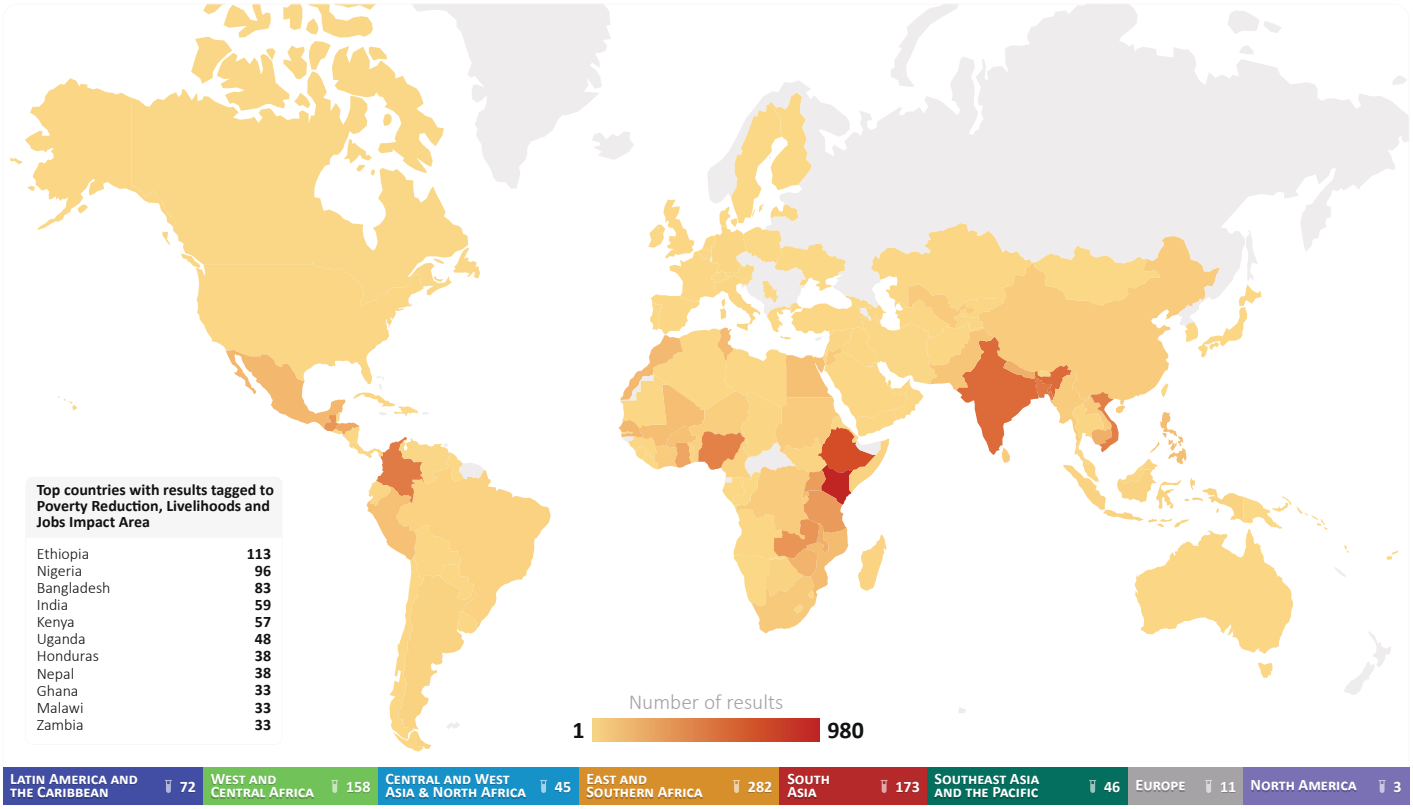


Figure 5.30. Geographic distribution of results related to the Poverty Reduction, Livelihoods and Jobs Impact Area, 2023–2024. A single result may appear in multiple regions or countries and can be represented more than once on the map. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Results tagged as poverty-reduction-principal exhibit a global distribution, with representation across all continents and all six CGIAR regions. As expected, the concentration of results for the period 2023–2024 is in Africa and South Asia. Specifically, there are 282 results classified as principal for East and Southern Africa, 173 for South Asia, and 158 for West and Central Africa. Latin America and the Caribbean, Southeast Asia and the Pacific, and Central and West Asia and North Africa have fewer results tagged as principal, with 72, 46, and 45 results reported, respectively.

Not surprisingly the countries with the highest number of relevant results include Bangladesh, Ethiopia, India, Kenya, Nigeria, and Uganda (Figure 5.30).

Relevant results were primarily in the form of technological innovations (e.g. new high-yielding varieties/breeds), institutional or policy innovations (e.g. international agreements on seed exchange), capacity-building innovations (e.g. training on methodologies to measure and assess decent job creation), and other innovations at various stages of readiness. These innovations are often incremental, deriving from iterative improvements of existing products, services, or tools once implemented on the ground.

Weeding the rice fields at Dintor village.
Credit: CGIAR System Organization

Notably, during the Portfolio's implementation period, 859 innovations were reported as contributing to poverty reduction, livelihoods, and jobs, with 146 designated as having a principal focus and 713 with a significant focus (Figure 5.31).

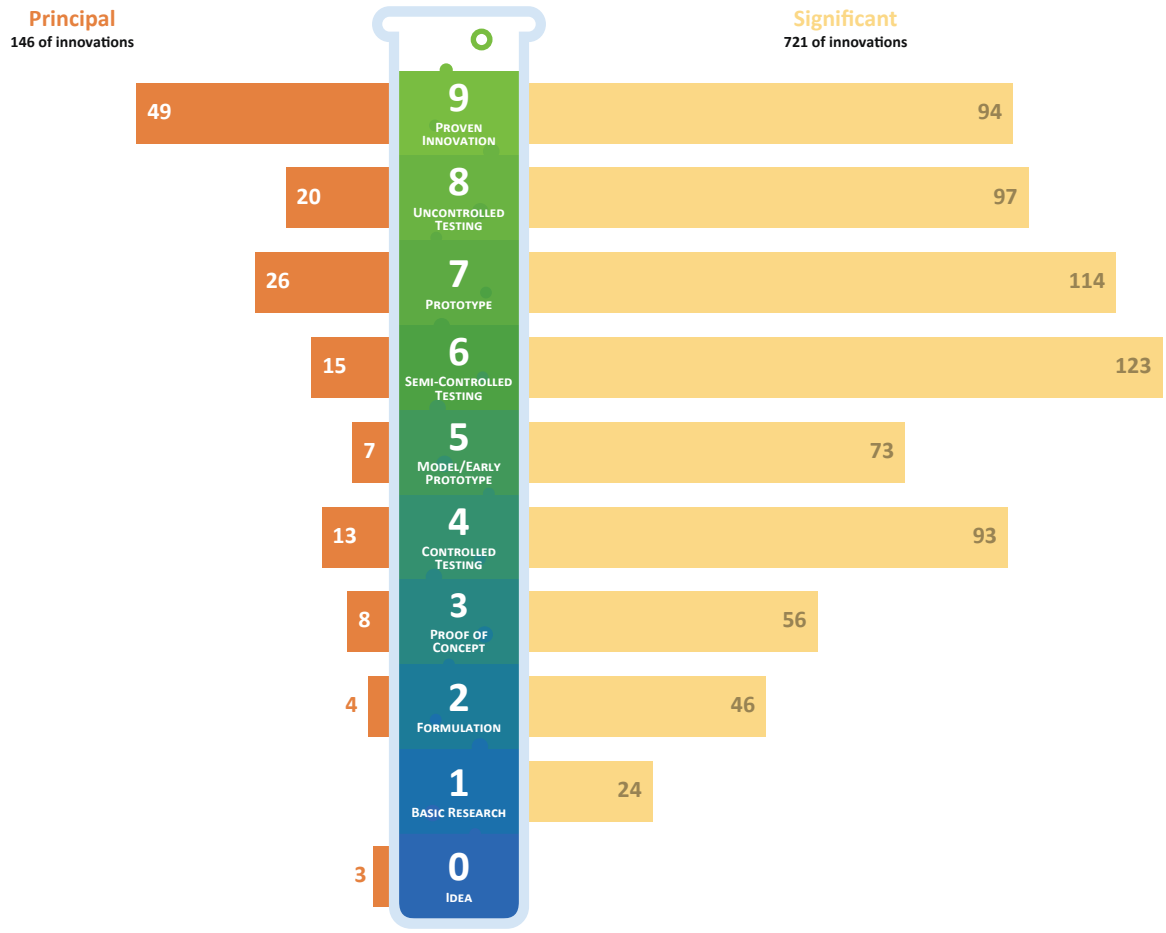


Figure 5.31. Readiness Levels of innovations tagged as having principal or significant focus in the Poverty Reduction, Livelihoods and Jobs Impact Area, 2023-2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

The distribution of these innovations is uneven, with a significant number having high innovation Readiness Levels (levels 7, 8, and 9, indicating innovation prototypes, testing, and validation in uncontrolled conditions) and medium innovation Readiness Levels (levels 4 and 5, indicating innovations tested and validated in fully controlled conditions).

It is noteworthy that 95 innovations (approximately 65 percent) out of the 146 tagged as principal exhibited a high innovation Readiness Level of 7, 8, or 9 after only three years of Portfolio implementation.

Poverty Reduction, Livelihoods and Jobs strategic partnerships

CGIAR recorded over 4,000 partners involved in implementing its Portfolio. A total of 2,970 partners of various types contributed to delivering results on poverty reduction, livelihoods, and jobs. Over the entire period, the five main partner categories were national research organizations and universities (3,365 results), followed by national governments (1,265), NGOs (1,019), private companies (592), non-financial and non-research organizations (521), and several financial and other kinds of partners (672).

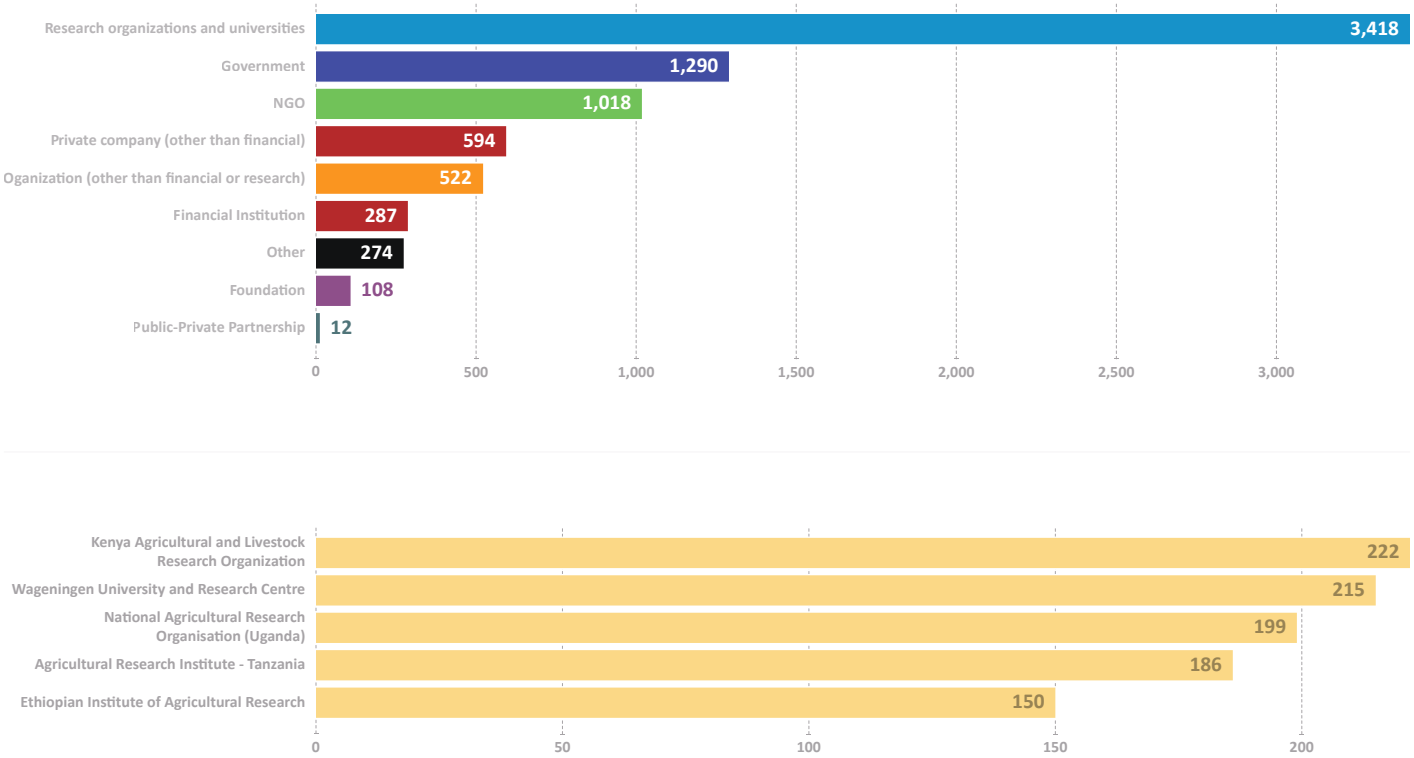


Figure 5.32. Partner typologies and top five partners contributing to results related to the Poverty Reduction, Livelihoods and Jobs Impact Area, 2023-2024. Source: CGIAR Results Dashboard, accessed May 6, 2025.

Throughout the Portfolio implementation period, the top five contributing partners focusing on this Impact Area were Kenya's KALRO (222 results), the Netherlands' Wageningen University and Research (215 results), Uganda's National Agriculture Research Organization (199 results), the Tanzania Agricultural Research Institute (186 results), and the Ethiopian Institute of Agricultural Research (150 results).

Several lessons have been learned from the reporting period of the CGIAR Portfolio regarding results related to the Poverty Reduction, Livelihoods and Jobs Impact Area.

It is important to note that relevant results are based on tags applied by Initiatives. The CGIAR poverty reduction community needs to provide clearer guidance on what can be tagged as poverty-principal and poverty-significant. Linked to this is the necessity to redefine tagging to establish a better understanding of the breadth and depth of CGIAR's work specifically on poverty reduction, minimizing inequalities, and improving job quality. In that sense, a more deliberate and pronounced effort on decent employment conditions in agrifood systems is required, along with improved methods and metrics to track progress on reducing poverty and inequality and generating decent jobs against the relevant SDGs. Moreover, to close poverty gaps and make faster, more tangible contributions to SDG 1, SDG 8, and SDG 10, increased investment in radical and disruptive innovations is necessary. It is also helpful to keep in mind that results not tagged as relevant may still positively contribute to at least one of the dimensions of this Impact Area and SDG 1, SDG 8, and SDG 10. Portfolio-level thinking is needed to capture these synergies and trade-offs across Impact Areas. Likewise, Portfolio-level performance, supplemented by contributions from CGIAR Centers, needs to be captured in terms of transforming food, land, and water systems at the country level, with specific measures of impact on people's lives and healthier ecosystems. The next CGIAR Portfolio (2025–2030) should prioritize capturing these impact-level performances through a dedicated program.

AfricaRice genebank in Mbe, Cote d'Ivoire.
Credit: Neil Palmer/Crop Trust

Section 6: **Driving delivery: Strategic enablers for agile and integrated Portfolios**

This section focuses on operational and strategic enablers critical to CGIAR's success:

- **Innovation portfolio management:** Progress in managing and scaling CGIAR's innovations to maximize impact.
- **Adaptive management:** Insights into how CGIAR integrated adaptive management to respond to emerging challenges and opportunities.
- **SNAP:** A new AI-powered tool developed by CGIAR that enables intuitive, semantic searches and thematic clustering of CGIAR's reported results.

Innovation portfolio management

CGIAR and its partners operate in a dynamic environment. CGIAR scientists and research managers must continually prioritize the most impactful use of scarce resources, focusing on investments in science, innovation, and scaling that are most likely to benefit farmers and other clients. **Not all great ideas will *"change the game,"*** so we need to know which solutions work, respond to real demand, and address the bottlenecks that may inhibit the widespread use and impact of solutions.

Innovation portfolio management responds to two success factors for CGIAR's mission:

1. Provide intelligence on CGIAR's progress on innovation development and scaling for impact.
2. Grow the organizational impact culture for better innovation and scaling performance.

From a messy pile of LEGOs to best-of-class in the sector

Despite its importance, systematic innovation portfolio management remains rare in the public sector. An independent study showed that CGIAR is "best of the public-sector class" when it comes to managing its innovation portfolio — and this is recognized by other organizations as well as by funders.

> **"CGIAR's efforts to mainstream scaling put it at the cutting edge …"** compared to other research and innovation organizations, and development organizations generally (Global Scaling Community of Practice).

Figure 6.1. A pile of LEGO pieces that represents CGIAR's innovation portfolio management pre-2022.

What was once a fragmented system is now becoming more structured and strategic. Until 2022, there was no efficient way to manage CGIAR's innovation portfolio. Innovation data were scattered, out-of-date, and lacking evidence. Furthermore, there was no operational framework to track or support scaling for impact. This led to organizational risks and inefficiencies as CGIAR leaders, partners, and funders could not easily access CGIAR innovations.

This changed under the CGIAR 2030 Research and Innovation Strategy, which embraced a more systematic and evidence-based innovation management based on principles of the Scaling Readiness approach. Currently, information on more than 1,325 innovations under development or in use are now easily accessible on the CGIAR Results Dashboard, which is widely used by partners and funders.

The World Bank Group, FAO, Gates Foundation, GIZ, ENABEL, and the African Development Bank are among organizations that have embraced (elements of) the CGIAR innovation management approach.

CGIAR is actively sharing its innovation portfolio management journey with other organizations. The Gates Foundation partnered with CGIAR to co-develop a protocol for scaling strategies aimed at high-impact innovations. Internally, CGIAR Centers such as the Alliance of Bioversity and CIAT and ILRI and CGIAR projects such as the Accelerate for Impact Platform, Technologies for African Agricultural Transformation, and HarvestPlus Solutions have adopted elements of innovation portfolio management.

Better intelligence for innovation and scaling progress

Two key performance indicators (KPIs) for CGIAR are progress in (1) Innovation Development (Research) and (2) Innovation Use (Scaling). Since 2022, CGIAR has tracked progress against these innovation and scaling KPIs in a structured and evidence-based way. NASA's Technology Readiness Level (TRL) approach was adapted by a team of CGIAR and Wageningen University and Research innovation and scaling experts and built into CGIAR's Performance and Results Management Framework. This is also known as the Innovation Packages and Scaling Readiness approach.

Key performance indicators (KPIs) that CGIAR's innovation portfolio management system is tracking are progress on (1) Innovation Development (Research) and (2) Innovation Use (Scaling).

CGIAR can now showcase how the innovation readiness and scaling readiness of its Portfolio have increased over the years, which provides essential information for showing funders returns on investments and informs Portfolio prioritization work as part of stage-gating and learning about how to increase innovation and scaling efficiencies.

Innovation progress and learning

The prime metric for tracking innovation progress is ***innovation readiness***, which is measured along a 0–9 scale that assesses the maturity of an innovation. The lowest level relates to innovations at the "idea" stage. The highest level refers to innovations that are "proven to work" under real-world conditions, which forms an essential starting point for scaling. Moving innovations from idea to real-world solutions is at the heart of what CGIAR does and is known for.

Warming up together on the first day of Scaling Week 2024 in Nairobi in a big opening circle. Credit: CGIAR

The average readiness level of CGIAR and partner innovations rose from 4.9 in 2022, to 5.3 in 2023, and to 6.0 in 2024. The number of innovations that CGIAR's Initiatives worked on increased from 477 in 2022, to 872 in 2023, and to 1,018 in 2024. These innovations included technologies, policy instruments, business models, digital tools, genetic innovations, and crop and animal management practices, among others. In 2022, the division of innovations across lower and higher readiness levels was quite balanced, at 49 percent and 51 percent, respectively (n=477). In 2024, innovations at the lower levels of readiness represented 28 percent of the Portfolio while higher readiness innovations represented 72 percent of the Portfolio (n=1018).

Data from 2022–2024 show that CGIAR's innovation portfolio became more ready for scaling, while keeping a "healthy" diversity in terms of readiness, innovation type, and innovation risk profiles.

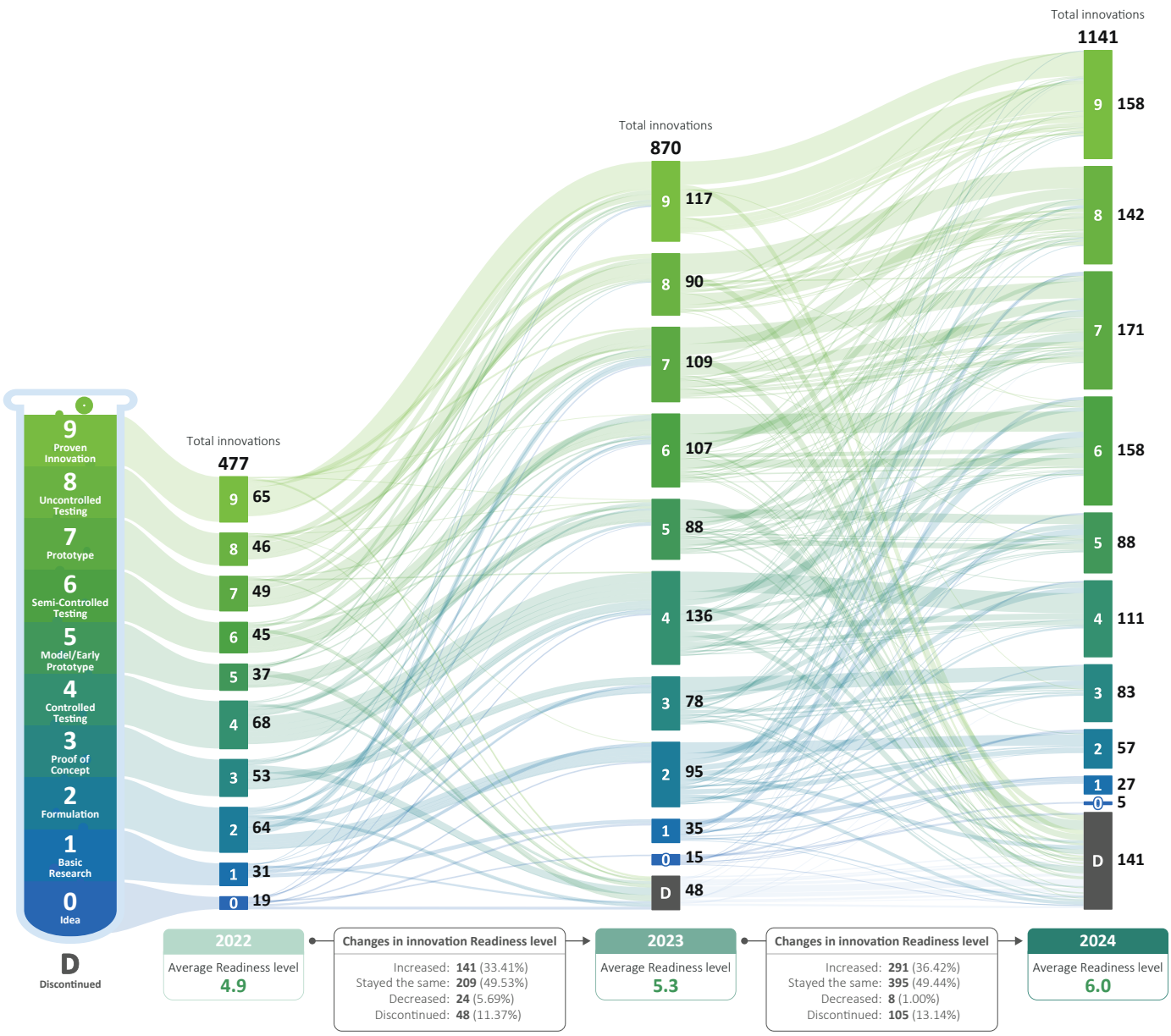


Figure 6.2. Evolution of the innovation Portfolio size and innovation readiness levels of CGIAR and partners between 2022 and 202.

For the first time, CGIAR has systematically tracked and analyzed innovation discontinuation trends — how many innovations have been discontinued, at what point in the innovation development process, and for what reason. Of the 2024 innovations for which development was discontinued in 2024, 16 percent was stopped before or during the controlled testing stage because the scientific results were disappointing. Limited resource availability was the cause of another 16 percent of innovation discontinuation and in this case, innovations at higher readiness levels were discontinued. Other reasons were related to changes in innovation team composition, lack of demand, or absence of bilateral co-investment.

In a rapidly changing international development landscape, innovation portfolio management enables organizations to prioritize scarce resources while ensuring portfolio alignment with their vision and strategy over the short and long terms.

Scaling progress and learning

The prime metric for tracking scaling progress is scaling readiness. Innovations scale as part of bundled packages that contain the enabling sociocultural, market, finance, and policy elements that are needed for innovation to generate benefits at scale. In 2024, approximately 20 percent of CGIAR's innovations were bundled (linked to other CGIAR innovations). Around 70 innovations were included in context-specific packages that were designed with 529 experts, representing 217 scaling partners in 22 countries.

The **Scaling Readiness** score is based on the lowest scoring innovation/element in a package.
The **Average Scalability Potential** score is based on the average readiness and use of all package elements.

1. **High-quality Peste des Petits Ruminants (PPR) thermotolerant vaccine to reduce small ruminant mortality**
2. Awareness and information campaign for livestock farmers on the use of the ILRI protocol vaccine to eradicate PPR in Mali
3. Large-scale production and distribution of vaccine for vaccination campaigns against PPR
4. State subsidy for vaccination against PPR to eradicate the disease and protect livestock farmers' livelihoods
5. Coexistence and circulation of the two types of vaccine
6. Building the capacity of vaccine technicians to provide better service to livestock farmers
7. Building the capacity of women and young people in small ruminant farming
8. Community marketing authorization (Marketing authorization / West African Economic and Monetary Union)
9. Framework for consultation between stakeholders in the production and use of thermotolerant vaccine against PPR
10. Marketing authorization for the thermotolerant vaccine

Figure 6.3. The 2023 to 2024 evolution of the Innovation Packages and Scaling Readiness assessments for the peste des petits ruminants (PPR) thermotolerant vaccine to reduce small ruminant mortality in Mali.[3] Both the scaling readiness and the scalability potential increased significantly as a result of CGIAR and partner efforts.

CGIAR's innovation and scaling approach stimulates CGIAR and partners to look beyond the superiority of an innovation itself by giving equal weight to finance, market, behavioral, and policy factors that often limit innovation trust, access, affordability, and use at scale.

Figure 6.3 shows the initial design and assessment of an innovation package for deploying a peste des petits ruminants thermotolerant vaccine. The package was designed under a Gates Foundation-funded project aimed at developing a strategy for scaling use of this vaccine in Mali. The initial assessment in 2023 identified a number of critical bottlenecks (see No. 9 in the figure: "framework for stakeholder consultation" and No. 8: "community marketing authorization") that were addressed by the end of 2024, when this vaccine (core innovation) became more ready for scaling. The readiness and scalability metrics show that the vaccine is progressing along an effective impact pathway in Mali.

3. A scaling readiness score is based on the lowest scoring innovation/element in an innovation package. An average scalability potential score is based on the average readiness and use level of all elements in the package.

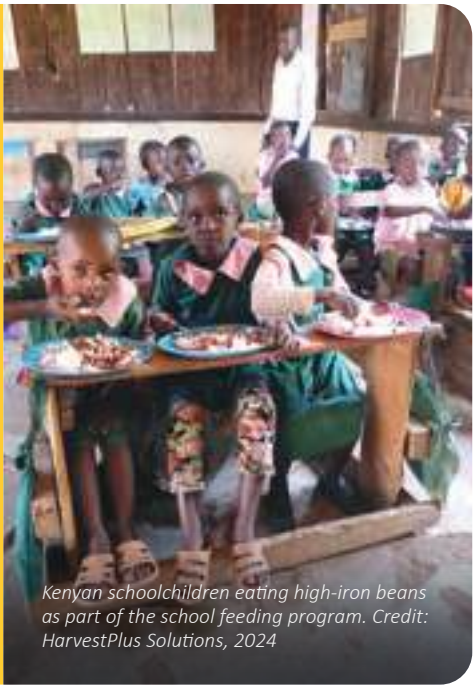
Another such example comes from HarvestPlus Solutions, which used CGIAR's Innovation Packages and Scaling Readiness approach to identify bottlenecks for scaling a "ready" CGIAR biofortification innovation for impact on the ground. Box 1 provides a more detailed look at this success story.

Box 1. 330,000 children benefit from high-iron beans through school meals in Kenya

CGIAR has a long history in developing biofortified crops, mainly through its HarvestPlus program. In 2024, a team from HarvestPlus Solutions, the complementary private-sector arm of HarvestPlus, conducted a scoping study in Kenya. They found that 69 percent of children under five face iron deficiencies, the Kenyan Government was eager to address the problem, and biofortified high-iron beans were a scaling-ready solution.

In September 2024, CGIAR, KALRO, and HarvestPlus Solutions convened key stakeholders to address scaling challenges. Using the Innovation Packages and Scaling Readiness approach, the stakeholders prioritized addressing market challenges and identified school feeding programs as a high-potential channel for achieving scale. A strategy and action plan were developed and implemented with a focus on solving key pain points and achieving early breakthroughs.

By the end of 2024, **330,000** children had access to high-iron beans through school feeding programs in Kenya. Similar interventions in Tanzania and Malawi provided another 570,000 children additional access to high-iron beans. The next steps in Kenya include expanding reach, boosting local sourcing, diversifying crops, tracking long-term impact, and advancing nutrition-focused policy reforms.



Kenyan schoolchildren eating high-iron beans as part of the school feeding program. Credit: HarvestPlus Solutions, 2024

Growing organizational impact culture

A key ingredient of effective innovation portfolio management is fostering CGIAR and partner impact culture, capacity, and community engagement. Strengthening these areas ensures that scaling efforts are embedded within organizational strategies, allowing innovations to move beyond research to real-world impact.

A flagship event in this effort is CGIAR's annual Scaling Week, which was held for the third time in December 2024 at ILRI's campus in Nairobi, Kenya (video). This event brought together some 180 participants, including scaling experts from 11 CGIAR research Centers, the CGIAR System Office, and a diverse set of public and private partners spanning bilateral and multilateral development organizations (e.g. GIZ and the World Bank Group), research institutions and universities (e.g. Wageningen University and Research, Jomo Kenyatta University, University of California at Davis), funders (e.g. New Zealand Ministry of Foreign Affairs and Trade), farmer associations (e.g. Association for Strengthening Agricultural Research in Eastern and Central Africa), and United Nations agencies (e.g. FAO, WFP, IFDC). The diversity of perspectives reinforced the importance of collaborative scaling and acknowledged that achieving impact requires inclusive, cross-sectoral efforts.

Scaling Week 2024 participants were grouped by kaya (Swahili for "home"), where they got to know each other and created their own secret handshake for the event. Credit: CGIAR

Unlike traditional conferences, Scaling Week 2024 fostered a dynamic, co-created environment where participants could shape discussions, share insights, and explore new approaches for scaling agrifood innovations. The event emphasized knowledge sharing, hands-on workshops, and peer-to-peer learning, strengthening both CGIAR's internal impact culture as well as that of partners and funders. Beyond the annual Scaling Week, CGIAR continues to invest in strengthening innovation scaling expertise within CGIAR and its partners, connecting global innovation and scaling experts (e.g. via a Scaling Directory) and providing space for scaling practitioners to discuss best practices, share resources, and foster collaboration (e.g. via a CGIAR Scaling Community on LinkedIn , which has nearly 700 members and is expanding rapidly).

A driver of an impactful Portfolio 2025–2030

The creation of a Scaling for Impact Program in CGIAR's Portfolio 2025–2030 creates even more space and resources for innovation and scaling work. The Scaling for Impact Program plays an important role in catalyzing innovation scaling on the ground with CGIAR colleagues and partners while more System-wide innovation portfolio management functions continue to be delivered by CGIAR's Portfolio Performance Unit.

In CGIAR's 2025–2030 Portfolio (Figure 6.4), **innovation management is not just a process or tool — it is the central instrument for driving coherence and collaboration between the Science Programs and the Scaling for Impact Program** while also aligning demand with supply and guiding strategic Portfolio priorities.

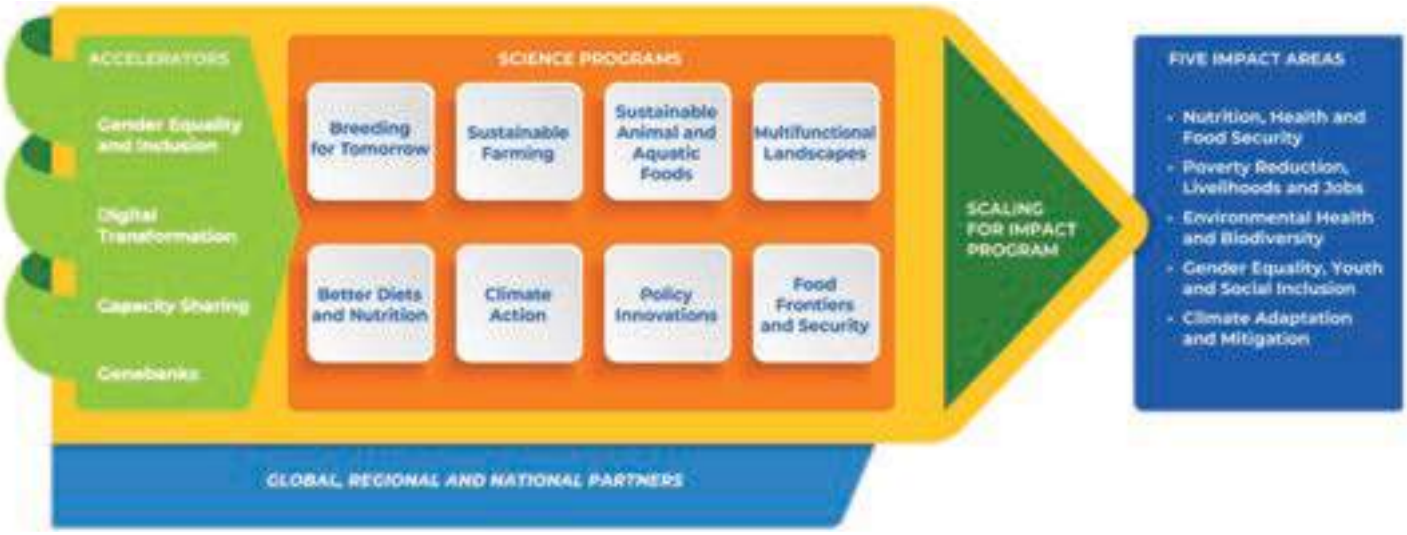


Figure 6.4. Schematic overview of the CGIAR 2025–2030 Portfolio.

CGIAR's Portfolio Performance Unit and Project Coordination Unit work closely with the Scaling for Impact Program to deliver key innovation portfolio management functions for the 2025–2030 Portfolio. These two units continue to mainstream innovation and scaling tracking and performance across the CGIAR System through instruments such as CGIAR's Technical Reporting Arrangement and Performance and Results Management Framework. And these units also support evidence-based Portfolio prioritization through the office of CGIAR's Chief Scientist. The Scaling for Impact Program supports innovation demand-supply alignment, works with other parts of CGIAR on more hands-on and in-situ innovation bundling and packaging activities, and supports the design, financing, and implementation of scaling strategies with partners.

An effective innovation portfolio management approach will be critical to maximizing the impact of the new CGIAR Portfolio of Programs and Accelerators.

In December 2024, CGIAR convened internal and external stakeholders to co-create a vision for innovation management for the CGIAR 2025–2030 Portfolio. Representatives from the Independent Science for Development Council, FAO, GIZ, the Netherlands-CGIAR Research Programme, the World Bank Group, and various CGIAR Centers and Programs met and prioritized the following critical next steps.

- Integrate CGIAR's most important "non-pooled" (bilaterally funded) innovation/scaling work to empower true and holistic management of CGIAR's Portfolio of innovation and scaling investments and to create better alignment between supply and demand.
- Obtain CGIAR leadership buy-in and relevant criteria and governance for effective use of innovation portfolio intelligence in decision-making processes such as strategic prioritization, resource allocation, and risk management.
- Collaborate with other organizations to achieve more sectoral innovation management through interoperable innovation databases and catalogues (e.g. FAO's annual technology and innovation outlook).

To support better sectoral collaboration in innovation scaling, the World Bank Group, Gates Foundation, GIZ, FAO, and CGIAR decided to establish a **Scaling Coalition**. During the Coalition's founding meeting in Montpellier, France, in March 2025, the five founding members identified sufficient common interest to work more closely on key areas of innovation scaling in the agrifood sector, with joint portfolio management and interoperable protocols and systems as a priority activity.

Essential reading includes:

- CGIAR's innovation management journey published in Elsevier's ***Agricultural Systems*** journal
- Scaling mainstreaming case study on CGIAR by the ScalingUp Community of Practice

Adaptive management

During 2022 and 2023, CGIAR implemented a Report-Reflect-Replan cycle to enhance adaptive management across its Portfolio. The Reflect component , introduced in 2022, addressed long-standing challenges in aligning reporting and planning processes by providing a structured yet flexible approach for integrating lessons learned into operational and strategic adjustments. It enabled CGIAR's Initiatives and Science Group Managing Directors to recommend resource reallocations and to modify plans within defined guardrails so as to enhance contributions to impact.

The Reflect process also created opportunities for engagement with partners and stakeholders, fostering discussions around lessons learned and plans. Designed to accommodate various contexts and capacities, the process allowed Initiatives to tailor their reflection activities and to incorporate their findings into their annual reports. Peer-to-peer exchanges were introduced to share practices and identify priority adjustments, while the outcomes of these discussions informed revisions to plans and budgets.

In 2022, across 31 Initiatives and the GENDER Impact Platform, 197 adaptive management recommendations were made, averaging six per Initiative. Key themes included enhancing coordination and communication (26 Initiatives, 78 percent) and developing targeted, realistic work plans to address budget constraints (16 Initiatives, 52 percent).

The Reflect process surfaced notable priorities, such as improving stakeholder engagement and external communication, fostering inter-Initiative collaboration, and strengthening country-specific support. Initiatives like Seed Equal emphasized engaging non-traditional actors, while others such as Nature-Positive Solutions prioritized empowering country teams for localized implementation. Gender research was a recurring focus, with several Initiatives advocating for increased resources and capacity building for implementing gender-transformative approaches. Additionally, agile responses to crises and opportunities were highlighted, including making adjustments to global crises, reducing geographic scope in politically unstable regions, and deepening partnerships to align with national and global priorities.

By 2023, the Reflect component had become more widely adopted, with Initiatives using it to make targeted adjustments based on collective insights. Feedback suggested that while the process provided a useful structure for adapting to challenges, its value depended heavily on the capacity and engagement of individual teams. Updated guidelines and peer exchange forums were introduced to address some of these inconsistencies, aiming to further support implementation.

In 2023, 32 Initiatives, 2 SGPs, and 4 Impact Platforms made 175 adaptive management recommendations — an average of 4.6 per entity — focused on addressing funding constraints, enhancing partnerships, integrating technology, and building capacity. Key priorities included narrowing research scopes to optimize resources (71 percent of participants), strengthening stakeholder engagement (42 percent), and adopting advanced data management tools to enhance real-time decision-making (24 percent).

Strategic recommendations evolved from 2022 to emphasize more robust financial planning, capacity building, and gender integration, reflecting CGIAR's responses to global challenges and its commitment to equity and inclusion. Initiatives such as Transforming Agrifood Systems in South Asia and Fruits and Vegetables adapted to funding limitations by streamlining scopes and intensifying fundraising. Others, like Nexus Gains, prioritized partnerships to foster greater impact. Technological integration advanced through systems like the Breeding Portal and GloMIP. A focus on enhanced internal and external communication strategies further supported improved coordination and visibility.

In 2024, the final year of the 2022–2024 Portfolio, formal Reflect sessions were not held. Instead, efforts focused on integrating lessons learned from prior cycles into the design of CGIAR's Portfolio for 2025–2030. This shift allowed CGIAR to consolidate previous experiences and make refinements at the strategic level. While there are opportunities to further enhance CGIAR's adaptive management, this framework offers a foundation for continued learning and improvement and will continue to play a key role in the 2025–2030 Portfolio.

SNAP

Powerful sense-making — in a SNAP!

The proliferation of agrifood system information, reports, and data over the last several decades, with their demonstrable and potential interconnections, can be overwhelming to scientists and non-scientists alike. A new CGIAR tool powered by state-of-the-art AI techniques makes it easy to gather, explore, and draw insights from CGIAR data across the organization's many reports, journal articles, conference papers, datasets, presentations, and other knowledge resources. The tool, called "SNAP" (Semantic Natural Language Processing Aggregator Platform), helps donors, policymakers, and other stakeholders to navigate CGIAR's extensive data and to leverage the full value of CGIAR's extensive knowledge base.

What SNAP does

Using the same database of reported results from CGIAR's core-funded Portfolio that appear on the CGIAR Results Dashboard, SNAP can organize the currently more than 16,500 CGIAR quality-assured results reported since 2022 into meaningful themes, clusters, and summaries. SNAP users simply type in relevant keywords and the tool gathers and displays all relevant results — for each resource it can provide a description, references, PDF links, contact persons, and other key information.

How SNAP works

SNAP has semantic (meaning-based) search ability, enabling it to understand the fuller context of search terms and to find related terms, thus capturing broader relationships to any given keywords. SNAP also includes a clustering function that organizes its results into relatively intuitive and meaningful thematic groups, making it easier for users to identify relevant patterns. It also generates summaries, either of the whole searched results or of specific clusters on topics of interest, and sends these to ChatGPT, where the user can further interrogate them.

SNAP has two modes: automatic (user friendly) and power user (customizable via filters). Clicking on any result code generates the title and description of the result. All results are easily exported and shared. The tool can also integrate custom datasets for analysis alongside CGIAR's data.

In summary, SNAP provides intuitive semantic searches of large datasets, thematic clustering for uncovering and visualizing patterns, and quick summarization for actionable insights.

Who should use SNAP

SNAP is especially useful to users needing to conduct flexible topic searches by using keywords, to quickly gather topic-specific insights, and to generate tailored ready-to-use summaries.

Among the many use cases envisaged, SNAP can help communications staff to swiftly identify relevant resources and contacts of people while also quickly generating summaries that can be used for speeches, donor briefs, and media content. It can help technical reporters to synthesize large datasets and to organize results into coherent narratives. It can provide impact assessors with insightful qualitative summaries and help research leaders to navigate CGIAR's complex research landscape. And it can generate actionable policy recommendations or high-level outcome summaries for funders and policymakers.

Narratives generated through the AI-powered SNAP tool were integrated into this CGIAR 2024 Portfolio Narrative , streamlining development, reducing preparation time, and enriching the report with contextual insights that complemented the quantitative data. The tool was well received by those responsible for drafting the sections of the Narrative, with several noting that it was useful for shaping content and identifying relevant results. Upon further refinements, SNAP will be folded into the CGIAR Results Dashboard. It is also envisaged that in future SNAP will incorporate CGIAR's main document repository, CGSpace, allowing users to explore and interrogate the whole of CGIAR's rich corpus of work.

Refining SNAP's beta version

SNAP is now being polished. Areas identified for its further refinements include making the interface more user friendly, enhancing the clustering function, and strengthening the accuracy and usability of the summary function. More user feedback will help to further improve SNAP's usability and accuracy. You can try the tool out yourself here. If you do, please consider sending your feedback to: performanceandresults@cgiar.org.

CGIAR

A valley located at 2,630 meters above sea level with a cool and humid climate is the ideal location for selecting wheat materials resistant to foliar diseases, such as wheat rusts.

Credit: Alfonso Cortés/CIMMYT