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THE AID-I GLR JOURNEY

ACCELERATING THE DELIVERY OF AGRICULTURAL INNOVATIONS IN AFRICA'S GREAT LAKES REGION

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THE AID-I GLR JOURNEY

ACCELERATING THE DELIVERY OF AGRICULTURAL INNOVATIONS IN AFRICA'S GREAT LAKES REGION

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Abbreviations and acronyms

1AF	One Acre Fund
3F2R	Framework to assess **f**armer exposure, **f**armer appreciation, **f**armer demand, system **r**eadiness, system **r**esponse
ABC	Alliance of Bioversity and CIAT
ACORD	Agency for Cooperation and Research in Development
ACSA(s)	community animal health agent(s) (DRC)
AGRA	Alliance for a Green Revolution in Africa
AI	artificial insemination
AID-I GLR	Great Lakes Accelerated Innovation Delivery Initiative–Rapid Delivery Hub
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AVECs	village savings and credit associations (DRC)
Be4We	Be Proactive Actors for Women Empowerment
CAPAD	*Confédération des Associations des Producteurs Agricoles pour le Développement*
CDF	Congolese francs
CIALCA	Consortium for Improving Agriculture-based Livelihoods in Central Africa
CIP	International Potato Center
CNIAAG	*Centre National d'Insémination Artificielle et d'Amélioration Génétique*
COOPAGEL	*Coopérative des Agriculteurs et Eleveurs du Congo*
COPATU	Tuendeleye Pamoja Cooperative
COVID-19	corona virus disease 2019
CRS	Catholic Relief Services
DERN	*Développement Rural du Nord*
DRC	Democratic Republic of the Congo (also appears as DR Congo)
DVMs	decentralized vine multipliers
EGS	early-generation seed
EMAP	engaging men in accountable practices
EPH Ltd	*Espoir pour l'Humanité*
ESM	Entreprise Semencier de Mubuga
EYAP	engaging youth through accountable practice
FFS	farmer field school
FP(s)	farmer promoter(s)
GAPs	good agricultural practices
GDDs	gender discussion sessions
GDP	gross domestic product
GESI	gender equality and social inclusion
GKB	Gikuriro Kuri Bose
ha	hectare(s)
HCD	human-centered design
HGT	Holland Greentech
IFPRI	International Food and Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
INERA	*Institut National des Etudes et Recherches Agronomiques*
IRRI	International Rice Research Institute
ISABU	*Institut des Sciences Agronomiques du Burundi*
kg	kilogram(s)
KGB	Kilimo General Business Ltd
MELIA	monitoring, evaluation, learning and impact assessment
MINAGRI	Ministry of Agriculture and Animal Resources (DRC and Rwanda)
MINEAGRIE	*Ministère de l'Environnement, Agriculture et Elevage (Burundi)*
mt	metric tons
n	number
NASC	National Agricultural Seed Council (Nigeria)
NASECO	Nalweyo Seed Company Ltd
NGO(s)	non-governmental organization (s)
NISR	National Institute of Statistics of Rwanda
OFSP	orange-fleshed sweet potatoes
ONCSS	*Office National de Contrôle et Certification des Semences*

PLWD(s)	person(s) living with disabilities
PPR	*Peste des petits ruminants* (also known as sheep and goat plague)
RAB	Rwanda Agriculture and Animal Resources Development Board
RBET	reach-benefit-empower-transform
RICA	Rwanda Institute for Conservation Agriculture
RWACOF	Rwanda Coffee Exports Ltd
S1, S2, etc	(cropping) season 1, season 2, etc
SARCAF	*Service d'Accompagnement et de Renforcement des Capacités d'Autopromotion de la Femme*
SASA	start, awareness, support and action (an approach for community mobilization)
SAWBO	Scientific Animation Without Borders
SENASEM	*Service National de Semences*
SMS	short-message service
SNV	National Extension Service (DRC)
SPF	Seed Potato Fund Joint Venture
SSG	Seed Systems Group
SSG/FIPS-Africa	Seed Systems Group through Farm Input Promotions Africa
TAAT	Technologies for African Agricultural Transformation
ToC	theory of change
ToT	training of trainers
US	United States of America
USAID	United States Agency for International Development
USD	United States dollars
VBA(s)	Village-based advisor(s)
VBA/SP	Village-based advisors and small-pack approach
VSF	*Vétérinaires Sans Frontières*
WFP	World Food Programme
WHH	Welt Hunger Hilfe
WorldVeg	World Vegetable Center
YEAN	Youth Empowerment and Advocacy Network
yrs	years

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Executive summary

The Great Lakes Region of Central Africa continues to face persistent and interconnected challenges that undermine livelihoods, food security, and nutrition. High population density, rapid demographic growth, and shrinking agricultural land constrain agricultural productivity, while poverty and malnutrition remain widespread, with one out of three children malnourished and stunted. Climate change, combined with external shocks such as the COVID-19 pandemic and global supply-chain disruptions linked to the Russia–Ukraine war, has further increased food and fertilizer prices, disproportionately affecting small-scale farmers, particularly women and youth.

Although CGIAR centers and partners have developed numerous proven agricultural technologies adapted to the region, these innovations have not been systematically integrated into large-scale delivery efforts. Adoption has therefore remained limited – especially among women and female–headed households thus constraining the impact of prior research investments.

The Great Lakes Accelerated Innovation Delivery Initiative – Rapid Delivery Hub (AID-I GLR) was launched in October 2022 as a three-year initiative funded by the United States Agency for International Development (USAID) through Feed the Future and coordinated by the International Institute of Tropical Agriculture (IITA). Implemented in Burundi, the Democratic Republic of the Congo (DRC), and Rwanda, the initiative aimed to accelerate the large-scale adoption of proven agricultural technologies to improve food and nutrition security, agricultural productivity, and household incomes.

AID-I GLR adopted a co-creation and partnership-driven approach that emphasized rapid delivery, inclusiveness, and sustainability. Priority value chains and technologies were jointly identified by public institutions, CGIAR centers, civil-society organizations, and private-sector actors. Delivery focused on leveraging existing farmer networks, strengthening last-mile delivery through village-based advisors and farmer promoters, and using small input packs, demonstrations, and bundled advisory services to stimulate demand and adoption. Strong emphasis was placed on gender equality, youth engagement, learning, and adaptive management, while intentionally linking farmers to markets to support sustainability.

Across the three countries, AID-I GLR achieved substantial results within a relatively short implementation period. In total, more than 1,589,000 people were reached, slightly exceeding the original target of 1.5 million. Women accounted for 49% of those reached, while youth aged 15–29 years represented approximately 20%, reflecting deliberate efforts to ensure inclusive engagement.

At the output level, the initiative supported large-scale delivery of agricultural technologies and advisory services. A total of 2,288,600 small packs of agricultural input units and corresponding technologies were distributed and disseminated. These included improved and hybrid seeds, fertilizers and soil amendments, bio-pesticides, fodder crops, and livestock-related inputs, all accompanied by advisory information. In addition, more than 4,939 demonstration plots were established across value chains to support learning and to assure correct application of promoted technologies.

Livestock and animal-health interventions recorded strong performance, with 5,740 artificial inseminations conducted and 8,272 cattle vaccinated against priority diseases. These services were delivered through strengthened networks of private veterinarians, community animal-health agents, and village-based advisors.

Significant investments were also made in capacity development and extension. Tens of thousands of farmers, together with several thousand extension agents, village-based advisors, farmer promoters, and lead farmers, were trained through demonstrations,

advisory visits, and mass-communication campaigns delivered through face-to-face training, radio programs, digital platforms, and printed materials.

At the outcome level, monitoring and outcome surveys showed that between 70% and over 90% of farmers exposed to promoted technologies applied at least one improved practice, across countries and value chains.

Yield assessments from farmer-managed demonstration plots and beneficiary fields showed substantial productivity gains compared to baseline levels for all crops. These results largely fell within – and in some cases exceeded – the yield ranges provided by technology developers under recommended management practices. This was particularly pronounced in the second year of the project and after, as farmers increasingly gained – and applied –more knowledge on management and good agricultural practices to complement and optimize the innovations the project promoted.

AID-I GLR also strengthened agricultural input systems, which underpinned adoption and sustainability. Collaboration among research institutions, early-generation seed producers, certified-seed producers, agro-dealers, and service providers increased the availability of quality inputs. More than 11,900 metric tons of early-generation and certified seed were produced during the project period. Market actors responded to increased farmer demand with commercial sales of seeds and other agricultural inputs exceeding 16,500 metric tons and generating more than 8.5 million United States dollars (USD) in revenue.

Key lessons from implementation highlight the value of co-creation in building ownership and alignment with farmer needs, the effectiveness of the village-based advisor and small-pack approach in stimulating demand, and the importance of linking farmers to markets to sustain adoption. Challenges included coordination complexity, a short implementation timeframe, weak input systems in some areas, and disruptions linked to conflict, climate variability, and global economic shocks.

Overall, AID-I GLR demonstrated that rapid, inclusive, and market-linked scaling of proven agricultural innovations is both feasible and effective in the Great Lakes Region, laying a strong foundation for sustained impact beyond the project's lifetime.


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Accelerated Innovation Delivery Initiative
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MUKURU
IITA
CGIAR
ABANDI
BAFATANYABIKORWA
CIP

CHAPTER 1

Scaling agricultural innovations across Africa's Great Lakes Region: The AID-I GLR approaches, results, and lessons

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[1] *International Institute of Tropical Agriculture (IITA).*

1.1 Introduction

1.1.1 Context

The Great Lakes Region of Central Africa faces multiple challenges threatening its population's livelihood. The region – ranking among Africa's most densely populated – continues to record high demographic growth and rapid urbanization. This results in scarcity of agricultural land, which diminishes agricultural production.

Poverty and malnutrition also remain high, with more than half population living below the poverty line and one out of three children malnourished and stunted. The limited knowledge of household-level processing techniques, inadequate value addition to agricultural produce, especially at household level, coupled with limited consumption of nutritious food, have all contributed to this undesirable situation.

In addition, the region's diverse ecosystem is vulnerable to climate change, putting more than 90% of its population involved in small-scale farming – especially women and youth – at risk. These challenges have been exacerbated by the COVID-19 pandemic, and recently by the Russia–Ukraine war-related supply-chain disruptions. The result has been increased food and fertilizer prices, and associated economic downturns.

During the last 15 years, many organizations and programs, including the Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA) – a consortium of CGIAR centers and regional and national research and development partners – have developed technologies and innovations adapted to farming systems in the region.

However, agricultural development initiatives have not systematically integrated these technologies and innovations in their respective scaling activities, thus reducing the potential for meaningful impact for women, men, and youth at the smallholder-farmer level. And even where agricultural technologies and innovations have been scaled, adoption has largely remained low. Also, the adoption rate is lower for women, and more so in female-headed households.

1.1.2 About AID-I GLR

AID-I GLR was a multi-stakeholder initiative whose goal was to contribute to increased food and nutrition security in the region through the rapid adoption – at scale – of proven agricultural technologies and innovations developed mainly by CGIAR and partners. It was slated to reach 1,506,144 farmers in Burundi, DRC, and Rwanda. The initiative was funded by USAID as part of the United States' response to address the immediate and long-term effects of the global food-security crisis.

AID-I GLR identified options for scaling partnerships with dynamic private-sector entities, government agencies, and non-governmental organizations, whilst structuring those partnerships to rapidly deliver proven technologies adapted to local needs to a large network of farmers, along with corresponding – and essential – advisory services.

1.2 Co-creation

The landmark and groundbreaking activity for the project was the co-creation workshop held in Bujumbura, Burundi, from 7th to 9th December 2022. The workshop's overall objective was to co-design activities that would result in rapid impact on farming communities in the Great Lakes Region. More than 70 representatives from scaling organizations, the public and private sectors, CGIAR, and other innovation developers, operating in the three countries, as well as USAID officials, participated in the workshop.

The co-creation approach was central and unique to AID-I GLR, because there were no initial project documents. Participants conceptualized and developed the content using bottom-up approach, based on countries' priorities, challenges, and opportunities, especially in terms of proven technologies and best practices backed by evidence. The main outcomes of the workshop were identifying lead scaling partners, prioritizing target value chains and intervention areas, and selecting technologies for scaling, all the while taking into account demand from partners, feasibility, ongoing interventions, and national government priorities.

1.3 Theory of change

The AID-I GLR theory of change (ToC) was sculpted around scaling proven agricultural innovations through strong partnerships with development organizations, and capacity-building of smallholder farmers and extension agents to achieve impact.

At the heart of the project was the formation of partnerships across the public and private sectors to coordinate efforts in assembling and disseminating proven agricultural innovations to farmers through various scaling channels. The capacity of project participants was built on agricultural innovations through training of trainers (ToT) led by technology suppliers, training of farmers, demonstrations, field days organized by extension agents and other last-mile delivery agents.

The project strengthened input systems by enhancing the capacities of seed companies and other input suppliers to efficiently effect the last-mile delivery of innovations. Indeed, scaling partners supported seed companies/producers and other selected input providers to run mother demonstration plots and make small packs (e.g., seeds, veterinary products, fertilizers, and soil amendments) for distribution to smallholder farmers – along with advisory information – to test on their farms as part of their promotional activities to expand their market. At the same time, seed producers were supported to produce larger quantities of inputs, especially of the same new varieties promoted by the project. These producers were then able to meet the increased demand, thus selling more during each subsequent season.

These interventions increased the use and adoption of promoted innovations among project participants, contributing directly to increased agricultural productivity and the consumption of nutritious food at the household level. This, in turn, will lead to improved food security and nutrition.

1.4 AID-I GLR strategies/approaches

AID-I GLR attempted to do business differently by focusing solely on **pre-existing** technologies demanded by scaling partners, and by leading the delivery effort. It also offered the opportunity for scaling partners to use each network to reach a large number of farmers with impactful and complementary interventions.

Scaling partnerships

The centerpiece of the approach was in identifying reliable organizations and the facilitation of a partnership among them to lead the rapid delivery of innovations. For an organic multiplier effect, AID-I GLR prioritized organizations with a large, pre-existing network of farmers operating in target areas, meaning the partners could thereafter leverage each other's networks for mutual benefits to enhance their collective impact in a relatively short period. Generally speaking, the partnership encompassed scaling organizations, including large non-governmental organizations (NGOs) and public institutions with a delivery or extension mandate, as well as private agricultural input producers and distributors.

How innovations were selected

In selecting innovations, AID-I GLR was extremely selective and circumspect: we focused solely on innovations proven as providing solutions addressing key challenges, further validated for target areas, and with a high likelihood of success.

Therefore, during match-making events, innovation developers were invited to present their business case to scaling partners, backed by impeccable empirical evidence of readiness and effectiveness.

Ultimately, it was the scaling partners who decided on the innovations they wanted, taking into account the needs of farmers and other stakeholders and considerations within their network and project target areas.

VBA/small-pack model

During the co-creation process, stakeholders identified the village-based advisor (VBA)/small-pack approach as the primary innovation to expose farmers to new technologies. It consists of using VBAs to set up a demonstration (mother) plot in the village, where farmers come to learn about the technology package. After the learning in the group, all farmers regardless of their gender and age, received a small pack of improved seed (25–100 grams [g]) or livestock breed along with other inputs in the package to try on their farm. The VBA – typically a respected lead farmer and selected by their peers – was also trained by researchers and extension officers to provide advice to farmers where they (the farmers) are.

Based on the principle that a little goes a long way, the trial pack (small pack) is effective (and also cost-effective) in creating demand for improved varieties: once farmers are convinced of the technology's effectiveness, they invariably returned to the VBA to purchase larger quantities of seed or livestock breeds.

AID-I GLR adapted this model. We forged links between seed and other agricultural inputs producers and agro-dealers (the 'supply' side), and farmer promoters and private service providers to run mother demonstration plots and produce small packs of inputs (e.g., seeds, fertilizers, and soil amendments). These packs were distributed to smallholder farmers, along with advisory information, for farmers to test the products demonstrated on their own farms. This approach was an integral part of the promotional activities by project market actors to expand their market share.

Capacity development

Besides improving availability and access, AID-I GLR's approach included complementary interventions to enhance knowledge and use, and ultimately the adoption of agricultural innovations selected for promotion by the project.

Strengthening input systems

Sustainability in delivering technological innovations, especially seeds, heavily depends on a strong and functional system. Therefore, AID-I GLR's approach embedded seed-system strengthening by working with the public sector to increase the availability of early-generation genetic materials, and by building the capacity of seed companies to produce, market, and distribute high-quality seeds of improved varieties.

1.5 Gender equality and social inclusion

The integration of gender equality and social inclusion (GESI) considerations in AID-I GLR was guided by GenderUp methodology for responsible and inclusive scaling – a discussion-based method that supports innovation teams to scale agricultural innovations in a gender-responsible and socially inclusive way by incorporating an intersectionality lens in scaling processes. AID-I GLR's GESI approach also involved the use of the reach-benefit-empower-transform (RBET) framework developed by Johnson et al. (2018) with the transform approach as advanced by Kleiber et al. (2019).

Using these methodologies involved a two-pronged approach. The first step was scaling out, which focused on reaching and benefiting diverse segments of women, men, youth, and marginalized people with access to information, inputs, technologies

and innovations among others. Such information was captured through the routine GESI-responsive monitoring, evaluation, learning and impact assessment (MELIA) data-collection system as well as the MELIA outcome survey. The second step entailed implementing strategies aimed at 'scaling deep', which focused on how AID-I GLR was empowering women, youth, and marginalized groups as well as actively seeking to redress gender and social inequalities. Outcomes on 'scaling deep' were documented through qualitative data capture of the narratives and stories of change for those involved as end users.

To ensure GESI considerations were well integrated into the project, the scaling partners from the three countries adhered to good practices for integrating GESI in AID-I GLR from project design to implementation, based on:

- the 2023 capacity-strengthening training on integration of GESI considerations in AID-I GLR; and
- content provided in the published AID-I GLR GESI training manual.

This involved setting quotas to increase the participation, representation and inclusion of women, men, and youth for each respective group for the outcomes on reach. These outcomes were easy to capture through the routine GESI-responsive MELIA data-collection system. The scaling partners deliberately targeted more women, men, and youth – as each case applied – through intentional recruitment and selection for fair representation in each intervention as end users to access information and technologies. Of the total 1,589,715 individuals reached since the beginning of the intervention, nearly half (49%) were women.

Beyond these pre-determined participation quotas, the scaling partners also explicitly targeted households with persons living with disabilities (PLWDs) and the indigenous Batwa[1] community as part of the end users. However, these findings were not embedded in the quantitative MELIA system. Rather, they were reported as part of qualitative updates on GESI work. In DRC for example, the project engaged indigenous people from the Batwa community in Idjwi and Kalehe territories through supporting them to form farmer groups.
This exposed them to proven innovations such as distribution of 400 packs of improved vegetable seeds to 400 Batwa households (108 male-headed Batwa and 292 female-headed), representing 73% of the selected indigenous end users.

Also, 60 end users (18 women and 42 men) from the Batwa community were trained by breeders on animal health through awareness-raising on livestock-feeding and disease-prevention practices.

During the training, the Batwa reported that social stigma and prejudices are the root causes of their marginalization and negative community perceptions of them, on top of minority dynamics, being only a tiny percentage of the region's population across all three countries.

AID-I GLR scaling partners in Burundi engaged 215 Batwa end users who benefited from project interventions. These scaling partners were also intentional in targeting PLWDs using the PLWD community support groups, which enabled them to reach 50 PLWDs through the dissemination of improved seeds and GAPs training.

Although the scaling partners mainly focused on activities on equitable 'reach and benefit', through the support of the GESI focal points selected from each partnership, AID-I GLR also strived to implement GESI activities focused on 'empower' as well as 'transform' as part of GESI good practice. This included implementing strategies to reduce community inequalities and exclusion of vulnerable groups through:

- Awareness creation among community leaders, agricultural producers and the entire community by use of community dialogues on the labor burden for women through using the engaging men in accountable practices (EMAP) approach toward fostering positive masculinity, promoting decision-making on the use of income and prevention of gender-based violence.
- Community dialogues with concessionaires encompassing provincial, civil-society institutions, chiefs and landowners on the

[1] *The Batwa commonly called 'Pygmies' are a marginalized indigenous people of the Great Lakes Region, including Burundi, DRC and Rwanda. Originally, they were forest dwellers. They have faced significant discrimination and displacement due to the loss of their ancestral lands and increased deforestation for conservation or other development projects.*

challenges to women's and marginalized groups' access to production resources such as land, as well as control over the benefits. This was conducted to enhance inclusive access to land and other productive resources for all.

- Use of road shows and mass campaigns promoting gender-sensitive messaging on the value of joint decision-making at household level on the use of agricultural harvest/produce, joint resource allocation, and spousal support with unpaid care work.

- Use of existing fathers' support groups by CRS-Gikuriro Kuri Bose (Catholic Relief Services GKB) to raise awareness on GESI through conducting community-based campaigns on men's engagement in food-security activities and household consumption of nutrient-dense food.

- Promotion of inclusion by ensuring intentional outreach and by identifying the most vulnerable women and those living with disabilities, raising community awareness on positive relationships, where all people, regardless of how they are, participate in activities and have equal opportunities.

- Considering the daily activity clocks for women in carrying out triple gender roles through proper scheduling of AID-I GLR activities to enhance women's participation and benefits to them from it, while strengthening their capacities.

There were monthly update meetings with GESI focal points to report on qualitative GESI outcomes. These meetings served as a platform for tracking progress based on the monitoring tool developed for qualitative reporting of AID-I GLR GESI planned activities.

1.6 Monitoring, evaluation, learning and impact assessment

The project implemented a robust MELIA approach to systematically track progress, measure results, and generate evidence for informed decision-making. The system was designed to strengthen accountability, foster continuous learning, and support adaptive management across all three countries.

Guided by the project's theory of change and logic model, the MELIA approach ensured alignment between interventions, outputs, outcomes, and long-term impacts. It was participatory and all-inclusive, engaging scaling partners, seed companies, extension agents, and beneficiaries in both data-collection and reflection processes. In all this, gender, youth, and social inclusion were fully mainstreamed through indicator disaggregation and targeted learning questions.

The MELIA system was closely coupled with the project's collaborating, learning, and adapting agenda. Joint planning sessions, partner review meetings, and cross-country learning events provided platforms for reflection on performance data and adaptation of implementation strategies.

The project tracked both USAID's Feed the Future standard indicators and custom indicators tailored to its objectives. Standard indicators included individuals reached, those applying improved practices, hectares under improved management, and yield changes for target crops. Custom indicators recorded adoption rates, access to inputs, and nutrition outcomes.

The MELIA system was designed to allow indicator tracking using a mixed approach. The number of individuals reached through various technologies was recorded by partners at events and uploaded. Partners had access to their data for both monitoring and reporting.

A common dashboard enabled tracking progress at the project level. In addition, outcome surveys were used to measure technology application, hectares under improved management, and yield.

The MELIA system included a structured beneficiary-feedback mechanism. Telephone interviews and outcome surveys captured farmer experiences, barriers to uptake, and perceived benefits. This real-time

feedback enabled course corrections, such as refining distribution strategies, improving training content, and addressing input-supply bottlenecks. Beneficiary views were also integrated into review and planning sessions, ensuring implementation remained continuously responsive to farmer needs during the project's lifetime.

To ensure reliability, data quality assurance protocols were systematically applied. These included quarterly data quality assessments, with data downloaded, cleaned in Stata, and reviewed jointly with scaling partners. Additional measures, such as field monitoring and digital cross-checks, further enhanced data integrity. Biannual and annual reports provided USAID and stakeholders with performance evidence, complemented by indicator reporting in the Development Information Solution system.



> **"Guided by the project's theory of change and logic model, the MELIA approach ensured alignment between interventions, outputs, outcomes, and long-term impacts. It was participatory and all-inclusive, engaging scaling partners, seed companies, extension agents, and beneficiaries in both data-collection and reflection processes.**

1.7 Achievements

Great Lakes Accelerated Innovation Delivery Initiative Rapid Delivery Hub (AID-I GLR)

October 2022–September 2025

Burundi DRC Rwanda

PARTNERSHIPS

- 3 Countries
- 9 Innovation developers
- 21 Market actors supplying the innovations
- 2 Support service organizations
- 7 Partnerships consortia
- 14 Scaling organizations

TARGET

1,506,144 People to be reached

Women 40% 15–29 years 20%
Men 60% 30+ years 80%

REACH

1,589,715 People reached

Women 49% 15–29 years 18%
Men 51% 30+ years 82%

INNOVATIONS

More than 25 Innovations and practices

VALUE CHAINS

11 Groups of value chains

SMALL PACKS

2,288,600 Distributed to farmers

1,880,638* Farmers accessed improved agricultural technologies with advisory information through small packs

- 937,112 Women
- 943,526 Men
- 1,545,637 30+ years
- 335,001 15–29 years

*Aggregated for the 11 value chains. Some farmers were in several value chains.

16,562 Metric tons of inputs sold by market actors valued at $8,541,892

199 Metric tons of early-generation seeds produced and supplied to market actors

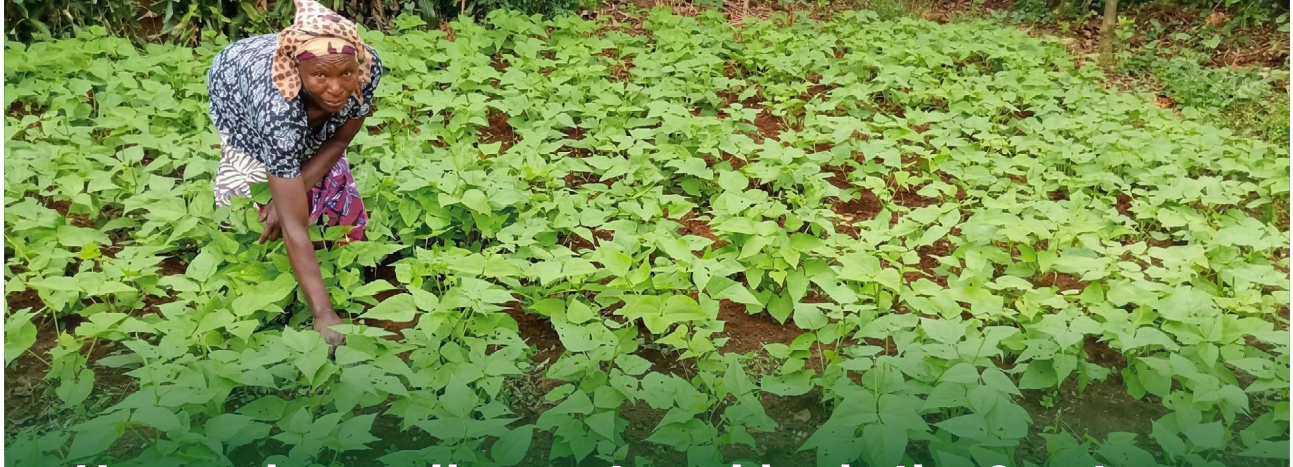
11,756 Metric tons of certified seeds produced

YIELD (mt/ha)

	BEANS	MAIZE	OFSP	POTATOES *	RICE **	VEGETABLES
Average farmer-reported yield	1.4	5.7	14.1	26.2	4.2	25
Innovator projection of potential yield	1–2.5	4–8	9–14	20–40	4–7	20–30
Baseline	0.6	1.2	7.1	8.6	2.6	N/A

*Rwanda only; **Burundi and DRC

Figure 1: The numbers at a glance–Results of the AID-I GLR project in Burundi, DRC & Rwanda.



Harnessing scaling partnerships in the Great Lakes Region for large-scale impact

TESTIMONIAL

May 2023

The USAID-funded Great Lakes Accelerated Innovation Delivery Initiative Rapid Delivery Hub (AID-I GLR) harnesses the partnership with innovations development actors, the private sector, government agencies, and non-governmental organizations to deliver agricultural and nutritional practices and technologies to hundreds of thousands of farming households in Burundi, DRC and Rwanda.

Despite the abundance of agricultural and nutritional practices and technologies developed over the last 15 years by CGIAR centers and national partners, the Great Lakes Region is still battling high poverty and malnutrition. One of the reasons is that agricultural development initiatives have not systematically integrated these technologies and innovations in their respective scaling activities, thus reducing the potential for creating meaningful impact for women, men, and youth at the smallholder farmer level. AID-I GLR, a multiple-stakeholder project led by IITA and funded by USAID, is contributing to filling the gap.

AID-I GLR identifies options for scaling partnerships with the active private sector, government agencies, and non-governmental organizations while structuring those partnerships to deliver rapidly proven technologies adapted to local needs to an extensive network of farmers with advisory services. This initiative is doing things differently, focusing only on technologies demanded by scaling partners leading the delivery efforts. It also offers the opportunity for scaling partners to use each network to reach many farmers with impactful complementary interventions.

The project has so far established partnerships with two dozen NGOs, private companies, innovation developers, and service providers in Burundi, DRC, and Rwanda that are delivering quality seeds of improved varieties of food security and nutrition crops (beans, orange-fleshed sweet potatoes [OFSP], maize, cassava, and potatoes); poultry; forage and veterinary products; fertilizers; and soil amendments. Other complementary interventions include advisory services and social and behavioral change campaigns on nutrition.



Farmers in Burundi, Kayanza Province, Rango Commune, received improved seed packs of Musole beans for trial at the individual farm level.

AID-I GLR uses the village-based advisor (VBA) model adapted to each country. Scaling partners support seed companies/producers and other selected input suppliers to run mother demonstration plots and make small packs (100–500 g) of inputs (e.g., seeds, veterinary products, fertilizers, and soil amendments) for distribution to smallholder farmers, with advisory information to test on their farms as part of their promotional activities to expand their market.

AID-I GLR's presence in the field is already being felt four months after its inception. In Burundi, the two partnerships led by World Vision and *Confédération des Associations des Producteurs Agricoles pour le Développement* (CAPAD) worked closely with CGIAR centers, the Seed Systems Group (SSG), the *Institut des Sciences Agronomiques du Burundi* (ISABU), and the Ministry of Environment, Agriculture

and Livestock, and farmer cooperatives, to promote the adoption and use of improved seeds of beans, and OFSP to reach more than 123,000 farmers during the first agricultural season of the year. Moreover, the project also harnesses the importance of livestock by introducing improved livestock practices for milk and poultry value chains and forage. Apart from supporting input suppliers to prepare and expose farmers to technologies through small packs, the project also strengthens their capacity to increase their productivity and enhance their marketing to respond to more demand in the following seasons when farmers are satisfied with their products.

"The dissemination of new varieties of seeds through small-packs approach accelerates the acquisition of knowledge by our farmers by observing and harvesting their individual demonstration plots. This strategy also helps our farmers know the source of supply of quality seed varieties through the information written on the small packs distributed," said Hatungimana Richard, President of Seed Multipliers in Burundi (Coop Eden).

Even though the VBA approach, with the use of 100–500 g of small packs of branded seed, is new to most partners, input producers have embraced it to create demand for their product and increase adoption. In Rwanda, one of the seed companies, I&J Harvest, has integrated the project's approach into its operations, mainly to market their seeds for increased adoption.

"We have been facing the challenge of the lack of market for the seeds we multiply. We could not sell all the seeds in the store. Marketing is costly. AID-I GLR came up with the solution to brand the small packs of beans. This approach was new to me, yet promising. My contacts are now on the packaging material, allowing farmers to book seeds. They have started calling me to order seeds for the next season. Some farmers did not know where to find quality seeds for planting; they used to replant grains. Now they know where to find good-quality seeds. This is a great achievement for my company," Emma Uwera, Managing Director and Owner of the I&J Harvest Company, noted.



Emma Uwera in her beans demo plot in Rwamagana District, Eastern Province, Rwanda.

Scaling partners in DRC are using the VBA model to promote the application of good agronomic practices for rice, OFSP, beans, and vegetable production, as well as improved rearing practices for milk production. During the cropping season of February 2023, more than 30,000 farmers received small seed packs of rice and beans to test in their plots. Besides, up to 21,000 livestock breeders were sensitized on the technique of making licking blocks, and 1,000 breeders attended the awareness campaign against bovine theileriosis. The project is expanding its partnership to improve the seed systems in the three countries so that seed producers and other agricultural inputs suppliers can expand the availability of their products close to production areas and increase sales.

In the medium term, AID-I GLR seeks to establish an Innovation and Technology Hub as a leading platform in the Great Lakes Region for private- and public-sector food-system partners to access the latest science-based technologies and innovations developed by CGIAR and its partners.



Social behavior-change messages delivered to cattle breeders about vaccination against theleirosis, cow synchronization, and insemination in Luhihi village, Kabare Territory in South Kivu, DRC.

1.7.1. Outputs

1.7.1.1. Establishing and strengthening scaling partnerships

AID-I GLR facilitated the establishment of seven partnerships consortia to efficiently and effectively deliver agricultural innovations to farmers: three in Burundi, two in DRC, and two in Rwanda. The membership of these partnerships rose from 38 entities in 2023 to 53 in 2025, including 14 scaling organizations, 21 market actors, nine innovation developers, and two support service providers.

1.7.1.2. Selecting proven innovations across diverse value chains

During the design process and following the 'match-making' with technology developers, the scaling partnerships selected more than 25 innovations across 11 value chain groups, as shown in Figure 2.



PROVEN INNOVATIONS AND TECHNOLOGIES

Beans
Micronutrient-rich (iron and zinc), farmer- and consumer-preferred bean varieties

Rice
- High-quality seed of improved varieties
- System of rice intensification, smart-valleys, intergrated soil fertility management
- Post-harvest management
- Improved processing methods

Poultry
- Improved chick breeds
- Immunization

Cassava
- Disease-resistant and disease-tolerant varieties
- Post-harvest management

Cows
- Animal feeding
- Artificial insemination
- Immunization

Rabbit
- Improved breeds

Orange-fleshed sweet potatoes
- Climate-smart, vitamin A-rich, orange-fleshed sweet potato varieties
- Tuber conservation and processing

Maize
- Hybrid maize varietes
- Bioprotectant to control aflatoxin contamination (Aflasafe)
- Quality and safe maize flour

Bananas
Disease-resistant banana varieties

Vegetables
- High-quality seed of improved varieties of tomatoes, onions, garlic, amaranth, African eggplant, carrots, cabbages, spinach, beetroots
- Protected cultivation using low and high tunnels
- Vegetable cooling and drying

Potatoes
Robust clean seed with high yield, resistance to late blight, water-use efficiency, earliness, virus resistance, and heat tolerance

Others – Cross Cutting
- High-quality processed and packaged lime, based on soil requirements
- Good agricultural practices, including use of fertilizer, manure and compost
- Social behavior-change messaging on food security and nutrition

Figure 2. The 11 value chains from which proven innovations were selected.

1.7.1.3. Delivery of agricultural innovations to farmers

Leveraging the network of market actors, supported by scaling organizations, the project facilitated the delivery of selected agricultural innovations to a diverse group of farmers and entrepreneurs in target locations across the three countries.

The project continued to support input suppliers in assembling and promoting technologies through small packs. Specifically, more than 1.8 million small packs of seed (including bananas, beans, cassava, maize, OFSP, potatoes, rice, soybeans, vegetables, and fodder) and more than 300,000 packs of other agricultural inputs were distributed. These included mineral and organic fertilizers, pest- and disease-control tools and methods, over 5,400 improved egg-laying chicks, and services supporting more than 13,000 cattle through artificial insemination or vaccination against theileriosis.

When aggregated by value chain, these technologies reached more than 1.8 million farmers, of whom half were women and 14% were youth. In addition, the project systematized the provision of advisory flyers accompanying the small packs to enhance farmers' knowledge and adoption of recommended practice (Table 34 in Annexes).

1.7.1.4. Enhancing knowledge and adoption through capacity development, and scaling events

The innovation-development partners led the training of trainers on all selected technologies delivered in the three countries, thereby enhancing the capacities of lead farmers, scaling partners, government officials, and seed producers. This training was designed to enable them to apply the knowledge learned and to achieve maximum yield and product quality. In total, more than 35,000 trainers benefited from the ToT (of whom 55% were women, and 8% youth). Besides the ToT, scaling partners trained 102,618 farmers (54% women and 12% youth) across the three countries (Table 36 in Annexes).

As part of the effort to enhance knowledge, use, and ultimately adoption, the project leveraged digital channels, including radio, video, and mobile phones, to deliver advisory information on agricultural and nutritional practices and technologies.

For video production, the project partnered with Scientific Animation Without Borders (SAWBO) to develop animation videos for disseminating agricultural innovations to farmers. These videos are delivered using commonly used social-media platforms such as YouTube, WhatsApp, and Facebook. From the 10 selected videos, 140 multi-language variations were produced and widely distributed across the three countries. In addition, a web page was developed for the Great Lakes region, some of the videos can be found in this link (https://aidi-iita.sawbo-animations.org).

Some of the 140 videos were made publicly accessible and downloadable in multiple file formats that allow for sharing of the videos on basic phones video- and bluetooth-capable 3GPs with small file sizes; smartphones (MP4lite); projectors, computers and tablets (MP4); and TV. YouTube analytics, which capture online views of the videos, showed more than 165,000 views across the three countries.

Besides the webpage, a customized app was also developed to expand the reach of the videos. The SAWBO app is a mobile platform that provides farmers, educators, and extension agents with easy access to scientifically vetted, multilingual animated videos on agricultural, nutritional, and livelihood best practice, designed for low-literacy contexts. It allows users to download, store, and share videos offline – especially via tools like WhatsApp – making it a scalable digital extension tool for improving knowledge, adoption of good practices, and productivity in underserved regions.

Additionally, the project organized scaling events, such as demonstration plots, field days, and sensitization events, to enhance farmers' knowledge of the various technologies and practices promoted by the project. Overall, more than 970,000 farmers (51% women and 18% youth) participated in various scaling events (Table 37 in Annexes).

1.7.1.5. Strengthening the agricultural input systems

AID-I GLR supported national agricultural research systems to produce more than 11,950 mt of certified seed and early generation seed (EGS), including about 200 mt of EGS, across selected value chains to supply seed producers. During the course of the project, seed companies and seed multipliers produced a combined total of

approximately 11,750 mt of certified seed for distribution to farmers (Table 35 in Annexes).

The project also built the technical and business capacities of 18 seed companies in the three countries (3 in Burundi, 3 in DRC, and 12 in Rwanda). They received training on the village-based advisor small-pack approach to accelerate the dissemination of new technologies through demand creation. Company staff were also trained in producing hybrid maize seeds. A total of 6,735 participants from research stations, seed companies, public extension, and regulatory authorities benefited from this ToT.

To stimulate demand and improve the delivery of technologies close to farmers, seed producers in Burundi and DRC were supported in designing partnership models with selected agro-dealers and VBAs. The project trained 239 VBAs in the two countries.

1.7.1.6. Adaptive management supported by a dynamic MELIA system

Collaborating, learning, and adapting was an integral part of the AID-I GLR implementation strategy, ensuring that scaling partners and beneficiaries offered each other learning experiences through the partnerships, and adapted accordingly, as needed. Therefore, the project delivered a set of tools to guide the decision-making process and inform adjustments:

- MELIA plan: Developed and annually updated in line with donor indicators to guide monitoring and evaluation activities.
- Tools and training: Designed event registers and survey questionnaires (outcome and telephone). Trained 47 focal persons on digital tools (ODK/ONA) with refresher sessions, strengthening partner capacity in accurate data collection and analysis.
- Dashboard: A digital system was established through the AKUKO dashboard, allowing authorized users to track progress across project activities in real time (https://shorturl.at/FfbBn).
- Surveys:
  - Outcome surveys (annual): The team designed and administered two outcome surveys to track the number of people who applied the disseminated technologies, the number of hectares under application, and the yield obtained from the disseminated technologies.
  - Telephone surveys: These two spot surveys provided rapid insights on knowledge gains, technology availability, and affordability.
- Review and planning meetings: These meetings were organized every six months in the three countries with the participation of innovation developers, scaling organizations, market actors, service providers, and donor representatives. Designed in a pause-and-reflect format, these meetings allowed participants to review the progress made in each country, make adjustments, and align workplans as necessary. It was also an opportunity for partners to elaborate on strategies for overcoming the challenges they had experienced since the inception, and to collectively plan future work.

1.7.2. Outcomes

As part of the MELIA system, the project conducted various surveys to monitor progress of selected outcome-level indicators.

1.7.2.1. High application and performance of promoted technologies in farmers' fields

An outcome survey conducted in September 2024 showed that all (100%) of the technologies and practices promoted among farmer participants were being applied. However, the level of technology application varied across countries and value chains, as shown in Figure 3.

In Burundi, maize, beans, and livestock were the most applied technologies. In Rwanda, OFSP and bean-related technologies were predominantly applied (93% and 96%, respectively). In DRC, the most applied technologies were beans (89%) and rice (59%), while vegetables were the least applied (24%).

This variation highlights the impact of country-specific agricultural policy priorities, market demands, and targeted training efforts on the application of technology across diverse contexts.

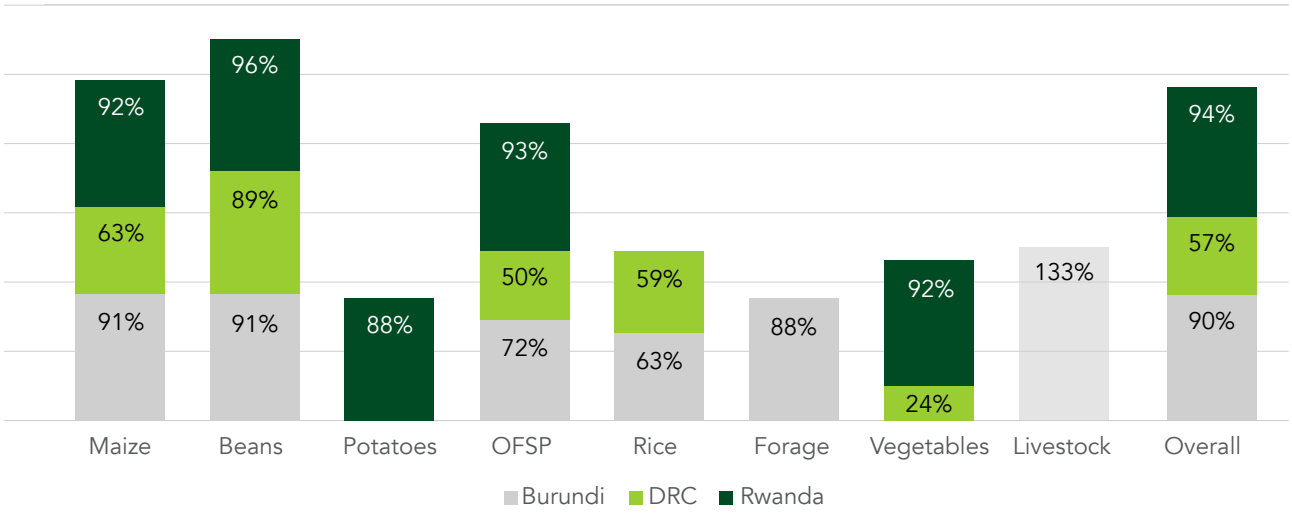


Figure 3: Application rate of promoted technologies across commodities and countries.

The surveys also revealed farmers' appreciation for the performance of the technologies and practices in their fields, as evidenced by the yields recorded on the baby demonstration plot. Results from a telephone survey conducted after season A of 2024 revealed that around 70% of farmers reported yield increases after exposure to technologies during season 2023B. This figure was nearly 90% in Burundi, and around 80% in DRC and Rwanda during the 2024 season.

Table 1: Farmers who reported an increase in yield by country, gender and age, and by season.

	Burundi							
	Women (n=131)		**Men (n=283)**		**Overall (n=414)**	**2023B**	**2024A**	**2024B**
	15–29 yrs (n=13)	**30+ yrs (n=118)**	**15–29 yrs (n=11)**	**30+ yrs (n=272)**				
Beans	86	84	80	89	87	85	86	100
Maize	50	95	100	93	92	93	92	100
OFSP	100	97	100	91	94	95	91	100
Rice	100	60	–	91	86	87	86	–
	DRC							
	Women (n=163)		**Men (n=239)**		**Overall (n=412)**	**2023B**	**2024A**	**2024B**
	15–29 yrs (n=55)	**30+ yrs (n=108)**	**15–29 yrs (n=27)**	**30+ yrs (n=212)**				
Beans	76	91	90	97	90	92	83	100
Maize	78	93	80	91	88	82	97	100
OFSP	100	71	20	89	77	69	82	100
Rice	80	75	33	77	74	71	100	–
Vegetables	100	100	50	92	93	100	86	100
	Rwanda							
	Women (n=190)		**Men (n=210)**		**Overall (n=414)**	**2023B**	**2024A**	**2024B**
	15–29 yrs (n=41)	**30+ yrs (n=149)**	**15–29 yrs (n=23)**	**30+ yrs (n=23)**				
Beans	85	87	100	93	90	76	89	100
Maize	75	96	100	95	95	77	98	100
OFSP	67	100	88	87	87	70	75	100
Potatoes	100	100	–	80	91	80	100	100
Vegetables	87	82	87	83	83	77	88	100

Table 2: Application rate of promoted technologies by country, gender and age.

	Burundi					DRC					Rwanda				
	Men	Women	15–29	30+	Overal	Men	Women	15–29	30+	Overal	Men	Women	15–29	30+	Overal
Maize	94%	87%	92%	91%	91%	71%	60%	55%	65%	63%	90%	93%	93%	92%	92%
Beans	92%	90%	95%	90%	91%	90%	89%	87%	90%	89%	94%	97%	96%	96%	96%
Rice	69%	60%	80%	62%	63%	73%	41%	55%	61%	59%					
OFSP	79%	67%	67%	72%	72%	50%	50%	40%	53%	50%	90%	94%	94%	93%	93%
Potatoes											95%	98%	95%	97%	96%
Vegetables						40%	18%	17%	26%	24%	91%	92%	89%	92%	92%

1.7.2.2. Yields surpassing national average, and occasionally surpassing yields projected by innovation developers

During the 2024A and B seasons, farmers reported significant yield increases compared to their usual practice. For instance, bean farmers recorded increases of 200% in Burundi, 220% in DRC, and 97% in Rwanda.

In addition to beans, maize and OFSP also showed impressive gains. Maize yields in metric tons per hectare (mt/ha) increased from 0.77 to 5.3 in Burundi, 1.2 to 4.8 in the DRC, and 1.55 to 6 in Rwanda.

Results are summarized in Table 3 below, with more details, including breakdown by gender and age in Table 32 in Annexes.

Table 3. Average yield in mt/ha: national baseline vs survey findings.

Country	Crops	Expert projection of potential yield	National baseline (B)	Survey (S)	% increase: S vs B
Burundi	Maize	4–8	0.77	5.3	588%
	Beans	1–2.5	0.6	1.8	200%
	OFSP	9–14	9.4	16	70%
	Rice	4–7	4	4	0%
DRC	Maize	4–8	1.2	4.8	308%
	Beans	1–2.5	0.5	1.6	220%
	OFSP	9–14	5	14.2	184%
	Rice	4–7	1.1	4	264%
	Vagetables	20–30	–	29	–
Rwanda	Maize	4–8	1.55	6	287%
	Beans	1–2.5	0.76	1.5	97%
	OFSP	9–14	6.97	18	158%
	Potatoes	20–40	8.6	21.5	150%
	Vagetables	20–30	–	25	–

These harvest results align with – and in some cases exceed - the potential yields projected by innovation developers, demonstrating the effectiveness of technologies and practices promoted across the three countries.

It further shows that farmers' positive appreciation of promoted technologies is a strong foundation for adoption, where there are also well-functioning seed systems and other enabling factors, such as access to markets and credit.

1.7.2.3. Technologies more available, and market actors adopted innovations to create demand

Generally, initially, the small-pack approach, which, on the face of it, makes for poor optics, was looked down upon by farmers, seed companies, and, in some cases, local authorities. However, following a training and experience-sharing session facilitated by Seed Systems Group through Farm Input Promotions Africa (SSG/FIPS-Africa) in Nairobi, extension managers

successfully conveyed the benefits of the measured approaches to their leaders. This approach also proved successful in giving farmers firsthand experience of technology performance, leading to increased interest and adoption of this marketing innovation in agriculture by market actors. Indeed, seed companies have increasingly invested in expanding the distribution of small packs as part of their marketing campaign. This is reflected in seed and other input sales, which grew from 444 mt in Year 1 to 8,368 mt in Year 2, and 7,751 mt in Year 3, totaling 16,563 mt, valued at USD 8,541,892 (Table 39 in Annexes).

1.7.2.4. Increased knowledge and early adoption of technologies and practices by farmers

All capacity-development and scaling events started yielding results as participants' knowledge of promoted technologies and practices improved. The telephone survey conducted after the third agricultural season (2024B) had interesting findings on knowledge and adoption.

1. On the one hand, it showed an increase in the average number of farmers with correct knowledge of recommended practices, rising from 7% to more than 80% across different countries and value chains. The combination of different advisory information delivery channels contributed to this result. This improvement is attributed to using multiple channels to deliver advisory information. The most used and preferred channels were input distribution (56%), training (48%), and training through demonstration (32%), with 25% of farmers also benefiting from information provided through small packs (Figure 4). These channels have been instrumental in enhancing knowledge and promoting the adoption of best practices.

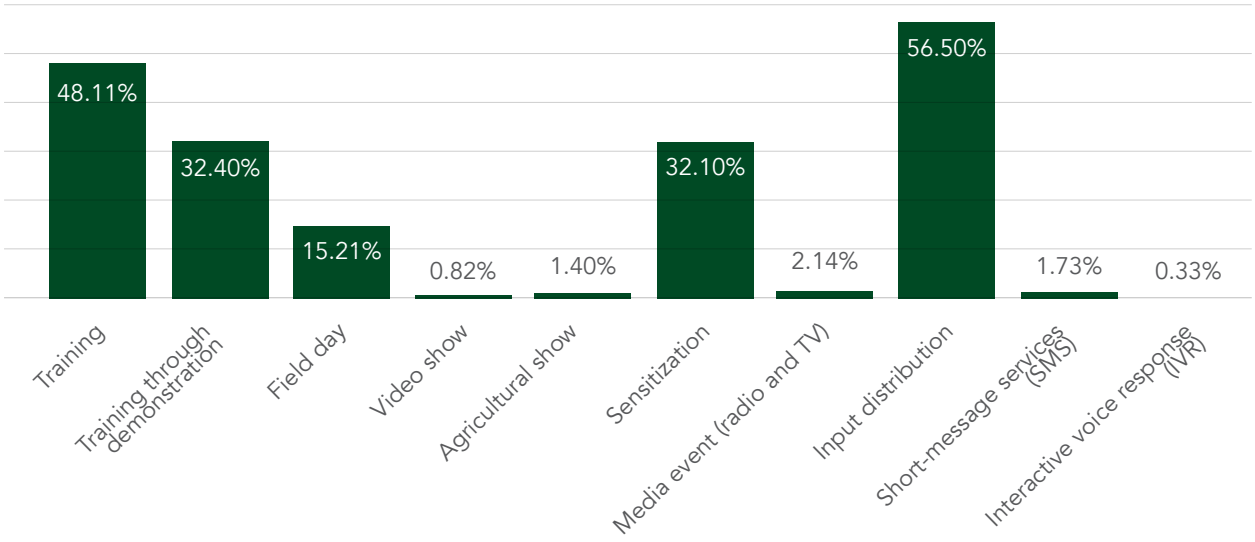


Figure 4 : Farmer-preferred channels (n=1,216) for receiving agricultural information (details per country in Table 33 in Annexes Chapter 1).

2. On the other hand, the 2024B survey revealed early signs of adoption among farmers: more than 70% of participating farmers in season 2023B reported an increase in the land area covered with the promoted technologies and practices during the following season, 2024A. Nearly two-thirds (65%) reported an increase in land area in 2024B, while 56% of farmers exposed in 2024A reported an increase in the land area covered with promoted technologies in 2024B.

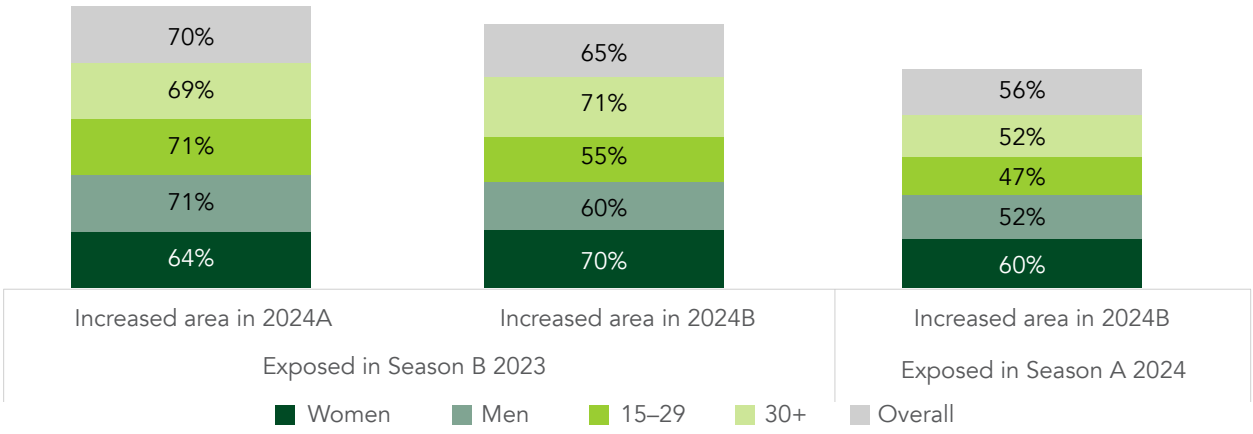


Figure 5: Percentage of farmers who, after exposure, increased land area covered with promoted technologies.

1.8 Assessment of the theory of change

A theory of change (ToC) maps the cause–effect pathway from project activities and inputs to specific outputs, intermediate outcomes, and ultimately, the intended impact.

The project developed a framework to assess the effectiveness of its ToC. The 3F2R framework (**F**armer exposure, **F**armer appreciation, **F**armers' demand, **R**eadiness, and **R**esponse of the system) assesses the effectiveness of key project interventions across target value chains, using both qualitative and quantitative data from the MELIA system. In practice, the framework helps to answer the following questions:

- How effective was farmers' exposure to selected technologies and practices?
- After exposure to technologies and practices, how was the farmers' appreciation?
- When farmers appreciate a specific technology, did they demand it?
- When farmers demanded the technology, was the supply system ready and did it respond?

1.9 Challenges, lessons learned, and recommendations

1.9.1. Challenges

Internal

- Managing large, multi-actor consortia was complex. This initially affected collaboration and decision-making, resulting in occasional inefficiencies in synchronizing activities.
- Teething problems from divergent messaging in year 1 resulted in confusion, which in turn slowed initial adoption.

External

- The USAID stop-work directive caused a major disruption.
- The short project duration hindered tracking long-term behavioral change, multi-season reinforcement, institutionalizing partnerships, and measuring sustained adoption at scale.
- Resource constraints limited the number of demonstration plots, extension events, and follow-up monitoring visits, thereby reducing geographic coverage and intensity of farmer engagement.

1.9.2. Lessons learned

- Learning by doing is critical to the dissemination of agricultural technology.
- Initially, farmers and stakeholders were reluctant to take the small packs during seed distribution in year 1. However, after experiencing performance in their fields, farmers embraced the approach and demanded more technologies using the same first-test-and-see approach. Consequently, seed companies have started integrating the small-pack approach into their marketing strategy.
- Field demonstrations and farmer-reported yields reinforce adoption and trust in improved varieties.
- Selecting locally relevant, nutrition-sensitive, and manageable innovations increases adoption potential.
- Complementary extension systems involving VBAs, government monitors, cooperatives, and agro-dealers create coherent dissemination structures. In a similar vein, private-sector engagement enhances continuity and sustainability of seed systems.
- Data, training and monitoring all matter as critical ingredients to assure success.

1.9.3. Recommendations

- The three countries are at different levels of seed system development, and therefore have different needs. For example, sustaining the delivery of agricultural innovations will require additional investment in the seed system, especially in Burundi and DRC.
- Regarding GESI, there is need for responsible and inclusive scaling processes during project design, to also mitigate possible unintended negative consequences of the innovations. Understanding GESI-based challenges and capturing lessons learned are essential for both inclusive scaling and sustainable impact. This will help to surface and to prioritize high-impact value chains that contribute to both nutrition and income, and that target women, young children, and pregnant women.

Read more about the project at: https://shorturl.at/65BZv



CHAPTER 2

Delivering agricultural innovations at scale in Burundi: Adaptation, results, and learning

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2.1 Context

Burundi faces several structural and systemic challenges that severely constrain its agricultural sector and threaten national food security. The country's high population density and limited arable land put immense pressure on natural resources, while widespread poverty and recurrent climate shocks further undermine household resilience.

Agriculture remains the backbone of livelihoods, engaging more than 90% of the population, yet productivity is among the lowest in the region. This is largely due to limited access to improved seeds, modern agricultural technologies, and reliable extension services.

A weak seed system, coupled with insufficient dissemination of proven technologies, leaves most smallholder farmers dependent on traditional practices that can no longer meet growing food demands, even as improved and better options exist. Underdeveloped markets, limited value-addition – particularly at the household/local level – and poor dietary diversity reinforce a downward spiral of low productivity and food insecurity. As a result, food and nutrition insecurity remain widespread, especially in rural areas. Women and youth are disproportionately affected, as they face greater barriers to adopting innovations and accessing economic opportunities, further entrenching inequality and vulnerability.

In this context, the AID-I GLR project aimed to reach half-a-million smallholder farmers in Burundi. The program leveraged existing proven technologies and innovations to ensure farmers gained access to improved seed varieties and climate-smart agricultural practices. By scaling up these technologies through strengthened extension and market systems, the program sought to boost productivity, enhance food and nutrition security, improve climate resilience, and expand livelihood opportunities.

2.2 Adaptation and implementation of AID-I GLR strategies in Burundi

In Burundi, the first step was to hold a stakeholders co-creation workshop in December 2022, where discussions centered on (i) challenges in the agriculture sector, (ii) value chains with the most potential for scaling, (iii) available and documented technologies and innovations, (iv) mapping of partners working with rural communities, and (v) identifying workable partnerships that could spearhead implementation.

The implementation model was built on inclusive, results-driven, multi-stakeholder partnerships, including delivery partnerships, innovation developers, service providers and the national agricultural research and extension system. Three principal delivery partnerships (consortia) were established to ensure broad and equitable coverage across Burundi's regions:

1. **Consortium 1: World Vision-led partnership**

   This consortium included World Vision Burundi, Welt Hunger Hilfe (WHH), Agency for Cooperation and Research in Development (ACORD), and *Vétérinaires Sans Frontières (VSF)*. It targeted the Northern Region, covering the provinces of Kayanza, Ngozi, Muyinga, Cibitoke, Bubanza, and Kirundo (Figure 6). The partnership focused on seven value chains: beans, maize, milk, poultry, rabbits, rice, and sweet potatoes.

2. **Consortium 2: CAPAD-led partnership**

   Led by the *Confédération des Associations des Producteurs Agricoles pour le Développement (CAPAD),* in collaboration with the World Food Programme (WFP), this partnership operated in the Eastern and Central

regions, specifically in the provinces of Ruyigi, Makamba, Gitega, Karusi, and Muramvya (Figure 6). It covered nine value chains: bananas, beans, cassava, maize, milk, poultry, rabbits, rice, and sweet potatoes.

3. Consortium 3: One Acre Fund partnership

The third partnership involved the One Acre Fund (1AF) network, focusing on Gitega Province in the Central Region, with interventions concentrated on the maize and bean value chains.

In addition to delivery partners, innovation developers were engaged to support and complement scaling efforts. For each selected innovation, a designated innovation owner provided technical guidance. This guidance involved six institutions: five CGIAR centers (IITA, the International Potato Center [CIP], the International Rice Research Institute [IRRI], the International Livestock Research Institute [ILRI], and the Alliance of Bioversity and CIAT [ABC]) and one national research institution, *Institut des Sciences Agronomiques du Burundi (ISABU)* as well as *Ministère de l'Environnement, Agriculture et Elevage (MINEAGRIE)* (Figure 7). Service providers included Scientific Animation Without Borders (SAWBO) and Seed Systems Group (SSG), who provided specialized tools and approaches to facilitate the delivery of innovations.

These partnerships were designed to integrate research-based innovation, technical expertise, operational capacity, and community engagement. Collectively, they aimed to reach 500,000 smallholder farming households by the end of the project's implementation period.

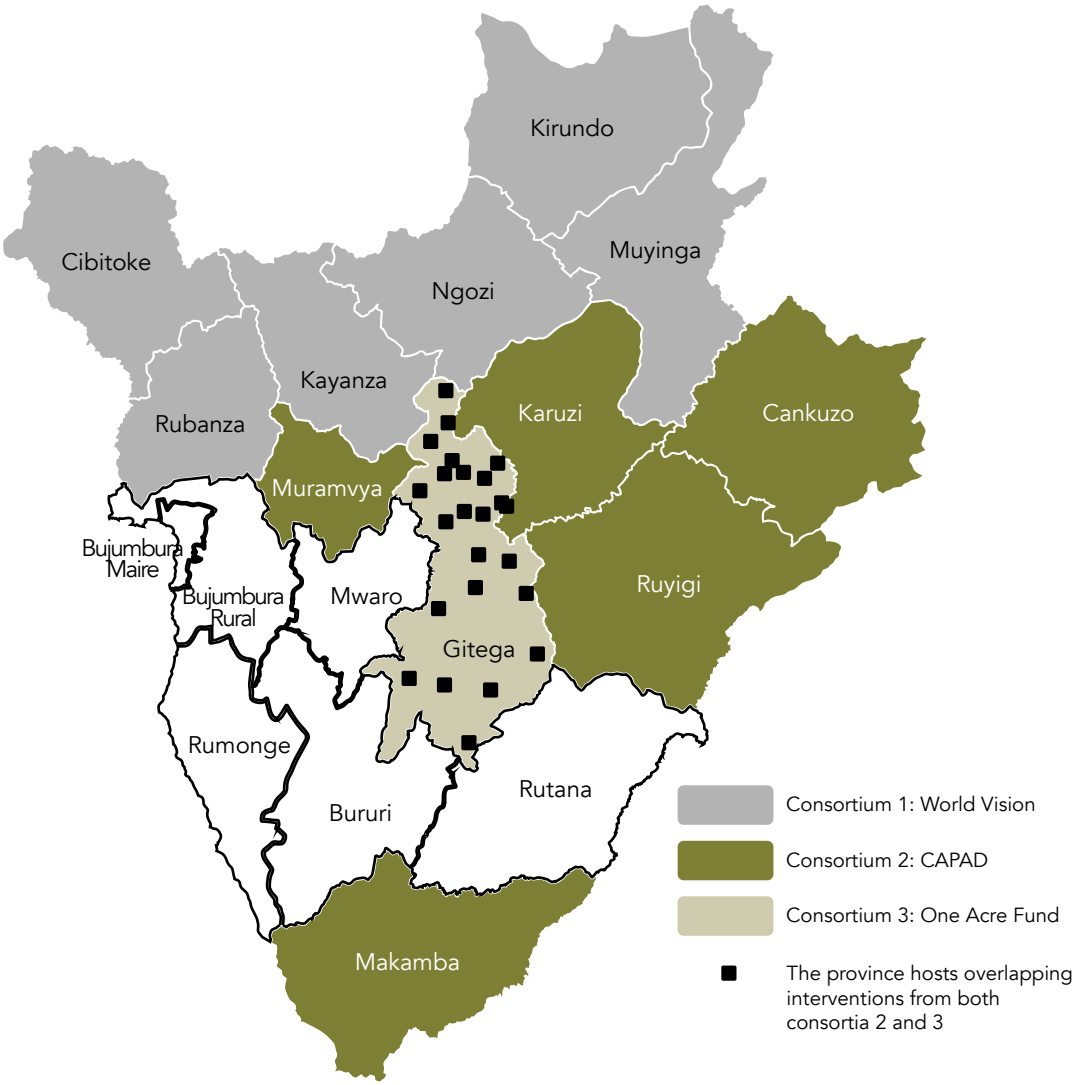


Figure 6: Map of Burundi showing intervention area (s) by each consortium.

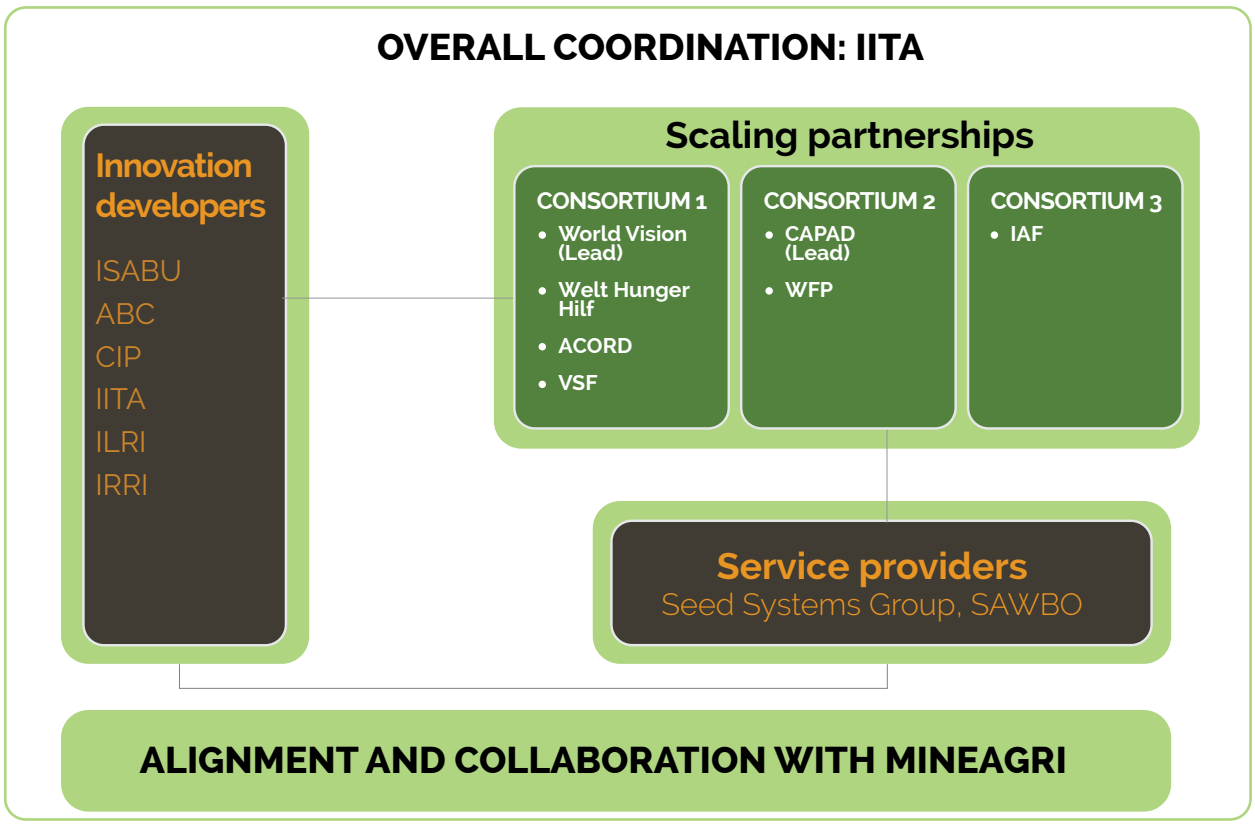


Figure 7: Partners and roles.



A 2.5-ha plot for production of parental hybrid seed by ISABU, at Bukemba station in Burundi. It was predicted to yield sufficient seed to produce 400 metric tons of hybrid seed by end of 2025. Photo taken on 3rd September 2024.

Box 1: Managing partnership and consortium challenges to accelerate scale

The AID-I GLR Project engaged a diverse range of research, public, private, and civil-society partners to accelerate the dissemination of agricultural innovations across multiple value chains. While this multi-partner approach enabled rapid scale-up, it also introduced coordination and implementation challenges.

Project implementation relied on grouping scaling organizations into regional consortia to maximize geographic coverage and leverage complementary strengths. An initial challenge was securing acceptance of this arrangement, as perceived differences in institutional capacity and experience led some organizations to hesitate in collaborating with smaller or farmer-based partners. Similar concerns arose during the designation of consortium leadership, where issues related to institutional recognition and perceived standards affected acceptance of lead roles. In addition, lengthy partner selection and funding agreement processes during the first year resulted in implementation delays. The project also faced a limited availability of private technical partners for specialized innovations, particularly in artificial insemination and animal vaccination.

These challenges were mitigated through the establishment of structured coordination mechanisms, including regular joint planning, coordination, and review meetings, which helped harmonize approaches, clarify roles and responsibilities, and strengthen collaboration among consortium members. The project further leveraged existing public institutions such as Centre National d'Insémination Artificielle et d'Amélioration Génétique *(CNIAAG), ISABU,* Office National de Contrôle et Certification des Semences *(ONCSS), and national veterinary services to address technical gaps and ensure continuity of service delivery. A clear allocation of roles based on partners' comparative advantages further enhanced operational efficiency.*

As a result, partnerships became more effective and resilient. Several collaborations continued beyond the project through new joint initiatives. Also, the seed production, commercialization, and dissemination system linking research institutions, seed producers, VBAs, agro-dealers, cooperatives, and farmers, remain functional. This experience underscores the importance of structured governance, transparent coordination, and alignment with national systems in sustaining impact at scale.

AID-I GLR emphasized a delivery model that supported sustainable scaling beyond project duration. Each partnership operated as a platform for delivering integrated packages of technologies and services, combining CGIAR-derived innovations with local implementation capacity. This included joint work-planning, capacity development, extension support, and real-time monitoring.

By bridging the gap between research and practice, and by involving both public and private actors, the initiative ensured relevance, ownership, and long-term impact and sustainability.

The initiative focused on the delivery and adoption of innovations across the above-mentioned key crop and livestock value chains. Innovation selection was guided by criteria such as demonstrated impact, adaptability to local conditions, and potential for widespread adoption. Livestock-related activities focused on genetic improvement through artificial insemination (AI) and enhanced animal health practices. All technologies promoted were first assessed for scalability, affordability, and relevance, with strong emphasis on inclusion of women and youth to maximize equitable impact and broaden reach through a consultative process.

Burundi's seed system is still underdeveloped, extension patchy, and input costs remain high. Therefore, the village-based advisor (VBA) approach (explained further below) was introduced by building on what already existed: extensionists and village leaders at the *sous-colline* (sub-hill) level. AID-I GLR enriched their capacity not only to provide technical assistance but also to strengthen and extend the seed system.

A central component of the implementation strategy was the use of input distribution

and training events, which served as entry points for introducing smallholder farmers to improved technologies. During these events, scaling partners distributed small packs of inputs – typically 100-gram seed packs – accompanied by small quantities of fertilizer, as well as flyers with agronomic and nutritional guidance.

These sessions were highly participatory: before distribution, technical experts presented the key benefits of the seeds (such as their nutritional content and yield potential) and demonstrated recommended agronomic practices. This approach ensured farmers not only received quality inputs, but also understood how to use them effectively.

To further reinforce learning and ensure continuous support, the initiative employed the VBA model mentioned above. VBAs are trusted, selected farmers trained to serve as community-level resource persons. Their primary role was to provide day-to-day advisory support to beneficiaries who received input packs, particularly those who may have questions or need practical guidance after the initial distribution.

In many rural settings where access to formal extension services is limited, VBAs bridged the gap by offering prompt and timely advice, facilitating the correct use of technologies, and supporting adoption decisions.

Beyond technical assistance, VBAs also played a key role in strengthening local seed systems. They served as focal points between farmers, agro-dealers, and seed companies, helping to collect orders and convey input demand from their communities to suppliers. This function helped ensure the timely availability of seeds and other inputs while also fostering stronger and more durable relationships between the farming community and the private sector. Through the integration of input distribution events and the VBA model, the initiative created a decentralized, farmer-centered system that enhanced knowledge transfer, promoted inclusive participation (especially by women and youth), and supported sustainable adoption of improved agricultural technologies.

Initially, the new model was misunderstood and faced resistance, even at the administrative level, with particular disdain for the small-pack approach, due to the small quantities per farmer. To overcome this prejudice, communal agronomists, scaling partners, and village-based extensionists were exposed to the system during a field visit to Kenya, which facilitated understanding it, and hence accepting it. VBAs were further trained in seed business management, enabling some to operate as local seed agro-dealers by collecting orders and reselling to farmers, while others partnered with established agro-dealers on a commission basis.

Box 2: Sub-hill-based VBAs for enhanced last-mile service delivery

In the Burundi context, the AID-I GLR Project introduced an innovation by subdividing village-based advisors (VBAs) at the sub-hill level to align with Burundi's decentralized extension system and improve proximity to farmers. Rather than operating at broader administrative levels, VBAs were embedded closer to communities, each serving a small and manageable group of approximately 100–150 households.

This sub-hill-based deployment allowed VBAs to work closely with government agricultural monitors, cooperatives, and agro-dealers to disseminate good agronomic practices, distribute small trial seed packs, and connect farmers to certified seed producers. The closer presence of VBAs improved responsiveness to farmers' needs, facilitated the aggregation of seasonal seed demand, and strengthened last-mile delivery particularly for hybrid maize seed dissemination.

By bringing advisory services closer to farmers and reducing advisor-to-farmer ratios, this approach enhanced effectiveness, inclusiveness, and sustainability of extension services at the community level.

2.3 Results

2.3.1. Outputs

2.3.1.1. Number of individuals participating in AID-I GLR

Since its inception in 2022, the project reached a total of 626,504 individuals through various outreach and scaling activities. These included the distribution of agricultural inputs, technical training sessions, field demonstrations, and sensitization events (Table 4). This figure represents a 113% achievement against a target of 554,760 participants, reaffirming the project's effectiveness and relevance in reaching rural communities.

An analysis of outreach performance over the implementation period reveals a consistent and strong upward trend in achievement. In 2023, the project reached 191,874 individuals, meeting 72% of the annual target of 267,740. Performance significantly improved in 2024, with 374,357 individuals engaged, which was 20% above the target of 312,174. This positive trajectory continued into 2025, where mid-year results alone accounted for 118% of the annual target (60,273 reached versus 50,712 targeted), proving both the effectiveness and growing – and also organic – demand for project interventions.

This sustained and upward trend demonstrated the project's strong alignment with its objective of supporting small-scale farmers, and highlights both the growing demand for agricultural innovations and the effectiveness of scaling strategies implemented through local partners and input distribution channels.

Table 4: Project participants/beneficiaries in Burundi.

		Target	Actual	Achievement (%)
Number and type of individuals participating in AID-I GLR		554,760	626,504	113%
Gender	Men	331,130	361,649	109%
	Women	223,630	264,855	118%
Age	15–29	109,183	75,319	69%
	30+	445,577	551,185	124%
Category	Government		1,347	
	Partners of United States Government-assisted private-sector firms		567	
	Civil society		369	
	Producers (smallholders)		624,221	

In addition to its quantitative accomplishments, the project made deliberate efforts to enhance social inclusion. In 2023, it collaborated with cooperatives supporting marginalized groups to reach 118 Batwa households across the provinces of Kayanza, Kirundo, and Muyinga. These households received seeds and participated in targeted training on good agricultural practices across the bean, sweet potato, and maize value chains. Cooperative member selection was guided by inclusive criteria, prioritizing women, men, youth, vulnerable populations, and indigenous groups.

However, the number of Batwa participants remained relatively low, largely due to limited interest of this community in agriculture and livestock activities: historically, the Batwa were hunter-gatherers.

During the project's lifetime, over 288 individuals from marginalized populations, including eight people with disabilities, actively participated in project activities. These efforts underscore the project's commitment to ensuring that no group was left behind in accessing agricultural technologies and resources.

Results in Burundi

Great Lakes Accelerated Innovation Delivery Initiative Rapid Delivery Hub (AID-I GLR) in Burundi

October 2022–September 2025

Burundi

PARTNERSHIPS

- **2** Market actors supplying the innovations
- **6** Innovation developers
- **3** Partnerships consortia
- **2** Support service organizations
- **7** Scaling organizations

TARGET

554,760 People to be reached

- Women: 40%
- 15–29 years: 20%
- Men: 60%
- 30+ years: 80%

REACH

626,504 People reached

- Women: 42%
- 15–29 years: 12%
- Men: 58%
- 30+ years: 88%

INNOVATIONS

More than **23** Innovations and practices

VALUE CHAINS

9 Groups of value chains

SMALL PACKS

932,967 Distributed to farmers

860,269* Farmers accessed improved agricultural technologies with advisory information through small packs

- **357,315** Women
- **502,954** Men
- **765,662** 30+ years
- **94,607** 15–29 years

*Aggregated for the 9 value chains. Some farmers were in several value chains.

119.8 Metric tons of inputs sold by market actors valued at **$166,441**

79.6 Metric tons of early-generation seeds produced and supplied to market actors

144 Metric tons of certified seeds produced

YIELD (mt/ha)

	BEANS	MAIZE	OFSP	RICE
Average farmer-reported yield	1.4	5.3	13.6	4
Innovator projection of potential yield	1–2.5	4–8	9–14	4–7
Baseline	0.6	0.77	9.4	4

Figure 8: The numbers at a glance – Results of the AID-I GLR Project in Burundi.

2.3.1.2. Distribution of small packs of technologies

During the implementation of the project, a total of 683,929 small packs of hybrid maize, beans, sweet potatoes, rice, fodder, bananas, and cassava, representing 52% of the target, were distributed to farmers (Table 5). In total, 636,622 farmers benefited from these small packs of improved seed technologies (Table 42 in Annexes).

In several instances, such as with maize, beans, and rice, the small seed packs were distributed alongside small quantities of chemical fertilizer. Fertilizer distribution reached 182,092 farmers, representing 53% of the planned target.

In the livestock value chain, the project recorded outstanding achievements across several key interventions. A total of 4,597 cattle were vaccinated, reaching 164% of the initial target, while 5,015 cows underwent artificial insemination, achieving 147% of the target. Additionally, 4,178 farmers received chicks to enhance household poultry production, representing 88% of the planned distribution (Table 42 in Annexes).

In efforts to promote small livestock, 554 households were provided with rabbits, reaching 44% of the target. To further support livestock productivity, especially in terms of nutrition, 32,604 fodder packs were distributed representing 38% of the planned target contributing to improved feed availability and livestock health.

Box 3: Strengthening rural livelihoods through improved poultry systems in Burundi

Under the AID-I GLR *(Kugwiza)* Project, the introduction of improved and disease-resistant poultry breeds particularly SASSO chickens successfully transformed poultry production in Burundi from a subsistence activity into a profitable and scalable rural enterprise. The intervention was designed to accelerate adoption of improved poultry technologies and stimulate demand for enhanced poultry breeds through a starter-package approach.

Each participating farmer received an initial package of three to five improved hens, as well as chicken feed complemented by feeding and good management practices covering at least the first three months of production, thereby reducing early adoption risks. This approach resulted in higher survival rates, faster productivity, and increased farmer confidence in poultry as a viable agribusiness option.

The initiative strengthened local poultry value chains, attracted market intermediaries to rural areas, and generated sustainable income-earning opportunities, particularly for women and youth. Beyond income generation, improved poultry production contributed to enhanced household nutrition and resilience by providing a reliable source of animal protein.



932,967

Small packs of improved agricultural technologies distributed to farmers, along with advisory information



Table 5: Small packs and other inputs distributed in Burundi.

Value chain	Target	Actual (Feb 2023–Mar 2025)	% progress
Seeds			
Maize	538,783	265,817	49%
Beans	463,287	266,574	58%
OFSP	125,346	68,723	55%
Rice	34,933	31,373	90%
Fodder	86,803	32,604	38%
Bananas	39,200	6,514	17%
Cassava	39,029	12,324	32%
Subtotal 1	**1,327,381**	**683,929**	**52%**
Other inputs			
Fertilizer	388,026	204,307	53%
Bio-pesticides	3,600	28,822	801%
Cattle vaccinated	2,807	4,597	164%
Artificial insemination	3,412	5,015	147%
Chicks	6,150	5,419	93%
Rabbits	1,250	878	70%
Subtotal 2	**405,245**	**249,038**	**61%**
Grand total	**1,732,626**	**932,967**	**54%**

While not all individual distribution targets for small packs were fully met, the primary objective of this intervention was to expose farmers to a wide range of agricultural technologies including improved seeds, fertilizers, and livestock inputs, so they could test them on a small scale and make informed decisions regarding adoption. Attaining 100% of the planned distribution was therefore not the sole measure of success.

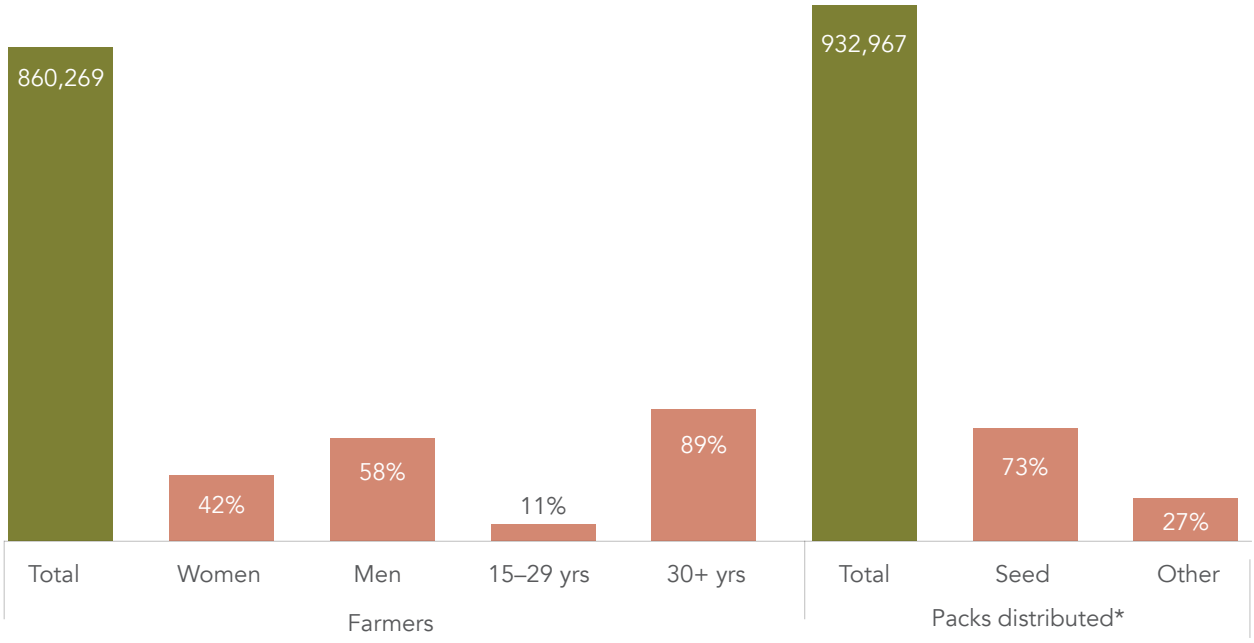


Figure 9: Number of farmers who received seed packs and other inputs disaggregated by gender and age, and total number of packs distributed in Burundi.

** Some farmers received more than one pack*

The small-pack approach aimed at stimulating awareness and interest, and encouraging voluntary uptake based on firsthand experience. In this regard, the results are encouraging: 860,000-plus farmers were reached, and 54% of the overall target for technology distribution was achieved across all inputs (Figure 9).

Importantly, when considering the cumulative reach of all project activities over the past three years, the overall engagement has exceeded initial target, showing the effectiveness of the strategy in promoting technology exposure and laying the groundwork for broader adoption.





(1) A five-day training of trainers at the Bujumbura National Veterinary Laboratory for veterinary technicians.
(2) Burundi, Ngozi, Dec 2023: World Vision partnership rice demonstration site established through the support of the International Rice Research Institute (IRRI).

Box 4: Small-pack approach in Burundi

The small-pack approach is an innovative agricultural technology dissemination strategy that enables farmers to test new seed varieties on their own farms. Farmers receive a small trial pack (e.g., 100 g) to evaluate the adaptability, performance, and potential yield of the seeds before adopting them at a larger scale. Complementing this, community-level training at mother demonstration plots is provided, where village-based advisors (VBAs) – trained through CGIAR specialized centers – teach good agronomic practices.

To ensure farmers can access quality seeds after testing, CGIAR centers produce early generation seeds (EGS), which are supplied to community-based seed multipliers for production of certified seeds.

In the Burundian context, the approach initially faced resistance from local administrative authorities, and skepticism from some extension actors due to its novelty. To overcome these barriers, the project organized a learning field visit to Kenya, where the approach is widely implemented, for provincial and communal agronomists, scaling partners, and extension officers. This exposure facilitated understanding, acceptance, and buy-in. Subsequently, VBAs, agro-dealers, and seed multipliers were later trained in seed business management, enabling them to operate efficiently, either independently or in partnership with established agro-dealers, ensuring sustainable delivery of seeds and advisory services.

2.3.1.3. Scaling

Training

Input distribution was accompanied by robust capacity-building efforts targeting various actors across the value chains. Capacity-development activities included training of trainers (ToT) facilitated by technology and innovation developers, direct training of producers, establishing demonstration plots, and organizing field days and sensitization events, each aligned with the project's theory of change.

ToT aimed to strengthen the capacities of those delivering extension services to farmers by equipping them with up-to-date knowledge and techniques on beans, maize, OFSP, rice, and livestock technologies.

Participants included individuals from government institutions, civil society, the private sector, and seed firms. A total of 3,728 individuals participated in ToT, representing 70% of the target (Table 6).

Beyond ToT, the project trained 43,947 producers, achieving 97% of the target.

Although there were some delays during the initial phase, 47,675 individuals were ultimately trained (Table 6), marking a strong performance with 94% of the target achieved.

Table 6: Training by type, trainees, gender, and age in Burundi.

Type	Trainees	Target	Actual	% achievement	Gender and age			
					Women	Men	15–29	30+
Training of trainers (ToT)	Lead farmers/lead breeders	2,947	2,353	80%	824	1,529	190	2,163
	Government	565	1,011	179%	161	850	34	977
	Private sector	506	96	19%	19	77	12	84
	Civil society	1,289	268	21%	16	252	20	248
	Total participants trained in ToT	**5,307**	**3,728**	**70%**	**1,020**	**2,708**	**256**	**3,472**
Training of farmers	Total smallholders trained	45,509	43,947	97%	19,441	24,506	4,531	39,416
Total trained		**50,816**	**47,675**	**94%**	**20,461**	**27,214**	**4,787**	**42,888**

To complement these efforts and further promote the uptake of improved technologies, a total of 711 demonstration plots were established across key value chains (Table 7). Demonstration plots served as critical experiential learning hubs where farmers could observe the practical application of new technologies and best agronomic practices in real field conditions.

Table 7: Demonstration plots established in Burundi.

Crop	Number of demonstration plots		Achievement
	Planned	Established	
Maize	279	258	92%
Beans	173	161	93%
OFSP	141	132	94%
Rice	66	63	95%
Cassava	22	20	91%
Bananas	74	72	97%
Forage crops	6	5	83%
Total	**761**	**711**	**93%**

These plots were strategically located to ensure accessibility by farmers in various provinces. To maximize their impact, they were often linked with training sessions, field days, and sensitization events. By showcasing visible results such as higher yields, improved crop quality, or better pest and disease control, the demo plots built farmers' confidence in the promoted innovations and stimulated broader adoption within communities, beyond the actual direct participants. Furthermore, these in-community platforms enabled extension officers and scaling partners to provide targeted and practical technical guidance. They also helped amplify and reinforce messages from formal training sessions.

In addition, the project utilized scaling events as a key channel for disseminating advisory information on agricultural and nutritional practices and technologies to farmers. These events were in the form of community-level field days and sensitization sessions. In total, 7,973 farmers participated in field days, while 37,204 took part in sensitization events, reaching a combined total of 45,177 (Table 8). These various platforms enabled large-scale engagement, particularly among women and youth, and played a vital role in promoting awareness and encouraging the adoption of improved agricultural innovations.

Table 8: Scaling events by type, and participants by gender and age, in Burundi.

Type	Target	Total actual participants				
		Women	Men	15–29	30+	Total
Field days	13,974	3,296	4,677	42	7,571	7,973
Sensitization events	19,043	15,178	22,026	4,984	32,220	37,204
Total	**33,017**	**18,474**	**26,703**	**5,386**	**39,791**	**45,177**

2.3.1.4. Strengthening the seed systems

To ensure the continued availability of quality seeds beyond the project's lifespan, seed producers and multipliers were engaged during input distribution events.

These events created opportunities for their direct interaction with farmers, allowing seed producers to share their contact information and establish relationships for future seed orders. This initiative was implemented through the seed cover approach, where each seed seller or input agro-dealer put their contact and address on the cover of seed or input distributed.

With support from AID-I GLR, Burundi's seed system was strengthened through collaboration with ISABU, SSG, and

MINEAGRIE. In 2023, 23.8 metric tons (mt) of early-generation seeds (EGS) were produced (Table 9). By March 2025, cumulative production of EGS and certified seed had risen to 223.4 mt, with EGS accounting for 79.6 mt, of which beans and OFSP made up the largest shares, at 15.3 and 54.2 mt, respectively. Similarly, certified seed production rose from 8.5 mt in 2023 to 65.8 mt by March 2025, totalling 143.8 mt, at the end of project. The largest gains were in bean seeds, which increased from 8.5 mt in 2023 to 63.8 mt in 2025, totalling 138.8 at the end of project (Table 9), reflecting strong market demand and efficient multiplication.

Table 9: EGS and certified seed production in Burundi.

Type of seed	Commodity	2023	2024	2025	Total
EGS	Maize	0	3.6	2.5	6.1
	Beans	1.8	10.6	2.9	15.3
	Rice	1.5	2.5	0	4
	OFSP	20.5	33.7	0	54.2
	Subtotal 1	**23.8**	**50.4**	**5.4**	**79.6**
Certified	Maize	0	0	2	
	Beans	8.5	66.5	63.8	138.8
	Rice	0	3	0	3
	Subtotal 2	**8.5**	**69.5**	**65.8**	**143.8**

To improve access to seed, especially in remote areas, the project strengthened agro-input distribution and marketing systems by requiring supported seed companies to identify and collaborate with agro-dealers across provinces to extend their market reach.

Under this strategy, Coop Eden recruited agro-dealers within its intervention zones, operating on a sales commission basis per kilogram of seed sold; they also partnered with VBAs for outreach.

Similarly, Cooperative Haguruka Dufashanye built partnerships with both agro-dealers and VBAs in its target areas.

During the project's lifespan, these seed companies collectively sold 119.8 mt of seeds (Table 10).

Table 10: Sales by micro-enterprise market actors in Burundi.

Company	Input	Quantity sold	Value in USD
Cooperative Haguruka Dufashanye	Beans	85	108,592
Coop Eden	Beans	29.8	50,822
ISABU	Maize	2	4,000
Cooperative Dukorerehamwe	Rice	3	3,027.20
		119.8	166,442

Several seed varieties demonstrated impressive yields, further driving farmers' interest and demand.

Maize, in particular, recorded yield improvements of over 100% compared to the baseline. However, much of the maize seed was still being imported, often at high cost to farmers. To reduce dependence on costly imports, AID-I GLR introduced hybrid maize parent lines to ISABU for the first time. This enabled the local production of basic seed, which could then be supplied to seed multipliers to produce certified seeds. This ensured a sustainable, affordable, and locally available supply to meet the growing demand from farmers.

To further build the input supply system, the project worked to identify and strengthen agro-dealers across the country by providing targeted training and input stock

support. The initiative aimed to enhance the capacity of agro-dealers to effectively supply quality agricultural inputs, promote improved seed access, and support smallholder farmers in adopting better production technologies.

Selection criteria for agro-dealers were: (i) existing agro-dealers/people selling other farm inputs, (ii) entrepreneurial VBAs, especially those aggregating seed demand from farmers and informing the seed producers, (iii) seed producers who have shops for selling the seed, and (iv) agro-dealers already working with seed producers.

The promotion of improved varieties through the small seed pack approach has boosted seed sales and created large-scale demand. Recognizing its effectiveness in a competitive market, some of the seed companies like Nalweyo Seed Company Ltd (NASECO) continue to use this strategy and plan to expand it to further increase demand.

Eighteen agro-dealers (a mix of cooperatives and individual entrepreneurs) were identified and screened. Most of them were small-scale operators with limited inventory. An assessment of all of them showed they all needed capacity strengthening, including stock diversification, infrastructure development, and training on seed-market dynamics to enhance agro-dealer performance and improve input accessibility for smallholder farmers. Sixteen agro-dealers were selected for matching grants to boost their operations (Table 11). The total matching grant offered to the agro-dealers was 46,915,000 Burundi francs (USD 15,830).



Some of the supported agro-dealers in Bubanza (A) and in Ngozi (B).

Table 11: List of agro-dealers selected for the agro-input matching-grant support in Burundi.

N°	Province	Commune	Location	Name	Gender
1	Bubanza	Bubanza	Ruvumvu	Fabrice Nibigira	Man
2	Bubanza	Mpanda	Musenyi	Erica Irakoze	Woman
3	Cibitoke	Mugina	Nyeshenza	Mazine Ndayizeye	Woman
4	Ngozi	Mwumba	Vyerwa	Dorine Iradukunda	Woman
5	Rutana	Bukemba	Gihofi	Delphine Nsanzimana	Woman
6	Kirundo	Kirundo	Kumunzenze	Jean Bertrand Minani	Man
7	Kirundo	Kirundo	Kirundo	Steve Mboninyibutse	Man
8	Cibitoke	Murambi	Cibitoke Centre	Agakura Cooperative (Alice)	Woman
9	Gitega	Gitega	Gitega market	Gloriose Nduwimana	Woman
10	Ngozi	Mwumba	Vyerwa	Vanessa Kaneza	Woman
11	Muramvya	Muramvya	Bugarama	Oscar Nicizanye	Man
12	Muramvya	Bukeye	Kibogoye	Denis Riziki	Man
13	Kirundo	Kirundo	Kumunzenze	Gyslain Rutaganda	Man
14	Gitega	Gitega	Gitega centre	Eliane Havyarimana	Woman
15	Rutana	Bukemba	Bugiga	Gerard Ndayishimiye	Man
16	Bururi	Matana	Matana market	Anselme Ntirakirwa	Man

2.3.2. Outcomes

2.3.2.1. Number of individuals who applied improved management practices/technologies

An annual survey conducted in 2024 assessed the level of application of promoted technologies and good agricultural practices across key value chains.

The findings indicated strong uptake among targeted farmers, particularly in the bean and maize value chains, which each reported an application rate of 91% (Figure 10).

These high levels of adoption suggest that dissemination efforts such as training, demonstrations and seed access have been effective for these commodities.

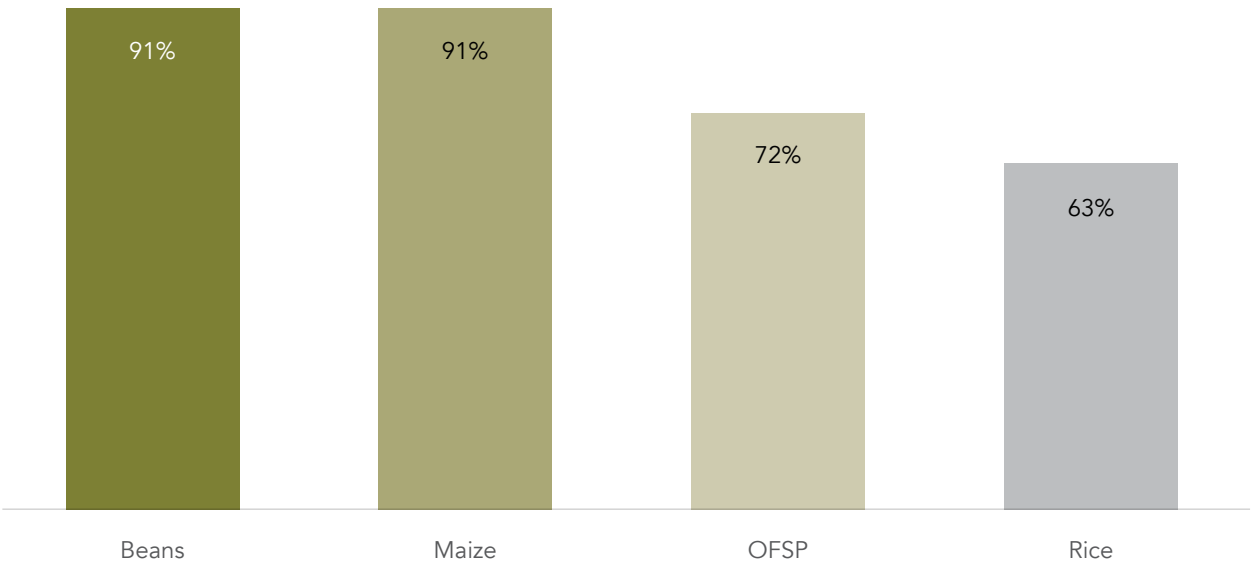


Figure 10: Level of application of new technologies in different crop value chains in Burundi.

In contrast, the OFSP and rice value chains showed comparatively lower levels of technology adoption, at 72% and 63%, respectively (Figure 10). The reduced application in these two chains may be attributed to limited seed availability in local markets, coupled with comparatively less intensive extension and training activities. These findings highlight the need for increased investment in dissemination efforts and input supply systems – particularly for OFSP and rice – to ensure that farmers benefit from improved technologies and practices across all target value chains.

Between 2023 and 2025, a total of 453,127 smallholder producers had applied for AID-I GLR-promoted improved agricultural management practices or technologies, against a target of 453,643, achieving 100% of the target (Figure 11). This outcome reflects successful implementation of interventions aimed at enhancing productivity through better farming practices.

Disaggregated data by gender and age reveal important disparities. Although men farmers were the majority target group (317,550), only 267,534 applied the practices, achieving 84% of the target. In contrast, women farmers, with a lower target of 136,093, surpassed expectations by reaching 185,593 adopters, achieving an impressive 136% of the target (Figure 11).

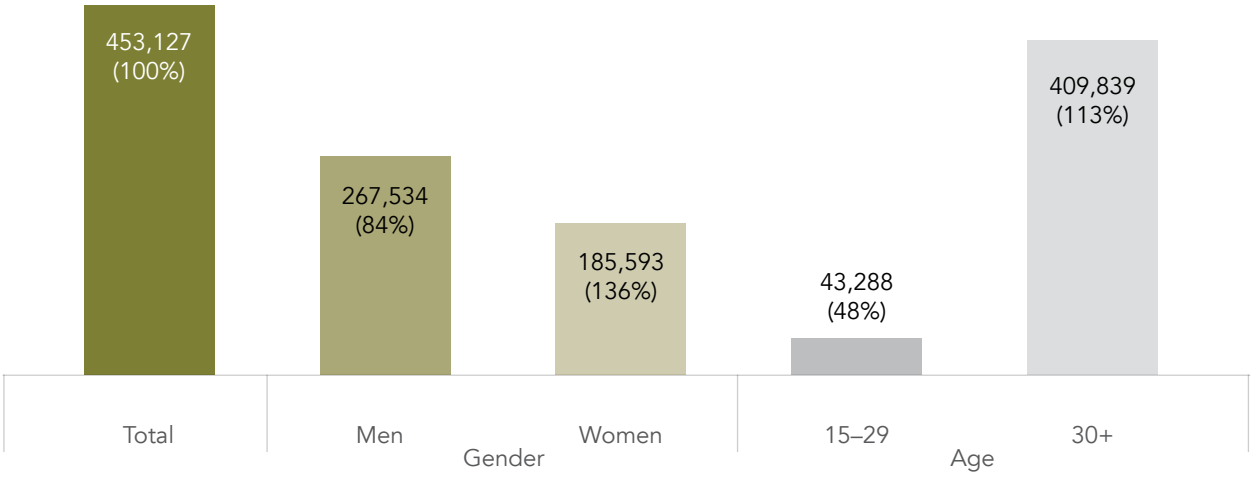


Figure 11: Number of individuals in the agriculture system who applied improved management practices or technologies in Burundi.

2.3.2.2. Number of hectares under improved management practices or technologies

This indicator measures the total area (in hectares [ha]) where project-promoted improved management practices or technologies were applied during the life of the project on land managed or cultivated by farming households participating in the AID-I GLR Project. The aim is to increase productivity and/or resilience. After 2023, the project operated under the hypothesis that, having been exposed to improved technologies, farmers would apply them on at least 5% (i.e., 0.025 ha per household) of their total cultivated land (averaging 0.5 ha per household).

The project recorded exceptional growth in the area under improved management in 2024. The area expanded from 957 ha in 2023 to 16,031 ha in 2024, surpassing the target of 5,317 ha by 301%. Cumulatively, the project reach was 16,988 ha, translating into 267% of the target, which was 6,360 hectares (Table 46 in Annexes). This surge validated the project's hypothesis: once farmers experienced the benefits of improved practices, they expanded adoption beyond the initial demonstration plots, significantly increasing the scale of application.

Table 12: Land area (ha) under improved technologies by farmers, and type of farmer by gender and age in Burundi.

		Target	Actual	2023		2024		% achieved
				Target	Actual	Target	Actual	
Gender	Men	4,430	9,396	708	581	3,722	8,815	212%
	Women	1,899	7,592	304	376	1,595	7,216	400%
Age	15-29	1,266	1,315	202	117	1,063	1,198	104%
	30+	5,063	15,673	810	840	4,254	14,833	310%

Both men and women significantly expanded the application of improved management practices in 2024. Men-managed land accounted for 9,396 ha, representing 212% of the annual target. Women-managed land reached 7,592 ha, achieving a spectacular 400% of the target (Table 12). This notable performance among women highlights their strong participation and leadership in technology adoption across project areas.

By age group, farmers aged 30 years and above were the largest adopters, accounting for 15,673 ha (310% of the target). Younger farmers, aged 15–29, applied improved practices on 1,315 ha (104% of the target) (Table 12). While older farmers demonstrated greater absolute adoption levels, younger farmers also exceeded expectations, indicating promising engagement from the next generation of agricultural producers.

The most widely applied interventions were crop genetics and cultural practices, each applied on more than 16,000 ha, alongside soil fertility and conservation practices, which covered more than 13,000 ha. Pest and disease management registered exceptional gains, expanding to 7,817 ha (692% of the target), reflecting both the relevance of these practices and the responsiveness of farmers to pest-related challenges. (Table 46 in Annexes).

Climate-adaptation practices – tracked for the first time in 2024 – covered 6,253 ha, providing an encouraging baseline for future measurement. In contrast, irrigation adoption lagged, reaching 798 hectares or 82% of the target, indicating an area requiring further attention and support.

Table 13: Comparison of land under application per farmer: Actual average area vs target based on small packs distributed in Burundi.

	Area target for small packs (m^2)	Average actual area from survey (m^2)
Maize	40	162
Beans	17	600
OFSP	18	16
Rice	33	57

Findings from the 2024 outcome survey confirm that farmers are not only adopting improved practices but also expanding their application well beyond the initial input packages distributed by the project.

The analysis compared the expected planted area from the 100-gram small packs with the average area planted during the survey period. In most cases – particularly for maize, beans, and rice – the actual area planted was several times more than projected. For example, beans increased from an expected 17 m^2 to an average of 600 m^2 per farmer, while maize grew from an expected 40 m^2 to 162 m^2 per farmer (Table 13). This demonstrates both strong acceptance and rapid scaling of the technologies. In contrast, for OFSP, the average application area (16 m^2) fell slightly short of the expected area (18 m^2), suggesting limited expansion beyond the original plots and highlighting a potential area for targeted promotion.

2.3.2.3. Yield

A comparative analysis of yield performance across baseline, target, and actual values for 2023 and 2024 reveals distinct trends for each commodity.

Actual maize yields greatly exceeded the target of 0.85 mt/ha, reaching 5.3 mt/

ha in 2024. This exceptional performance indicates substantial improvements in productivity, likely driven by the adoption of improved agricultural technologies and good agronomic practices. Beans also performed better than expected. Actual yields reached 1.1 mt/ha against a target of 0.67 mt/ha in 2023, rising further to 1.8 mt/ha in 2024.

For OFSP, the yield was 11.23 mt/ha and 16 mt/ha in 2023 and 2024 respectively, both above a national baseline of 9.4 mt/ha. In contrast, there was no change in rice. Indeed, at 4 mt/ha, actual yield mirrored the baseline.

Table 14: Yield (mt/ha) of targeted agricultural commodities among program participants in Burundi.

	Yield				
	Baseline	2023		2024	
		Target	Actual	Target	Actual
Maize	0.77	0.85	-	0.85	5.3
Beans	0.61	0.67	1.1	0.67	1.8
OFSP	9.4	10.34	11.23	10.34	16
Rice	4	4.4	-	4.4	4

TESTIMONIAL

Box 5: Improving bean seed systems using the small-pack approach in Burundi

Marie-Jose Niyonizera is a farmer in Rutoke Village, Rugari Zone, in Burundi's Muyinga Province. Here is her AID-I GLR story. (In Burundi, AID-I GLR is known as Kugwiza, *which in Kirundi means to increase).*

I joined the Kugwiza Project after seeing my neighbouring farmers harvesting an impressive yield. By joining, I became part of a cooperative which received small packs of high-iron bean seeds to test at home. The training and information we got have been very helpful, such as spacing between lines of seeds, application of organic and inorganic fertilizers, and proper follow-up. I learned that you can plant a few seeds but harvest more. The project gave me 100 grams of Musore bean seeds, which yielded two kilos. This made me realize that this was a high-yielding variety. So, I went back to the seed company to buy eight more kilos of seed to add to my two kilos. From the 10 kilos I planted, I harvested 130 kilos. We will eat some of the harvest at home and I will sell the remaining part and buy a goat, which will give me fertilizer for future planting seasons.

Compared to our previous seeds, these bean seeds from Kugwiza are very beneficial and their production is quite impressive. Before, we used to plant non-certified bean seeds. But now we plant certified and improved seeds. There is a huge difference in yield – because we now plant in lines mixing both compost and fertilizer. Also, just as importantly, this bean variety is very rich in nutrients, thereby reducing malnutrition – particularly critical for children and pregnant women. I plan to continue planting this bean seed.

I thank the Kugwiza Project for linking us to seed producers: they are now very close to us. And even though their seeds are expensive, I will sell a portion of my previous harvest to enable me to buy the seeds for the next planting season.

2.4 Assessment of the theory of change

A theory of change (ToC) maps the cause–effect pathway from project activities and inputs to specific outputs, intermediate outcomes, and ultimately, the intended impact.

Private and public partners were willing to invest in input supply systems

Following the awareness created through technology dissemination events and input distribution, combined with the positive evidence of yield improvements from distributed seeds, farmers' demand for improved inputs rose significantly.

However, community seed producers were initially unable to fully meet this surge in demand.

In response, with AID-I GLR support, CGIAR centers – as technology developers – partnered with ISABU to produce early-generation seeds, which were then made available to community seed producers for certified-seed production.

Additionally, seed producers within the project intervention areas were identified and trained in seed business management to strengthen their capacity and ensure sustainable supply.

Until recently, hybrid maize seed in Burundi remained largely imported, making it expensive and limiting accessibility. This was despite the project's efforts to directly link agro-dealers with importers such as NASECO.

In the first-ever such effort in Burundi, the project supported two local cooperatives to initiate hybrid maize seed production to address this challenge. Similarly, to expand the supply of OFSP planting materials, 11 new decentralized vine multipliers (DVMs) were established and trained across different regions.

These developments demonstrate tangible investments and commitments from both public and private partners in strengthening input supply systems.

1. Coop Eden – Advancing local seed production and distribution

- Planted 1 ha of maize seed (AM1912-29) in January to March 2025.
- Bean seeds: planted 1 ha of 'Muhoro' and 2 ha of 'Musore' in October 2024.
- Contracted 400 farmers and partnered with 7 agro-dealers and 7 village-based networks to expand distribution.

2. Haguruka Dufashanye – Scaling bean and maize seed production

- Planted 50 ha of bean seed for production (30 ha Musore, 10 ha Kinure, 10 ha Mugwiza), targeting ~70 mt of high-performance, nutrient-rich varieties.
- Produced three-way hybrid maize (AN19-11) on 1 ha: expected yields are 0.8–1 mt. A joint review with ISABU experts was conducted to identify improvement measures.

3. Orange-fleshed sweet potatoes – Expanding decentralized multiplication

- 11 DVMs established across the country.
- 3 OFSP varieties promoted (Naspot 9, 12, and 13).
- 16 mt of early generation seed produced at ISABU stations (CIP/ISABU).
- 44,534,600 certified vine cuttings produced as at January 2024.

Linking input supply and demand

To strengthen the link between input supply and farmer demand, the project developed a practical model that required each supported seed company to establish networks of agro-dealers and VBAs across provinces. These actors served as intermediaries, ensuring that improved seed varieties were accessible to farmers while also facilitating information flow and extension support.

For example, Coop Eden identified five agro-dealers and seven VBAs operating across three provinces. These partners were motivated through a commission-based incentive, whereby a percentage return is provided on the quantity of seed sold. Similarly, Cooperative Haguruka Dufashanye established partnerships with 11 agro-dealers and 15 VBAs in two provinces, expanding both reach and farmer engagement. In parallel, ESM (*Entreprise Semencier de Mubuga*) seed producers are working with seven VBAs, mainly focusing on the promotion of bean and maize seeds, while also providing extension services to farmers.

This network-based approach demonstrates how the project fostered functional links between seed supply and market demand. By mobilizing agro-dealers and VBAs as trusted local actors, the project initiated the creation of sustainable pathways for both distribution and knowledge transfer, thereby contributing to the continued realization of the theory of change.

The project exceeded its outreach target by reaching 626,504 people with different technologies disseminated, against a target of 554,760 (113% achievement). Of these, 264,855 were women and 75,319 were youth, demonstrating strong progress toward inclusiveness. Of the total number of people reached, 624,221 were farmers.

But it is important to separate farmer reach from farmer adoption: of those reached, 436,682 farmers (70%) applied the technologies. Notably, adoption was significant among women (230,746 applied) and youth (64,854 applied), showing that diverse social categories are not only accessing information but also acting on it. This evidence confirmed that the project effectively enabled smallholder farmers to make informed adoption decisions, in line with the ToC. The strong adoption rate suggests that the technologies promoted are perceived as beneficial.

> *The project effectively realized its theory of change, surpassing its outreach target by reaching 626,504 people – 113% of the planned goal – with farmers, women, and youth meaningfully included.*

2.5 Challenges, lessons learned and recommendations

2.5.1. Value chain and innovation

Challenges

- Limited coverage of certain value chains: pigs, potatoes, and vegetables (seeds) were not initially prioritized, despite their importance for livelihoods and nutrition.
- Some innovations, particularly in rabbit production, faced high mortality rates and insufficient documentation, reducing farmer confidence.
- Rice varieties disseminated in high-altitude zones faced competition from Chinese hybrids, indicating a mismatch with farmer preferences.
- Uneven availability of seed producers in certain regions caused supply gaps and delayed access to quality seed.
- Post-project sustainability of VBA links weakened for some value chains (beans, OFSP, rice, livestock innovations).
- High cost of certified seed relative to other agricultural inputs jeopardizes long-term sustainability.
- Private-sector engagement in seed production exists but the implementation framework is still weak, especially for rice, limiting scale-up and access.

Lessons learned

- Selecting locally relevant, nutrition-sensitive, and manageable innovations increases adoption potential.
- Testing innovations thoroughly before large-scale promotion ensures farmer confidence and performance reliability.
- The small-pack approach, coupled with mother and baby demonstrations, effectively stimulates farmer testing, peer learning, and demand for certified seed.

- Sub-hill deployment of VBAs improves last-mile delivery and responsiveness to farmer needs.
- Complementary extension systems involving VBAs, government monitors, cooperatives, and agro-dealers create coherent dissemination structures.
- Field demonstrations and farmer-reported yields reinforce adoption and trust in improved varieties.
- Private-sector engagement (e.g., NASECO) enhances continuity and sustainability of seed systems.

Recommendations

- Broaden and diversify value-chain interventions to include pigs, potatoes, and vegetable seeds.
- Develop locally adapted vegetable seeds to reduce import dependency and improve accessibility.
- Validate innovations with uncertain outcomes (e.g., rabbit production, rabbit urine use) before scaling.
- Promote high-performing rice varieties suitable for high- and mid-altitude zones.
- Prioritize value chains that contribute to both nutrition and income, targeting women, young children, and pregnant women.
- Although VBAs remain present in communities, their links with seed companies have weakened since the project ended, especially for beans, OFSP, rice, and livestock innovations. Strengthening these connections is essential to sustain farmers' access to improved technologies.
- The project's overachievement among women suggests a strong response to targeted gender-sensitive programing and highlights the potential for further engagement with women producers.

2.5.2. Partnership and coordination

Challenges

- Managing large, multi-actor consortia was complex and initially affected collaboration and decision-making.
- Differences in perceived institutional capacity created reluctance among some partners to work with smaller or farmer-based organizations.
- Leadership assignment within consortia caused concerns regarding recognition and hierarchy.
- Administrative delays in partner selection and funding agreements slowed early project implementation.
- Limited availability of private technical partners hindered dissemination of specialized innovations, e.g., artificial insemination and animal vaccination.

Lessons learned

- Strategic partner selection based on expertise, geographic coverage, and value chain mastery accelerates innovation dissemination.
- Structured coordination (joint planning, review meetings) harmonizes approaches, clarifies roles, and strengthens collaboration.
- Leveraging public institutions (CNIAAG, ISABU, ONCSS, veterinary services) fills technical gaps and ensures continuity.
- Multi-channel dissemination involving VBAs, cooperatives, seed companies, and demonstration plots increases adoption and sustains demand.
- Well-structured partnerships can continue beyond project timelines, integrating technologies into new initiatives.

Recommendations

- Establish long-term partnership agreements (minimum two years) to improve stability and commitment.
- Clearly define consortium leadership roles based on comparative advantage to reduce conflicts.
- Expand private technical partnerships for specialized technologies to ensure comprehensive coverage.
- Institutionalize sub-hill VBA deployment to sustain last-mile delivery.
- Strengthen VBA–private sector through incentives and collaboration.
- Apply structured coordination mechanisms and alignment with national systems in future projects to replicate successes.

CHAPTER 3

Accelerating innovation delivery in the Democratic Republic of the Congo: Partnerships, performance, and impact

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3.1 Context

At the time of the AID-I GLR initiative's design in late 2022, the Democratic Republic of the Congo (DRC) faced severe food-security challenges exacerbated by high demographic growth and rapid urbanization, which significantly contributed to agricultural land scarcity and eroded production. More than half the population lived below the poverty line, with a distressing one-third of children suffering from malnutrition and stunting. This precarious situation was worsened by limited household-level processing knowledge, insufficient added value for agricultural products, and restricted access to nutritious foods.

The country's diverse ecosystem rendered it highly vulnerable to climate change, affecting almost its entire (over 90%) small-scale farming population. Furthermore, global events like the COVID-19 pandemic and the Russia–Ukraine war severely exacerbated food and fertilizer prices, intensifying existing hardships. Additionally, we cannot ignore the resurgence – in eastern DRC – of armed and ethnic conflicts that continue to disrupt economic, humanitarian, social, and other activities.

Launched in October 2022, the AID-I GLR project aimed to combat these issues by improving agricultural productivity, enhancing food security, and increasing household incomes in the Great Lakes Region.

Despite a clear need for agricultural advancement, access to and adoption of agricultural technologies in DRC remained significantly limited when the initiative began. And while organizations like CGIAR centers[2] and their partners[3] had developed numerous region-adapted technologies over the preceding 15 years, other development initiatives had not systematically integrated these technologies into their scaling efforts.

Consequently, adoption rates remained persistently low, with women exhibiting even lower uptake compared to men. And although innovations such as improved seeds and cattle genetic improvement were introduced, there had been no large-scale adoption. This was primarily due to the absence of robust, effective, and efficient production and distribution systems, and the low added value or purchasing prices offered to producers.

The AID-I GLR Project was therefore designed with a multi-actor, integrated approach to amplify innovations and ensure their sustainable delivery and uptake.

3.2 Adapting and implementing the strategies and approaches developed for DRC

3.2.1. Scaling partnerships and market actors

This initiative's partners fell into two distinct groups: scaling organizations and market actors. The scaling organizations built and strengthened necessary partnerships based on their existing networks of grassroots farmer organizations. In South Kivu, the consortium of organizations comprised Rikolto's internationally based structure (Rikolto International), *Service d'Accompagnement et de Renforcement des Capacités d'Autopromotion de la Femme* (SARCAF) – a local NGO operating in the agricultural sector – and VSF-Belgium (for improving animal health and dairy products). In Haut-Katanga Province, *Coopérative des Agriculteurs et Eleveurs du Congo* (COOPAGEL) led an agricultural partnership involving *Bon Berger,* Lugo Farm, and Mimosa.

Market actors comprised various service providers such as AgriForce, *Etablissement Munga (Ets Munga)*, *Espoir pour l'Humanité* (EPH Ltd), and SAGRICIM (seed company):

[2] Alliance of Bioversity and CIAT (ABC), IITA, International Livestock Research Institute (ILRI), International Potato Center (CIP), and International Rice Research Institute (IRRI).
[3] *Institut National des Etudes et Recherches Agronomiques* (INERA), and World Vegetable Center (WorldVeg).

they were crucial for ensuring the sustainability of seed-based innovations.

This group also included state services such as *Institut National des Etudes et Recherches Agronomiques* (INERA) and *Service National de Semences* (SENASEM), responsible for the production of high-quality seeds.

To undergird the efforts above, the Seed System Group (SSG) and Science Animation Without Borders (SAWBO) established a comprehensive system for disseminating innovations (mainly through multi-lingual publicly available videos: https://shorturl.at/mDufB), prioritizing innovations developed by CGIAR and its partners.

This structured partnership ensured both effective outreach and market sustainability of agricultural advancements.

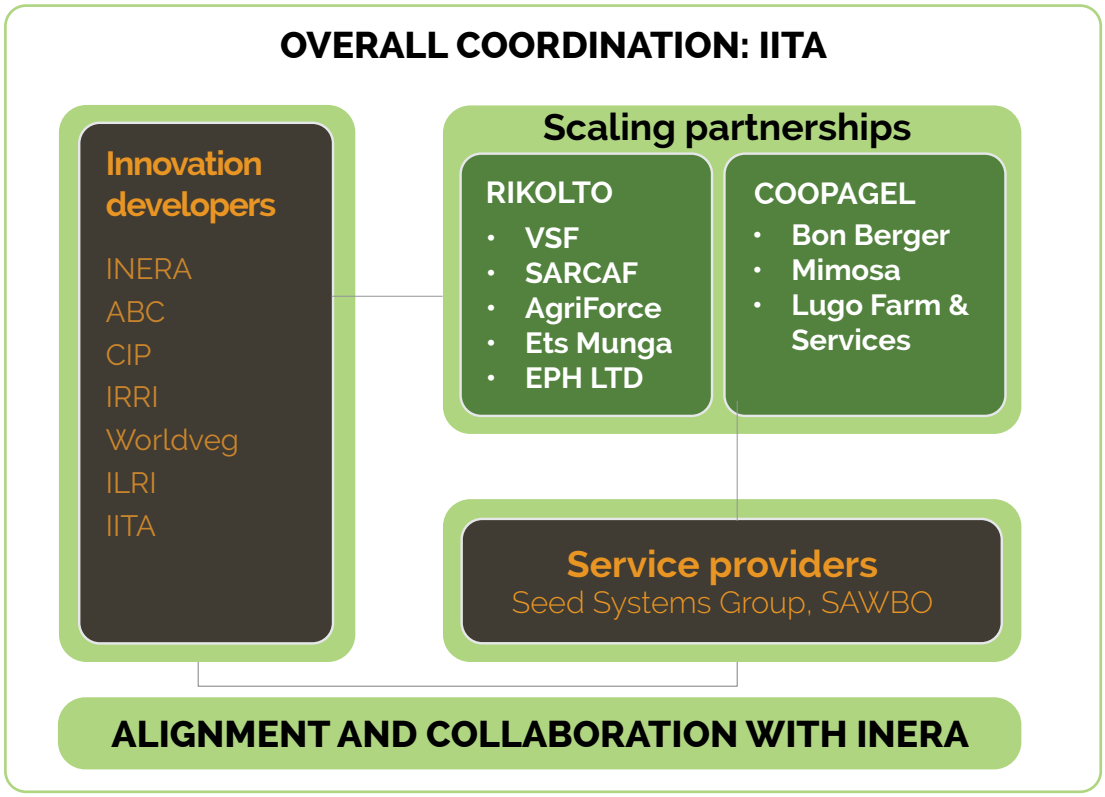


Figure 12: Innovation developers, scaling partnerships, market actors, and service providers in DRC.



3.2.1. Scaling partnerships and market actors

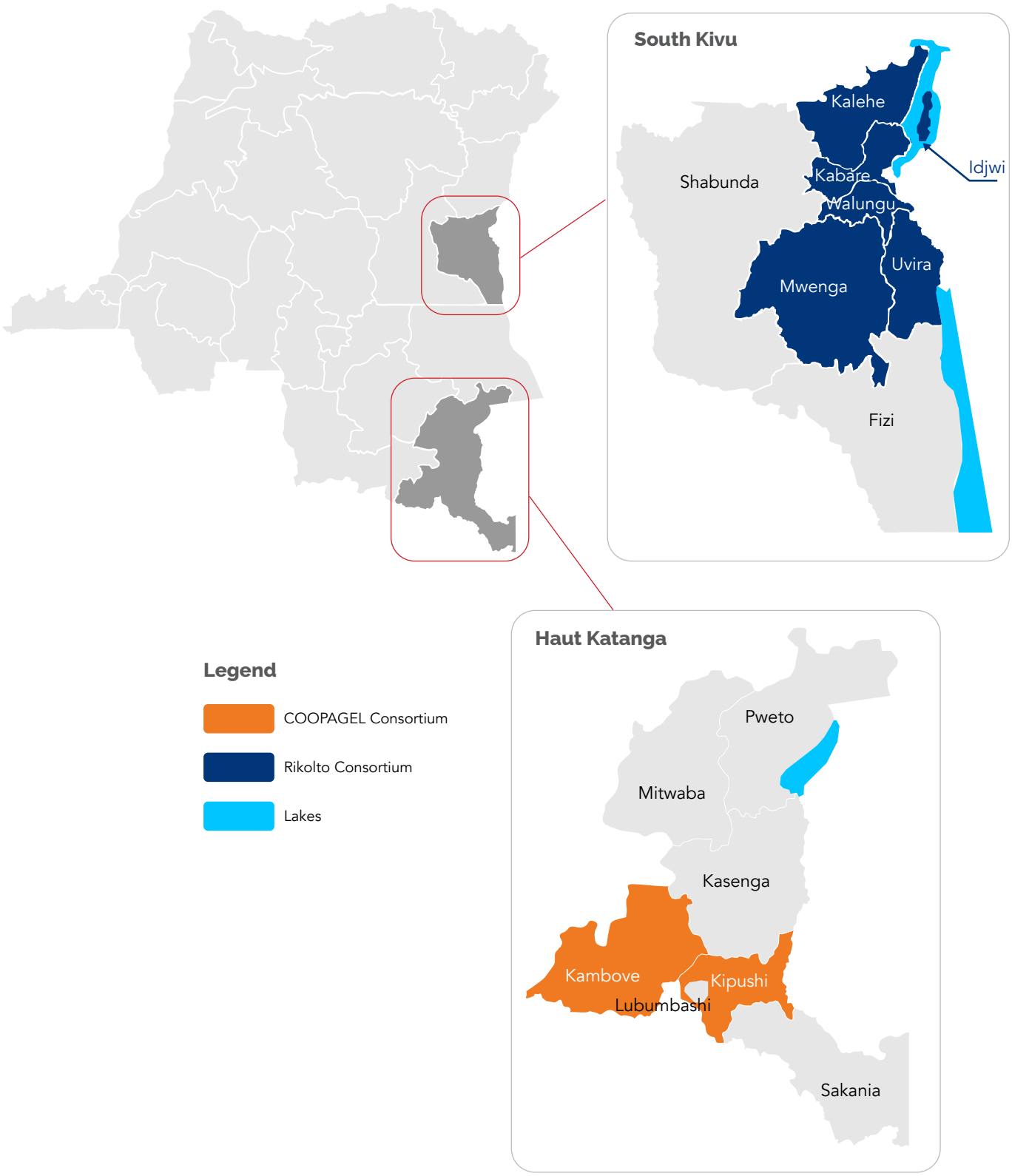


Figure 13: The project's target areas in DRC, showing intervention area (s) by each consortium.

In bringing agricultural innovations to farmers, the project initially targeted six territories (Kabare, Kalehe, Mwenga, Uvira, Idjwi, Walungu) in South Kivu Province during the first year. But by March 2024, in its second year, the initiative significantly expanded its reach adding Kambove and Kipushi in Haut-Katanga Province.

In total, the initiative aimed to reach 299,353 farmer households across the two provinces.

3.2.3. Selection of innovations

The selection of interventions began during the co-creation meeting in Burundi in December 2022, without any field mission having been carried out beforehand. There were pros and cons. While this rapid approach saved time and resulted in the launching of activities without delay, innovation selection essentially relied on the knowledge, exchanges and discussions among the national stakeholders present and involved in the selection process.

In DRC, partnerships led by Rikolto International and COOPAGEL advocated for and backstopped the adoption of new technologies to improve agriculture, animal health, and dairy products.

The first intervention was introducing innovations for improved and resilient seeds (cassava, rice, bananas, orange-fleshed sweet potatoes [OFSP], beans, vegetables, and soybeans), soil fertility management, irrigation, and so on.

The second intervention revolved around livestock farming, with a focus on genetic improvement of cattle, animal nutrition, establishing livestock feed banks, as well as improved access to veterinary services, including artificial insemination (AI).

The consortia focused on introducing the tried, tested, and trusted innovations above. Emphasis was on improved seeds, soil fertility management practices, irrigation-water management, traceability and quality-control systems for specific agricultural commodities (such as the Nyange-Nyange [rice] label), genetic improvement of cattle, improving animal feed, establishing livestock feed banks, promoting forage crops, as well as improved access to animal health services through a network of local private veterinary services.

3.2.4. Advisory information

The implementation was mainly carried out thanks to networks of village-based advisors (VBAs) and field demonstrations involving the use of community and individual learning plots, aiming at revamping networks of cooperatives, farmers, livestock breeders, and urban merchants to promote sustainable change. Mass communication played a crucial role in enhancing the reach of innovations promoted by this project, through enlightening stakeholders on mandatory steps for adoption and sustained use of these new practices. Radio-broadcast programs aired on community radio stations played a key role in relaying the project's messages. The visibility of the project's endeavors was also enhanced through social media, printed materials, and several local-language videos produced by SAWBO.

Awareness activities, field days, and demonstration training sessions greatly contributed to increasing knowledge of the practices and innovations disseminated in project target areas. One aspect of this strategy engaged youth involved in Circle Technology, in collaboration with Soko Letu. These platforms generate customized awareness-raising short-message service (SMS) texts sent to farmers on advisories and project innovations.

3.2.5. Capacity development

Enhancing partner capacity and skills was crucial for the effective dissemination of the selected innovations targeting thousands of farmers.

In DRC, the implementation model combined both direct and indirect approaches. The aim was to organize training-of-trainer (ToT) sessions for selected lead farmers, provincial agricultural inspectors, private-sector agents, field technicians, and civil society representatives. Prospective trainers, disaggregated by gender and age, were trained in one or more of the innovations promoted by the project. In turn, they trained the farmers – who were selected based on recommendations by their respective cooperatives and organizations – on using project innovations. Notably, at least one demonstration field was set up for each agricultural value chain.

3.2.6. Input system

The agricultural input system of the project focused on supporting the production and distribution of seed-related innovations in the region. In this context, three organizations (INERA, SENASEM, and SSG) supported the three institutions – namely AgriForce, *Espoir Pour l'Humanité* (EPH), and Ets Munga – to facilitate innovation production and distribution. A first variety of local hybrid maize was produced, using

parental lines acquired from QualiBasic, allowing the project to continue supporting these seed companies in the production of certified seeds. At the same time, links were established with selected VBAs, in collaboration with Rikolto, to ensure the distribution of seeds and other innovations proposed to the community.

Moreover, discussions and planning sessions with the National Extension Service (SNV), Ministry of Agriculture (MINAGRI), SENASEM, and INERA were crucial in designing the model for sustaining the project's achievements regarding seed supply. Youth incubators, the economic interest group (GAKI), and the Evangelical University in Africa all deepened our understanding of research on the formulation of balanced food diets and portions, and of professionalizing youth enterprises in local food systems, as advocated by AID-I GLR.

3.2.7. Village-based advisors

Beyond the technical agricultural aspects, and within the framework of strengthening producer capacities, Rikolto and SARCAF, in collaboration with SNV, initiated the process of formally establishing the VBA model in target rural areas of eastern DRC. This involved awareness sessions, election of leaders, and training VBAs on this new approach, in partnership with local authorities and producer representatives.

This approach was implemented cognizant of the local context and was supported by state-led bodies, especially SNV and MINAGRI.

A fundamental aspect of the project was embodied in the democratic nature governing the conduct of elections within participating villages, under the guidance of local respected leaders, thereby ensuring effective and lasting ownership of the promoted agricultural innovations.



3.3 Results in DRC

Great Lakes Accelerated Innovation Delivery Initiative Rapid Delivery Hub (AID-I GLR) in DRC

October 2022–September 2025

DRC

PARTNERSHIPS

- **5** Market actors supplying the innovations
- **7** Innovation developers
- **2** Partnerships consortia
- **2** Support service organizations
- **4** Scaling organizations

TARGET

299,353 People to be reached

Women: 40% | 15–29 years: 20%
Men: 60% | 30+ years: 80%

REACH

261,643 People reached

Women: 54% | 15–29 years: 23%
Men: 46% | 30+ years: 77%

INNOVATIONS

More than **21** Innovations and practices

VALUE CHAINS

9 Groups of value chains

SMALL PACKS

284,154 Distributed to farmers

271,260* Farmers accessed improved agricultural technologies with advisory information through small packs

- **166,527** Women
- **104,733** Men
- **195,021** 30+ years
- **76,239** 15–29 years

*Aggregated for the 9 value chains. Some farmers were in several value chains.

159.1 Metric tons of inputs sold by market actors valued at **$259,267**

24.2 Metric tons of early-generation seeds produced and supplied to market actors

125 Metric tons of certified seeds produced

YIELD (mt/ha)

	BEANS	MAIZE	OFSP	RICE	VEGETABLES
Average farmer-reported yield	1.4	4.9	14.2	4.3	29
Innovator projection of potential yield	1–2.5	4–8	9–14	4–7	20–30
Baseline	0.5	1.2	5	1.1	N/A

Figure 14: The numbers at a glance - Results of the AID-I GLR Project in DRC.

3.3.1. Outputs

3.3.1.1. Scaling partnerships

The partnerships accelerated technology diffusion by integrating diverse organizations, including research, state institutions, the private sector, and development groups. This consortium leveraged members' established presence in implementation sites and their specialized knowledge of producer organizations, turning the challenge of coordinating varied missions into an opportunity for complementarity and synergy. The consortium (Rikolto, SARCAF, VSF) ensured acceleration through clear role definition, efficient guidance, and joint planning and monitoring of activities.

To increase farmers' exposure to technologies, the partnership mobilized extensive networks including farmers, herders, community animal health agents (ACSAs), private veterinarians, and cooperatives. This mobilization included diffusing proven innovations like improved seeds through the establishing 'mother-demo' and community learning units.

> *The partnerships accelerated technology diffusion by integrating diverse sectors (research, state, and private) that transformed varied missions into synergy, leveraging their local anchors for mass deployment. Networks of farmers, herders, and market actors were mobilized to disseminate innovations such as improved seeds (e.g., via mother demos and learning units) and promote bovine artificial insemination. The consortium secured state support for administrative needs, such as vaccine approval, and establishing market links via the VBA network. Furthermore, the network overcame challenges like vaccine inaccessibility by connecting local veterinarians to suppliers in neighboring countries (Burundi and Rwanda).*
>
> ***— VSF-Coordination, AID-I GLR-DRC, 2024***

In the livestock sector, efforts focused on promoting bovine artificial insemination and widespread vaccination campaigns against *peste des petits ruminants* (PPR, also known as sheep and goat plague – a highly contagious viral disease). Specific examples of network mobilization include leveraging state entities to facilitate critical operational steps, such as issuing sanitary mandates and registering vaccines against theileriosis and PPR.

The consortium also established market links by connecting farmers directly with agro-dealers through the creation of the VBA network. Notably, when the theileriosis vaccine was unavailable in DRC, the partnership connected private veterinarians to suppliers in neighboring countries, such as Burundi. The consortium also addressed the lack of liquid nitrogen for safe storage and transport of semen for artificial insemination by facilitating a link between inseminators and the production unit in Burundi.

The success of the partnerships is measured by the high acceptance of innovations, strong producer feedback, and significant demand for input packs, leading to requests for model replication across other provinces. After project closure, key relations were maintained, including functional networks of VBAs and private veterinarians, alongside continued collaboration with state services and producer organizations. Rikolto and VSF utilized the AID-I experience to formulate new funding proposals, reinforcing the project's approach in urban food-system

> *The partnerships ensured durability through functional VBA and private veterinarian networks and integratng the AID-I GLR model into new programs. Critically, the collaboration influenced SARCAF to adopt sustainable development approaches and small-scale intervention methods, moving beyond its historical emergency focus. Future partnerships require specialized leadership and capacity building aligned with clearly defined roles.*
>
> ***— Joseph Bahogwerhe, SARCAF***

programs. This continuity, alongside the sustained artificial insemination services and Soko Letu's digital monitoring, affirms the project's relevance and legacy, in terms of long-term durability of some aspects of its initiatives, and enduring market links.

The technologies and the AID-I GLR theory of change were successfully integrated into subsequent interventions, including Rikolto's food-system program and new proposals submitted alongside the Belgian non-governmental organizations consortium.

Additionally, the vital business links established between seed providers and South Kivu producers were requested for replication in other provinces like Tshopo and Kwango.

Effective partnership design demands robust capacity building and leadership training for core staff around a shared vision, and specialized objectives towards realizing that common vision.

Future consortia must prioritize a clearer definition of roles and responsibilities, enhance organizational adaptability, and ensure active farmer and herder participation for optimal results.

3.3.1.2. Selection of innovations

Following discussions held between national stakeholders and CGIAR experts during the co-creation meeting in December 2022, a comprehensive set of technological innovations was selected for implementation within the framework of the project. This selection utilized materials already tested and validated by other preceding projects, specifically for sweet potatoes and beans. This pragmatic approach deliberately favored the use of proven materials, which in turn boosted speed and efficiency during project implementation.

The selection process was primarily based on three critical factors:

- agronomic performance
- adaptability to local conditions, and,
- availability of plant material.

Among the key innovations selected were specific varieties known for their superior traits. These include the bean (*Phaseolus vulgaris* L.) variety HM21-7, which is valued for its high productivity and increased resistance to certain diseases. Also selected was hybrid maize (WE5117), chosen for superior yields and demonstrated tolerance to abiotic stresses, particularly drought.

In addition to these core crops, the selection encompassed other complementary agricultural innovations listed in Table 16, covering various supportive strategies and technologies associated with both plant and animal production. Also, several market-gardening crops were chosen, with tangible outcomes within the relatively short timeframe of the project.

It is important to note that no regional integration across the Great Lake countries was achieved as part of this selection. In fact, innovations such as fish farming (pisciculture) and aquaculture, were specifically not selected. This exclusion was primarily because the technologies associated with these domains were neither sufficiently documented nor adequately mastered at the time the selection was being undertaken.

Table 16 shows the various innovations on specific commodities/value chains.



Rikolto and VSF utilized the AID-I GLR experience to formulate new funding proposals, reinforcing the project's approach in urban food-system programs

Table 16: Selection of innovations in DRC.

Value chain	Technology or adopted practice	Variety (ies)
Beans	Micronutrient-rich (iron and zinc), farmer- and consumer-preferred varieties	HM21-7 D6 Kenya (In Haut-Katanga)
Orange-fleshed sweet potatoes	Climate-smart, vitamin A-rich varieties	Naspot 13 Naspot 10 (Kabode) Elengi Mayayi Terembere/Vanderwall Kakamega7
Soybeans	Composite varieties	Kafue TGX888-49C
Bananas	Disease-resistant varieties	Barabesha Musheba locale Gros michel
Rice	High-quality seed of improved varieties	Mugwiza Komboka Tai Nerica4 V046
Cassava	Disease-resistant and -tolerant varieties	V8 Nabana
Maize	Hybrid maize varieties	WE5117
Horticultural crops	High-quality seed of improved varieties of spinach, carrots, cabbage, beetroots, and eggplants	Tomato: Gamhar African eggplant: Benue RZ F1, DB3 Cabbage: Tacoma RZ F1 Amaranth: Madiira1 and Poli Onion: Red Creole (Holland)
Dairy	Animal feeding (*Brachiaria mulato* and licking block)	
	Artificial insemination	
	Immunization (vaccine against theileriosis and for goat and sheep plague)	
Others (miscellaneous)	Good agricultural practices (GAPs), including the use of fertilizer, manure, and compost; and post-harvest management	

Ultimately, this set of innovations constituted the technical basis for all planned interventions within the AID-I Project. Consequently, it directly guided the demonstration, dissemination, and monitoring-evaluation activities executed by the implementing partners.

However, some of the choices, notably cassava and bananas, as well as market-gardening crops, were difficult in practice.

The short project timeframe was a mismatch with achieving the complete maturity of long-cycle crops like cassava and bananas. Also, the significant diversity of selected market-gardening crops and varieties complicated monitoring efforts, ultimately preventing their necessary registration in the national variety catalog.

One significant change that occurred late in the project's timeline in response to direct demand from producers and livestock farmers was the introduction of brachiaria. This had not been part of the initial selection of innovations.

Consequently, the delayed introduction limited the possibilities for propagating brachiaria within the project scope. Still, yield results on integrating brachiaria into maize are presented in Section 3.3.2.3 of the outcomes, and those of a study on the vaccine against theileriosis are summarized in Box 6.



3.3.1.3. Delivering agricultural innovations to farmers

The distribution of small packs of seed packets was particularly effective for stimulating farmer interest and active participation. This strategy offered them the opportunity to directly experiment with improved seeds while comparing their performance to traditionally used local varieties.

By reducing the volume and acquisition cost, these miniaturized forms allowed producers – including those with limited financial resources – to access innovations free of major economic risks.

The small-pack approach acted like a free sample kit at a market. By offering a small, low-risk test portion of the new varieties, farmers could personally verify the quality and superiority of the product in their own environment, driving confidence and encouraging them to return later to purchase larger quantities of the product.

Methodologically, the approach was distinguished by its inclusive, participatory, and non-discriminatory nature. This favored the participation of a large number of farmers, regardless of their farm size, gender, or socioeconomic status. This approach thus enabled reaching a significant number of beneficiaries, while triggering and reinforcing technological curiosity, and inspiring confidence in the new varieties.

The results observed directly in farmers' fields and multiplication plots contributed to validating the effectiveness of the improved seeds, thereby consolidating the credibility of the promoted innovations.

Furthermore, the availability of small packs through agro-dealers and village-based advisors (VBAs) facilitated physical and geographical access to improved seeds. This increased accessibility stimulated local demand (see seed-company sales in Table 22), as farmers satisfied with the observed performance in yield, disease resistance, and harvest quality, expressed a growing interest in acquiring larger volumes. This strategy proved to be an effective gateway for the large-scale dissemination and adoption of agricultural innovations. It also contributed to strengthening the links between producers, input distributors, and other actors in the value chain, thus promoting a dynamic of progressive, sustainable, and economically viable adoption of improved agricultural technologies.

Table 17 shows the number of small packs distributed to different participants by gender and age-group. Between February 2023 and March 2025, a total of 236,453 small seed packs were distributed, covering selected innovations and thus exposing 225,151 farmers to these innovations. This accounted for 77% of the project's target (i.e., 307,381). The packs comprised maize, beans, OFSP, vegetables and horticultural crops, soybeans, rice, cassava, and bananas. Accompanying the seed packs were 40,616 small packs of fertilizer and 2,685 packs of biopesticides.

Thanks to VSF's intervention through its network of community animal health agents, 3,675 doses of vaccines against bovine theileriosis and small ruminant diseases were administered, and 725 cows were artificially inseminated in an effort to improve genetics.

In sum, the total number of farmers reached through small packs or other inputs was 271,260.

Box 6: The impact of the tropical theileriosis vaccine on cattle

Tropical theileriosis is a widespread cattle disease caused by Theileria parva *and transmitted by Hyalomma ticks. A study revealed the overall perceived effectiveness of the vaccine as highly positive (83.8%), with rates reaching 100% in Walungu and Kabare, although Uvira reported a significantly lower positive perception, at 58%.*

Vaccination demonstrated clear beneficial effects, significantly reducing overall morbidity in women (e.g., from 85% to 39% in Kabare) and resulting in dramatic drops in mortality rates, which fell to 0% in Kabare.

The economic and productive benefits were also substantial, as observed by improved live weight (87%) and higher milk quality (81%).

Average milk production saw significant increases, such as rising from 1.9 liters to 7.5 liters per cow in Uvira.

The preventive effect also substantially reduced annual costs, including expenses for theileriosis treatment, acaricides, and veterinary labor.

While the perceived cost–benefit ratio varied regionally, these savings and production improvements suggest the vaccination is economically advantageous.

Table 17: Distribution of small packs of technologies in DRC in metric tons.

Packs of technologies distributed	Target	Actual	% progress	Farmers reached by small packs				Total
				Women	Men	15–29	30+	
Seeds								
Maize	73,410	76,099	104%	47,408	27,556	20,019	54,945	74,964
Beans	52,158	97,110	186%	60,399	32,692	27,661	65,430	93,091
OFSP	52,043	8,438	16%	4,533	2,695	1,828	5,400	7,228
Rice	32,950	23,530	71%	11,427	12,014	7,111	16,330	23,441
Vegetables	46,695	17,512	38%	8,417	5,560	3,744	10,233	13,977
Fodder	0	221	0%	87	131	27	191	218
Bananas	9,075	924	10%	407	443	256	594	850
Cassava	39,000	10,655	27%	5,830	3,866	1,981	7,715	9,696
Soybeans	2,050	1,964	96%	819	867	650	1,036	1,686
Total 1		**236,453**	**77%**	**139,327**	**85,824**	**63,277**	**161,874**	**225,151**
Other inputs								
Fertilizer	76,362	40,616	53%	25,093	15,253	11,716	28,630	40,346
Bio-pesticides	11,472	2,685	23%	989	583	561	1,011	1,572
Vaccine	9,850	3,675	37%	1,050	2,427	658	2,819	3,477
Artificial insemination	870	725	83%	68	646	27	687	714
Total 2	**98,554**	**47,701**	**48%**	**27,200**	**18,909**	**12,962**	**33,147**	**46,109**
Grand total	**405,935**	**284,154**	**70%**	**166,527**	**104,733**	**76,239**	**195,021**	**271,260**

3.3.1.4. Capacity development

Agricultural promoters played a central role in the operational implementation of the project, ensuring sensitization, mobilization, and coordination among the various actors involved, which also conferred local and multi-level ownership.

Their actions reinforced the participation of direct beneficiaries while ensuring the involvement of local authorities, community associations, and basic structures in the process of adopting agricultural innovations.

Technically, the promoters contributed significantly to capacity building among smallholders through the establishment of demonstration fields (demo plots). These participatory mechanisms played an essential pedagogical role. They facilitated the diffusion of improved seeds, supported learning-by-doing, and helped to forge a direct connection between agro-dealers and farmers.

In terms of training, 21,541 people (58% women and 14% youth) attended the various cascade training sessions.

As envisioned, the training started with the training of trainers (ToT), which benefited 2,755 people, including lead farmers (2,396), government extensionists (137), individuals from private-sector entities (104), and civil society representatives (118) (Table 18).

In Haut-Katanga – to which the project was extended in March 2024 – the training event reached at least 734 participants, including 367 women and 80 youth. Among them, 61 people attended the training of trainers (including 17 women and 7 youth); and 673 smallholders participated in the training designed for them, including 350 women and 159 youth.

Table 18: Training conducted in DRC.

Type	Trainees	Target	Actual	Total participants				% achieved
				Women	Men	15–29 yrs	30+ yrs	
ToT	Lead farmers	2,837	2,396	1,605	791	521	1,875	82%
	Government	96	137	31	106	21	116	113%
	Private sector	187	104	17	87	18	86	50%
	Civil society	81	118	25	93	14	104	94%
	Subtotal	*3,201*	*2,755*	*1,678*	*1,077*	*574*	*2,181*	*86%*
Farmer training	Smallholders	21,451	18,786	10,762	8,024	2,408	15,806	88%
Grand total		**24,652**	**21,541**	**12,440**	**9,101**	**2.982**	**17,987**	**87%**

To enhance knowledge, use, and adoption, 285 demonstration plots were established for beans, maize, OFSP, rice, vegetables, cassava, bananas, and soybeans. Farmers were directly involved in the management of the demos, but whenever there was either sensitization or a field day taking place at the demonstration plot, other members of the hosting cooperative would also join to learn from the demo.

Overall, the training and demonstration plots significantly contributed to the improved adoption of agricultural technologies by farmers, a fact validated by documented success stories.

Practical experiences show that young entrepreneurs and women developed business models centered on project-supported banana plantations, sweet potatoes, and market-gardening crops.

These crops successfully served as a pillar for mobilizing household income for small-scale producers, notably at the Kitumaini Center in Kabare and Ngali in Walungu.

Table 19: Demonstration plots established.

Commodity	Demonstration plots		% achieved
	Target	Actual	
Maize	30	45	150%
Beans	56	104	186%
OFSP	24	13	54%
Rice	160	20	13%
Vegetables	20	32	160%
Cassava	12	12	100%
Bananas	6	7	117%
Soybeans	24	52	217%
Total	**332**	**285**	**86%**

Besides deploying small packs and establishing demonstration plots, innovations were disseminated through other scaling events, including field days and sensitization campaigns. A total of 125,404 farmers (47.4% women, 18.3% youth) were reached through these scaling events. Of this figure, it should be noted that in Haut-Katanga, only 2,237 people (1,099 women and 822 youth) were reached through awareness creation or participation in the activities of the rural days.

Table 20: Scaling events held, and composition of participants in DRC.

Event	Target No. of participants	Actual participants					% achieved
		Women	Men	15–29 yrs	30+ yrs	Total	
Field days	6,549	2,651	3,597	1,342	4,906	6,248	95%
Sensitization	74,261	56,450	62,145	21,397	97,198	118,595	160%
Agri-shows	2,620	388	173	148	413	561	21%
Total	**83,430**	**59,489**	**65,915**	**22,887**	**102,517**	**125,404**	**150%**

In brief, the most effective capacity reinforcement methods were training of trainers, field days, and practical field training using demonstration plots. These modalities successfully promote proximity, confidence, and the use of local languages, which is essential for effective knowledge transfer. Their high effectiveness stems from emphasizing learning by doing *(apprentissage par la pratique).* And although complementary methods created synergy, these practical approaches, coupled with joint public-authority visits, helped build trust and reinforced stakeholder learning and inclusion.

The training conducted in the field concretely reinforced the specific skills of agricultural promoters and seed companies. This capacity building confirmed the effectiveness of the AID-I GLR interventions, demonstrated by an increase in seed production and animal productivity.

But while the acquisition of technical knowledge was successful, resource constraints, especially financial and material limitations, prevented beneficiaries from reaching the maximum application level. Therefore, technical gains alone are insufficient if resource constraints persist.

Finally, to sustain the impact of these interventions, future support must transition from technical assistance to strengthening the organizational and institutional management of producer organizations and cooperatives. Complementary efforts are needed to reinforce internal management, leadership, and the acquisition of legal texts to allow these structures to function autonomously and manage acquired benefits sustainably. An improved follow-up structure between innovation developers and scale-up partners is also necessary, as insufficient tracking exacerbates material and financial limitations felt by beneficiaries.

3.3.1.5. Strengthening seed systems

Strengthening seed systems is vital for sustaining access to the germplasm that was promoted by the project. To better disseminate and monitor the agricultural technologies and practices advocated by the project, the scaling partners, in collaboration with relevant government agencies, conducted several awareness-raising sessions to set up village-based councils.

Overall, 380 VBAs, of whom 147 were women, were democratically elected in six territories of South Kivu. Then, in early January 2025, the process of registering these VBAs by SNV-MINAGRI commenced.

Unfortunately, it could not be completed due to the prevailing unfavorable insecurity brought about by the war.

In better news, despite the odds, at least 30 private agro-dealers, including some VBAs, were trained by SSG and Farm Input Promotions Africa (FIPS). The purpose is to plug them into the network so they supply affordable, proven agricultural inputs to target beneficiaries and communities.

In addition, the project strengthened the technical and commercial capacities of three seed companies in DRC: AgriForce, EPH Ltd, and Ets Munga in South Kivu Province, through providing support to SSG.

Aided by CGIAR, INERA-Mulungu, and SENASEM, the project ensured the availability of early-generation seeds (EGS) as the basis for all seed systems for selected crops.

With SSG's support, the three seed companies produced 124.9 metric tons (mt) of certified seed, including 73.62 tons of hybrid maize seed and 51.3 tons of beans.

The project, with support from CGIAR centers and SSG, successfully produced 24.2 tons of EGS. This total includes 3.1 tons of new hybrid maize varieties (1.535 tons of WE5117 variety, and 1.55 tons of CML395, CML539, and CML566), 5.9 tons of beans by ABC, and 11.4 tons of orange-fleshed sweet potatoes by CIP. Additionally, 3.81 tons of rice seeds were produced, with contributions from IRRI, INERA, and SENASEM (Table 21).

Table 21: Production of early-generation and certified seeds in DRC.

Seed	Commodity	Total produced (mt)
EGS	Maize	3.1
	Beans	5.9
	Rice	3.8
	OFSP	11.4
	Subtotal 1	*24.2*
Certified	Maize	73.6
	Beans	51.3
	Subtotal 2	*124.9*
Grand total		**149.1**

Participating seed companies expanded their network by entering distribution agreements with agro-dealers in various areas. The three market players, who were also members of scaling partnerships, reported an increase in their geographical reach. For example, Ets Munga, AgriForce, and EPH Ltd sold 159 tons of seed: 87.18 being maize and 71.97 beans. These sales amounted to 264,097 United States dollars (USD), including USD 133,302.5 from maize seed sold in South Kivu (Table 22).

Table 22: Sales by participating market stakeholders in DRC.

Company	Inputs	2024		2025 Semester 1		Overall	
		Quantity (mt) sold	Total value of sales (USD)	Quantity (mt) sold	Total value of sales (USD)	Total quantity (mt) sold	Total value of sales (USD)
EPH Ltd	Beans	4.5	6,120	14.8	20,128	19.3	26,248
AgriForce	Maize	16.6	24,900	39.554	57,262.07	56.154	86,991.5
	Beans	13.5	26,980	21.383	42,290	34.883	69,270
Ets Munga	Beans	10.6	20,906	7.185	14,370	17.785	35,276
	Maize	15.4	23,099	15.626	23,212	31.026	46,311
Total		**60.6**	**102,005**	**98.548**	**162,092**	**159.148**	**264,097**

> *In brief, the most effective capacity reinforcement methods were training of trainers, field days, and practical field training using demonstration plots. These modalities successfully promote proximity, confidence, and the use of local languages, which is essential for effective knowledge transfer. Their high effectiveness stems from emphasizing learning by doing* (apprentissage par la pratique). *And although complementary methods created synergy, these practical approaches, coupled with joint public-authority visits, helped build trust and reinforced stakeholder learning and inclusion.*

Box 7: Introduction and diffusion of hybrid maize by SSG

Coordinated by SSG, the introduction and use of hybrid maize varieties was one of the project's major successes. It marked an important step in promoting local seed production, thus contributing to the strengthening of national capacity in improved agricultural technologies.

A closely related milestone and legacy is the in-depth knowledge and technical mastery of hybrid maize technology by the main actors in the value chain. These key actors include INERA and partner seed companies such as AgriForce, EPH, and Ets Munga. This local boost in capacity constitutes a lasting achievement of the project, guaranteeing the continuity and autonomy of activities related to the production and diffusion of hybrid seeds.

Prior to this intervention, hybrid seeds were imported, primarily from Zambia, Kenya, and Uganda. This external dependency not only limited producers' access to quality seeds but also hindered the development of a competitive national seed sector. In response, SSG provided technical and material support to INERA for the initial supply of hybrid maize parental seeds. Approximately 10 varieties were introduced and subjected to varietal confirmation trials in different agroecological zones. Following these evaluations, WE5117 was selected for its superior agronomic performance (high yield, stability, and tolerance to variable climatic conditions).

INERA subsequently undertook the production of basic seeds as well as the maintenance of the parental lines (CML566 × CML395 and CML539). The basic seeds produced by INERA were then transferred and distributed to partner seed companies (AgriForce, EPH, and Ets Munga), which produced and marketed the certified seed. This certified seed was utilized both for direct sale to farmers and for the small-pack approach, distributed by VBAs to promote large-scale adoption of hybrid seeds.

To assure system sustainability, value-chain actors followed an integrated model. In this model, INERA was responsible for genetic maintenance and basic seed production, while the seed companies ensured the multiplication and distribution of commercial seeds via agro-dealers and VBAs. This mechanism allowed for the strengthening of the resilience of the national seed system and laid the foundations for technological autonomy in the production of hybrid seeds.

Unfortunately, the positive momentum initiated was interrupted by the unfolding socio-political crisis which led to war, resulting in a breakdown of production, dissemination, and technical monitoring. This interruption came at a critical moment, just when the technology was enjoying strong enthusiasm and growing adoption by seed producers and farmers alike.

But there is also hope. In the medium and long term, the sustainability of this innovation requires the implementation of continuity strategies, guaranteeing the cyclical production of seeds based on a master scheme (basic seed production in season n–1 for certified seed production in season n or n+1). These future strategies should rely on institutional strengthening, coordination among sector actors, and securing national research and production capacities, in order to consolidate the project's achievements and ensure the durability of the hybrid seed system at the national level.

3.3.1.6. Gender equality and social inclusion

The consortium integrated a robust set of strategies within its gender equality and social inclusion (GESI) framework that enabled it to successfully exceed the target set for women's participation. The initial strategy focused on identifying and selecting beneficiaries from existing local structures, such as peasant organizations, women's groups, agricultural cooperatives, and village savings and credit associations (AVECs), where women often constituted the majority. To foster lasting behavioral change, the project implemented transformative approaches, including the start, awareness, support and action (SASA) approach, which mobilized communities to redistribute responsibilities and promote the joint management and allocation of resources between men and women within households.

Furthermore, gender discussion sessions (GDDs) were held to encourage men, women, and youth to reflect on their experiences and behaviors to exclude violence and promote egalitarianism. The project used the engaging youth through accountable practice (EYAP) approach, specifically aimed at encouraging youth

to fight against sexual and gender-based violence and promote positive masculinity. These integrated methods ultimately led to a palpable reduction in violence and ensured men increased their consideration for their spouses, thus enabling women's participation in household decision-making.

Addressing structural obstacles, particularly limited access to credit and land, was central to advancing the socioeconomic empowerment of women and youth. To counter the challenge of credit access, SARCAF encouraged small-scale producers, through sensitization and training, to structure themselves into AVECs. Capacity reinforcement sessions were provided to women and youth on essential skills like savings, simple accounting, and credit management. This organization into AVECs not only increased farmers' bargaining power but also enabled members to mobilize finances, gain mutual trust, enhance social cohesion, and access

Box 8: The restoration of South Kivu's banana sector

Once considered the 'banana granary' of the Great Lakes Region, the banana and plantain sector in South Kivu has sadly been in decline since 2010 across territories such as Walungu, Kabare, and Kalehe.

This regression was caused by devastating agronomic constraints, including diseases like banana xanthomonas wilt and fusarium wilt. It is further exacerbated by systemic issues such as the use of non-adapted traditional cultivation techniques, lack of technical support, and the absence of agricultural credit needed for entrepreneurial development.

In response, the Tuendeleye Pamoja Cooperative (COPATU) partnered with Rikolto and IITA in 2023 and 2024 to introduce new agronomic technologies, including the establishment of a macro propagation site and a farmer field school (FFS).

The initiative quickly demonstrated strong community engagement and success in promoting GAPs. Out of 125 cooperative members trained, women represented 71.2% (89 women), reflecting the critical importance of the restoration efforts for household economics and nutrition. Thanks to the technical support from Rikolto and IITA, the first phase of macro propagation successfully produced 6,613 healthy plantlets; 5,413 of these were distributed to 260 households (including 159 women) to ensure families had healthy, disease-resistant planting stock.

Building on this momentum, the cooperative established a second propagation site specifically for commercial sale, aiming for long-term sustainability. This commercial phase was deemed a "great success" by COPATU, generating USD 1,020.5 from the sale of 2,181 plantlets, marking the first time such revenue was generated from banana plantlet sales in the Walungu territory.

In addition, between July and September 2025, COPATU sold 93 bunches of plantains harvested from the FFS, netting USD 377 – an achievement unheard of before the AID-I GLR interventions.

This success translated into household prosperity: Mapendo Mitima, a farmer, sold five large bunches for 100,000 Congolese francs (CDF, equivalent to USD 40): at CDF 20,000 (USD 8) per bunch, this was a significant increase from his previous sales of CDF 5,000–8,000 (USD 2.2-3.5). With these earnings, he bought school supplies and enhanced his savings.

Similarly, Morogoro Buhendwa sold 12 bunches for CDF 180,000 (USD 72), which financed essential roofing materials for his house construction.

In summary, the interventions under the AID-I GLR Project have brought significant change, providing farmers with substantial knowledge of new agronomic technologies across multiple crops and access to high-quality planting material, allowing them to increase their yields.

Unfortunately, despite these monumental achievements, the massive and daily displacement of beneficiaries due to ongoing armed conflicts (wars) across all territories of South Kivu has, regrettably, brought everything back to 'zero' for the moment, as farmers are forced to abandon their environments and seek refuge in more peaceful neighboring areas.

This ongoing crisis acts like a destructive storm sweeping through a well-tended garden, wiping away the successful harvest and the promise of future growth.

credit based on their capacity. Critically, this financial empowerment enabled women to secure credit for individual income-generating activities, or to accumulate savings which they then used to buy or rent agricultural land.

Regarding land access limitations, SARCAF encouraged producers to rent fields under contract for significant durations covering multiple cultivation seasons. The project also promoted the system of *métayage* (sharecropping) with large land concessionaires, and SARCAF engaged in lobbying with institutions like INERA Mulungu, NFUNDIKO plantation, and Saint Pie X from Murhesa in Kabare, to secure access to plots for agricultural activities.

3.3.2. Outcomes

Among the principal achievements, the project successfully transferred new agricultural technologies and reinforced social cohesion within communities. Other notable results – which attest to the effectiveness of the participatory model and the relevance of the actions carried out – included better collaboration between VBAs, agricultural monitors, and producers, as well as a distinct increase in yields for participating households. This integrated and locally anchored approach allowed for a better understanding of the promoted technologies and favored their adoption at the local level.

3.3.2.1. Use of improved technologies by farmers, as recommended

A September 2024 survey showed that all the technologies and practices promoted among the selected farmers had been applied. OFSP and vegetables had the lowest percentage of application, at 50% and 24% respectively. These low percentages can be explained by seed shortage in the local market, as well as relatively more limited dissemination, because most participants who had only recently been exposed to OFSP technologies had not however undergone training or participated in field days.

Over the three-year lifespan of the project, 128,758 farmers (comprising 60% women and 27% youth) applied the various innovations and related practices (Figure 16 and Table 43 in Annexes).

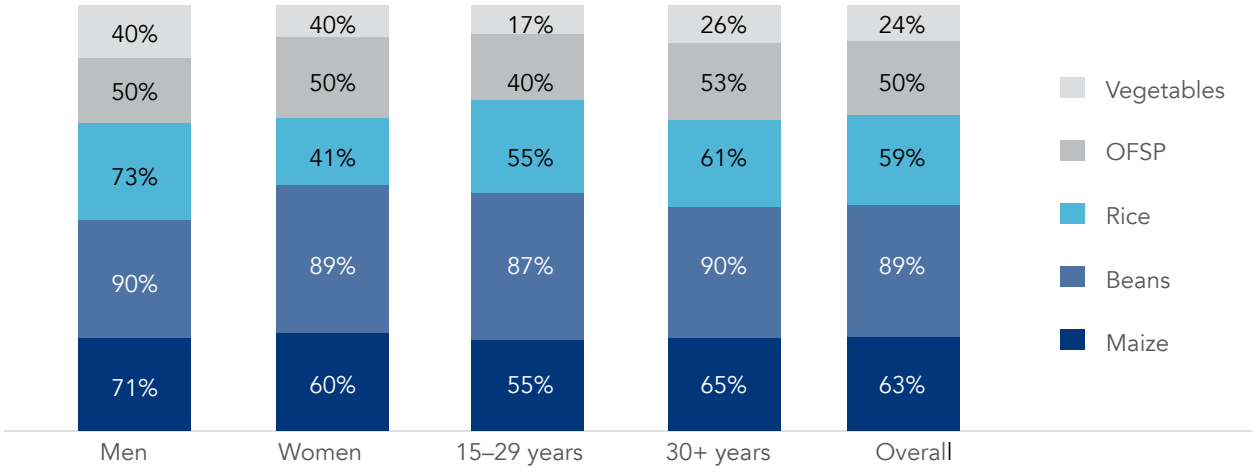


Figure 15: Rate of application of technologies in DRC.

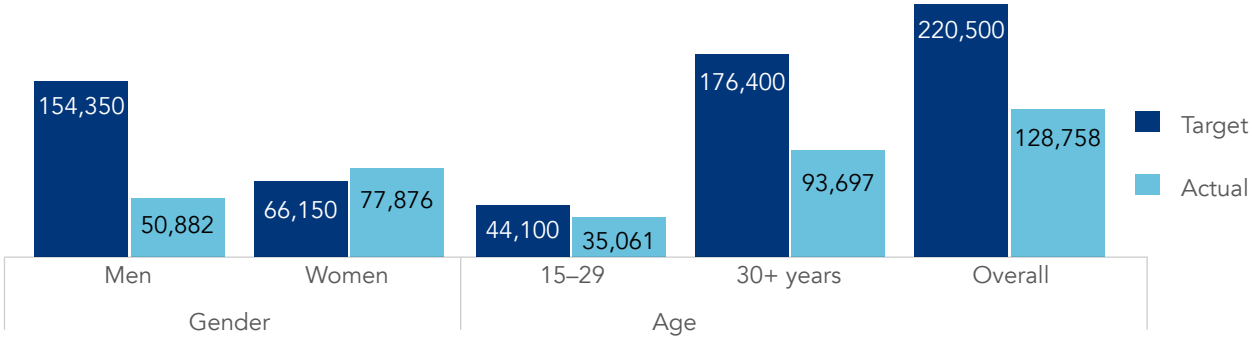


Figure 16: Number of individuals who applied improved agricultural management practices or technologies, with AID-I GLR assistance in DRC.

These results clearly demonstrate that the VBA model facilitated the rapid adoption of technology packages and the use of promotion techniques through community and individual learning plots, while also providing services and monitoring throughout the entire implementation area. This vital partnership significantly enhances proximity with agricultural producers, as VBAs serve as direct links facilitating the diffusion of improved seeds and ensuring constant communication and feedback between producers and end-users. Their deep community ties enable the rapid dissemination of innovations and best agricultural practice, reinforcing local capacities through continuous training and experience, and knowledge exchanges. Crucially, the awareness stimulated by VBAs boosts local demand for certified seeds, strengthening farmer confidence and supporting sustainable growth in sales.

> *In the words of Herman Mutabataba, Managing Director of AgriForce, a market actor, "This approach is effective because it allows farmers to arrive at their own personal opinions on the seeds. Additionally, it enables us to rapidly reach a large number of farmers. Information spreads fast and in real time. The small-pack approach is gradually being integrated into our marketing strategy, where sales agents are the primary link between farmers and AgriForce."*

Despite its strengths, the partnership was hampered by systemic constraints, primarily the VBAs' frequent lack of logistical and financial means, which limited their capacity to ensure consistent and effective field monitoring. Sustainability was also threatened by the potential weakening of motivation stemming from the absence of stable remuneration or sufficient incentives, making long-term commitment difficult to secure. Moreover, insufficient coordination, unequal geographic coverage, and a general lack of institutional recognition for the VBA role fundamentally compromised the partnership's durability and prospects for long-term integration into national systems. Hopefully, the ongoing VBA registration will remedy the latter.

3.3.2.2. Increased acreage under proven technologies

Figure 17 presents results from a telephone survey covering farmers registered in seasons 2023B and 2024A.

It shows that the trend of increasing cultivated acreage varies significantly by gender, age, and season.

For farmers registered in season 2023B, 58% increased their acreage in season 2024A, a figure that slightly fell to 55% in season 2024B. In season 2024B, 73% of men and 41% of youth reported increasing their acreage.

Overall, men consistently showed a higher tendency to increase acreage compared to women across the survey periods. This variation is explained by concerted, effective, and varied multi-channel stakeholder efforts in disseminating different technologies and practices. Indeed, several studies have shown that in Africa, men have better access to resources than women. Access is one of the determining factors behind these disparities, whether to information and resources, or to land, which guarantees access to financing.

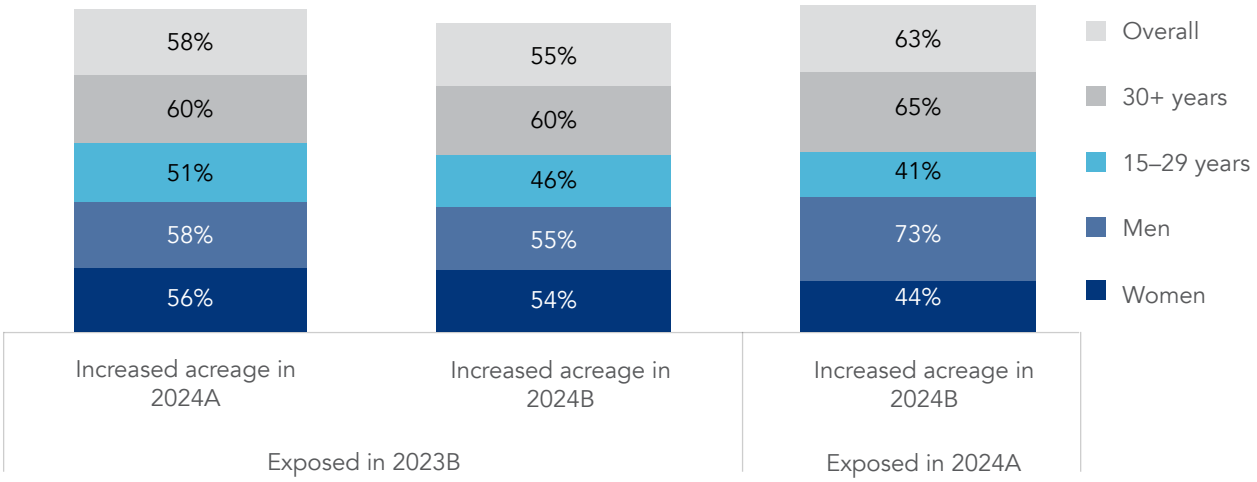


Figure 17: Farmers who increased acreage in DRC.

The 2024 annual survey reported increased rates, as shown in Table 55 in Annexes. More than 2,650 hectares (ha) were cultivated, 67% by women and 36% by youth.

For seed-production purposes, bean and maize crops were established on a larger land area: 1,336 ha and 1,035 ha, respectively, both surpassing the targets of 704 ha and 659 ha, respectively.

In contrast, vegetables were grown on smaller areas than had been projected: 90 ha, versus target of 586 ha. This can be explained by the limited availability of seeds in the local market. Furthermore, no seed multiplier has ever specialized in this area.

This gap represents a business opportunity for any farmer who can seize it, as not a day goes by without a household consuming vegetables.

3.3.2.3. Increased crop productivity

Thanks to the diverse distribution methods, farmers were able to learn more about the innovative agronomic practices championed by the project.

From two telephone-based surveys, respondents (farmers) reported a dramatic improvement in their level of knowledge that increased from 10% in 2023 to 80% in 2024. These results proved to be very significant in terms of crop yield (Figure 18).

This is because in the past (before the project), many farmers relied on old practices (mass planting, no spacing between plants or seeds between rows and holes, etc.), but this trend is changing, thanks to various knowledge dissemination events such as training, demonstrations, and awareness campaigns.

In addition, the May 2024 telephone survey revealed that nearly three-quarters of the farmers, (73%), preferred to participate in demonstration events, followed by 60% who preferred training sessions.

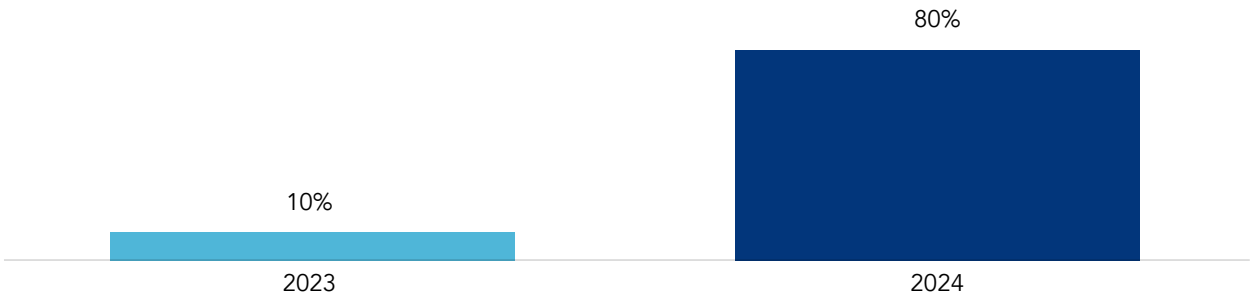


Figure 18 : Comparative knowledge gain by farmers across two years in DRC.

During the 2024A and 2024B seasons, when farmers applied the project's innovations, they reported significant yield increases compared to their previous practices for maize, beans, and OFSP.

Table 23 shows that for all crops, yields significantly surpassed targets, particularly pronounced for maize, rice, and OFSP, respectively by nearly fourfold, more than threefold and nearly threefold. In fact, farmer-reported OFSP surpassed projections by innovation developers. This demonstrates the soundness and effectiveness of the technologies and practices promoted. (Table 23 and Box 9).

Table 23: Average smallholder crop yield (in mt/ha) on baby demonstration plots reported in the outcome survey in DRC.

Crop	2023		2024		Average	Expert projection
	Target	Actual	Target	Actual		
Maize	–	–	1.32	4.9	4.9	4–8
Beans	0.55	1.17	0.55	1.6	1.39	1–2.5
OFSP	–	–	5.5	14.2	14.2	9–14
Vegetables	–	–	N/A*	29	29	20–30
Rice	1.21	4.64	1.21	4	4.32	4–7

Because AID-I GLR promoted several vegetables

All capacity-development interventions and scaling events yielded continuous incremental results: not only did knowledge of agronomic practices improve, but smallholder yields rose for producers who were exposed to the technologies in the 2025A season.

Box 9: Vegetable success in South Kivu – Accelerated adoption of improved varieties and practices led to high yields

Dr. Fekadu Dinssa, Scientist – Seed Systems Specialist, René Aganze Mulumeoderhwa, Consultant (both World Veg), and Jean Claude Nshimiyimana, Seed Systems Specialist (CIP)

Field training and demonstration plots greatly accelerated the adoption of agricultural technologies, with particularly encouraging results

For example, in Kasheke-Kalehe, the Irene OFSP variety reached a yield of 16.5 mt/ha on GAPs-applied plots, compared to 12 mt/ha with traditional practices.

This remarkable difference reinforced farmers' confidence in the new cultivation techniques and in the OFSP varieties introduced. Not only were they high-yielding but also tolerant to viral diseases and of superior nutritional value.

Justin Bahati, a farmer from Kasheke (Kalehe territory), affirms: "The variety you brought us is very productive. It encourages us to apply the good agricultural practices we learned. Above all, we plan to abandon local varieties that do not give good production to adopt these new varieties."

African eggplants, amaranth, tomatoes, and cabbages were also very popular, with positive results all around. More in the testimonial that follows.

TESTIMONIAL



Vegetables powering increased household income – South Kivu farmers speak

Dr. Fekadu Dinssa, Scientist – Seed Systems Specialist, and René Aganze Mulumeoderhwa, Consultant (both World Veg)

Training followed by establishment of demonstration plots resulted in impressive adoption of amaranth and African eggplant varieties in DRC. The crops were introduced by AID-I GLR Project partners: World Vegetable Center, Holland GreenTech (HGT), and Rikolto.



Mr Bienfait Amani adopted both improved amaranth (*Amaranthus hypochondriacus*), and African eggplant (*Solanum aethiopicum*).

"I sold the produce from these crops, earning income – especially the amaranth variety called Poli, and the African eggplant variety DB3," he said.

From the knowledge received through the training and experience acquired from demo plots, he selected and continued growing these two varieties on his vegetable farm. "Because of its short growth cycle, I sold amaranth every week for three to four months."

He started in January 2024; cultivating a 1,250-square-meter plot rented at USD 25 for four months. "I earned 1,659,000 francs [USD 603] from selling amaranth and 1,718,750 francs [USD 625] from selling African eggplant cultivated on this plot of land over four months, measured from the date I transplanted the eggplant."

Amaranth is planted continuously across seasons due to its short growth cycle, allowing for uproot harvesting approximately one month after sowing.

Mr Amani bought a second-hand motorcycle for USD 500 to facilitate delivery of his vegetable produce, instead of selling at the farm gate. He also rented a one-hectare plot for USD 280 in Nyangezi location, and had it ploughed at USD 120, enabling him to increase his production to meet growing consumer demand. "For me, the results of the AID-I GLR Project are tangible and impactful, because I am now self-sufficient and I can take care of the school fees of my two brothers."

Until she encountered the AID-I GLR Project Mrs Daria M'shalukoma (pictured below) used to cultivate seeds from 30-year-old varieties. But after participating in training on sustainable vegetable production – an income-generating initiative promoted by the vegetable value chain team of the AID-I GLR Project – she shifted her focus to vegetable cultivation, with particular attention to short-cycle crops such as amaranth.

She now supervises 47 women in a farmers' organization that specializes in six market garden crops: amaranth, African eggplants, tomatoes, onions, cabbages, and carrots. She currently earns a weekly income of approximately USD 80–100 from selling cabbages, tomatoes, and African eggplants.

At 62, and with more than 32 years of experience in agriculture, she reflects: "Ever since we were young, learning from our parents, we never had market garden produce of this quality until the AID-I GLR Project."

Following the training and demonstration plots introduced by the project, all member farmers became actively involved in cultivating at least four key vegetable crops: African eggplants, amaranth, tomatoes, and cabbages. For Season B (February–June) of 2025, the organization's member farmers planned to cultivate over two hectares to supply fresh vegetables to Bukavu town and its surroundings.



3.4 Assessment of the theory of change in DRC

A theory of change (ToC) maps the cause–effect pathway from project activities and inputs to specific outputs, intermediate outcomes, and ultimately, the intended impact.

3.4.1. Crops

Farmer exposure to initial agricultural technologies like beans, rice, and maize varied in terms of reach, with some project areas not fully covered. Despite these limitations, farmer appreciation was generally high for these crops.

Beans were valued for high yields and nutrition, rice growers showed good progress, and maize was appreciated for its yield and taste.

However, demand presented complexities: for beans, demand was affected by traditional seed conservation, reduced purchasing power, and humanitarian interventions. For the new maize variety (WE5117), demand was low and hesitant. In contrast, exposed rice growers actively demanded seeds, and even farmers in non-target areas requested practices and innovations. For vegetables, the VBA approach ensured inclusive and innovative exposure, and both the quality and quantity of harvests were highly appreciated. Yet, a significant gap existed between demand expressed and met. This gap was due to poor local seed availability, lack of regulation, and insufficient institutional (INERA and SENASEM) involvement in terms of logistics.

Conversely, farmers showed robust appreciation and expressed strong – and often consistent – demand for several staple crops. OFSP achieved widespread exposure with seven varieties disseminated, and delivery of cuttings improved. This led to high appreciation for popular OFSP varieties and their resilience against adversity (e.g., drought). As a result, there was a high demand for large quantities of seeds of different varieties among agricultural multipliers.

However, the OFSP seed system faced challenges. Cuttings were expensive, and trained agro-multipliers could only produce a limited supply. Consequently, mini-greenhouses were set up to address the challenges.

Bananas and cassava also saw high appreciation for well-developed varieties and related GAPs training. This created strong demand for more practical training and support for multiplication. The seed systems responded by supporting agricultural cooperatives for banana sucker production, and agri-multipliers for additional cassava multiplication fields.

3.4.2. Livestock

Artificial insemination (AI) achieved excellent exposure and was greatly appreciated, resulting in high demand for paid AI requests. The system responded by linking local inseminators with neighboring Burundi's National Artificial Insemination Center (CNIA). Immunization saw high breeder receptivity and no reported vaccine side effects.

But there were difficulties meeting demand due to the complex storage requirements of the bovine theileriosis vaccine, which required hard-to-obtain liquid nitrogen. This made it challenging for local private veterinarians to fulfill protocol requirements from foreign suppliers.

Licking blocks got strong exposure and appreciation, with continuous local production and marketing supporting steady demand.

Finally, *Brachiaria mulato* was continuously disseminated and was highly appreciated for its intercropping potential. This led to high demand for individual planting, supported by organized and strengthened seed systems involving beneficiaries of multiplication fields.

More details on the project's ToC assessment are in Table 50 in Annexes.

TESTIMONIAL

How artificial insemination and agro-pastoral innovations boosted dairy productivity and empowered communities in South Kivu, DRC

Before AID-I GLR intervened, livestock-keeping for Mrs. Stephanie Munyerenkana in Katana, a village in DRC's Kabare District, South Kivu Province, was quite uninspiring. Her cows produced less than two liters of milk per day, far too low to cover her costs. Like many livestock-keepers in South Kivu, she was contemplating dropping cattle-rearing altogether.

Her challenges were not unique. Many farmers in the region relied on traditional cattle breeds, known for low milk productivity and poor health. This combination made livestock farming unrewarding and costly. Despite the challenges, the potential for dairy farming in the region remained significant due to a favorable climate and strong demand for dairy products.

AID-I GLR saw this potential and identified low milk production primarily due to dependence on traditional breeds, minimal technology adoption, and limited extension services. And so, in 2023, AID-I GLR emphasized artificial insemination (AI) as a tool to improve the genetics of local breeds, boosting milk production and overall herd quality. Additionally, *Veterinaires-sans-Frontières* (VSF) under AID-I GLR introduced fodder cultivation with *Brachiaria mulato*, nutrient-rich feed formulations (Block Lush), fodder preservation methods, and cattle vaccinations against diseases like theileriosis and *Peste des Petits Ruminants* (PPR).

These innovations had a significant impact on milk and meat production, breed quality, and disease resistance in the project regions. VSF also organized a network of private veterinarians and para-veterinarians within communities, training nine inseminators to promote AI and diagnose pregnancies with ELISA methods. The project introduced semen from three breeds – Friesian, Jersey, and Sahiwal – to enhance genetic diversity. In 2023, 1,594 cows were inseminated with Sahiwal and Jersey breeds, and demand surged as communities witnessed improved calf quality. In 2024, Friesian semen was introduced, leading to 292 additional inseminations.

The outcomes of these AI technologies had a transformative effect on breeders' socioeconomic status, as evidenced by testimonials like that of Mrs. Stephanie Munyerenkana, who remarked, "Thanks to these innovations, we now easily get 12 to 15 liters per milking day, unlike before, when we barely obtained 2 liters. We no longer use local bulls, reducing disease spread among animals and people."

Additionally, AID-I GLR has built bridges by enhancing the capacity of public veterinary agents, who collaborate with private veterinarians and para-veterinarians to accelerate this innovation.

Efforts were also made to include more women in livestock breeding – a traditionally male-dominated field. Ms. Safi Ngomora, a veterinarian from Kabare District, highlighted the economic impact: "Thanks to the technical training provided by VSF under the AID-I GLR Project, I was able to serve over 180 breeders in Kabare and other areas in South Kivu. In 2023 alone, I met requests from 153 breeders, with service fees ranging from USD 80 to USD 100. My monthly income has increased from USD 300 to around USD 1,500, and I am now called to provide services in Kalehe and Walungu Districts."

So, not only did the project improve the overall quality of herds, it also revolutionized – within the areas it operated – traditional gender roles in livestock ownership. Previously, women rarely owned livestock. But through sustained efforts and community outreach intervention in project target areas, more women are now engaged in breeding, animal health management, and AI services.

3.5 Challenges, lessons learned, and recommendations

Challenges

The armed conflict in eastern DRC had severe impact on the project, despite its strategic goal of boosting food security in vulnerable zones. During the consolidation phase, the rebellion in Kivu led to the massive displacement of beneficiaries. Direct consequences included the loss of agricultural harvests in the fields and the destruction of breeding stock *(géniteurs),* forcing youth-led businesses to cease operations. Crucially, the conflict disrupted the institutional process for the government's official approval of the local VBA network. Operational and mobility restrictions also prevented consortium actors from conducting necessary follow-up activities in rebel-controlled areas.

The project was designed to introduce tested agricultural solutions and agro-ecological practices adapted to communities already fragile due to climate change, food crises, and the aftermath of the COVID-19 pandemic. The war exacerbated the vulnerability of target communities by disrupting established project processes.

Despite physical access constraints, the project's local resilience networks continued to function. Coordination was maintained through VBA networks, community relays, and private veterinarians who have continued operating locally within their respective villages. The project's sustainability is also demonstrated by the continued operation of the Soko Letu digital network monitoring sales.

However, certain structural and operational challenges limited the scope of the results. For example, while farmer demand was generated after exposure, availability and accessibility gaps were not addressed. Consequently, the project was unable to meet the fresh demands for seed supply expressed by producers after its conclusion. Additionally, several VBAs lacked the necessary material for the optimal execution of their tasks (such as registration forms, boots, registers, and raincoats), and the specific capacity reinforcement required to ensure the continuity of activities.

Finally, the lack of financial resources and time hampered the sustainable institutionalization of this approach, ultimately compromising its **long-term viability.**

Lessons learned

- Integration of the small-pack approach in the marketing strategies of seed companies. This approach enabled the project to reach a large number of beneficiaries at minimal cost, thereby maximizing the utilization of limited resources, and facilitating the dissemination of innovations across its intervention areas.
- The complexity of coordinating the multi-functional consortium successfully transformed into an opportunity for complementarity and synergy, leveraging each partner's long-term specialization, local anchoring, and knowledge of producer organizations. Future consortia must prioritize a clearer definition of roles and responsibilities, enhance organizational adaptability, and ensure active farmer and herder participation for optimal results.
- Effective partnership design demands robust capacity building and leadership training for core staff around a shared vision and specialized objectives towards realizing that common vision.
- The success of the partnerships is measured by the high acceptance of innovations, strong producer feedback, and significant demand for input packs, leading to requests for model replication across other provinces.
- Training of trainers (ToT), field days, and demonstration through training proved to be the most effective methods for capacity reinforcement and technology adoption because they foster proximity, build trust, and emphasize stakeholder learning-by-doing and inclusion, especially when these practical approaches are coupled with joint public-authority visits. Use of

local languages is essential for effective knowledge transfer.

- Technical gains alone are insufficient if resource constraints persist. And so, while the acquisition of technical knowledge was successful, resource constraints, especially financial and material limitations, prevented beneficiaries from reaching the maximum application level.

- The VBA approach promoted by the project serves as an inspiring model for MINAGRI and could help revamp the structuring of the provincial extension system.

- Combining different channels of delivery of advisory information and capacity-development events resulted in increased knowledge among farmers.

- The preservation of the vaccine against bovine theileriosis is complex. It requires the availability of liquid nitrogen, which must be produced in partnership with the National Artificial Insemination Center to assure a continuous and uninterrupted supply.

- The appreciation of artificial insemination technologies by the communities shows potential to improve the breed of livestock, which could increase local milk production.

- Since Haut-Katanga has a different climate from South Kivu, lowland soybean and bean production was possible for at least two off-season cycles.

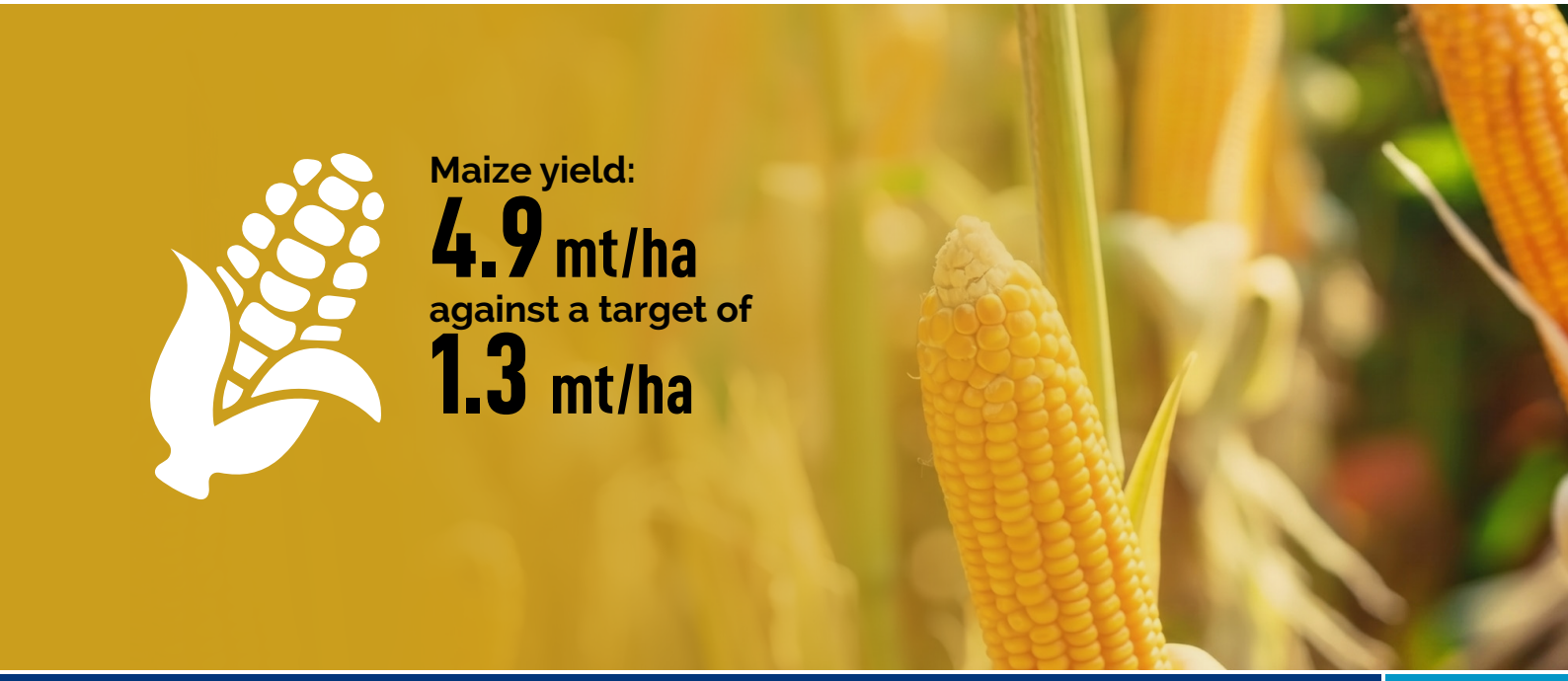
- It would be worthwhile to provide partners with capacity-building training in using digital tools for file operations and data capture.

Recommendations

Moving forward, future actions in the highly volatile zones above must focus on reinforcing durable strategies and incorporating adaptation measures, particularly addressing the destructive effects of climate change.

The key perspective involves reconciling the achievements of AID-I GLR with the principles of the triple nexus, integrating humanitarian, development, and peace efforts. This unified approach is essential to prepare beneficiary households for enhanced resilience, adaptation, and eventual agro-socioeconomic reinsertion. Furthermore, the project's successful theory of change is actively being incorporated into new proposals submitted to donors by implementing partners such as Rikolto and VSF.

Finally, to sustain the impact of these interventions, future support must transition from technical assistance to strengthening the organizational and institutional management of producer organizations and cooperatives.





CHAPTER 4

Scaling proven innovations in Rwanda: Market-led delivery and inclusive impact

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4.1 Context

Rwanda faces multiple challenges threatening its population's livelihood. Ranking among Africa's most densely populated regions, the country continues to record high demographic growth and rapid urbanization. This results in increasingly shrinking agricultural land, affecting agricultural production.

Despite the progress recorded during the last decade, malnutrition and stunting remain high, with one-third of children malnourished and stunted. This is brought about by, among other factors, limited knowledge of household-level processing techniques, and inadequate value addition to agricultural produce, especially at household level, coupled with limited use of nutritious products. In addition, the region's diverse ecosystem is vulnerable to climate change, putting more than 90% of its population, particularly small-scale farmers – and more so women and youth – at risk.

These challenges have been exacerbated by the COVID-19 pandemic and, more recently, by supply-chain disruptions related to the Russia–Ukraine war, leading to higher food and fertilizer prices and associated economic downturns.

Rwanda is also among the top ten countries worldwide most affected by food-price inflation, with an annual increase of 35% (World Bank, 2022). According to the International Food and Policy Research Institute (IFPRI, 2022), these food-related shocks were projected to have significant impact on Rwanda's gross domestic product (GDP) and employment.

Indeed, the country is affected by global fertilizer prices, which remain above the pre-war levels, considering its dependence on imports to satisfy domestic demand. It was projected that there would be a reduction in the use of fertilizer between 31 and 36 percent in 2023 and 30 and 34 percent in 2024 because of price increases if government policies remain unchanged (Fofana & Sall, 2023).[5]

Smallholder farmers in Rwanda are particularly vulnerable, and any increase in the costs of inputs disproportionately affects their ability to invest in agricultural technologies, and adapt to changing market conditions, thereby reducing agricultural productivity and affecting their livelihood.

For these reasons, AID-I GLR designed tailored interventions and their corresponding strategies for target areas in Rwanda to counter the threats above by disseminating climate-resilient agricultural innovations (e.g., highly productive and early-maturing varieties), training farmers in good agricultural practices (GAPs), and providing advisory services to enhance food security and combat malnutrition.

4.2 Adaptation and implementation of the AID-I GLR strategies in Rwanda

4.2.1. Scaling partnerships

As part of the project's approach, IITA invited a diverse group of stakeholders to a regional co-creation workshop. They included technology developers (CGIAR centers[6] and the Rwanda Agriculture and Animal Resources Development Board [RAB]), large organizations implementing agricultural development projects, seed and agricultural input producers and distributors, mechanization service providers, and a few development partners investing in agriculture.

These stakeholders discussed and deliberated on the objectives of the interventions, partnership building, target areas, and innovations selected.

The project facilitated two partnerships to deliver technologies and innovations to farming households, with technical assistance from CGIAR centers and service

[5] However, the Seasonal Agricultural Surveys conducted by the National Institute of Statistics of Rwanda (NISR) in 2023 and 2024 in fact show an increase in fertilizer use, attributed to a higher government subsidy on fertilizer.
[6] ABC, CIP and IITA.

providers in alignment and collaboration with RAB and the Ministry of Agriculture and Animal Resources (MINAGRI).

The first partnership was led by the Alliance for a Green Revolution in Africa (AGRA), formed initially with the Catholic Relief Services (CRS) and market actors delivering agronomic technologies and practices for selected crop value chains (beans, orange-fleshed sweet potatoes [OFSP], potatoes, and vegetables).

AGRA and CRS combined and complemented their experience in delivering specific interventions. On the one hand, AGRA focused on deploying high-quality seeds of nutritious crops and inputs to agro-dealers, and building the capacity of seed companies to create awareness of technologies farmers need. On the other hand, CRS utilized its vast and deep community networks to ensure last-mile delivery of technologies (seeds, fertilizers, and advisory services) to target farmers.

By doing this, AID-I GLR provided need- and demand-differentiated services to targeted populations depending on geographic location and partner presence and vulnerability analyses, thereby providing tailored support to selected smallholder farmers.

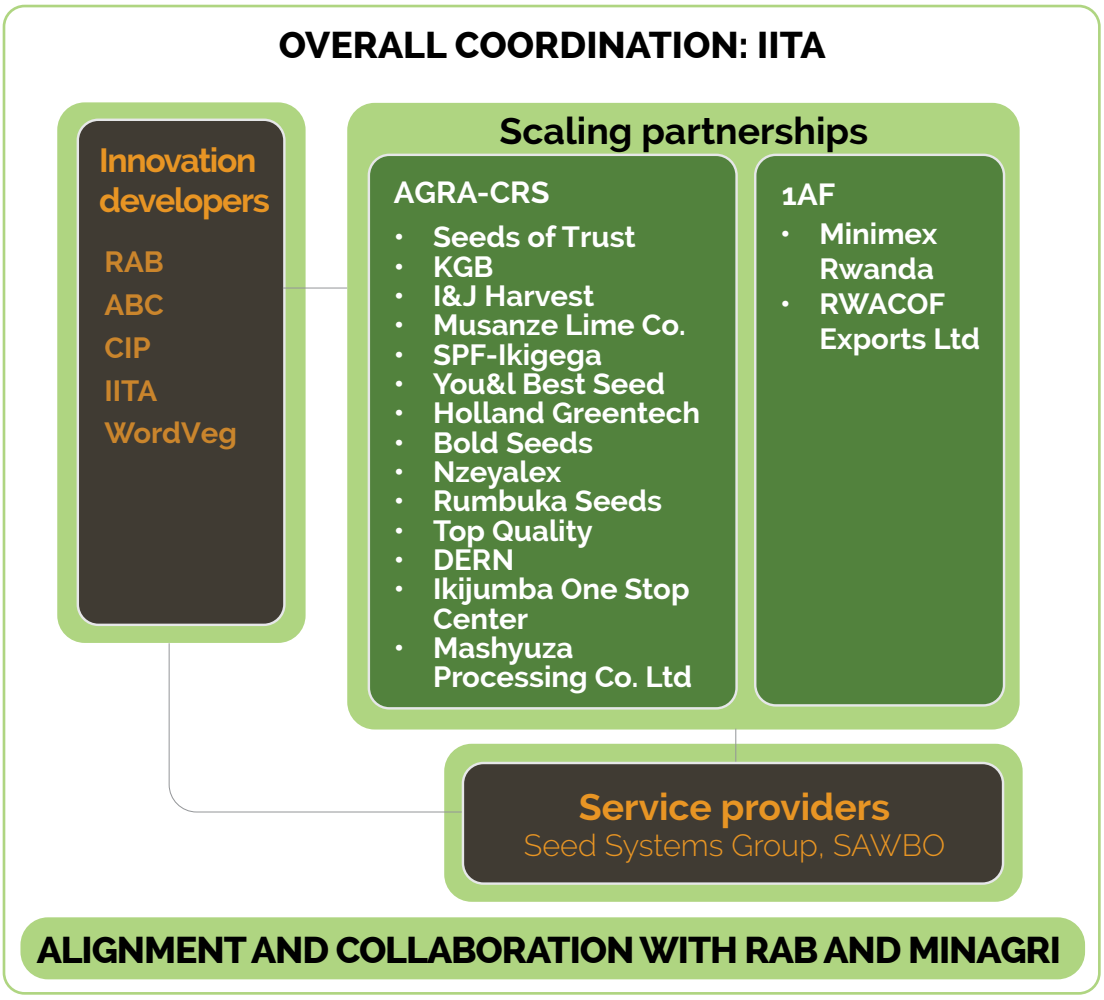


Figure 19: Partners and roles in Rwanda.

Recognizing the crucial role of seed companies in technology transfer, the AGRA–CRS partnership involved 12 seed companies and two lime companies to expand the reach of improved agricultural technologies. This strategic expansion aimed to broaden the network of suppliers of improved inputs, effectively serving farmers across diverse agroecological zones in Rwanda. Seed- and lime-processing companies were classified into consortia for proper coordination of their efforts, fostering efficiency and accelerating the adoption of new technologies by smallholder farmers.

The second partnership was led by One Acre Fund (1AF), working with Rwanda Coffee Exports Ltd (RWACOF) and with Minimex Ltd (a maize milling factory) on the maize value chain, specifically focusing on the production and commercialization of whole maize flour in rural communities (Figure 19).

4.2.2. Target areas and selected innovations

During the co-creation workshop in December 2022, stakeholders outlined the main objective, which was to contribute to increasing income, and improving nutrition. They therefore concentrated on interventions for increasing the use and adoption of good agricultural and nutritional practices and technologies in some of the locations worst hit by malnutrition and stunting in the country.

By layering the scaling organization's operation location with the malnutrition-prone districts, stakeholders targeted the Eastern Province (Kayonza, Ngoma, and Rwamagana Districts), Northern Province (Burera, Rulindo, Gakenke, and Musanze Districts), and Western Province (Nyabihu, Nyamasheke, Karongi, Ngororero, Rusizi, Rutsiro, and Rubavu Districts) (Figure 20).

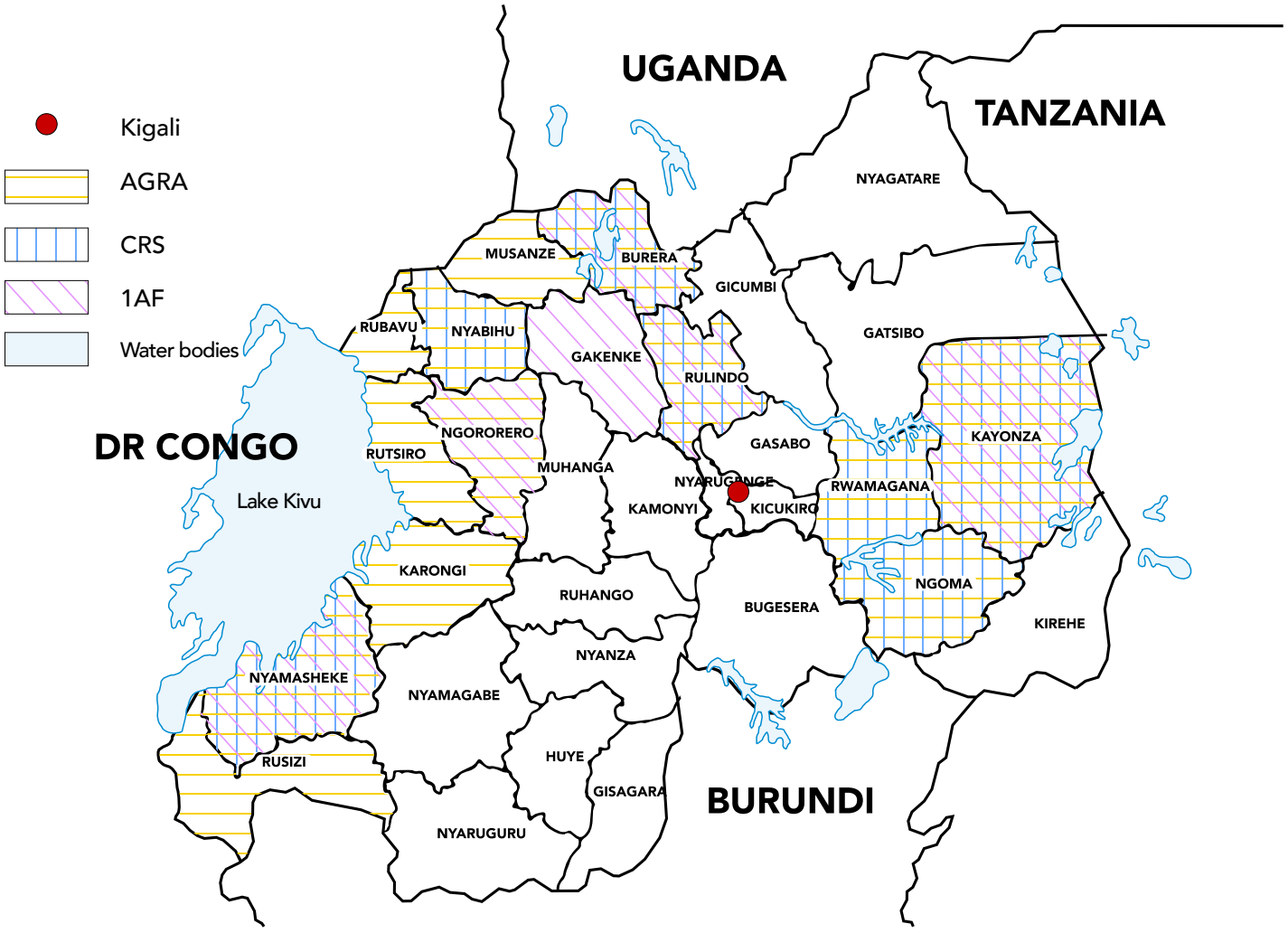


Figure 20: AID-I GLR target areas in Rwanda.

Following the presentation of different innovations and considering the partnership's objectives, stakeholders selected technologies that can help farmers increase yields and improve household wellbeing. The innovations disseminated all had a common dual purpose: improving nutrition and increasing income, with additional benefits such as disease resistance, aflatoxin control and climate resilience for some of the innovations.

Focus was on beans, OFSP, potatoes, maize and vegetable value chains.

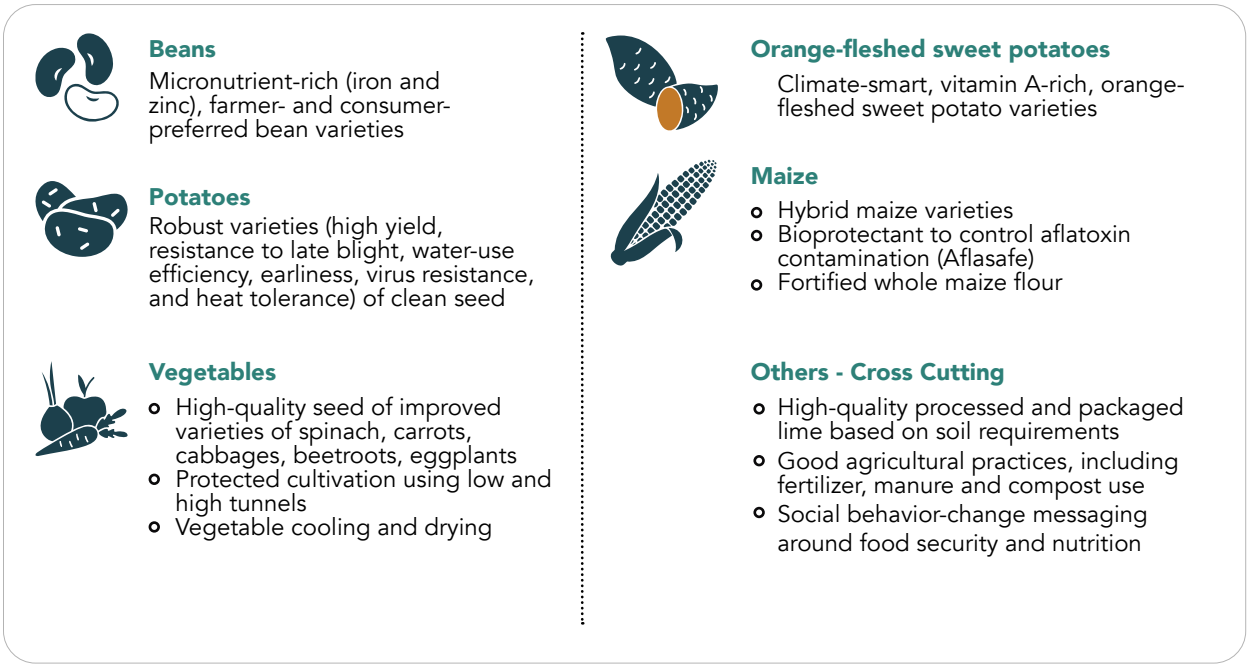


Figure 21: Technologies selected to help farmers increase yields, and to improve household wellbeing in Rwanda.

4.2.3. Input system

The country has a very nascent seed system, comprising a dozen young local seed producers, a couple of regional seed companies, and several agro-dealers across the country. However, these market actors focus almost exclusively on commodities covered by the national subsidy program.

The project leveraged this ecosystem to introduce demand-creation innovations by seed companies, thereby contributing to a more sustainable system.

4.2.4. Village-based advisors (VBAs) and small-pack approach (VBA/SP)

The project adapted the VBA/SP approach, dovetailing it into the existing extension system, where farmer promoters (FPs) played the VBA role, considering their pre-existing prominent role in advising farmers at the village level.

FPs are lead farmers and part of the national extension system. This national extension system clusters 20–25 farmer households as a group under a single FP. This FP supports the group in learning new agricultural technologies through different approaches, including demonstration, providing advisories, supporting farmers to register for subsidies, linking farmers to reliable sources of improved inputs, etc.

Therefore, seed companies and other market actors partnered with FPs to roll out this market-promotion approach.



4.3 Results in Rwanda

Great Lakes Accelerated Innovation Delivery Initiative Rapid Delivery Hub (AID-I GLR) in Rwanda

October 2022–September 2025

Rwanda

PARTNERSHIPS

- **5** Innovation developers
- **2** Support service organizations
- **14** Market actors supplying the innovations
- **3** Scaling organizations
- **2** Partnerships consortia

TARGET

652,031 People to be reached

- Women: 40% (15–29 years: 20%)
- Men: 60% (30+ years: 80%)

REACH

701,568 People reached

- Women: 53% (15–29 years: 22%)
- Men: 47% (30+ years: 78%)

INNOVATIONS

More than **12** Innovations and practices

VALUE CHAINS

5 Groups of value chains

SMALL PACKS

1,071,479 Distributed to farmers

749,109* Farmers accessed improved agricultural technologies with advisory information through small packs

- **413,270** Women
- **335,839** Men
- **584,954** 30+ years
- **164,155** 15–29 years

*Aggregated for the 5 value chains. Some farmers were in several value chains.

16,284 Metric tons of inputs sold by market actors valued at **$8,116,184**

95.2 Metric tons of early-generation seeds produced and supplied to market actors

11,487 Metric tons of certified seeds produced

YIELD (mt/ha)

	BEANS	MAIZE	OFSP	POTATOES	VEGETABLES
Average farmer-reported yield	1.5	6.9	14.6	26.2	21
Innovator projection of potential yield	1–2.5	4–8	9–14	20–40	20–30
Baseline	0.8	1.55	7	8.6	N/A

Figure 22: The numbers at a glance – Results of the AID-I GLR Project in Rwanda..

TESTIMONIAL



Farmer field day with potato farmers in Bweyeye sector, Rusizi District.

March 2025

In the remote Bweyeye Sector of Rusizi District in Rwanda's Western Province, a groundbreaking agricultural project is transforming local farming practices and boosting Irish potato production.

The AID-I GLR Project, in collaboration with Seed Potato Fund Joint Venture Ltd (SPF) and supported by AGRA, has introduced high-yielding Irish potato varieties such as Ndamira and Cyerekezo to local farmers, revolutionizing their farming methods.

Bweyeye farmers used to grow Irish potatoes using local and farm-saved seeds. Before the AID-I GLR program, no seed potato companies or cooperatives were known to operate in the region, and Irish potato cultivation in Bweyeye covered a paltry 10 hectares. Farmers lacked awareness of the benefits of improved seed varieties and were largely ignorant of effective agricultural practices. However, through the test-and-see introduction of Ndamira seed potatoes and lime grade one distributed in small packs, farmers saw for themselves the remarkable results.

Each participating farmer received 5 kilos of Ndamira seed potatoes and 10 kilos of lime grade one to enhance soil fertility. According to Ferdinand Nduwayezu, Bweyeye Agriculture Sector Officer, farmers who used these improved inputs reported significantly higher yields. "Ndamira is an excellent variety. In our trials, it matured in 80 days, whereas the old variety took 100 days. Additionally, it yields 914 metric tons per hectare, compared to just six metric tons from the previous variety," he said.



Distribution of small seed packs of Irish potatoes.

One farmer, Joseph Munyemari from Rwamagare village, is already planning to expand his potato farm after seeing the success of the new varieties. He and two neighbors each received 50 kilos of Ndamira seed potatoes. He planted his on 0.03 ha and harvested 400 kilos (equivalent to 13.3 mt/ha compared to 6 mt/ha previously harvested). He is optimistic about the future. "We are grateful to the government for providing us with high-yielding seeds that help improve our livelihoods. These seed potatoes allow us to increase productivity and hence rise out of poverty and build a better future," Munyemari said.

The small-pack initiative has distributed seed packs to more than 1,500 farmers in Bweyeye. As part of the broader AID-I GLR Project, the initiative aims to close the knowledge gap on

modern agricultural technologies. It is focused on raising awareness about the benefits of high-yield, nutrient-rich seed varieties, and on encouraging farmers to adopt these innovations.

In addition to providing quality seeds, the project offers extension services and connects farmers with input suppliers, making it easier for them to access fertilizers, lime and other crucial agricultural tools. AGRA and its partners have implemented the village-based advisor/farmer promoter (VBA/FP) model, which includes demonstration farms where farmers can learn about new technologies and crop varieties with expert guidance from the International Potato Center. This hands-on approach has been instrumental for the successful uptake of improved farming techniques, ultimately boosting productivity and contributing to Rwanda's agricultural economy.

The results of this demonstration have been promising, and local officials are optimistic about the future. "Our goal is to double the area dedicated to Irish potato farming from 10 hectares to 20 hectares in Season B. We remain committed to raising awareness to increase the number of potato farmers in our sector. Our farmers have now ordered more than 20 mt of the same variety from SPF Ikigega to plant in 2025B season," revealed the agronomist.

Thanks to the AID-I GLR project and its partners, Bweyeye farmers have now been reached with the knowledge, skills, and resources for improved potato farming. This is not only helping to increase yields but also contributing to food security and economic growth in one of Rwanda's most remote regions. Through AID-I GLR, farmers in Bweyeye continue to gain a deeper understanding of the importance of adopting improved seed potato varieties and sustainable agricultural practices. This initiative has the potential to significantly boost productivity, create more economic opportunities, and foster long-term growth in this challenging region.

Box 10: What Cyerekezo potatoes mean for Rwanda.

Jean Claude Nshimiyimana, Seed Systems Specialist (CIP-Rwanda)

Released in 2024, the Cyerekezo potato variety is rapidly transforming Rwanda's potato-production landscape.

In Musanze, Dukomeze Ubuzima Cooperative farmers harvested more than 1.5 mt from 200 kilos of seed – exceptional productivity.

Producing double the tubers at 10–15 per plant, compared to 4–7 in other varieties, Cyerekezo is now among the most popular varieties in major potato-growing areas.

Strong collaboration between RAB, CIP, AGRA, CRS, the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), and farmer cooperatives has accelerated seed multiplication and farmer training, enabling better agronomic practices, increased resilience, and improved incomes.

Farmers are now benefiting from both enhanced household food security and new market opportunities, including cross-border sales to eastern DR Congo.

Demand for quality seed has correspondingly soared. As at August 2024, seed multipliers requested about 130,000 mt of basic potato seed for season 2025A, of which more than half (52%+) was for new varieties. Cyerekezo alone accounts for nearly one-third (31.3%) of the total potato-seed demand – up from less than 10% two years ago.

Cyerecyezo is climate-smart, quick-maturing, and suitable for multiple cycles per year, making it a scalable solution to long-standing seed-quality and disease challenges.

Cooperative-led expansion demonstrates high farmer confidence and positions Cyerekezo as a game-changer for rural livelihoods and national food security.





4.3.1. Outputs

4.3.1.1. An active scaling partnership to drive the delivery of innovations

The AGRA–CRS scaling partnership in Rwanda was formed to accelerate the adoption of improved agricultural technologies among smallholder farmers by leveraging the strengths of public institutions, development organizations, research centers, and private-sector actors.

The partnership brought together AGRA, CRS, CGIAR centers and allied institutes (the International Potato Center [CIP], IITA, Alliance of Bioversity and CIAT [ABC], World Vegetable Center [WorldVeg]), and RAB. All these diverse partners rallied around a common cause: to shift farmer behavior, expand access to quality seed, and drive productivity through coordinated extension systems and market-led delivery models.

The collaboration recognized that no single institution could sustainably solve systemic barriers alone – particularly inadequate access to seed, weak last-mile delivery, fragmented advisory systems, and limited farmer awareness of improved varieties.

Each partner, therefore, contributed distinct comparative advantages:

- AGRA strengthened private-sector seed systems and input networks;
- CRS delivered behavior-change and nutrition-sensitive interventions for vulnerable communities;
- CGIAR centers provided high-yielding, climate-resilient and nutrient-dense crop varieties; and
- RAB anchored the initiative within national extension and early-generation seed (EGS) production systems.

The partnership operationalized its strategy through four complementary delivery models integrated into Rwanda's pre-existing extension infrastructure.

- First, the Gikuriro Kuri Bose (GKB) seed pack sampling model distributed small trial seed packs, bundled with nutrition education, to targeted vulnerable households.
- Secondly, the FP model showcased improved varieties through a 'mother demo–baby demo' approach that enabled local peer learning under optimal crop management.
- Thirdly, the local government extension model leveraged the national Twigire Muhinzi system, equipping health workers, local agronomists, and extension officers with input demos to accelerate community exposure.
- Lastly, the agro-dealer–FP model strengthened private–sector distribution networks to reach farmers who had not yet adopted improved inputs. Across models, partners scaled the use of affordable small seed packs, co-designed by CGIAR and seed companies, enabling farmers to experiment before investing, while strengthening market links and boosting demand for certified seeds.

The sustainability of the partnership was achieved through the institutional adoption of delivery approaches, ongoing commercial relationships, and continued farmer- and partner-engagement beyond the project's close, including new collaborations.

- Seed companies continued sourcing early-generation seed from RAB at increased volumes post-project, reflecting stronger – and rising – market demand and stabilized supply chains.
- Agro-dealers and farmer promoters continued to play their roles as trusted intermediaries, facilitating last-mile access to inputs and agronomic guidance.
- The small-pack model remained commercially viable for companies and accessible to farmers.
- The partnership created platform effects, attracting new collaborators such as Technologies for African Agricultural Transformation (TAAT), Youth Empowerment and Advocacy Network (YEAN), and Be Proactive Actors for Women Empowerment (Be4We), who adopted the same extension and seed-dissemination mechanisms to scale additional innovations.

Despite overall success, the partnership faced several operational and structural challenges. Coordination complexity and role ambiguity emerged early due to the large number of institutions involved, each with different internal processes, planning cycles, and decision-making layers. This occasionally slowed approvals, delayed joint field execution, and led to inefficiencies in activity synchronization.

Divergent messaging in year 1 created confusion among farmers, local leaders, and even partners, as inconsistent technical guidance and organizational communication diluted the partnership's credibility and slowed initial adoption efforts.

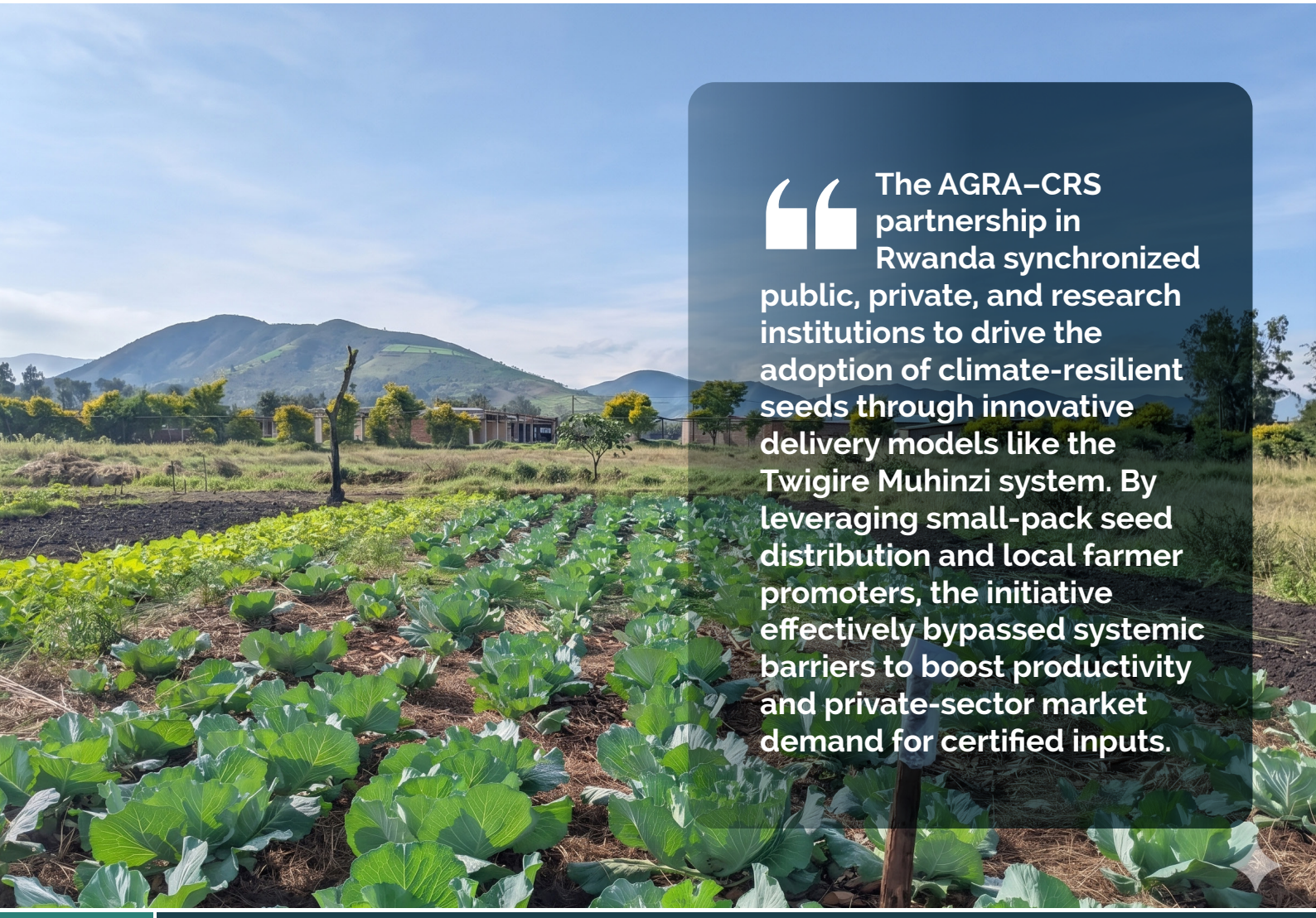
Externally, the USAID stop-work directive caused a major disruption during the no-cost extension period: it temporarily stalled implementation momentum, weakened partner alignment, and interrupted data flows between seed companies, extension agents, and field teams.

Further, the short project duration limited the ability to track long-term behavioral change, institutionalize partnerships, and measure sustained adoption at scale. Some interventions, particularly those requiring mindset shifts or nutrition behavior changes, require multi-season reinforcement that exceeded the project timeline.

Resource constraints also limited the number of demonstration plots, extension events, and follow-up monitoring visits, reducing geographic coverage and intensity of farmer engagement.

To strengthen future partnerships, key recommendations included:

- extending implementation timelines to enable sustained behavior change, institutional learning, and impact measurement;
- improving upfront role codification and harmonizing communication given different organizational cultures and procedures;
- increasing funding for last-mile extension support and monitoring systems; and,
- expanding actor inclusion to integrate microfinance institutions, youth networks, and downstream value-chain players to deepen market resilience and to bolster long-term sustainability.



> **The AGRA–CRS partnership in Rwanda synchronized public, private, and research institutions to drive the adoption of climate-resilient seeds through innovative delivery models like the Twigire Muhinzi system. By leveraging small-pack seed distribution and local farmer promoters, the initiative effectively bypassed systemic barriers to boost productivity and private-sector market demand for certified inputs.**

Bundling and delivery of agricultural technologies by private actors in Rwanda: A new way to reach farmers with complete solutions

Peter Okomoh, Head of Programs – Rwanda, AGRA

In brief: In Rwanda, many farmers face low yields due to acidic soils and limited access to quality inputs. To overcome these challenges, AID-I GLR, through an AGRA–CRS implementation partnership, introduced an innovative approach: the bundling and delivery of technologies.

Instead of supplying single inputs like seeds or fertilizers in isolation, this approach delivered complete productivity packages, combining improved seeds, lime, fertilizers, biofertilizers, and extension services with goal of ensuring farmers receive the right technologies together in a timely fashion, thus enabling maximum impact on yields, profitability, and soil health.

The initiative focused on Rwanda's acidic soil regions particularly Rutsiro, Nyamasheke, and Karongi where correcting soil acidity is a game-changer for crop performance.

The success of this model was built on partnership power with the private sector at the heart of delivery, and strong collaboration with the public sector, with each bringing unique strengths:

- Seed companies (Kilimo General Business Ltd [KGB], I&J Harvest Ltd, Seed Potato Fund Joint Venture [SPF]), *Développement Rural du Nord* (DERN), and others) supplied high-quality, high-yielding seed varieties:
  - Hybrid maize (MUH 501)
  - Beans (RWR 3194, MAC 44)
  - Irish potatoes (Kinigi and Cyizere)
- Lime processors (Mashyuza Lime Processing Company, Musanze Lime Company) provided grade one agricultural lime, essential to neutralize soil acidity and restore fertility.
- Agro-dealers and input distributors acted as last-mile delivery agents, bundling inputs (seed + lime + fertilizer) into a 'one-stop shop' so that farmers had access to everything they needed in one place.
- Extension providers and allied partners (CRS, AGRA, RAB) conducted training and field demonstrations, ensuring farmers knew how to properly apply lime and use improved seeds for best results.

Demonstration plots and distribution of small starter packs helped farmers see the impact firsthand.

The results were striking.

- In Karongi District (Rubengera Sector), a 0.004-hectare (ha) Irish potato demo produced 1,500 kilograms (kg), equivalent to 37.5 mt/ha.
- In Nyamasheke District (Rangiro Sector), a 0.001-hectare demo yielded 250 kg, equivalent to 25 mt/ha.

Both were far above district averages, proving the power of combining lime with quality seed.

Other demo plots established with seed companies such as DERN, KGB, and Nzeyalexis showed similar results, with 40–60% yield increases among farmers using bundled packages compared to those using single inputs.

This success was made possible by three core elements:

1. Integrated delivery: Farmers receive a full package of improved seed, lime, and fertilizer tailored to their soil and crop needs.
2. Partnership and coordination: The bundling approach thrives on collaboration among seed companies, lime processors, and agro-dealers.
3. Learning by seeing: Demonstration plots and farmer training built confidence, leading to faster adoption.

Early impact showed that private-sector collaboration is driving the sustainability of this model, as attested by two lime processors: Mashyuza Processing Company (MPC) and MULIMECO. Furthermore, the partnership between Mashyuza Lime Processing, KGB, and I&J Harvest demonstrated that private sector-led delivery systems can effectively and sustainably reach farmers even in remote areas.

Strong links were also formed between suppliers, agro-dealers, and distributors. Below are a few examples:

- One Acre Fund purchased 700 mt of lime grade one in Season 2025A and 200 mt in Season 2025B from Mashyuza Lime Processing.
- Nyampundu Epiphane, an agro-dealer in Rulindo, purchased an average of 15 mt per season of lime for maize and Irish potato farmers.
- Jean Paul Sinzabaheza, an agro-dealer in Rutsiro, buys about 500 mt per season from Musanze Lime Company to serve his farmer clients.

These strong supply and demand links indicate that market-driven solutions can sustain input delivery beyond project support.

From this intervention, we learned that:

- Bundling is more than marketing; it is a systems solution. It addresses interlinked constraints that prevent smallholder farmers from achieving full productivity.
- Collaboration expands market reach. Shared distribution channels help private actors reach more farmers at lower costs.
- Data, training and monitoring matter: Tracking adoption and continuous farmer education ensure long-term results.

Supportive policy is key. Incentives and regulatory alignment can help scale integrated input marketing nation-wide.

Key takeaways

1. Bundling ensures farmers receive complete solutions that unlock productivity.
2. Partnerships between seed and lime companies create win–win market opportunities.
3. Private-led delivery systems strengthen last-mile access to quality inputs.
4. Farmer-centered training drives confidence and sustained adoption.

In a nutshell, this approach is changing how farmers in Rwanda access and use agricultural inputs.

By combining improved seeds with lime and other essential technologies, farmers are not only improving their yields, but they are also restoring soil health, boosting household income, and building resilience to climate shocks.

> **This initiative has proven that when the private sector, government, and farmers work together, real transformation happens in the field. –AGRA–CRS Partnership Team.**

In conclusion, the bundling and delivery of technologies is proving to be a game-changer for smallholder farmers in Rwanda. Through collaboration between private-sector companies, agro-dealers, and development partners, farmers are accessing the right technologies, in the right combinations, at the right time, turning once acidic soils into fertile, productive land.

This is a powerful testament on how innovation, partnership, and farmer empowerment can collectively drive real and lasting agricultural transformation.

4.3.1.2. Delivery of agricultural innovations

Scaling partnerships made significant strides in introducing farmers to improved technologies through small-pack distribution, a strategy that facilitates rapid adoption by exposing more farmers to these technologies, based on the principle that a little goes a long way.

These packs included seeds of improved varieties of key crops like beans, maize, OFSP, potatoes, and vegetables, along with lime for on-farm trials and fortified whole maize flour for home-testing.

More than 890,000 small packs of improved seed varieties were distributed, achieving 97% of the target, while more than 600,000 small packs of lime were delivered, meeting nearly half (47%) of the target. Additionally, more than 110,000 packs of fortified maize flour reached households.

Overall, these combined efforts – including the distribution of small seed packs, lime, and fortified flour – reached more than 740,000 beneficiaries, where more than half (55%) were women and 20% youth (Table 24).

Introducing Iyacu fortified maize flour to the market: The road behind and ahead

Milindi Sibomana, Chief Agriculture Officer and Moses Ndayisenga, Market Access Senior Associate, One Acre Fund, Rwanda

Rationale, model and scale

Iyacu fortified whole maize flour was introduced as a new product in the general market, starting with rural areas with high prevalence of malnutrition. The goal was to combat malnutrition by introducing a modified nutritionally dense alternative to a highly consumed staple product – maize flour.

Initially, commission-based sales were delivered directly to shops. This then evolved into wholesale trading where shop-owners from different administrative cells purchase the product from a central distribution trader in their district.

We started with sales in six districts and have now scaled to 15 districts. The target is sales in 17 districts by 2026, and ultimately countrywide. Thus far, approximately 650 tons have been consumed.

Our sales strategy evolved from exclusively offering the product in rural communities to also integrating urban marketing and sales locations. We conducted multi-channel behavior-change campaigns to introduce a new food product in sales target communities. The campaign channels were print, in-person and radio.

Over time, we also incorporated human-centered design (HCD) principles into our marketing campaigns. HCD takes into consideration client perceptions in developing our marketing strategies.

Successes

The product was approved by the Rwanda Food and Drugs Authority, and also received the S-Mark. We will pursue more international registrations (e.g. ISO 22000) when we target exports. Currently, 337 partner shops sell Iyacu across 12 districts, including Kigali. We have established processing controls for a four-month shelf-life.

Based on the Iyacu project experience, whole maize flour has been onboarded to school feeding programs.

Our brand is continually evolving, and growing.

We started by producing only wholegrain fortified maize flour. Now, we are in the process of registering a refined fortified maize flour, with plans to release an additional five fortified blended food products into the market over the next four years.





Fortified whole maize flour

Challenges

Our product is not without its challenges.

A shelf-life below six months is not the most ideal, given that the product has to pass through supply stages and get to the consumer with adequate time for storage and consumption at home.

This is further exacerbated by shop-keepers' desire to sell smaller portions in response to customer needs. For example, portions scooped from an open 25-kilo bag at the shop.

This desire wasn't met due to a concern on maintaining the integrity of quality once the bag was opened by the shopkeeper. We were also uncertain of adherence to safety protocols when handling the product once the bag was opened at the shop.

Also, the rural-client desire for smaller pack sizes would increase the product price due to higher packaging costs. Even with matters as they now are, the last-mile delivery at each shop led to a higher cost of distribution, which affects pricing and profitability.

Consumers are reluctant to leave refined maize flour despite its lower micro-nutrient composition. There is a perception that whole flours are for poor families and should be cheap, which further complicates market penetration.

On the production side, we have a bottleneck.

Currently, only two millers have the capacity to produce fortified maize meal. This maize meal requires specialized milling, and cannot be done anywhere.

Lessons learned

- Comprehensive behavior-change campaigns including talk shows and community-based campaigns using influential members of the community (such as urban communities) is key to informing the population on how to make nutrient-based choices on dietary decisions.
- Rural-client perception on the quality of the product is significantly influenced by price point as well as whether the same product is offered in urban shops too, i.e., if the product is not offered in urban shops, the rural clients believe it cannot be a high-quality product.
- The circular-economy approach has pros and cons: fidelity in the product by local maize suppliers vs perception of rural food for the poor and vulnerable. It is important to uphold the dignity and sense of agency of rural and vulnerable communities while also being practical and pragmatic.

Table 24: Distribution of small packs of technologies by innovation and type of farmer in Rwanda.

	Packs			Beneficiary farmers		
	Target	**Distributed**	**% achieved**	**Total**	**Women**	**15–29 years**
Seeds						
Maize	227,419	204,950	90%	131,594	58%	6%
Beans	228,046	233,578	102%	146,959	64%	13%
Potatoes	25,719	24,004	93%	20,453	46%	11%
OFSP	84,036	70,167	83%	53,031	69%	20%
Vegetables	363,522	363,606	100%	250,657	45%	14%
Total 1	*928,742*	*896,305*	*97%*	*602,694*	*55%*	*13%*
Other inputs						
Lime	127,873	60,500	47%	39,275	58%	10%
Total 2	*127,873*	*60,500*	*47%*	*39,275*	*58%*	*10%*
Processed products						
Fortified whole maize flour	87,434	114,674	131%	107,140	57%	64%
Total 3	*87,434*	*114,674*	*131%*	*107,140*	*57%*	*64%*
Grand total	**1,144,049**	**1,071,479**	**94%**	**749,109**	**55%**	**20%**

The objective of the approach was to help seed companies gradually integrate the lessons learned during project implementation into their marketing strategies, thus ensuring impact continues – and is amplified – beyond the project's duration. In this way, most seed companies and whole maize flour distributors can afford to distribute more small seed packs and flour tester-packs to as many farmers and consumers as possible at marginal cost, generating more demand and thus boosting their sales.

For farmers and consumers, the benefit of this approach is that it allows them to test new technologies and products at home, witnessing their potential firsthand and thereby instilling confidence in the products. This encourages them to buy more seeds and other products after directly witnessing their superior product performance.

Partnerships established with other key players along the value chain – such as agro-dealers, retail shops, and wholesalers – will continue contributing to addressing challenges related to access to technologies and products, including through bundling.

4.3.1.3. Capacity development through training, demonstrations, and outreach

The project was designed to enable research organizations – including ABC, CIP, IITA, WorldVeg, and RAB – to build the capacity of scaling partners by providing necessary technical support, thereby enhancing efficiency in delivery.

These research organizations conducted training on good agricultural practices and nutrition for field staff from scaling partners and national extension services. The expectation is that these staff would, in turn, train other key players, such as farmer promoters, through cascade-training events.

More than 68,000 individuals were trained, of whom 62% were women and 11% youth. These figures account for 119% of the annual training target (Table 25).

Of those trained, more than 28,000 attended training of trainers (ToT) sessions, comprising 58% women and 6% youth. Additionally, 39,885 participants were farmers, comprising 64% women and 14% youth.

Table 25: Training, by type and trainees in Rwanda.

Type	Trainees	Target	Actual	% Achievement	Women	15–29 yrs
Training of trainers (ToT)	Lead farmers/lead breeders	14,813	23,101	156%	58%	6%
	Government	2,073	5,182	250%	61%	8%
	Private sector	612	205	33%	52%	28%
	Civil society	133	98	74%	42%	8%
	Total participants trained in ToT	*17,631*	*28,586*	*162%*	*58%*	*6%*
Training of farmers	Smallholders	40,000	39,885	100%	64%	14%
Total trainees		**57,631**	**68,471**	**119%**	**62%**	**11%**

Stakeholder feedback indicated that the collaboration between innovation developers and scaling partners was highly effective, responsive, and technically enriching for seed companies and implementation actors. Testimonies from private-sector partners reported strong institutional support, timely troubleshooting, and valuable technical backstopping throughout the project implementation period.

For instance, the Managing Director of Bold Seeds Ltd said that a RAB maize breeder provided hands-on technical support at her seed production site on three separate occasions, at critical stages of crop development during the previous production season.

This expert guidance significantly contributed to improved seed-production outcomes and enhanced the quality of hybrid maize seeds.

Private-sector partners reported strong institutional support



Strengthening Rwanda's hybrid maize seed systems through capacity building and knowledge exchange

Rwanda's agricultural transformation agenda continues to prioritize the development of strong local seed systems to enhance food security and farmers' livelihoods. While the hybrid maize seed industry in the country is still at an early stage, it holds significant potential to boost productivity and incomes among smallholder farmers.

To realize this potential, IITA, in collaboration with RAB and the National Seed Consortium, organized a series of capacity-building initiatives in Nigeria, where IITA has its headquarters, to enhance the technical expertise of Rwandan seed sector stakeholders.

The first training targeted six production managers from different Rwandan seed companies for an immersive, hands-on learning experience from 24th February to 9th March 2025. Hosted by IITA maize breeders, the participants got some insights into hybrid maize seed production, parent line maintenance, stress tolerance evaluation, pest management, and practical breeding techniques such as controlled pollination.

Participants also gained exposure to large-scale commercial seed production systems at Premier Seed and Value Seeds Ltd in Kaduna State, where they learned about innovation in breeding programs, market-driven production, and the role of partnerships in strengthening the seed industry.

The seed companies that were represented in the training include Agro Processing Industries Ltd, Kilimo General Business Ltd, Top Quality Seed Production, Rwanda Improved Seed Company, Seeds of Trust, and IABM Cooperative (*Iterambere Ry' Abahinzi Borozi ba Makera* [Development of Makera farmers]).

The second training was in August 2025 and brought together eight RAB field technicians and two senior officers, who were exposed to advanced practices in hybrid maize seed development and the maintenance of parent lines. The training was conducted at IITA's headquarters in Ibadan, as well as at IITA's Ikenne and Abuja stations. It covered key aspects such as different types of isolation techniques, rogueing, detasseling, harvesting, seed processing, and storage. Participants also visited the National Agricultural Seed Council (NASC) and leading Nigerian seed companies such as Premier Seed and Value Seeds Ltd, where they learned about seed certification, quality assurance, and regulatory frameworks. These experiences highlighted the importance of maintaining genetic purity, using standard operating procedures, and fostering collaboration among research institutions, seed companies, and regulatory bodies.

"The training in Ibadan, Nigeria, was a significant moment of knowing and seeing in practice advances that will help improve the maize hybrid seed value chain in Rwanda," said Dr Claver Ngaboyisonga, Cereal Program Coordinator at RAB. "The advanced molecular laboratory at IITA can be used to build skills in our maize molecular breeding. Also, molecular tools can be used to check seed purity and maintain maize hybrid varieties, as seen at NASC. The strong partnership between private seed companies such as Premier Seed Ltd and public research organizations, can be key in improving the seed value chain in Rwanda. The seed codex can solve several problems in Rwanda's seed sector. More importantly, IITA-specific germplasm, such as fall armyworm-tolerant and pro-Vitamin A maize germplasm, can be introgressed locally for well-adapted maize varieties," he added.

Trainees expressed their commitment to applying the newly acquired knowledge and skills to improve hybrid maize seed production in Rwanda. They emphasized the importance of collaboration with institutions like IITA, RAB, and Rwanda Institute for Conservation Agriculture (RICA) to enhance research, quality control, and innovation within the national seed system.

The Nigeria experience has equipped RAB and private seed companies with practical expertise and a renewed vision for transforming the hybrid maize seed sector in Rwanda.

This lays a firm foundation for increased productivity, resilience, and food security for Rwanda.

Collaboration also extended to the establishment and technical oversight of demonstration plots.

Research institutes and innovation developers played an active role in site supervision and agronomic guidance in selected locations, enabling seed companies to internalize and replicate the demonstration model independently in other geographical areas.

Furthermore, technical knowledge from these engagements was cascaded to frontline actors, including extension agents, farmer promoters, and smallholder farmers, thus broadening system-wide capacity and strengthening beyond the primary partners.

But while the collaboration model proved highly functional, stakeholders noted that its duration was insufficient to maximize long-term impact. Engagements were project-bound and time-limited, reducing the opportunity for sustained mentorship, institutional learning, and deeper integration and immersion of innovations into commercial seed systems and extension services.

Demonstration plots are vital for technology transfer in agriculture, allowing the benefits and performance of new technologies to be showcased to farmers under the guidance of lead farmers or extension agents.

In this context, technology developers and seed companies collaborated to establish these demonstration plots, working together on site selection, planting, and maintenance.

To promote knowledge-sharing, usage, and adoption of new technologies, the project supported scaling organizations and input suppliers in setting up 4,091 mother demonstration plots, reaching more than 100% of the target (Table 26).

Table 26: Demonstration plots – Target vs achievement in Rwanda.

Commodity	Demonstration plots		
	Target	Actual	Achievement
Maize	172	328	191%
Beans	102	127	125%
OFSP	61	63	103%
Potatoes	31	49	158%
Vegetables	3,557	3,467	97%
Lime	35	57	163%
Total	**3,958**	**4,091**	**103%**

In addition to demonstration plots, various scaling events were organized to reach more farmers with advisory services, mainly through field days, sensitization events, and agri-shows. More than 800,000 farmers participated in these scaling events, representing 130% of the annual target (Table 27).

Table 27: Scaling events by type and participants in Rwanda.

	Participants			Women	15–29 yrs
	Target	Actual	% Achievement		
Field days	9,125	12,334	135%	51%	12%
Sensitization events	344,631	727,448	211%	54%	19%
Agri-shows	3,777	2,993	79%	32%	18%
Interactive voice response messages	250,000	58,537	23%	32%	14%
Total	**607,533**	**801,312**	**132%**	**52%**	**19%**

A series of community outreach campaigns, including 11 roadshows (attended by 69,880 farmers) featuring skits by well-known local actors, were also organized across six districts – Rusizi, Karongi, Rutsiro, Musanze, Ngororero, and Rubavu – to raise awareness among farmers on the benefits of using improved agricultural technologies. These events highlighted the importance of these technologies in boosting crop yields and enhancing resilience to environmental changes.

The outreach campaigns helped foster connections between farmers and seed companies, providing farmers with access to high-quality agricultural inputs. Farmers were introduced to various seed varieties tailored to their specific agroecological conditions, and provided with information on how to purchase them.

These outreach campaigns captured the attention of not only farmers but also seed companies and agriculture officers, all working to promote new technologies and ensure their accessibility. These events also provided an opportunity for 1AF to highlight the benefits of fortified whole maize flour, showcasing the value of collaboration among different partners. The involvement of well-known theater actors added an engaging element of 'stickability' to the campaigns, helping to attract, retain, captivate and educate the audience.

4.3.1.4. Strengthening the seed systems

In Rwanda, AID-I GLR supported RAB and seed companies in increasing the production of quality seeds, and in bringing their products and technologies closer to farmers by strengthening partnerships between seed companies and agro-dealers. This enhanced and diversified the products in agro-dealer shops – especially bean seeds, which are not subsidized – thus, enhancing farmers' awareness and access to the new varieties.

As a key technology developer in this initiative, RAB, collaborating with CGIAR centers (ABC, CIP, and IITA), is responsible for producing EGS, which seed companies use to produce certified seeds.

RAB supplied over 95 metric tons (mt) of EGS for beans, OFSP, and potatoes (Table 28).

In total, seed companies produced more than 11,000 mt of certified seed for beans, maize, OFSP, and potatoes through RAB and CGIAR support (innovation developers).

This collaboration between technology developers and seed companies ensures that farmers' demand is met, especially when they are satisfied with the performance of new technologies.

Table 28: Production of early-generation and certified seeds (mt) in Rwanda.

	Crop	Total qty produced (mt)
EGS	Beans	32.7
	OFSP	43
	Potatoes	19.5
	Total 1	**95.2**
Certified	Maize	3,661.6
	Beans	428.8
	OFSP	2,414.7
	Potatoes	4,981.7
	Total 2	**11,486.8**
Grand total		**11,582**

To further enhance this work, the project mapped agro-dealers in 13 districts to select those to be linked to seed companies in a commercial partnership. Selected agro-dealers were trained to enhance their technical knowledge of the promoted innovations and business-management skills.

Seed companies seeking to expand their businesses through agro-dealers were also supported in developing, testing, and scaling promotional materials for display in agro-dealer shops.

Seed companies received tailored support to ensure that smallholder farmers had greater access to the improved technologies introduced in previous seasons.

Twelve seed companies sold more than 16,284 mt of agricultural inputs, including about 3,000 mt of maize, 349 mt of beans, more than 6,140 mt of potatoes, and 547 mt of OFSP seed vines, along with 6,130 mt of lime (Table 39 in Annexes).

These efforts resulted in a total revenue of 8,116,184 United States dollars (USD) for input suppliers during the project's duration.

4.3.2. Outcomes

As highlighted in the theory of change, the monitoring, evaluation, learning and impact assessment (MELIA) systems were designed to provide data and insights on key outcome indicators related to the use and adoption of promoted innovations, agricultural productivity, and the consumption of nutritious food at household level.

4.3.2.1. Increased number of individuals who applied improved management practices and technologies

The application of the technologies and practices introduced through the project in Rwanda was exceptionally high, with the overall application rate exceeding 90%. Maize posted 92%, while beans and potatoes had an impressive 96%, and OFSP stood at 93% (Figure 23).

Additionally, it is important to note that all technologies and practices promoted in Rwanda were fully applied.

This complete application demonstrates the project's relevance and success in engaging farmers, providing adequate training and support, and ensuring that the technologies are both accessible and applicable across different agroecologies and distributed geographies.

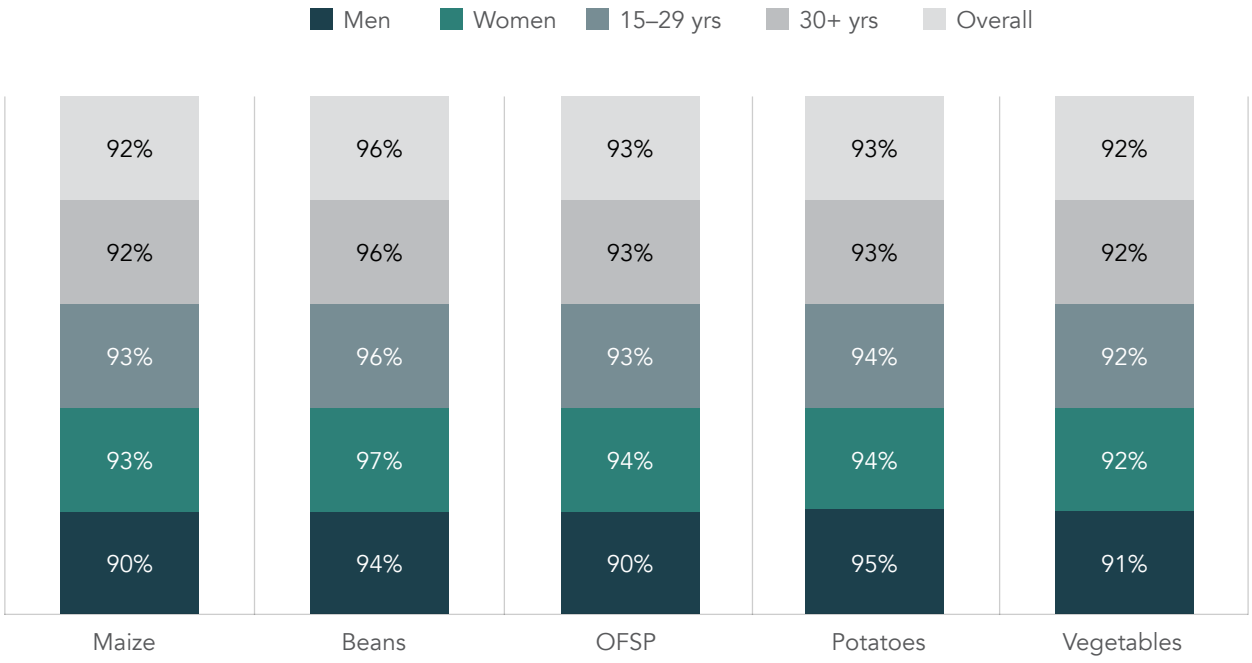


Figure 23: Application rate for seasons A and B 2024 (range: 91–96% across all crops and populations) in Rwanda.

4.3.2.2. Improved farmers' knowledge of recommended practices

The survey conducted after the third agricultural season (2024B) revealed a significant improvement in farmers' knowledge of recommended agricultural practices, with the proportion of well-informed farmers rising from just 4% in the previous year to more than 95% in 2024 across various value chains (Figure 24).

This remarkable progress can be attributed to the consistent use of various advisory services and delivery channels, which effectively enhanced farmers' access to vital information and supported the high application of best practice.

As revealed by the telephone survey results, the channels that farmers in Rwanda most prefer for knowledge transfer are input distribution events, favored by 50% of the survey respondents, followed by a tie between field days (23%) and training (23%) (Table 33 in Annexes).

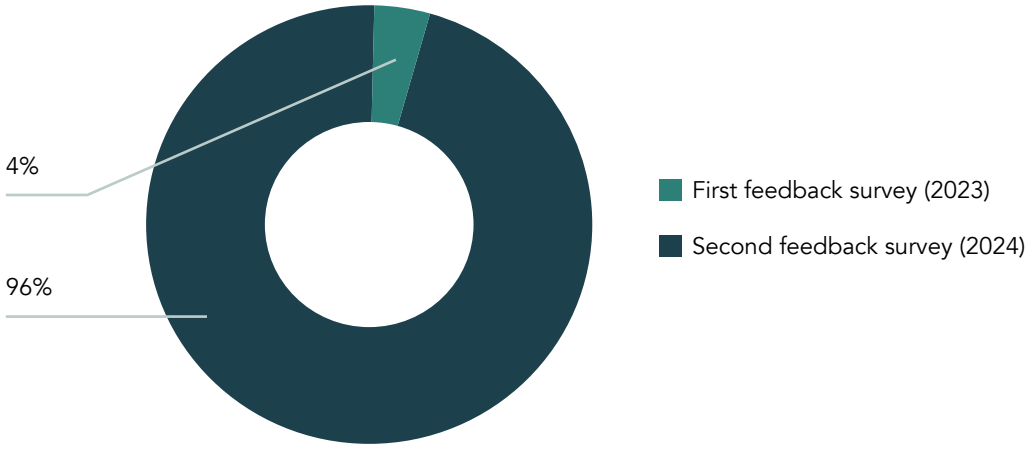


Figure 24: Respondents with correct knowledge of recommended practices in Rwanda.

This trend underscores the effectiveness of the engagement strategies employed to reach farming communities, including demonstration plots, field days, community outreach events, roadshows, and digital communication channels such as interactive voice response (IVR) messaging. These approaches not only increased awareness but also translated into measurable behavioral change, as reflected in the growing willingness to adopt new agricultural technologies.

A notable shift was observed in protected cultivation, where farmer participation and technology uptake continue to rise. Similarly, demand for grafted seedlings has expanded significantly, driven by sustained capacity-building efforts led by WorldVeg, RAB, and Holland Greentech (HGT) (Box 11).

Along the potato value chain, targeted exposure visits and training on seed production catalyzed a strategic transition among farmers in the Eastern and Western Provinces. Equipped with new technical knowledge and access to improved seed varieties, a segment of producers successfully transitioned from ware potato production (i.e., potatoes for human consumption) to seed potato multiplication.

This signaled increased commercialization, market responsiveness, and an upgrade in farmer roles within the value chain.

Box 11: Grafted tomato success reviving protected cultivation, maximizing return on investment

Dr. Fekadu Dinssa, Scientist – Seed Systems Specialist, WorldVeg

Rwanda has invested significantly in infrastructure for protected vegetable cultivation, with greenhouses established across locations in the country to enhance productivity and quality.

However, tomato farmers – the primary users of these structures – have long battled a silent enemy: bacterial wilt (Ralstonia solanacearum)*, a persistent soil-borne disease that causes healthy plants to collapse literally overnight, leading to crippling yield losses and income decline.*

As a result, many greenhouse owners shifted from high-value crops like tomato to less-profitable (but also low-risk) options such as cabbage, and occasionally French beans, leaving much of the greenhouse potential underutilized, meaning dead capital despite the considerable investment. RAB faced an urgent challenge: how to restore productivity and confidence among growers affected by this crop disease.

The turning point came through a three-way partnership: RAB, WorldVeg and HGT, under the AID-I GLR Project.

In the absence of commercially available tomato varieties tolerant to bacterial wilt and other soil-borne pathogens, grafting has emerged as an essential management strategy, particularly in protected-cultivation systems.

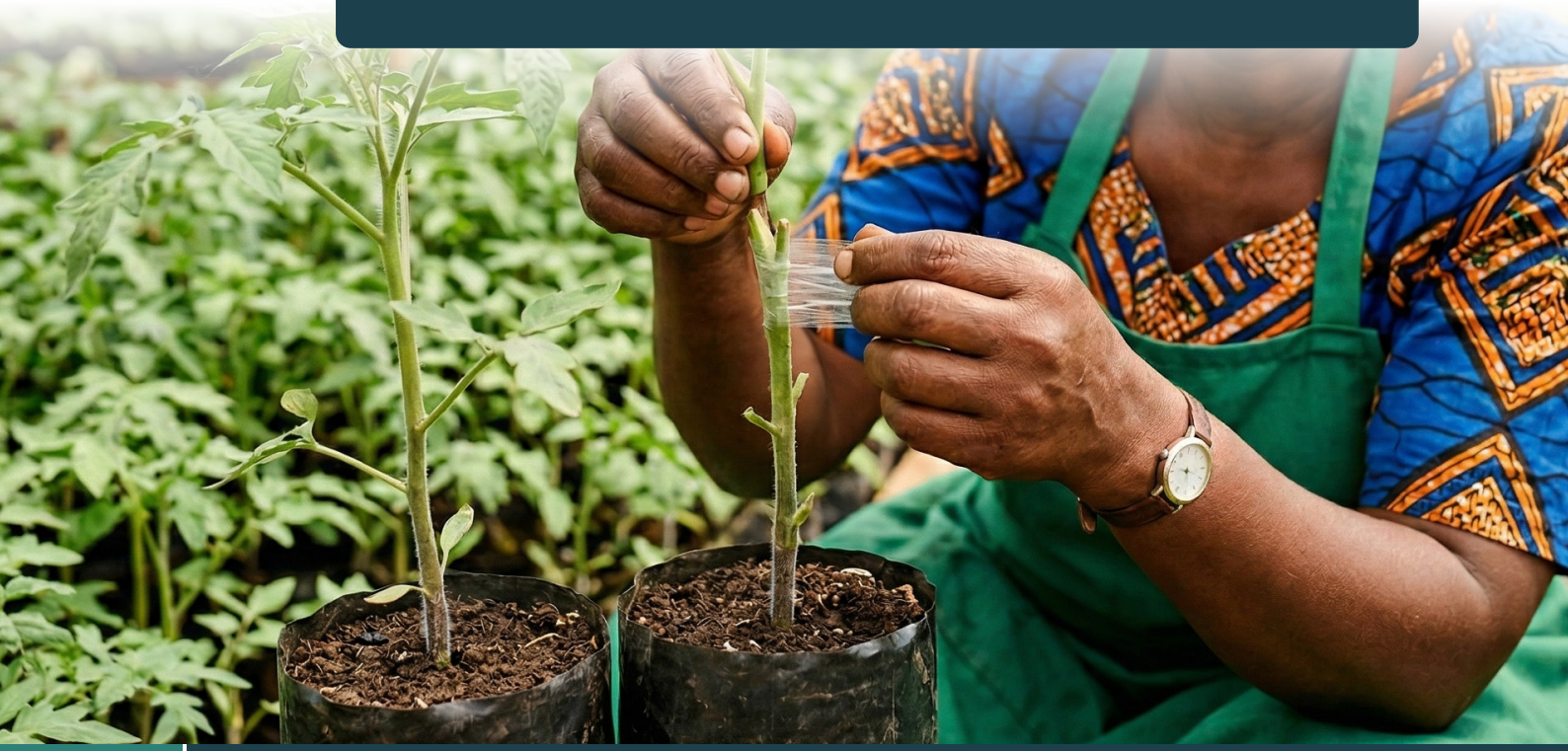
The three partners aimed not merely to control bacterial wilt, but to revitalize the productivity of the greenhouse through a safer management practice and innovative solution called tomato grafting.

Grafting is a chemical-free intervention and an environment-friendly method for controlling soil-borne diseases and abiotic stresses. It is the grafting of soil-borne disease-susceptible commercial variety as a scion on a soil-borne disease-resistant rootstock line that is not suitable for commercial production on its own, but provides robust resistance and supports the commercially important scion variety.

At RAB's Horticulture Centre of Excellence in Mulindi, WorldVeg experts not only trained RAB staff in the art of grafting but also brought seeds of three bacterial wilt-resistant rootstock lines. An additional commercial rootstock line was brought by HGT. RAB also provided one local rootstock accession.

The first tomato grafting exercise in Rwanda, therefore, was initiated in 2023 under the AID-I GLR Project, using these disease-resistant rootstock lines.

By combining these robust rootstock lines with a popular but bacterial wilt-susceptible tomato variety from HGT, the team produced quite a number of resilient 'grafted seedlings' that robustly withstand the pathogen.





Tomato grafting and protected cultivation

Dr. Fekadu Dinssa, Scientist – Seed Systems Specialist, WorldVeg

The grafting exercise (Box 11) was preceded by both theoretical and practical training for farmers, extension officers and agronomists.

Demonstration plots were established in greenhouses known to be heavily infested with wilt disease.

The results were compelling: while traditional, ungrafted tomato plants wilted and died, the grafted plants remained vigorous, lush, green, and laden with fruit.

These participatory, see-for-yourself, side-by-side comparisons delivered a powerful message that words alone could not convey.

To showcase this breakthrough, RAB, WorldVeg, and HGT organized farmer field days, transforming the demonstration plots into open-air classrooms. Farmers observed the difference firsthand, examined the healthy grafted plants, and learned how to apply grafting techniques in their own greenhouses.

Encouraging outcomes have followed, with farmers enjoying the tangible benefits of grafted tomato technology. There is now growing optimism among greenhouse growers, as shown in Box 11.

TESTIMONIAL

Box 12: Voices from the field on vegetable-growing

Dr. Fekadu Dinssa, Scientist – Seed Systems Specialist, WorldVeg

Mr Eric Janvier Niyoniringiye, of Rwamagana District, Muyumbu Sector, Murehe cell, is a vegetable farmer with about 10 years' experience. He farms potatoes along with vegetables such as cabbage, and staple crops. With his keen interest in vegetable farming, he received a grant of two greenhouse units where he started indoor cultivation of tomatoes, sweet peppers and cucumbers.

Through the AID-I GLR Project, he was trained in tomato grafting for the management of wilt diseases at Kigali-Gahanga by HGT. Thereafter, he was then selected as one of the host farmers of grafted tomato demonstration plots in Rwamagana, a district with many greenhouses.

In the demonstration plots, he found that grafted tomato plots were free of wilt diseases while at least 30% of the plants in the ungrafted tomato plots were damaged by wilt diseases. Also, yield and yield components (e.g., fruits per plant, weight of fruits, and plant vigor) were much higher in the grafted plants. In stark contrast, most of the fruits harvested from the ungrafted demonstration plots were unmarketable.

"Previously, my experience with tomato cultivation had not been good because 10% of my plants wilted in the first season planting," said Mr Niyoniringiye. "This forced me to grow cucumbers in the second season for crop rotation. In the third season, I again planted tomatoes hoping that the rotation would work. But it was quite the opposite: the damage was worse than the first season! My neighbor who too has a greenhouse suffered 100% loss. These terrible experiences made it impossible to grow greenhouse tomatoes in our region."

Farmers who hosted grafted tomato demonstration plots and those who attended scaling events such as field days valued the technology. They hope it will help them stay competitive in the tomato market, where many growers have abandoned greenhouse production.

However, farmers note that grafting remains challenging for individual growers, both in terms of cost and technical skills.

Farmers said they wish to see grafted tomato seedlings in an accessible market and at a reasonable price. Will this dream come true? It may require the private sector and seed companies to consider raising and selling seedlings – including grafted seedlings – and not just seeds. Experiences from other countries indicate that farmers prefer purchasing seedlings rather than risking poor germination of expensive hybrid varieties caused by inadequate seedbed management.

From despair to "I want more!"

Solid'Africa, a non-governmental organization (NGO) operating in Rwanda, was among the first to adopt the grafted tomato innovation, ordering 1,800 grafted seedlings in early 2025.

After witnessing the seedlings' exceptional performance, the NGO placed an order for 1,500 more grafted seedlings. RAB's Center of Excellence has since evolved from a training ground into a trusted nursery of innovation and hope.

What began as a small pilot has now grown into a sustainable production center. Rwanda's greenhouse farmers are no longer asking, "What is killing my plants?" but rather, "Where can I get more grafted seedlings?"

Through the partnership, science, and local expertise, RAB, WorldVeg and HGT and their collaborators have transformed wilted fields into a harvest of resilience and opportunity.

4.3.2.3. Increased land under improved management practices/technologies

Signs of early adoption by farmers emerged early on.

By the 2024B season, nearly three-quarters (70%+) of participating farmers reported an increase in the land area cultivated with the promoted technologies and practices – a trend which continued into subsequent seasons.

This evidence is also corroborated by comparing the average acreage for the different crops promoted by the project, which, in all cases except OFSP (Box 11), outstripped the average area where small packs were promoted.

This demonstrates adoption, as farmers have now applied the technologies promoted beyond small-pack areas.

It was particularly significant for potatoes, where land under cultivation increased ten-fold from 40m² to 442m² (Figure 25).

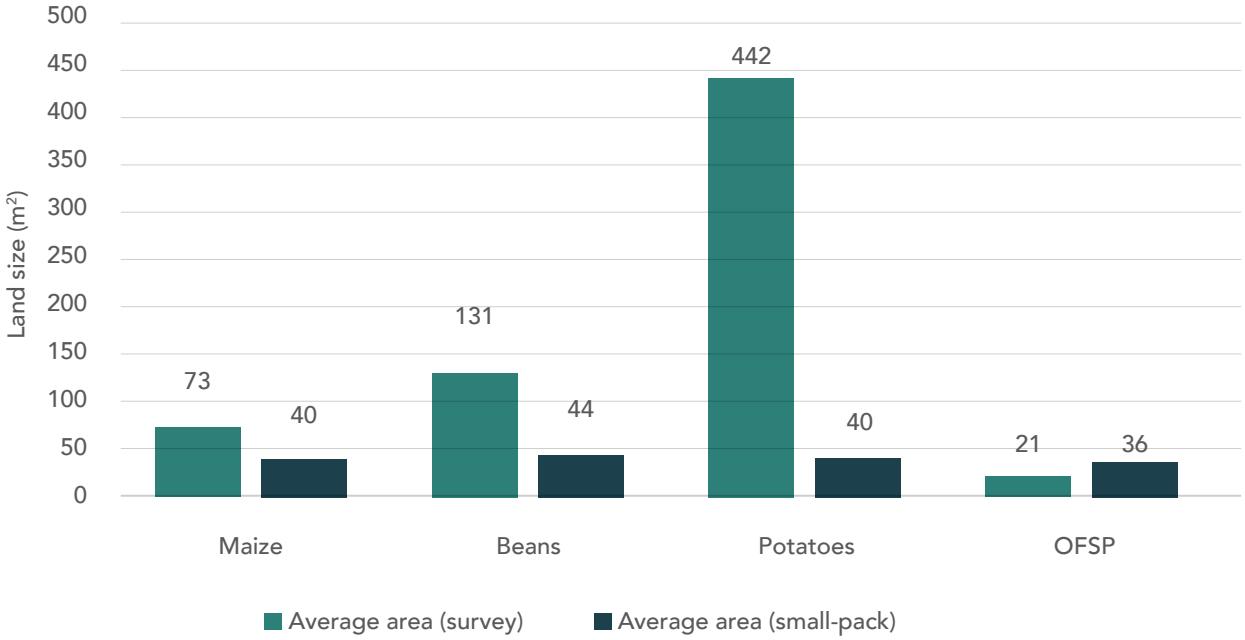


Figure 25: Comparison between projected (from small-pack distribution) and actual land under improved practices in Rwanda.

The strategic distribution of small packs enabled farmers to adopt a 'test-before-investing' approach, significantly reducing the perceived risks associated with new technologies, and accelerating uptake.

Complementing this, field days and community showcase events hosted at demonstration sites created dynamic learning platforms that encouraged peer-to-peer knowledge exchange, practical observation, and collective problem-solving.

The tangible productivity gains documented at these sites – frequently reflecting crop yield increases of up to twofold for some crops including for maize, OFSP, and Irish potatoes – were powerful proof of the effectiveness of the promoted technologies.

These visible results strengthened farmer confidence, generated local demand traction, and stimulated organic diffusion of improved practices as early adopters influenced neighboring households.

Collectively, this demonstration-driven model played a critical role in deepening community trust, stimulating behavioral change, and driving large-scale technology adoption across target areas.

Box 13: Highs and lows of OFSP: Spotlight on factors behind low adoption

Dr. Jean Ndirigwe, Senior Research Fellow, RAB

AID-I GLR was instrumental in promoting OFSP in Kayonza and Gakenke Districts to combat vitamin A deficiency, improve household nutrition, and enhance income opportunities.

Despite considerable success in pre-basic and basic OFSP seed multiplication, dissemination, and awareness creation through significant promotion efforts, several gender- and behavior-related factors continued to limit widespread OFSP adoption.

Initially, many men perceived OFSP as a 'women's or children's crop', leading to low male participation in production decisions, although men often controlled marketing and income from sales. This gender bias reduced household-level investment in OFSP production and limited its scaling potential. Therefore, understanding gender-based challenges and capturing lessons learned are essential for inclusive scaling and sustainable impact.

Behavioral preferences also influenced adoption rates. In some communities, the orange color of OFSP varieties was associated with a 'carrot-like' taste, making OFSP less preferred compared to traditional white or yellow varieties.

Additionally, limited awareness of OFSP's nutritional benefits and the need for dietary behavior-change slowed acceptance, particularly among households not exposed to nutrition education and the benefits of vitamin A from OFSP.

To address these challenges, more awareness on gender-sensitive training and vitamin A nutrition benefits, and joint household decision-making approaches are needed. Also paramount is focusing efforts on promoting taste-preferred, high-yielding OFSP varieties; emphasizing OFSP's nutritional value; cooking demonstrations; and behavior-change communication.

Farmers and consumers in Rwanda like sweet-tasting varieties with high dry-matter content or the white-fleshed types.

With this in mind, focus should be on promoting OFSP varieties whose sweetness matches Mugande and Wadada types (local varieties).

4.3.2.4. Demonstrated performance of innovations and practices in farmers' fields

Different complementary surveys also highlighted the project's impact on yield. The first survey (via telephone) indicated that, on average, more than half of the farmers reported increased yields. Further analysis through outcome surveys to quantify this increase was conducted by comparing the yields from the baby demonstration plots with the baseline data.

The results indicated a yield increase exceeding 90% for all crops. For maize, the yields more than doubled.

Table 29: Comparison of 2024 yield (mt/ha) – baby demos vs baseline in Rwanda.

	Baseline	Yield	Percentage increase
Maize	1.55	6	287%
Beans	0.8	1.5	88%
OFSP	7	18	157%
Potatoes	8.6	21.5	150%
Vegetables	N/A	25	N/A

4.3.2.5. Enhanced availability and accessibility of improved technologies

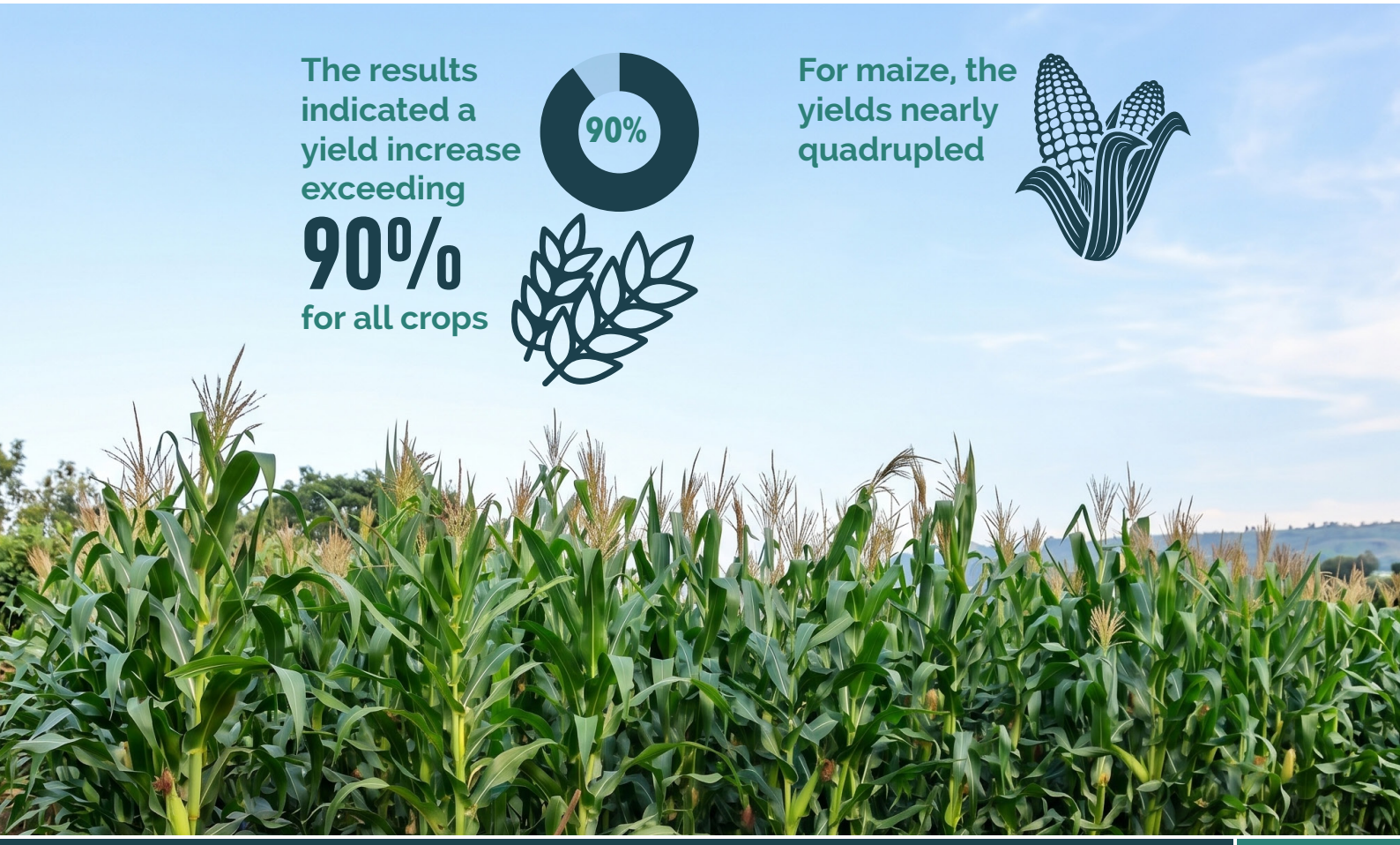
The demand-creation approaches contributed to increasing market penetration for seed companies, and to the availability of new varieties and technologies.

As a result of the dissemination efforts in past seasons, seed companies expanded their operations by connecting with 61 new agro-dealers, helping them reach new areas, and significantly boosting their distribution networks.

A survey conducted in March 2025, conducted by AID-I GLR partner, AGRA, showed that on average, seed companies are now present in most districts, with one seed company nearly doubling its operating districts from seven to 11 districts. The companies also increased the number of seed-distribution agro-dealers in their network by 16%. This geographical and network expansion also led to an increase in the number of new varieties distributed by seed companies. By exposing farmers to packages of innovations, seed companies recorded a 53% increase in the number of new seed varieties in farmers' hands.

Regarding the fortified maize flour, the product was made available in six districts through 93 retail shops, ensuring last-mile access for rural households with more than 25,000 individuals benefiting from the distribution. Nearly half (approximately 49.5%) of the contracted retail shops were operated by women or youth, demonstrating strong inclusion of these groups in project implementation. The uptake of whole maize flour and awareness in rural communities also improved significantly through multi-channel communication efforts, including radio broadcasts, printed materials, and direct community outreach.

Despite this notable progress, much remains to be done to enhance and sustain the robustness and reach of the distribution networks, and to make products available at the last mile. For example, the offtake market would be a key component in the sustainability of the technologies and innovation uptake. Moreover, there are still challenges associated with the cost of transporting seeds, particularly seed potatoes that are bulky by nature.



4.4 Assessment of the theory of change in Rwanda

A theory of change (ToC) maps the cause–effect pathway from project activities and inputs to specific outputs, intermediate outcomes, and ultimately, the intended impact.

For AID-I GLR, its ToC suggests that (a) coordinated partnerships between technology developers, scaling partners and market actors, combined with (b) targeted exposure (demonstrations, small-pack trials, outreach) and (c) capacity development (ToT, extension support), will (d) increase farmer appreciation and demand for improved technologies, and (e) that strengthened input-supply systems will be able to respond, leading to (f) higher adoption, improved yields and nutrition outcomes.

As shown in Table 30, to track this pathway, the project uses the 3F2R framework (**f**armer exposure ⟶ **f**armer appreciation ⟶ **f**armer demand; system **r**eadiness and system **r**esponse).

Results are as follows:

- **Exposure:** The project delivered very high exposure to innovations through a mix of small-packs, demonstration plots and events. Key figures: ~1,071,400 small packs distributed (94% of target), >4,090 mother demonstration plots (103% of target), and >800,000 participants in field days and scaling events (132% of target). These interventions reached ~749,000 beneficiaries (55% women).

- **Appreciation and demand:** Post-exposure monitoring and surveys indicated a rapid and high level of appreciation. Farmers reported yield increases exceeding 90% for all crops, and application rates across value chains were very high (range ~92–96%). Reported farmer demand and area under improved management also increased (e.g., potato area expanded substantially). Where farmers saw demonstrable gains, demand for inputs (e.g., grafted seedlings, seed potatoes) increased.

- **System readiness and response:** While the supply side responded, the quantity of EGS was insufficient to meet demand. There is a need to improve the planning between seed companies and RAB to ensure a consistent supply of the required quantity: RAB produced ~95.2 mt of EGS and seed companies produced >11,480 mt of certified seed across targeted crops; 10 seed companies sold >16,284 mt of inputs, generating ~USD 8.1 million in revenue. Seed companies expanded their networks (61 new agro-dealers, reflecting a growth of ~16% in dealer networks), indicating commercial uptake of the small-pack model.

- **Impact signals:** Yield comparisons between baby demonstrations and baselines show very large percentage increases (e.g., maize +222%, potatoes +168%, beans +97%, OFSP +147%), which corroborated the finding that promoted practices and varieties perform well under real-life farm conditions (Table 29 in Annexes).

The ToC proved valid and operationally effective: the project successfully triggered the exposure ⟶ appreciation ⟶ demand ⟶ response chain and delivered strong early productivity gains.

For durable impact, the ToC should explicitly incorporate extended implementation time, reinforced coordination modalities, and targeted investments to address last-mile and financing constraints.

Table 30: Assessing the theory of change using 3F2R framework in Rwanda.

ToC 3F2R element	Assessment	Evidence summary	Justification
Farmer exposure	Strongly achieved	1,071,400 small packs distributed; 4,090 demo plots; 800,000+ participants in events	Multi-channel exposure exceeded target and reached >749,000 farmers, establishing awareness at scale.
Farmer appreciation	Strongly achieved	Knowledge increased from 4% to 95%; application rates 92–96%. Yield comparisons between baby demos and baseline show very large percentage increases (e.g., maize +287%, potatoes +150%, beans +88%, OFSP +157%)	Farmers demonstrated technical understanding and willingness to apply recommended practices.
Farmer demand	Achieved	Increased demand for grafted seedlings, seed potato, protected cultivation	Observed market pull for improved inputs and farmer-initiated replication of demo practices.
System readiness	Partially achieved	95.2 mt EGS produced; 11,480 mt certified seed; 61 new agro-dealers onboarded	Supply systems responded but logistics for bulky inputs and last-mile access remain inconsistent.
System response	Partially achieved	Seed sales generated USD 8.1m; sustained small-pack distribution by private sector	Private sector commercially adopted the model, showing system-level market response.

4.5 Challenges, lessons learned, and recommendations

Challenges

Internal

- The large number of institutions involved – each with a different work-culture and protocols – led to complex coordination and a degree of role ambiguity, particularly pronounced in the startup phase. Consequently, there were occasional inefficiencies in synchronizing activities.
- Teething problems from divergent messaging in year 1 resulted in confusion, which in turn slowed initial adoption.

External

- The USAID stop-work directive caused a major disruption.
- The short project duration hindered tracking long-term behavioral change, multi-season reinforcement, institutionalizing partnerships, and measuring sustained adoption at scale.
- Resource constraints limited the number of demonstration plots, extension events, and follow-up monitoring visits, thereby reducing geographic coverage and intensity of farmer engagement.

Lessons learned

- Strong partnerships among research developers, development partners, private actors (e.g., seed companies) and public institutions contribute significantly to accelerating the dissemination and adoption of agricultural technologies, thereby ensuring sustainability.
- But to get the best from these strong partnerships and to optimize their efficiency, upfront role codification and harmonizing communication are paramount, given the different organizational cultures and procedures that characterize partnerships.
- Approaches such as distribution of small seed packs, demonstration plots, farmer field days, advisory services, and different outreach campaigns proved effective in exposing more farmers to new technologies, thereby building trust and creating demand.
- Strengthening the capacity of seed companies and strong links with agro-dealers enhanced farmers' access to improved seeds and inputs, hence increased yields and productivity. It also created more business opportunities among the value-chain actors owing to gaining new customers and expanding into new areas and products.
- Input bundling is more than marketing; it is a systems solution.
    - It addresses interlinked constraints that prevent smallholder farmers from achieving full productivity, and is a win–win for all involved.
    - Bundling ensures farmers receive complete solutions that unlock productivity.
    - Collaboration amongst marketers expands reach, while shared distribution channels help private-sector actors reach more farmers at lower costs.

Recommendations

- For durable impact, the project's ToC should explicitly incorporate extended implementation time, reinforced coordination modalities, and targeted investments to address last-mile and financing constraints.
- Data, training and monitoring all matter: tracking adoption and continuous farmer education ensure long-term results.
    - Training of extension agents facilitated proper transfer of know-how on technologies, good agricultural practices and nutrition to farmers, leading to high adoption rates.
    - Similarly, farmer training in appropriate technologies and effective demonstrations can lead to easy adoption. This was amply demonstrated in tomato grafting and protected cultivation for the control of bacterial wilt *(R. solanacearum).* However, farmers noted that grafting remains challenging for individual growers, in both cost and technical skills. Also challenging is the unavailability of grafted seedlings – an aspect not easily managed by every farmer. Despite these potential setbacks, participants of the training programs and demonstration plots were convinced of the technology and are eager to obtain grafted seedlings for protected tomato cultivation. This 'problem–solution–readiness' scenario demarcates an area for future efforts to close these gaps in planting materials and technical know-how.
- Consumer perceptions, preferences and intervening social factors are important considerations to take into account, as they influence adoption. This was evident for wholemeal maize flour.
- Similarly, understanding gender-based challenges and capturing lessons learned are essential for inclusive scaling and sustainable impact. OFSP presented an illustrative case in point (Box 11).

5

CHAPTER ANNEXES

5.1. Chapter 1 (Overall)

Table 31: Farmers who expanded acreage under improved technologies, by value chain, year and season.

	Exposed in 2023B				
Expanded in 2024A	**Women**	**Men**	**15–29 yrs**	**30+ yrs**	**Total**
Beans	71%	74%	74%	72%	73%
Maize	64%	66%	50%	70%	65%
OFSP	62%	77%	65%	73%	71%
Rice	50%	63%	75%	55%	59%
Potatoes	100%	67%	100%	67%	75%
Vegetables	57%	63%	67%	61%	61%
Forage	40%	55%	33%	53%	52%
Lime		100%	100%	100%	100%
Average	*64%*	*71%*	*71%*	*69%*	*70%*

	Exposed in 2023B				
Expanded in 2024B	**Women**	**Men**	**15–29 yrs**	**30+ yrs**	**Total**
Maize	57%	64%	43%	68%	61%
OFSP	64%	82%	53%	81%	76%
Rice	55%	55%	38%	60%	55%
Potatoes	100%	100%	100%	100%	100%
Vegetables	67%	65%	38%	69%	66%
Forage	46%	52%	67%	50%	51%
Lime	100%	0%	50%		50%
Average	*70%*	*60%*	*55%*	*71%*	*65%*

	Exposed in 2024A				
Expanded in 2024B	**Women**	**Men**	**15–29 yrs**	**30+ yrs**	**Total**
Maize	68%	55%	75%	58%	60%
OFSP	74%	70%	60%	73%	72%
Rice	100%	71%		75%	75%
Potatoes	50%	0%	50%	0%	33%
Vegetables	52%	68%	0%	65%	60%
Forage	25%	50%	50%	43%	44%
Lime	50%			50%	50%
Average	*60%*	*52%*	*47%*	*52%*	*56%*

Table 32: Yield (in mt/ha) across two years (2023–2024) by crop, and by farmer gender and age.

Crop	Details	Country			Overall
		Burundi	DRC	Rwanda	
Maize	Innovator projection of potential yield	4–8	4–8	4–8	4–8
	National baseline	0.77	1.2	1.55	1.2
	Average farmer-reported yield	5.3	4.9	6.9	5.7
	Men	5.6	4.2	7	5.6
	Women	4.9	11.8	7.9	8.2
	15–29	4.3	4	7	5.1
	30+	5.4	4.1	6.3	5.3
Beans	Innovator projection of potential yield	1–2.5	1–2.5	1–2.5	1–2.5
	National baseline	0.6	0.5	0.8	0.6
	Average farmer-reported yield	1.4	1.4	1.5	1.4
	Men	1.4	1.2	1.3	1.3
	Women	1.1	1.8	1.7	1.5
	15–29	1.2	1.3	1.5	1.3
	30+	1	1.3	1.2	1.2
Potatoes	Innovator projection of potential yield	–	–	20–40	20–40
	National baseline	–	–	8.6	8.6
	Average farmer-reported yield	–	–	26.2	N/A
	Men	–	–	26.5	26.5
	Women	–	–	24.3	24.3
	15–29	–	–	26	26
	30+	–	–	22.2	22.2
OFSP	Innovator projection of potential yield	9–14	9–14	9–14	9–14
	National baseline	9.4	5	7	7.1
	Average farmer-reported yield	13.6	14.2	14.6	14.1
	Men	11	12	12.6	11.9
	Women	12.1	17	15.4	14.7
	15–29	12.7	–	13.2	8.6
	30+	8.6	14.2	13.7	12.2
Vegetables	Innovator projection of potential yield	–	20–30	20–30	20–30
	National baseline	–	–	–	N/A
	Average farmer-reported yield	–	29	21	25
	Men	–	29.2	16	22.6
	Women	–	27.5	18.4	22.9
	15–29	–	27.5	16.7	22.1
	30+	–	29.1	15.2	22.15
Rice	Innovator projection of potential yield	4–7	4–7	–	4–7
	National baseline	4	1.1	–	2.6
	Average farmer-reported yield	4	4.3	–	4.2
	Men	4.3	4.6	–	4.4
	Women	2	4.1	–	3
	15–29	3.1	3.9	–	3.5
	30+	4.1	4	–	4

Table 33: Farmer-preferred dissemination channels for receiving agricultural information.

Channel	Burundi (n=414)	DRC (n=402)	Rwanda (n=400)	Overall (n=1,216)
Training	61%	60%	23%	**48%**
Training through demonstration	20%	73%	5%	**32%**
Field day	10%	12%	24%	**15%**
Video show	0.2%	2%	0%	**1%**
Agricultural show	0.5%	1%	3%	**1%**
Sensitization	20%	13%	64%	**32%**
Media event (radio and TV)	1%	2%	4%	**22%**
Input distribution	75%	45%	50%	**56%**
SMS	0.2%	0%	5%	**2%**
Interactive Voice Response (IVR)	0%	0%	1%	**0.3%**

Table 34: Distribution of small packs of technologies.

Small packs of technologies distributed		Planned	Actual	% progress	Number of farmers reached by small packs				
					Women	Men	15–29	30+	Total
Seeds									
Maize	Burundi	538,783	265,817	49%	102,484	137,445	29,029	210,900	239,929
	DRC	73,410	76,099	104%	47,408	27,556	20,019	54,945	74,964
	Rwanda	227,419	204,950	90%	76,756	54,838	23,292	108,302	131,594
	Total	**839,612**	**546,866**	**65%**	**226,648**	**219,839**	**72,340**	**374,147**	**446,487**
Beans	Burundi	463,287	266,574	58%	105,567	152,899	24,560	233,906	258,466
	DRC	52,158	97,110	186%	60,399	32,692	27,661	65,430	93,091
	Rwanda	228,046	233,578	102%	94,295	52,664	18,763	128,196	146,959
	Total	**743,491**	**597,262**	**80%**	**260,261**	**238,255**	**70,984**	**427,532**	**498,516**
Potatoes	Rwanda	25,719	24,004	93%	9,377	11,076	2,339	18,114	20,453
	Total	**25,719**	**24,004**	**93%**	**9,377**	**11,076**	**2,339**	**18,114**	**20,453**
OFSP	Burundi	125,346	68,723	55%	29,881	38,956	5,079	63,758	68,837
	DRC	52,043	8,438	16%	4,533	2,695	1,828	5,400	7,228
	Rwanda	84,036	70,167	83%	36,411	16,620	10,767	42,264	53,031
	Total	**261,425**	**147,328**	**56%**	**70,825**	**58,271**	**17,674**	**111,422**	**129,096**
Rice	Burundi	34,933	31,373	90%	11,413	14,516	6,664	19,265	25,929
	DRC	32,950	23,530	71%	11,427	12,014	7,111	16,330	23,441
	Total	**67,883**	**54,903**	**81%**	**22,840**	**26,530**	**13,775**	**35,595**	**49,370**
Vegetables	DRC	46,695	17,512	38%	8,417	5,560	3,744	10,233	13,977
	Rwanda	363,522	363,606	100%	112,816	137,841	35,817	214,840	250,657
	Total	**410,217**	**381,118**	**93%**	**121,233**	**143,401**	**39,561**	**225,073**	**264,634**
Fodder	Burundi	86,803	32,604	38%	9,166	18,121	2,157	25,130	27,287
	DRC	-	221	-	87	131	27	191	218
	Total	**86,803**	**32825**	**38%**	**9,253**	**18,252**	**2,184**	**25,321**	**27,505**
Bananas	Burundi	39,200	6,514	17%	2,716	3,137	734	5,119	5,853
	DRC	9,075	924	10%	407	443	256	594	850
	Total	**48,275**	**7,438**	**15%**	**3,123**	**3,580**	**990**	**5,713**	**6,703**

Small packs of technologies distributed		Planned	Actual	% progress	Number of farmers reached by small packs				
					Women	Men	15–29	30+	Total
Cassava	Burundi	39,029	12,324	32%	4,703	5,618	1,022	9,299	10,321
	DRC	39,000	10,655	27%	5,830	3,866	1,981	7,715	9,696
	Total	**78,029**	**22,979**	**29%**	**10,533**	**9,484**	**3,003**	**17,014**	**20,017**
Soybean	DRC	2,050	1,964	96%	819	867	650	1,036	1,686
	Total	**2,050**	**1,964**	**96%**	**819**	**867**	**650**	**1,036**	**1,686**
Total 1		**2,153,287**	**1,816,687**	**84%**	**734,912**	**729,555**	**223,500**	**1,240,967**	**1,464,467**
Other inputs									
Lime	Rwanda	127,873	60,500	47%	22,825	16,450	4,089	35,186	39,275
	Total	**127,873**	**60500**	**47%**	**22,825**	**16,450**	**4,089**	**35,186**	**39,275**
Fertilizer	DRC	76,362	40,616	53%	25,093	15,253	11,716	28,630	40,346
	Burundi	388,026	204,307	53%	73,804	108,288	20,644	161,448	182,092
	Total	**464,388**	**244,923**	**53%**	**98,897**	**123,541**	**32,360**	**190,078**	**222,438**
Bio-pesticides	DRC	11,472	2,685	23%	989	583	561	1,011	1,572
	Burundi	3,600	28,822	801%	12,936	15,626	3,116	25,446	28,562
	Total	**15,072**	**31,507**	**209%**	**13,925**	**16,209**	**3,677**	**26,457**	**30,134**
Vaccine	Burundi	2,807	4,597	164%	860	2,976	408	3,428	3,836
	DRC	9,850	3,675	37%	1,050	2,427	658	2,819	3,477
	Total	**12,657**	**8,272**	**65%**	**1,910**	**5,403**	**1,066**	**6,247**	**7,313**
Artificial in-semination	Burundi	3,412	5,015	147%	1,209	3,216	366	4,059	4,425
	DRC	870	725	83%	68	646	27	687	714
	Total	**4,182**	**5,740**	**137%**	**1,277**	**3,862**	**393**	**4,746**	**5,139**
Rabbits	Burundi	1,250	878	70%	341	213	282	272	554
	Total	**1,250**	**878**	**70%**	**341**	**213**	**282**	**272**	**554**
Chicks	Burundi	6,150	5,419	93%	2,235	1,943	546	3,632	4,178
	Total	6150	5,419	93%	2,235	1,943	546	3,632	4,178
Total 2		**631572**	**357,239**	**57%**	**140,611**	**165,950**	**41,975**	**264,586**	**309,031**
Processed products									
Fortified whole maize flour	Rwanda	87,434	114,674	131%	60,790	46,350	69,088	38,052	107,140
Total 3		**87,434**	**114,674**	**131%**	**60,790**	**46,350**	**69,088**	**38,052**	**107,140**
Grand total		**2,872,293**	**2,288,600**	**80%**	**937,112**	**943,526**	**335,001**	**1,545,637**	**1,880,638**

Table 35: EGS and certified seed (mt) produced.

Type of seeds	Commodity	Country	Overall
EGS	Maize	Burundi	6
		DRC	3
		Sub-total 1	**9**
	Beans	Burundi	15
		DRC	6
		Rwanda	33
		Sub-total 2	**54**
	Rice	Burundi	4
		DRC	4
		Sub-total 3	**8**

EGS	OFSP	Burundi	54.20
		DRC	11.40
		Rwanda	43.00
		Sub-total 4	**108.60**
	Potato	Rwanda	19.50
		Subtotal 5	**19.50**
	Total 1		**199.01**
Certified	Maize	Burundi	1.97
		DRC	73.62
		Rwanda	3,661.60
		Sub-total 1	**3,737.19**
	Beans	Burundi	138.80
		DRC	51.30
		Rwanda	428.80
		Sub-total 2	**618.90**
	Potato	Rwanda	4,981.65
		Sub-total 3	**4,981.65**
	OFSP	Rwanda	2,414.70
		Sub-total 4	**2,414.7**
	Rice	Burundi	3.00
		Sub-total 5	**3.00**
	Total 2		**11,755.44**
Grand total			**11,954.45**

Table 36: Training events.

Type of training	Type of participants		Total participants						% achievement
			Target	Women	Men	15–29	30+	Actual	
TOTs	Lead farmers/ lead breeders *(eleveurs)*	Burundi	2,947	824	1,529	190	2,163	2,353	80%
		DRC	2,760	1,605	791	521	1,875	2,396	87%
		Rwanda	14,813	13,382	9,719	1,361	21,740	23,101	156%
		Sub-total 1	**20,520**	**15,811**	**12,039**	**2,072**	**25,778**	**27,850**	**136%**
	Government	Burundi	565	161	850	34	977	1,011	179%
		DRC	113	31	106	21	116	137	121%
		Rwanda	2,073	3,150	2,032	409	4,773	5,182	250%
		Sub-total 2	**2,751**	**3,342**	**2,988**	**464**	**5,866**	**6,330**	**230%**
	Private sector	Burundi	506	19	77	12	84	96	19%
		DRC	179	17	87	18	86	104	58%
		Rwanda	612	107	98	58	147	205	33%
		Sub-total 3	**1,297**	**143**	**262**	**88**	**317**	**405**	**31%**
	Civil society	Burundi	1,289	16	252	20	248	268	21%
		DRC	89	25	93	14	104	118	133%
		Rwanda	133	41	57	8	90	98	74%
		Sub-total 5	**1,511**	**82**	**402**	**42**	**442**	**484**	**32%**
	Total participants trained in TOTs		**26,079**	**19,378**	**15,691**	**2,666**	**32,403**	**35,069**	**134%**

Training of farmers	Producers	Burundi	45,509	19,441	24,506	4,531	39,416	43,947	97%
		DRC	21,451	10,762	8,024	2,980	15,806	18,786	88%
		Rwanda	40,000	25,481	14,404	5,771	34,114	39,885	100%
	Total producers trained		**106,960**	**55,684**	**46,934**	**13,282**	**89,336**	**102,618**	**96%**
Total of people trained			**133,039**	**75,062**	**62,625**	**15,948**	**121,739**	**137,687**	**103%**

Table 37: Scaling events organized.

Type of event	Country	Target number of participants	Total actual participants					% achievement
			Women	Men	15–29	30+	Total	
Field days	Burundi	13,974	3,296	4,677	402	7,571	7,973	57%
	DRC	6,549	2,651	3,597	1,342	4,906	6,248	95%
	Rwanda	9,125	6,232	6,102	1,422	10,912	12,334	135%
	Sub-total	**29,648**	**12,179**	**14,376**	**3,166**	**23,389**	**26,555**	**90%**
Sensitization events	Burundi	19,043	15,178	22,026	4,984	32,220	37,204	195%
	DRC	74,261	56,450	62,145	21,397	97,198	118,595	160%
	Rwanda	344,631	393,475	333,973	139,529	587,919	727,448	211%
	Sub-total	**437,935**	**465,103**	**418,144**	**165,910**	**717,337**	**883,247**	**202%**
Agri shows	DRC	2,620	388	173	148	413	561	21%
	Rwanda	3,777	970	2,023	525	2,468	2,993	79%
	Sub-total	6,397	1,358	2,196	673	2,881	3,554	56%
Voice messages (IVR)	Rwanda	250,000	19,019	39,518	8,246	50,291	58,537	23%
	Sub-total	**250,000**	**19,019**	**39,518**	**8,246**	**50,291**	**58,537**	**23%**
Total		**723,980**	**497,659**	**474,234**	**177,995**	**793,898**	**971,893**	**134%**

Table 38: Demonstration plots established.

Commodity	Country	Target	Actual			
			2023	2024	2025	Total
Maize	Burundi	279	86	80	92	258
	DRC	30	2	22	21	45
	Rwanda	172	33	151	144	328
	Sub-total 1	**481**	**121**	**107**	**257**	**485**
Beans	Burundi	173	74	79	8	161
	DRC	56	3	88	13	104
	Rwanda	102	27	74	26	127
	Sub-total 2	**331**	**104**	**241**	**47**	**392**
OFSP	Burundi	141	49	68	15	132
	DRC	24	0	0	13	13
	Rwanda	61	21	30	12	63
	Sub-total 3	**226**	**70**	**98**	**40**	**208**
Potato	Rwanda	31	6	25	18	49
	Sub-total 4	**31**	**6**	**25**	**18**	**49**
Rice	Burundi	66	6	39	18	63
	DRC	160		20	0	20
	Sub-total 5	**226**	**6**	**59**	**18**	**83**

Commodity	Country	Target	Actual			
			2023	2024	2025	Total
Vegetables	DRC	20	2	30	0	32
	Rwanda	3557	3400	56	11	3467
	Sub-total 6	**3577**	**3402**	**86**	**11**	**3499**
Cassava	Burundi	22		10	10	20
	DRC	12		12	12	24
	Sub-total 7	**34**		**22**	**22**	**44**
Banana	Burundi	74		39	33	72
	DRC	6		7	5	12
	Sub-total 8	**80**		**46**	**38**	**84**
Soybean	DRC	24		48	4	52
	Sub-total 9	**24**		**48**	**4**	**52**
Forage crops	Burundi	6		5	0	5
	Sub-total 10	**6**		**5**	**0**	**5**
Lime	Rwanda	35		57	0	57
	Sub-total 11	**35**		**57**	**0**	**57**
Total		**1,087**	**3,709**	**775**	**455**	**4,939**

Table 39: Sales by market actors

Country	Company name	Inputs	Overall	
			Total quantity (mt) sold	Total value of sales (USD)
Burundi	Cooperative Haguruka	Beans	85	108,592
	Coop Eden	Beans	30	50,822
	ISABU	Maize	2	4,000
	Cooperative Dukorerehamwe	Rice	3	3,027
Total 1			**120**	**166,441**
DRC	EPH Sarl	Beans	19	26,248
	AgriForce	Maize	56	82,162
		Beans	35	69,270
	ETS MUNGA	Beans	18	35,276
		Maize	31	46,311
Total 2			**159**	**259,267**
Rwanda	**Seeds**			
	I&J Harvest Ltd	Beans	224	308,953
	NZEYALEX Company		114	148,752
	SoT		12	19,933
	You and I Best Seeds Ltd	OFSP	54	8,177
	Ikijumba One Stop Center		494	73,046
	DERN seeds company	Potatoes	1,364	1,053,919
	SPF		4,777	2,948,641

Country	Company name	Inputs	Overall	
			Total quantity (mt) sold	Total value of sales (USD)
Rwanda	Rumbuka Seeds Ltd	Maize	748	563,627
	Top Quality		662	1,111,214
	Kilimo General Business Ltd		1,570	1,412,665
	NZEYALEX COMPANY		25	41,964
	Seeds of Trust Ltd		44	75,840
	Total 3.1		**10,088**	**7,766,732**
	Mashyuza Processing Company Ltd (MPC)	Lime	1,390	69,500
	NZEYALEX COMPANY		40	4,286
	MULIMECO		4,700	239,148
	NZEYALEX COMPANY	Fertilizer	66	36,518
	Total 3.2		**6,195**	**349,452**
Total 3			**16,284**	**8,116,184**
Grand total			**16,563**	**8,541,892**

Table 40: Area under improved practices or technology.

Performance indicator/disaggregation		Target	Actual	% achieved	2023		2024	
					Target	Actual	Target	Actual
Crop land		**16,541**	**23,366**	**566%**	**4,125**	**2,902**	**12,416**	**20,464**
Gender	Men	11,579	13,088	453%	2,888	1,280	8,691	11,808
	Women	4,963	10,278	207%	1,238	1,622	3,725	8,656
Age	15–29	3,308	2,366	72%	825	697	2,483	1,669
	30+	13,233	21,000	159%	3,300	2,205	9,933	18,795
Management practice or technology type	Crop genetics	16,541	23,265	141%	4,125	2,859	12,416	20,406
	Cultural practices	16,541	23,140	140%	4,125	2,850	12,416	20,290
	Pest and disease management	4,531	9,375	207%	481	410	4,050	8,965
	Soil-related fertility and conservation	10,959	17,924	164%	2,682	2,514	8,277	15,410
	Irrigation	2,772	2,370	86%	640	305	2,132	2,065
	Climate adaptation		7582		–	–	–	7,582
Commodity	Maize	7,371	12,757	173%	3,743	1,377	3,628	11,380
	OFSP	1,870	936	50%	752	254	1,118	682
	Potatoes	108	223	206%	54	24	54	199
	Rice	911	497	55%	367	72	544	425
	Beans	4,248	8,557	201%	1,066	1,173	3,182	7,384
	Vegetables	1,153	456	40%	9	2	1,144	454

5.2. Chapter 2 (Burundi)

Table 41: Project participants/beneficiaries in Burundi (as at March 2025).

		Target	Actual	Achieve-ment(%)	2023		2024		2025	
					Target	Actual	Target	Actual	Target	Actual
Number and type of individuals participating in food-security programs		**554,760**	**626,504**	**113%**	**267,740**	**191,874**	**312,174**	**374,357**	**50,712**	**60,273**
Gender	Men	331,130	361,649	109%	160,644	112,521	189,908	214,838	28,701	34,290
	Women	223,630	264,855	118%	107,096	79,353	122,266	159,519	22,011	25,983
Age	15–29	109,183	75,319	69%	53,548	23,588	77,222	42,441	8,373	9,290
	30+	445,577	551,185	124%	214,192	168,286	234,952	331,916	42,339	50,983
Category	Government		1,347			342	291	645	45	360
	Proprietors of US Government-assist-ed private-sector firms		567			72	225	174	2	321
	Civil society		369			104	558	221	15	44
	Producers (small-holders)		624,221			191,356	311,100	373,317	50,650	59,548

Table 42: Distribution of small packs of technologies in Burundi.

Packs of technologies distributed	Target	Actual	% progress	Number of farmers reached by small packs				Total
				Women	Men	15–29	30+	
Seeds								
Maize	538,783	265,817	49%	102,484	137,445	29,029	210,900	239,929
Beans	463,287	266,574	58%	105,567	152,899	24,560	233,906	258,466
OFSP	125,346	68,723	55%	29,881	38,956	5,079	63,758	68,837
Rice	34,933	31,373	90%	11,413	14,516	6,664	19,265	25,929
Fodder	86,803	32,604	38%	9,166	18,121	2,157	25,130	27,287
Bananas	39,200	6,514	17%	2,716	3,137	734	5,119	5,853
Cassava	39,029	12,324	32%	4,703	5,618	1,022	9,299	10,321
Total 1	**1,327,381**	**683,929**	**52%**	**265,930**	**370,692**	**69,245**	**567,377**	**636,622**
Other inputs								
Fertilizer	388,026	204,307	53%	73,804	108,288	20,644	161,448	182,092
Bio-pesticides	3,600	28,822	801%	12,936	15,626	3,116	25,446	28,562
Vaccine	2,807	4,597	164%	860	2,976	408	3,428	3,836
Artificial insemination	3,412	5,015	147%	1,209	3,216	366	4,059	4,425
Chicks	6,150	5,419	93%	2,235	1,943	546	3,632	4,178
Rabbits	1,250	878	70%	341	213	282	272	554
Total 2	**405,245**	**249,038**	**61%**	**91,385**	**132,262**	**25,362**	**198,285**	**223,647**
Grand total	**1,732,626**	**932,967**	**54%**	**357,315**	**502,954**	**94,607**	**765,662**	**860,269**

Table 43: Demonstration plots established in Burundi.

Crop	Target	2023	2024	S1 2025	Grand total
Maize	279	86	80	92	258
Beans	173	74	79	8	161
OFSP	141	49	68	15	132
Rice	66	6	39	18	63
Cassava	22		10	10	20
Bananas	74		39	33	72
Forage crops	6		5	0	5
Total	**761**	**215**	**320**	**176**	**711**

Table 44: Sales by micro-enterprise actors by year in metric tons (mt) in Burundi.

Company	Input	2024		S1 2025		Total	
		Quantity (mt) sold	Total value of sales (USD)	Quantity (mt) sold	Total value of sales (USD)	Total quantity (mt) sold	Total value of sales (USD)
Cooperative Haguruka Dukore	Beans	16	16,000	69	92,592	85	108,592
Coop Eden	Beans	28	47,022	1.8	3,800	29.8	50,822
ISABU	Maize	0	0	2	4,000	2	4,000
Cooperative Dukorerehamwe	Rice	3	3,027.20	0	0	3	3,027.20
Total		**47**	**66,049.20**	**72.8**	**100,392**	**119.8**	**166,442**

Table 45: Number of individuals in the agriculture system who applied improved management practices or technologies with AID-I GLR assistance in Burundi.

		Target	Actual	% achieved	2023		2024	
					Target	Actual	Target	Actual
		453,643	453,127	100%	240,966	169,458	212,677	283,669
Smallholder producers								283,669
Gender	Men	317,550	267,534	84%	168,676	98,295	148,874	169,239
	Women	136,093	185,593	136%	72,290	71,163	63,803	114,430
Age	15–29	90,729	43,288	48%	48,193	18,602	42,535	24,686
	30+	362,915	409,839	113%	192,773	150,856	170,142	258,983
Management practice or technology type	Crop genetics	453,643	449,611	99%	240,966	169,458	212,677	280,153
	Cultural practices	453,643	430,697	95%	240,966	157,832	212,677	272,865
	Livestock management	36,900	24,616	67%	18,450		18,450	24,616
	Pest and disease management	77,424	149,426	193%	38,712	26,404	38,712	123,022
	Soil-related fertility and conservation	302,429	363,286	120%	160,644	137,068	141,785	226,218
	Irrigation	77,424	51,642	67%	38,712	29,517	38,712	22,125
	Climate adaptation	–	153,356					153,356
	Post-harvest handling and storage	248,881	238,521	96%	107,096	55,921	141,785	182,600
Commodity	Maize	434,133	143,608	33%	236,574		197,559	143,608
	OFSP	225,095	55,445	25%	169,794	23,637	55,301	31,808
	Rice	124,701	9,622	8%	108,579		16,122	9,622
	Beans	380,068	244,452	64%	236,574	145,821	143,494	98,631

Table 46: Area under improved practices or technologies in Burundi.

		Target	Actual	% achieved	2023		2024	
					Target	Actual	Target	Actual
Crop land		**6,329**	**16,988**	**268%**	**1,012**	**957**	**5,317**	**16,031**
Gender	Men	4,430	9,396	212%	708	581	3,722	8,815
	Women	1,899	7,592	400%	304	376	1,595	7,216
Age	15–29	1,266	1,315	104%	202	117	1,063	1,198
	30+	5,063	15,673	310%	810	840	4,254	14,833
Management practice or technology type	Crop genetics	6,329	16,922	267%	1,012	949	5,317	15,973
	Cultural practices	6,329	16,902	267%	1,012	929	5,317	15,973
	Pest and disease management	1,130	7,817	692%	163	373	968	7,444
	Soil-related fertility and conservation	4,219	13,742	326%	675	715	3,545	13,027
	Irrigation	1,130	891	79%	163	93	968	798
	Climate adaptation	-	6,253	-	-	-		6,253
Commodity	Maize	3,416	9,505	278%	946	-	2,469	9,505
	OFSP	1,303	680	52%	611	154	691	526
	RICE	506	273	54%	304		202	273
	Beans	2,267	6,531	288%	473	803	1,794	5,728

Table 47: Assessing the theory of change using 3F2R framework in Burundi.

Value chain	Farmer exposure (• to ••••)	Farmer appreciation (• to ••••)	Farmer demand (• to ••••)	Seed system readiness and response (• to ••••)
Beans	++++ Disseminated varieties spread beyond the project's intervention areas through training support provided to seed producers.	+++ High yield (>90%), taste and market price.	++ Demand for disseminated varieties was very high	++ The seed system was launched and strengthened through capacity building to respond to demand.
Rice	+++ Exposure rate satisfactory (>60%)	+++ High yield (>70%), not easily affordable (53%)	+++ Demand for the disseminated seeds was high due to the yield increase.	++ The system was not ready to respond to the demand. Seed producers/multipliers were trained but they lacked enough material to produce certified seed.
Maize	++++ Farmers were exposed to the technology in all the areas of intervention	+++ High yield (almost five times higher than the common varieties), good taste	++++ High demand driven by high yield.	+++ The system response to the demand was still low given that the seeds are imported, but the VBA approach connected farmers to suppliers. The investor was willing to produce the seed locally and some trials were ongoing when the project ended.

Value chain	Farmer exposure (• to ••••)	Farmer appreciation (• to ••••)	Farmer demand (• to ••••)	Seed system readiness and response (• to ••••)
OFSP	++++ o 3 varieties disseminated o Delivery of cuttings was better o Exposure to good agricultural practices (GAPs)	++++ o High yield and highly appreciated for processing	++++ o After exposure, farmers expressed the need to diversify several OFSP varieties. o Farmers demanded more cuttings	+++ The system was prepared to meet demand, with strong collaboration between CIP, ISABU, and seed multipliers. ISABU supplied EGS to seed producers for certified seed production, and 11 DVMs were established to provide material for vine multiplication.
Livestock				
AI	++++ Gestation diagnosis reached 60% of the target.60%	++++ Much appreciated	++++ Demand exists	+++ The project engaged existing livestock technicians and involved the existing system to facilitate the response to the demand through specialized government institutions. However, the engagement of the private sector remained very low due to the complexity of the supply chain (authorization, storage, etc.).
Immuni-zation	++++ Many campaigns were organized for awareness and exposure to the technology	++++ Positive appreciation	++++ Demand exists, but storing bovine theileriosis vaccine is complex and requires the availability of liquid nitrogen.	+++ Same as above
Licking blocks (LBs)	++++ The importance of LBs is known	++++ LBs were used in cattle feeding	++++ Continuous local production and marketing	N/A

Table 48: Smallholder crop yield in metric tons per hectare in Burundi.

	Yield (mt/ha)				Average	Expert projection
	2023		2024			
	Target	Actual	Target	Actual		
Maize	–	–	0.85	5.3	5.3	4–8
Beans	0.67	1.05	0.67	1.8	1.43	1–2.5
OFSP	10.34	11.23	10.34	16	13.61	9–14
Rice	–	–	4.4	4	4	4–7

Table 49: EGS and certified seed produced in Burundi in metric tons.

EGS	2023	2024	2025	Total
Maize	0	3.6	2.5	6.1
Beans	1.8	10.6	2.9	15.3
Rice	1.5	2.5	0	4
OFSP	20.5	33.7	0	54.2
Total	**23.8**	**50.4**	**5.4**	**79.6**
Certified	**2023**	**2024**	**2025**	**Total**
Maize	0	0	2	2
Beans	8.5	66.5	63.8	138.8
Rice	0	3	0	3
Total	**8.5**	**69.5**	**65.8**	**143.8**

5.3. Chapter 3 (DRC)

Table 50: Assessing the theory of change in DRC using 3F2R framework.

Value chain	Farmer exposure to innovations and practices (• to ••••)	Farmers' appreciation of innovations and practices, after trials (• to ••••)	Farmers demand for innovations and practices (• to ••••)	Seed system preparation and response to requests (• to ••••)
Beans	+++ Some areas were not reached by project activities.	+++ High adoption rate, due to high yield (>60% increase) and satisfactory nutritional aspects.	++ The habit of farmer-saved seeds and traditional practices continued, purchasing power was low, and humanitarian interventions distorted demand.	++ The nascent seed system was launched. Capacity-building conducted will help prepare response to the considerable unmet demand.
Rice	++ Many areas of the project were not reached by this innovation.	++ Rice growers made good progress, but some areas were not reached.	+++ Exposed rice growers demanded seeds, while farmers in non-target areas requested practices and innovations.	+ A fragile and still-in-formation seed system.
Maize	+++ Some areas were not reached by project activities. Poor roads inhibited access to different populated rural areas (e.g., the territory of Mwenga, to which the project was extended).	+++ High yield, good taste.	+ The variety is still new, and therefore corresponding demand was understandably low and hesitant.	+ The system is still in its initial phase.
Vegetables	+++ The VBA approach was both inclusive and innovative.	+++ Both the quality and quantity of harvests in farming and household environments were monitored.	++ o Marked gap regarding the demand ('expressed' vs 'met'), due to poor seed availability locally. o Community wait-and-see attitude.	+ o Lack of regulation and seed policy. o INERA and SENASEM were not involved enough in terms of logistics. o Strong centralization of seed production.
OFSP	++++ o Seven varieties disseminated. o Better delivery of cuttings. o Target number of farmers not reached. o Exposure to GAPs.	++++ o Popular varieties. o The location of some demos was suboptimal because some areas, such as Idjwi, Mwenga, and Walungu benefited from the establishment of mother demo plots, but there was no distribution of demonstrated varieties due to seed-stock shortage from targeted seed multipliers. o Farmers appreciated the value chain because it responds to dry season.	++++ o After exposure, farmers expressed the need to diversify OFSP varieties. o Farmers demanded larger quantities of cuttings.	+++ o Affordability of cuttings remains a constraint to some farmers. o Only seven out of the 20 agro-multipliers trained can supply the required quantities of cuttings. o Setting up – in collaboration with agro-multipliers – mini-greenhouses to preserve and sustain supply of promoted lines.

Bananas	+++ o Three varieties disseminated. o 15 macro-propagators installed. o Target number of farmers not reached. o Number of demos insufficient to meet demand.	++++ o Well-appreciated and well-developed varieties. o The installation period was moderately appreciated. o GAPs training appreciated.	++++ Farmers expressed the need for more practical training in field propagation techniques and pest control.	+++ o The agricultural cooperatives receiving support from the project to produce marketable suckers requested increased awareness-raising among households to encourage them to buy these suckers directly from the cooperatives. o Three other agricultural cooperatives benefiting from macro-propagation are seeking support to set up commercial macro-propagators, to turn this activity into a sustainable business undertaking.
Cassava	+++ o Two varieties promoted and demonstrated. o 12 demos established. o Number of demos insufficient to meet demand.	++++ o Well-appreciated and well-developed varieties. o The field establishment period was not appreciated. o GAPs training appreciated.	+++ Farmers who received healthy cassava cuttings requested more training in disease and GAPs identification to better protect their crops and improve yields.	+++ Support for agri-multipliers to ensure sustainable availability of cassava seed in the project area, through the creation of additional multiplication fields.
Artificial in-semination	++++ Gestation diagnosis target well exceeded by 60% more.	++++ Greatly appreciated.	++++ Paid AI requests.	+++ Linking up local inseminators with Burundi's National Artificial Insemination Center (CNIA)
Immuniza-tion	++++ Breeders were receptive to the technology, although they deemed it 'imported'.	++++ No vaccine side effects reported for vaccinated cattle.	++++ Demand exists, but storing bovine theileriosis vaccine is complex and requires hard-to-obtain liquid nitrogen.	+ Local private veterinarians are connected to foreign suppliers, but fulfilling protocol requirements was not easy.
Licking blocks (LBs)	++++ Farmers recognized the importance of LBs.	++++ LBs were used in cattle feeding practice.	++++ Continuous local production and marketing.	N/A
Brachiaria mulato	+++ Dissemination was in progress.	++++ Private fields were being established to accommodate intercropping with food crops.	++++ Several seed requests for individual planting.	+ Organized/strengthened seed systems (beneficiaries of multiplication fields)

Table 51: Number and type of individuals reached by AID-GLR: target vs achievement in DRC.

		Target	Actual	Achievement (%)
		299,353	261,643	87%
Gender	Men	172,808	120,123	70%
	Women	126,545	141,520	112%
Age	15–29	61,108	59,728	98%
	30+	238,245	201,915	85%

Table 52: Number of individuals involved in agriculture who applied improved management practices or technologies with AID-I GLR assistance in DRC.

		Target	Actual	Achievement (%)
		220,500	128,758	58%
Gender	Men	154,350	50,882	33%
	Women	66,150	77,876	118%
Age	15–29	44,100	35,061	80%
	30+	176,400	93,697	53%
Commodity	Maize	44,303	29,184	66%
	OFSP	40,674	2,405	6%
	Rice	42,075	18,215	43%
	Beans	44,354	77,171	174%
	Gardening crops/ vegetables	39,471	1,782	5%

Table 53: Number of hectares under improved management practices or technologies, by type of manager and commodity in DRC.

		Target	Actual	Achievement (%)
		3,619	2,659	73%
Type of hectare, manager and innovation				
Cropland		3,569	2,659	75%
Gender	Men	2,498	1,943	78%
	Women	1,071	717	67%
Age	15–29	714	259	36%
	30+	2,855	2,400	84%
Management practice or technology type	Crop genetics	3,569	2,665	75%
	Cultural practices	3,569	2,644	74%
	Pest and disease management	531	706	133%
	Soil-related fertility and conservation	2,311	1,105	48%
	Irrigation	534	738	138%
	Climate adaptation	N/A	1,059	N/A
Commodity	Maize	704	1,336	190%
	OFSP	43	34	79%
	Rice	406	224	55%
	Beans	659	1,035	157%
	Gardening crops/vegetables	586	90	15%

Table 54: EGS and certified seed produced in DRC

EGS	2023	2024	2025	Total
Maize	0	1.3	1.8	3.1
Beans	0.5	5.4	0	5.9
Rice	0.3	3.51	0	3.81
OFSP	0	11.4	0	11.4
Total	**0.8**	**21.61**	**1.8**	**24.21**
Certified	**2023**	**2024**	**2025**	**Total**
Beans	7.7	30	13.6	51.3
Maize	0	59	14.62	73.62
Total	**7.7**	**89**	**28.22**	**124.92**

Table 55: Area under improved practices or technologies in DRC.

		Target	Actual	% achieved	2023		2024	
					Target	Actual	Target	Actual
Crop land		**3,569**	**2,659**	**75%**	**305**	**82**	**3,264**	**2,577**
Gender	Men	2,498	1,943	78%	214	45	2,284	1,898
	Women	1,071	717	67%	92	37	979	680
Age	15–29	714	259	36%	61	17	653	242
	30+	2,855	2,400	84%	244	65	2,611	2,335
Manage-ment practice or technology type	Crop genetics	3,569	2,665	75%	305	88	3,264	2577.36
	Cultural practices	3,569	2,644	74%	305	85	3,264	2558.92
	Pest and disease manage-ment	531	706	133%	6	3	525	703.09
	Soil-related fertility and con-servation	2,311	1,105	48%	136	78	2,176	1026.8
	Irrigation	534	738	138%	9	–	525	737.66
	Climate adaptation	–	1,059		–	–		1058.76
Commodity	Maize	704	1,336	190%	60	–	643	1336.27
	OFSP	43	34	79%	43	–	–	34
	Rice	406	224	55%	63	72	343	152
	Beans	659	1,035	157%	52	10	606	1,025
	Vegetables	586	90	15%	0.24		585	90

5.4. Annexes Chapter 4 (Rwanda)

Table 56. Smallholder crop yield (mt) vs national baseline, disaggregated by age and gender in Rwanda.

	Baseline	Potential yield	Rwanda				
			Overall	Men	Women	15–29	30+
Maize	1.55	4–8	6.9	7	7.9	7	6.3
Beans	0.76	1–2.15	1.5	1.3	1.7	1.5	1.2
Potatoes	8.6	40–80	26.2	26.5	24.3	26	22.2
OFSP	6.97	9–14	14.6	12.6	15.4	13.2	13.7
Vegetables	N/A*	20–30	21	16	18.4	16.7	15.2

**Because AID-I GLR promoted several vegetables*

Table 57: Companies producing seeds and processing lime in Rwanda.

Partners	Value chain	Interventions or technologies, and products deployed
○ Kilimo General Business ○ Rumbuka Seeds ○ Top Quality Seed Company ○ Ignite Seeds Co Ltd	Maize	Accelerate the adoption and utilization of climate-resilient and high-yielding hybrid maize varieties in Rwanda
○ I&J Harvest ○ Seeds of Trust ○ Nzeyalex	Beans	Promoting rapid adoption and widespread use of nutrient-rich bean varieties through demonstration plots, partnerships with seed companies, and agro-dealers
○ Holland GreenTech	Vegetables: tomatoes, eggplants, amaranth, cabbages, Swiss chards, carrot, beetroot, onions	○ Transfer technologies on vegetables to farmers to increase productivity, thereby contributing to better nutrition, food security, and improved livelihoods. ○ Transfer technologies on protected cultivation ○ Build capacity in the vegetable sector through training programs targeting farmers, extension officers, and seed-related personnel across different levels.
○ Ikijumba One Stop Center ○ You&I Best Company ○ Seed Potato Fund ○ DERN Seed Company	Irish and sweet potatoes	Activating smallholder demand for: ○ seed of newly released potato and OFSP varieties ○ productivity-enhancing technologies
○ Mashyuza Processing Company ○ Musanze Lime Company	Maize, beans, Irish potatoes (lime application)	Promoting liming for acidic soils to improve soil fertility and crop productivity

Table 58: Distribution of small packs of technologies in Rwanda

Packs of technologies distributed	Target	Actual	% progress	Farmers reached by small packs				Total
				Women	Men	15–29	30+	
Seeds								
Maize	227,419	204,950	90%	76,756	54,838	23,292	108,302	131,594
Beans	228,046	233,578	102%	94,295	52,664	18,763	128,196	146,959
Potatoes	25,719	24,004	93%	9,377	11,076	2,339	18,114	20,453
OFSP	84,036	70,167	83%	36,411	16,620	10,767	42,264	53,031
Vegetables	363,522	363,606	100%	112,816	137,841	35,817	214,840	250,657
Total 1	**928,742**	**896,305**	**97%**	**329,655**	**273,039**	**90,978**	**511,716**	**602,694**
Other inputs								
Lime	127,873	60,500	47%	22,825	16,450	4,089	35,186	39,275
Total 2	**127,873**	**60,500**	**47%**	**22,825**	**16,450**	**4,089**	**35,186**	**39,275**
Processed products								
Fortified whole maize flour	87,434	114,674	131%	60,790	46,350	69,088	38,052	107,140
Total 3	**87,434**	**114,674**	**131%**	**60,790**	**46,350**	**69,088**	**38,052**	**107,140**
Grand total	**1,144,049**	**1,071,479**	**94%**	**413,270**	**335,839**	**164,155**	**584,954**	**749,109**

Table 59: EGS and certified seed produced in Rwanda

EGS	2023	2024	2025	Total
Beans	16.8	15.9	0	32.7
OFSP	0	43	0	43
Potatoes	0	19.5	0	19.5
Total	**16.8**	**78.4**	**0**	**95.2**
Certified	**2023**	**2024**	**2025**	**Total**
Beans	0	62.8	366	428.8
Maize	0	1,739.3	1,922.3	3,661.6
OFSP	0	1,674.8	7.39.9	2,414.7
Potatoes	0	2,809	2,172.7	4,981.7
Total	**0**	**6,285.9**	**5,200.9**	**11,486.8**

Table 60: Area under improved practices or technologies in Rwanda.

Performance indicator/disaggregation		Target	Actual	% achieved	2023		2024	
					Target	Actual	Target	Actual
Gender	Men	4,650	1,750	38%	1,966	654	2,685	1,096
	Women	1,993	1,969	99%	842	1,209	1,151	760
Age	15–29	1,329	792	60%	562	563	767	229
	30+	5,315	2,928	55%	2,246	1,300	3,068	1,628
Management practice or technology type	Crop genetics	6,644	3,678	55%	2,808	1,822	3,836	1,856
	Cultural practices	6,644	3,594	54%	2,808	1,836	3,836	1,758
	Pest and disease management	2,869	852	30%	312	34	2,557	818
	Soil-related fertility and conservation	4,429	3,077	69%	1,872	1,721	2,557	1,356
	Irrigation	1,107	742	67%	468	212	639	530
Commodity	Maize	3,251	1,915	59%	2,736	1,377	515	538
	OFSP	524	222	42%	97	100	427	122
	Potatoes	108	223	206%	54	24	54	199
	Beans	1,322	992	75%	540	360	782	632
	Vegetables	568	367	65%	9	2	559	365

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