CGIAR

INITIATIVE ON
Seed Equal

*Access to markets for quality grains*

*Credit: Mr. Alex Amuda, Center for Behavior Change and Communication (CBCC)*

# CGIAR Research Initiative on **Seed Equal**

Annual Technical Report 2024

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The Artificial Intelligence (AI) software ChatGPT was used to support the editing of parts of this report, specifically to improve clarity, grammar, and style. ChatGPT was not used to generate the content of the report. All edits made with AI assistance were reviewed and validated by the authors to ensure accuracy, coherence, and alignment with the original intent.

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# CGIAR Technical Reporting 2024

CGIAR Technical Reporting has been developed in alignment with CGIAR's Technical Reporting Arrangement. This annual report ("Type 1" Report) constitutes part of the broader CGIAR Technical Report. Each CGIAR Research Initiative/Impact Platform/Science Group Project (SGP) submits an annual "Type 1" Report, which provides assurance on progress towards end of Initiative/Impact Platform/SGP outcomes.

As 2024 marks the final year of this CGIAR Portfolio and the 2022-24 business cycle, this Type 1 Report takes a dual approach to its analysis and reporting. Alongside highlighting key achievements for 2024, the report also provides a cumulative overview of the 2022-24 business cycle, where relevant. This perspective captures the evolution of efforts over the three-year period. By presenting both annual and multi-year insights, the report underscores the cumulative impact of CGIAR's work and sets the stage for the transition to the 2025-30 Portfolio.

The 2024 CGIAR Technical Report comprises:

- **Type 1 Initiative, Impact Platform, and SGP Reports:** These annual reports present progress towards end of Initiative/Impact Platform/SGP outcomes and provide quality-assured results accessible via the CGIAR Results Dashboard.
- **Type 3 CGIAR Portfolio Practice Change Report:** This report provides insights into CGIAR's progress in Performance Management and Project Coordination.
- **Portfolio Narrative:** Drawing on the Type 1 and Type 3 reports, as well as data from the CGIAR Results Dashboard, the Portfolio Narrative synthesizes insights to provide an overall view of Portfolio coherence. It highlights synergies, partnerships, country and regional engagement, and collective progress.
- **Type 2 CGIAR Contributions to Impact in Agrifood Systems: evidence and learnings from 2022 to 2024:** This report offers a high-level summary of CGIAR's contributions to its impact targets and Science Group outcomes, aligned with the Sustainable Development Goals (SDGs), for the three-year business cycle.

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

Elements of the Type 2 report are integrated into the CGIAR Flagship Report, released in April 2025 at CGIAR Science Week. The Flagship Report synthesizes CGIAR research in an accessible format designed specifically to provide policy- and decision-makers at national, regional, and global levels with the evidence they require to formulate, develop, and negotiate evidence-based policies and investments.

The diagram below illustrates these relationships.

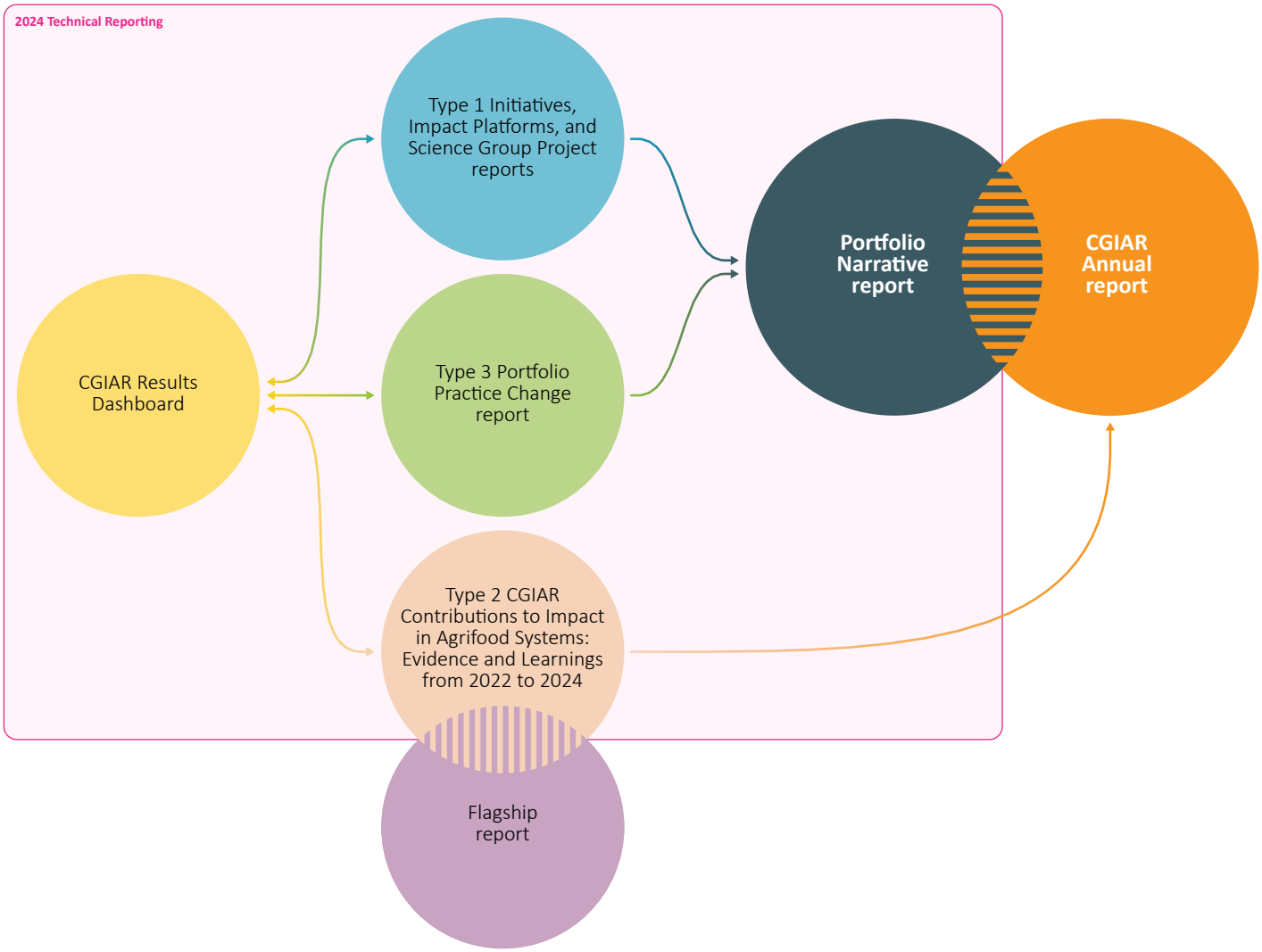



Figure 1. CGIAR's 2024 Technical Reporting components and their integration with other CGIAR reporting products.

# Section 1: **Fact sheet, executive summary and budget**

| | |
|---|---|
| **Initiative name** | Seed Equal |
| **Initiative Lead** | Christopher Ojiewo (c.o.ojiewo@cgiar.org) |
| **Initiative Co-lead** | David Spielman (d.spielman@cgiar.org) |
| **Science Group** | Genetic Innovation |
| **Start – end date** | 01 January 2022 – 31 December 2024 |
| **Geographic scope** | **Regions**<br>Central and West Asia and North Africa · East and Southern Africa · Latin America and the Caribbean · South Asia · Southeast Asia and the Pacific · West and Central Africa<br><br>**Countries**<br>Argentina · Bangladesh · Bolivia (Plurinational State of) · Brazil · Burkina Faso · Burundi · Cameroon · Colombia · Costa Rica · Ecuador · El Salvador · Eswatini · Ethiopia · Ghana · Guyana · Honduras · India · Indonesia · Kenya · Lao People's Democratic Republic · Malawi · Mali · Mexico · Mozambique · Myanmar · Nepal · Nicaragua · Nigeria · Pakistan · Panama · Paraguay · Peru · Rwanda · South Africa · Tanzania · United Republic · The Socialist Republic of Viet Nam · Uganda · Uruguay · Venezuela (Bolivarian Republic of) · Zambia · Zimbabwe |
| **OECD DAC Climate marker adaptation score[1]** | **Score 2: Principal**<br>The activity is principally about meeting any of the three CGIAR climate-related strategy objectives—namely, climate mitigation, climate adaptation, and climate policy—and would not have been undertaken without this objective. |
| **OECD DAC Climate marker mitigation score[1]** | **Score 1: Significant**<br>The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives—namely, climate mitigation, climate adaptation, and climate policy—even though it is not the principal focus of the activity. |
| **OECD DAC Gender equity marker score[2]** | **Score 1B: Gender responsive**<br>On the top of the minimum requirements for 1A, the Initiative/project includes at least one explicit gender equality outcome, and the Initiative/project team has resident gender expertise or capacity. The Initiative/project includes indicators and monitors participation and differential benefits of diverse men and women. |
| **Website link** | https://www.cgiar.org/initiative/06-seedqual-delivering-genetic-gains-in-farmers-fields/ |

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

## EXECUTIVE SUMMARY

The CGIAR Research Initiative on Seed Equal sought to accelerate the delivery of genetic gain in farmers' fields. Its work drew on decades of prior CGIAR efforts to build durable, demand-led partnerships and networks with public agricultural research and extension systems, private companies, farmer-based organizations, women's organizations, rural entrepreneurs, and nongovernmental organizations (NGOs) in the Global South. Seed Equal's work focused primarily on the farmer-facing end of the seed value chain and explicitly facilitated the movement of products—designed by the CGIAR Research Initiative on Market Intelligence, advanced by the CGIAR Research Initiative on Accelerated Breeding, and developed with national agricultural research systems (NARS)—to these partners and networks in the seed sector. Seed Equal played a facilitative and synergistic role with actionable research, capacity sharing, and outreach.

Highlights from Seed Equal's work achievements in 2024 are as follows: First, the Initiative increased the production and delivery of quality seed for improved varieties through a multitude of innovative partnerships. Novel strategies and business models were codeveloped, most notably with traders (such as for beans in Tanzania), with women-led farmer-producer companies (such as for rice in India), through decentralized seed producer networks (such as for cassava and sweet potato in eastern and southern Africa), and with commercial and state-owned seed companies (such as for major cereals in Asia, Africa, and Latin America). These partners and networks played a critical role in multiplying, delivering, and popularizing quality seed of improved varieties, and reported significant gains in their production and distribution capacity as a result of their CGIAR engagement.

Second, the Initiative complemented its work on production and delivery with advances in the measurement and tracking of genetic gain in farmers' fields. Multiple CGIAR seed tracking tools were under development, in active field testing (such as VarScout), or at the scaling stage (such as SeedTracker) with partners for low-cost in-field varietal identification, seed supply-chain traceability, and seed quality assessment along these supply chains. This work was further complemented by data collection and analysis of key indicators of genetic gain, including varietal age and concentration metrics for multiple crops, countries, and market segments.

Third, the Initiative systematically advanced improvements in the enabling environment for inclusive and sustainable seed sector development. Highlights include efforts to expand the role of women and youth seed entrepreneurs in seed production and marketing; strengthen the gender inclusivity of seed sector programs; and directly engage seed system interventions of humanitarian agencies in fragile and conflict-affected regions. These efforts were supported by CGIAR engagements with governments to improve both the design and implementation of public policies, regulations, and investments deemed necessary to accelerate pluralistic seed sector development.

| | 2022 | 2023 | **2024** |
|---|---|---|---|
| **PROPOSAL BUDGET** | $22.73M | $23.89M | **$25.38M** |
| **APPROVED BUDGET** [1] | $10.14M | $10.73M [2] | **$12.20M** [2] |

[1] The approved budget amounts correspond to the figures available for public access through the Financing Plan dashboard.
[2] These amounts include carry-over and commitments.

*Grain aggregation at a youth and women quality center.*
*Credit: Mr. Alex Amuda, Center for Behavior change and communication (CBCC)*

# Section 2: **Progress towards End of Initiative outcomes**

## Initiative-level theory of change diagram

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

### CHALLENGE STATEMENT

- Smallholder farmers, especially women and disadvantaged groups, are particularly vulnerable to climate-related and other challenges, compromising their ability to meet their own needs for food, nutrition, and income, much less to contribute to local and national food security. More frequent and severe droughts and erratic rainfall due to climate change threaten agricultural production. Due to inadequate seed supply and delivery systems that are misaligned with user and market demand, smallholders use older varieties or recycle seed, leaving them more vulnerable to pests and diseases. Productivity varies by gender, with these challenges disproportionately affecting women.
- Until gender disparities in access to information, technologies, markets, and other opportunities are addressed, efforts to realize agriculture's potential to sustainably achieve food, nutrition, and income security will be limited. With increasing population and climate pressure, inclusive and climate-smart intensification of food production is urgently needed for CGIAR and partners to deliver on key Impact Areas and Sustainable Development Goal 2. Improved varieties, innovations, and approaches developed and promoted by CGIAR and partners have potential, when contextualized against social, economic and political factors, to transform agrifood systems and reduce yield gaps, hunger, and other disparities.
- To help achieve this goal, SeEdQUAL will build on decades of work on seed systems by CGIAR and partners, and leverage synergies as government, breeders, funders, and communities recognize the need to accelerate demand-driven seed system development and reach farmers at the last mile. Success hinges on better understanding and responding to seed users' demands, including those of women and young farmers, and value chain actors specializing in high-potential niche markets. Seed systems that respond dynamically to such opportunities and deploy innovative methods and aligned approaches will increase and expand the benefits of seed access and use, especially for disadvantaged groups. SeEdQUAL, together with key innovation, delivery, and scaling partners, will develop and promote new technology solutions, more effective business models, and policy reforms to create sustainable and inclusive seed systems.

### SPHERE OF **CONTROL**

Work Packages

**Work Package 1**

Demand-driven cereal seed systems.

**Work Package 2**

Boosting legume seed through a demand-led seed approach.

**Work Package 3**

Scaling and Delivery of Vegetatively Propagated Crop Seed.

**Work Package 4**

Partnerships, capacity building, and coordination to ensure uptake of public-bred varieties and other innovations.

**Work Package 5**

Policies for varietal turnover, seed quality assurance, and trade in seeds.

**Work Package 6**

Scaling equitable access to quality seed: reaching the unreached with quality seed and traits.

**Work Package 7**

Strengthening resilience through inclusive seed and product value chains.

## SPHERE OF **INFLUENCE**

### End-of-Initiative Outcomes

**End-of-Initiative Outcome 1**

1 3 5 6 Integrated seed systems increasing the quantity of quality seed of improved varieties available to farmers for priority crops and in selected countries, geographies, and market segments.

**End-of-Initiative Outcome 2**

1 2 3 5 6 3 4 Seed system actors promoting uptake of quality seed of improved varieties by women and men farmers in selected countries , geographies, and market segments.

**End-of-Initiative Outcome 3**

1 2 3 5 7 Women, men, youth and disadvantaged socio-economic groups accessing affordable, market-demanded and producer preferred, high yielding, resilient variety

**End-of-Initiative Outcome 4**

1 3 4 5 Governments, funders, researchers, extension services, and other seed system actors using new tools for monitoring varietal turnover and quality seed use.

**End-of-Initiative Outcome 5**

3 5 6 Government partners actively promoting policy solutions to accelerate the adoption of improved varieties, varietal turnover, and quality seed use by women and men in selected countries, geographies, and market segments.

### Action Area Outcomes

**Genetic Innovation**

3 4 5 **1** · CGIAR partners develop and scale innovations that contribute to the empowerment of women and other social groups in food, land, and water systems.

1 2 **2** · Seed system actors promote the adoption of quality seed of improved varieties by women and men farmers in selected countries , geographies, and market segments.

1 2 **3** · CGIAR-NARS-SME networks use market segments, target product profiles to orient variety development and deployment towards those that provide larger scale benefits across the 5 Impact Areas.

## SPHERE OF **INTEREST**

### Impact Areas

**Nutrition, Health & Food Security**

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

**Poverty Reduction, Livelihoods & Jobs**

3 · Lift at least 500 million people living in rural areas above the extreme poverty line of US $1.90 per day (2011 PPP).

**Gender equality, Youth & Social Inclusion**

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

· Offer rewardable opportunities to 267 million young people who are not in employment, education, or training.

**Climate Adaptation & Mitigation**

3 · Turn agriculture and forest systems into a net sink for carbon by 2050, with emissions from agriculture decreasing by 1 Gt per year by 2030 and reaching a floor of 5 Gt per year by 2050.

**Environmental Health & Biodiversity**

3 · Stay within planetary and regional environmental boundaries: consumptive water use in food production of less than 2500 km3 per year (with a focus on the most stressed basins), zero net deforestation, nitrogen application of 90 Tg per year (with redistribution towards low-input farming systems) and increased use efficiency, and phosphorus application of 10 Tg per year.

· Maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed genebanks at the national, regional, and international levels.

*Bean seed multipliers inspecting a bean seed garden.*
*Credit: Mr. Alex Amuda, Center for Behavior change and communication (CBCC)*

## Summary of progress against the theory of change

Over the past three years, the Seed Equal Initiative played a key role in supporting the production and delivery of quality seed of improved, climate-resilient, market-preferred, and nutritious varieties of priority crops, ensuring equitable access for women, youth, and other disadvantaged groups across Asia, Africa, and Latin America. Through strategic partnerships, capacity building, and policy engagement, Seed Equal significantly contributed to improving nutrition and health, reducing poverty, and strengthening gender equality, environmental sustainability, and food security.

Seed Equal facilitated the large-scale production and distribution of high-quality seeds, responding to End of Initiative outcome (EOIO) 1 (quality seed available to farmers) on targeted groups, and addressing the Science Group outcome 3 by collaborating with governments, private entities, and NGOs. Between 2021 and 2024, the Initiative enabled the production and distribution of 9,855 metric tons (MT) of quality cereal seeds and strengthened seed networks. For legumes, 61 multistakeholder platforms (MSPs) involving 661 actors promoted new varieties and investments. A successful off-taker-led MSP model in Nigeria saw certified cowpea seed production increased tenfold from 157 MT in 2022 to 1,748 MT in 2024. Legume seed production partnerships resulted in 1,941 MT of early-generation seeds (EGS) and 25,358.5 MT of certified seeds, marking significant increases.

Beyond production, Seed Equal boosted adoption of quality seeds through partnerships with breeding institutions and farmer-led initiatives, addressing the EOIO 2 (seed system actors promoting uptake of quality seeds) and Science Group outcome 2 (targeted adoption) closely linked to promoting the seed adoption and use. By 2024, 100,000 MT of high-quality cereal seeds had been distributed through 230 institutional partnerships. Farmer-led trials introduced 234 new cereal varieties, and 7,158 individuals (45 percent women) were trained as master trainers. In Africa, demand-led seed systems (DLSS) and the Pan-Africa Bean Research Alliance's (PABRA) Bean Commodity Corridor Approach strengthened legume value chains. Training efforts reached 2,787 refugees, farmers, and teachers, integrating biofortified crops into Home-Grown School Feeding (HGSF) programs, improving nutrition.

Responding to EOIO 5, Seed Equal supported the development and implementation of policies, regulations, and investments for varietal release, seed quality assurance, and market development in the seed sectors. In Kenya, Seed Equal supported the Ministry of Agriculture and Livestock Development, the Kenya Plant Health Inspectorate Service, and the Kenya Agricultural and Livestock Research Organization to advance revised seed quality assurance regulations for vegetatively propagated crops (VPCs) under the Seeds and Plant Varieties Act (Cap 326), which is expected to be published in 2025. In Rwanda, Seed Equal supported the Ministry of Agriculture and Animal Resources, Rwanda Agricultural Board, the Rwanda Inspectorate, Competition and Consumer Protection Authority, the Rwanda Institute of Conservation Agriculture, and the National Seed Association of Rwanda to strengthen private sector participation in the seed market and enhance regulatory coherence. In Uganda, Seed Equal supported the Ministry of Agriculture, Animal Industry and Fisheries, the National Agricultural Research Organization, and seed companies to scale innovative anti-counterfeiting measures for seed, expand new quality assurance standards, and promote varietal turnover and quality seed use. In Nigeria, Seed Equal supported the development of new plant variety protection laws to incentivize private sector engagement in the seed sector. In Tanzania, Seed Equal collaborated with the Tanzania Agricultural Research Institute (TARI), the Tanzania Official Seed Certification Institute, and the Agricultural Seed Agency to develop equitable licensing models that return royalties to public breeding programs and provide market signals back to breeders, thereby generating greater opportunities to reach farmers at larger scales while defraying part of the operating costs of these public programs. In Ethiopia, Seed Equal supported the government of Ethiopia's shift toward greater private sector participation in the seed sector by generating and communicating evidence of the gains from its market-enabling direct seed marketing program.

Seed Equal facilitated achievements in EOIO 4 through the development, refinement, and scaled application of a diverse set of tools. New VPC tools were added to Tools4SeedSystems, as well as a French-language version. SeedTracker was extended to sweet potato in Tanzania and adopted in Ghana and the Democratic

Republic of Congo. In Kenya, 60 extension officers trained on VarScout conducted 20,000 observations on maize, potato, and bean adoption. Seed Equal collaborated with the African Seed Access Index (TASAI) to refine 17 seed policy indicators for Uganda, South Asia, and India. These seed actors were trained by Seed Equal to use new tools for monitoring varietal adoption and turn-over.

For VPCs, Seed Equal promoted sustainable propagation techniques, producing 70,000 disease-free cassava plants in Southeast Asia. Decentralized networks in Nigeria, Tanzania, and Uganda supplied more than 50 million cassava cuttings. Sweet potato seed production in Uganda and Tanzania surged from 640,000 cuttings in 2012 to more than 17 million in 2024. These efforts improved biodiversity, soil health, and climate resilience and, consequently, environmental health benefits (Impact Area 5)

Seed Equal supported women, men, youth and disadvantaged socioeconomic groups by addressing EOIO 3, empowering these groups to contribute to Science Group outcome 1 with final impacts on gender equality, youth, and social inclusion (Impact Area 3). For legume seed systems, between 2023 and 2024, 18,478 seed actors were trained (45 percent women), resulting in 52,487 MT of certified bean seed, 10,146 MT of cowpea seed, and 8,001 MT of soybean seed. Women-led farmer producer companies (W-FPCs) in India produced 607 MT of paddy seed, generating US$210,429. Sixteen farmer producer organizations (FPOs) collectively earned US$231,240, launching the Sahaja Beej seed brand. In Uganda, four youth and women quality centers (YWQCs) trained 30 youth champions who reached more than 1,500 farmers and 1 million people. The YWQCs model was piloted in Tanzania with sorghum and groundnut, replicated in Kenya with finger millet and in Uganda with rice and beans, and was being scaled more widely. The model was developed to address key challenges faced by rural farmers, including limited access to quality seeds, market linkages, and knowledge on improved farming practices.

Seed Equal strengthened climate resilience through community-driven distribution of 9,000 MT of high-yielding, climate-resilient cereal seeds contributing to climate adaptation and mitigation (Impact Area 4). Gender-inclusive training and small-scale seed enterprises enabled farmers to adapt to climate change, ensuring stable food production in vulnerable regions. The details of achievements against targets are covered in section 2.3 below.


*Learning Visits at NIAB.*
*Credit: Dr Swati Nayak (International Rice Research Institute)*


*Women rice seed multipliers inspecting a rice seed garden.*
*Credit: Mr. Alex Amuda, Center for Behavior change and communication (CBCC)*

## Progress against End of Initiative Outcomes

This infographic provides a concise summary of the Initiative's progress toward achieving its Theory of Change End-of-Initiative outcomes for the 2022-2024 period. By drawing on reported results, it offers a comprehensive synthesis of progress made against the established outcome targets, highlighting the Initiative's overall impact and key achievements at the conclusion of this three-year cycle.

## EOIO 1

**Integrated seed systems increasing the quantity of quality seed of improved new varieties available to farmers for priority crops and in selected countries, geographies, and market segments**

In 2024, Work Package (WP) 1 engaged **201 key seed producers and institutions** across Asia, Africa, and Latin America, including **95 new actors** and an additional four partners for millets. These efforts resulted in production and delivery of **9,855 MT of quality seeds**, reinforcing both public and private seed delivery systems and empowering small-scale institutions through capacity-building and technology support.

WP2 focused on strengthening **DLSS** for legumes and enhancing investment in seed value chains and varietal turnover in **11 African countries**, particularly for common beans, cowpea, and soybean. The seed actors included 2,714 seed producers (seed companies, CBOS, farmer cooperatives, and individual farmers) partnering with 194 grain traders. These investments resulted in the production and delivery of 1,941 MT of EGS and 25,358.5 MT of certified seed. Compared to 2022, the volume of certified seed and EGS increased by 37.5 percent and 55.1 percent in 2024, respectively. Partners also invested in new variety promotions, establishing 3,226 demonstrations (in 2024) compared to 2,091 in 2022. MSPs facilitated market linkages, technology adoption, and knowledge dissemination, strengthening seed production and distribution.

WP3 collaborated with public and private partners to accelerate **VPC seed production**, adopting **innovative propagation techniques** such as apical cuttings, sandponics, and hydroponics in multiple regions. These efforts led to the production of **70,000 disease-free cassava plants** in Southeast Asia, boosting recovery of the cassava starch industry. Decentralized networks in **Nigeria, Tanzania, and Uganda** delivered more than **50 million cassava cuttings**, significantly increasing clean seed availability. Similar networks of sweet potato seed producers in **Uganda** increased production of improved, mainly orange-fleshed, varieties from 640,000 cuttings in 2012 to more than **17 million in 2024**, and in **Tanzania** from 3.4 million in 2021/22 to almost **8 million in 2023/24**, demonstrating significant growth in clean seed availability.

WP4 advanced collaborations with the **International Seed Federation (ISF), Asia and Pacific Seed Association (APSA), and African Seed Trade Association (AfSTA)** to develop joint workplans, communication strategies, and stakeholder outreach to promote improved varieties, quality seed, national seed industry development, and seed sector policy reforms. WP4 also designed and tested multiple **seed data tracking tools** for purposes of in-field varietal identification, product traceability, and quality assessment.

WP5 continued to advance **policy options** to boost seed sector investment in five countries, focusing on **regulatory changes** for vegetative materials in Kenya; legal and regulatory reforms in Uganda and Rwanda; **private sector participation** in Ethiopia and Rwanda; and **seed quality assurance** improvements in Nigeria. In 2024, and partly as a result of CGIAR research and outreach, Kenya finalized plans to publish new regulations for vegetatively propagated materials; Ethiopia was expanding its direct seed marketing program; and Rwanda was revising its seed regulatory systems and private sector engagement strategy.

WP6, in partnership with multiple organizations, enhanced **women and youth participation in seed production and marketing** through training and capacity-building initiatives. In **Uganda**, 30 farmers were trained in **rice and bean seed production**, leading to the adoption of improved seed varieties by **577 farmers**. Similar programs were implemented in **Burundi, Cameroon, Zimbabwe, and Zambia**, benefiting hundreds of farmers. In **India**, WP6 supported **W-FPCs**, leading to **607 MT of paddy seed production** and **US$210,429 in revenue**. Additionally, **16 FPOs** were strengthened, generating **US$231,240** and launching the **Sahaja Beej** seed brand, fostering **inclusive and sustainable seed systems**.

**WP7** collaborated with the World Food Programme (WFP) to promote nutrient-dense crops (biofortified **orange-fleshed sweet potato [OFSP]** and **iron-rich beans [IRB])** for household consumption, markets, and WFP's HGSF programs in **Uganda, Tanzania**, and **Malawi**. In these three countries, 2,787 refugees (mainly women and youth), farmers, and schoolteachers were trained in OFSP and IRB production and utilization and provided with OFSP and IRB seed that resulted in 8.7 ha of OFSP cultivation and 7.5 MT of IRB production.

## EOIO 2

**Seed system actors promoting uptake of quality seed of improved varieties by women and men farmers in selected countries, geographies, and market segments**

WP1 strengthened **230 institutional partnerships** in 2024, including **124 new collaborations**, to enhance **seed production, delivery, and on-farm product validation**. A total of **234 promising cereal crop varieties** were integrated into the seed chain. These varieties were **tested, validated, and scaled** using innovative extension techniques, including **farmer-led trials and training of trainers (ToT) programs.** Through these efforts, **7,158 beneficiaries (3,990 men and 3,168 women)** received training, enabling them to act as master trainers within their communities. Additionally, **956 farmer-led sites** facilitated new product validation, targeting **35 market segments** across rice, maize, and wheat, as well as millet.

WP3 introduced a **seed requirement estimation tool** in Tanzania, supporting national partners in planning for **VPCs**. The **East Africa Germplasm Exchange Laboratory** developed a **Business Investment Decision (BID) tool** to facilitate improved germplasm distribution. Studies on **weighted average varietal age (WAVA)** showed a reduction in cassava varietal age from **15.2 to 12.0 years in Tanzania**, boosting adoption through yield improvement data.

**WP5's** collaborations with policymakers, regulators, industry associations, and seed sector stakeholders in five countries enhanced seed sector development efforts by communicating evidence-based solutions to policy, regulatory, and investment bottlenecks. Efforts included addressing market entry barriers for the private sector, advancing sensible regulatory frameworks, and providing technical support and strategic guidance to entities such as AGRA, ISF, and the African Union on regional and country policies.

## EOIO 3

**Women, men, youth, and disadvantaged socioeconomic groups accessing affordable, market-demanded, and producer-preferred, high-yielding, resilient variety seed.**

WP1 implemented **alternative institutional models** to complement public and private seed systems, benefiting **61,512 smallholder farmers** across Asia, Africa, and Latin America. More than **9,000 MT of quality seed** were delivered through community-driven efforts, with a strong focus on **gender-inclusive training and small-scale seed enterprises**.

WP2 applied the **DLSS model**, which is anchored within the framework of the PABRA's **Bean Commodity Corridor Approach** (bean commodity corridors scaling up production and market expansion for smallholders in sub-Saharan Africa). T**he DLSS aims at** improving seed access in **12 African countries**. Certified seed production increased significantly from 2022 levels (**common beans +29 percent, soybeans +128 percent, cowpeas +118 percent**), supported by grain off-takers, new production models, and enhanced capacity-building efforts.

WP3 highlighted **gender disparities** in VPC seed systems. Women and youth, especially in low-income households, faced **limited access and control** over seed decisions, reinforcing sociocultural barriers to commercial VPC seed production.

WP5 research and outreach was highlighted by analysis and synthesis work on the **potential of gender-transformative seed sector interventions** to empower women, create more conducive gender norms, and accelerate agricultural transformation, with emphasis on empirical evidence from **Ethiopia** and **Uganda**.

WP6, in collaboration with the **Centre for Behavior Change and Communication (CBCC), SAWA Agricultural Development Company Limited, and Kilimo Trust**, developed **social behavior change strategies** and **gender-intentional interventions** to improve access to quality seed. Four **YWQCs** were established in eastern Uganda, training **30 youth champions**, reaching **1,500+ farmers**, and broadcasting radio messages to more than **1 million farmers**. Similar YWQC initiatives were being scaled in **Burundi, Cameroon, Zimbabwe, Tanzania, Mozambique, and India**, strengthening **seed accessibility and climate-resilient crop adoption**.

WP7 promoted **OFSP** (960,300 cuttings) and **IRB** (7.5 MT of seed) in **Uganda, Tanzania**, and **Malawi**, improving nutrition for vulnerable groups, enhancing smallholder farmer incomes, and boosting climate-resilient OFSP production through training and seed distribution. Additionally, OFSP was integrated into HGSF programs, ensuring 194,914 school children from 113 primary schools receive nutritious meals (additional 192.6–395.6 mcg of vitamin A; and 12.9–16.1 mg iron) to support their health and academic performance.

## EOIO 4

**Governments, funders, researchers, extension services, and other seed system actors using new tools for monitoring varietal turnover and quality seed use.**

WP2 mainstreamed the use of the **Open Data Kit** among Seed Equal partners, researchers, and extension services to support consistent data collection for tracking **legume seed production and marketing** in eastern, western, and southern Africa. This platform uses predesigned tools to collect seasonal and/or annual data, enhancing **demand and supply forecasting**, and facilitating improved varietal turnover and adoption.

WP3 expanded the **Tools4SeedSystems** platform, which incorporates **11 VPC seed system tools** with detailed guidelines. In **2024**, the platform added **a French version and humanitarian-focused content**, while the **SeedTracker tool** for e-certification was extended to **sweet potato in Tanzania** and adopted in **Ghana** and the **Democratic Republic of the Congo (DRC)**. SeedTracker was widely used for managing VPC seed system quality, from cassava in Brazil and potato in Georgia to yam in Ghana and cassava in Nigeria and Tanzania. Experimental auction tools from Tools4SeedSystems were applied by CGIAR and national partners in Tanzania to assess farmer willingness to pay for high-quality sweet potato and cassava seed.

**In Kenya**, supported by personnel in the Ministry of Agriculture, Livestock, Fisheries, and Cooperatives, **60 ward agricultural extension officers** were trained on **VarScout** by WP4, leading to **+20,000 observations** on maize, potato, and bean varietal adoption. The CGIAR Product Catalogue, launched in 2024, provides access to **170 rice products** and will expand to other crop products from potato, sweet potato, bean, tropical legumes, and dryland cereals.

WP5 developed baseline **seed sector performance and policy indicators** to support CGIAR's **market-intelligent variety evaluation framework**, highlighted by the CGIAR Breeding Portal and Global Market Intelligence Platform. WP6, in partnership with **TASAI**, piloted **17 indicators** in Uganda to **track equitable seed access**, later refining them for **South Asia and India**. Taken together, these indicators will help **governments, funders, and partners of CGIAR, NARS, and small and medium enterprises (SMEs)** drive inclusive, data-informed seed system improvements.

## EOIO 5

**Government partners actively promoting policy solutions to accelerate the adoption of improved varieties, varietal turnover, and quality seed use by women and men in selected countries, geographies, and market segments.**

In **2024**, WP2 continued its **strategic collaboration with policymakers**, strengthening **bean and legume seed value chains** across multiple countries. In **Rwanda, 12 new bean varieties**, including **8 biofortified varieties**, were promoted via the **Twigire Muhinzi extension model**. The Twigire is Rwanda's homegrown, decentralized, and farmer-oriented agricultural extension system model, combining farmer promoters and farmer field schools to empower farmers to improve their skills and knowledge for self-reliance. Zambia prioritized and produced 1,880 MT of **five bean varieties** through national agricultural support programs, while Kenyan counties catalyzed the production of 2,054 MT of **three high-iron bean varieties**. Ethiopia expanded contract farming for **white and cream beans** from 55,525 ha in 2023 to 74,662 ha in 2024, and **Mozambique's PROCAVA program** supported training of 22 seed producers (producing an average of 43 MT per season), and facilitated access to inputs and marketing of **three new bean varieties**. Partnerships in **Cameroon promoted** biofortified common bean varieties, while **Nigeria and Ghana** promoted high iron and zinc **cowpea and soybean** varieties to combat malnutrition.

WP3 drove **major policy changes** for **VPC seed certification**. In **Peru**, institutional backing increased for **rooted apical cuttings in potato propagation**, while in **Southeast Asia (Cambodia and Lao People's Democratic Republic [Lao PDR])**, public support for **cassava seed production** was strengthened. Africa saw key regulatory advances, including **new banana and yam seed standards in Nigeria, banana certification in Tanzania, and cassava and sweet potato seed standard revisions in Uganda**. Kenya's **2024 Seed and Plant Varieties Act update** included **70+ VPCs**, enhancing seed trade.

WP5 facilitated **evidence-based seed policy reforms** across **five countries**, improving **licensing, varietal turnover, seed quality assurance systems, and seed trade expansion efficiency** while empowering **smallholder seed producers** through self-certification initiatives. Key advances partly resulting from CGIAR activities were realized in Kenya, which intends to publish new regulations for vegetative materials; in Ethiopia, which was expanding its direct seed marketing program; and in Rwanda, which was revising its seed regulatory systems and private sector engagement strategy.

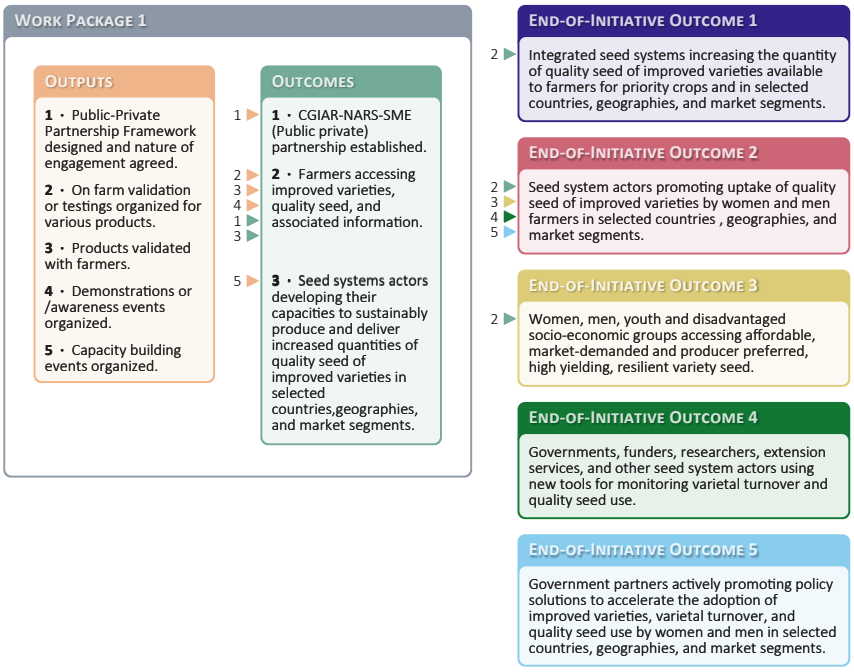
*Learning Visits at National Institute of Agricultural Botany (NIAB).*
*Credit: Dr Swati Nayak (International Rice Research Institute)*

# Section 3: **Work Package progress**

## WP1: Demand-driven cereals

**Research Questions**

- What differences exist between women and men's demand for cereal varieties?
- To what extent do product profiles and available varieties match women's preferences, and what innovative approaches have potential to increase women's interest in, access to, and uptake of new cereal varieties?
- How can CGIAR and partners transform delivery pathways for cereal seed to achieve greater impact at scale?
- What gaps exist in current product availability, performance, and adoption scenarios for specific existing and emerging key market segments or for different stakeholders' specific ecosystems?
- How can varieties/products be pooled or grouped into desired subsets for appropriate market targeting and further positioning?
- What are the critical bottlenecks for cereal delivery pathways to achieve greater impact, and what are the implications for CGIAR and its partners?
- What standardized methods can be developed or adopted to support cereal access efforts across CGIAR and national systems?
- What evidence exists on practices for cross-learning or customization in cereals?
- What are the key institutional and systemic gaps including domains of policy (existence of linkages within and across linkages) around early-generation seed (EGS) seed provisioning, diversification, or decentralization, as well as commercial or quality seed increase and use of specialized products, markets, or ecosystems that are intended for intervention?
- What are the gaps in capacity, knowledge, and information on products, seed production technicalities, sourcing, and targeted sales, and how these can be addressed, especially the targeting of diverse end users including women farmers and smallholders?
- What are the critical practical needs for capacity development in cereal seed systems?
- What opportunities exist to improve testing processes (and related feedback loops) for accelerated uptake of new cereal varieties, and collaboration with farmers, seed companies, and others?
- Across CGIAR cereals, how do we bring together knowledge of practical seed production (R2), mechanisms underpinning demand (R3), and knowledge of inclusive seed production pathways (R4) to optimize the design and scalability of on-farm validation and promotion?
- How can we build on the concepts of participatory varietal selection in product advancement and post-release dissemination?
- Can we apply digital tools to capture effective data from on-farm validation testing that provides a demand-side data metric return to breeding and testing networks?
- Overall, how do we streamline CGIAR cereal validation systems for new varieties in target regions, led by market and farmer demands under farmers' field conditions?
- How are collaborative mechanisms designed with private seed companies and National Agricultural Research and Extension Services (NARES) to transfer new genetic material from CGIAR's cereal breeding programs, and which of these mechanisms have worked, for whom, and why?



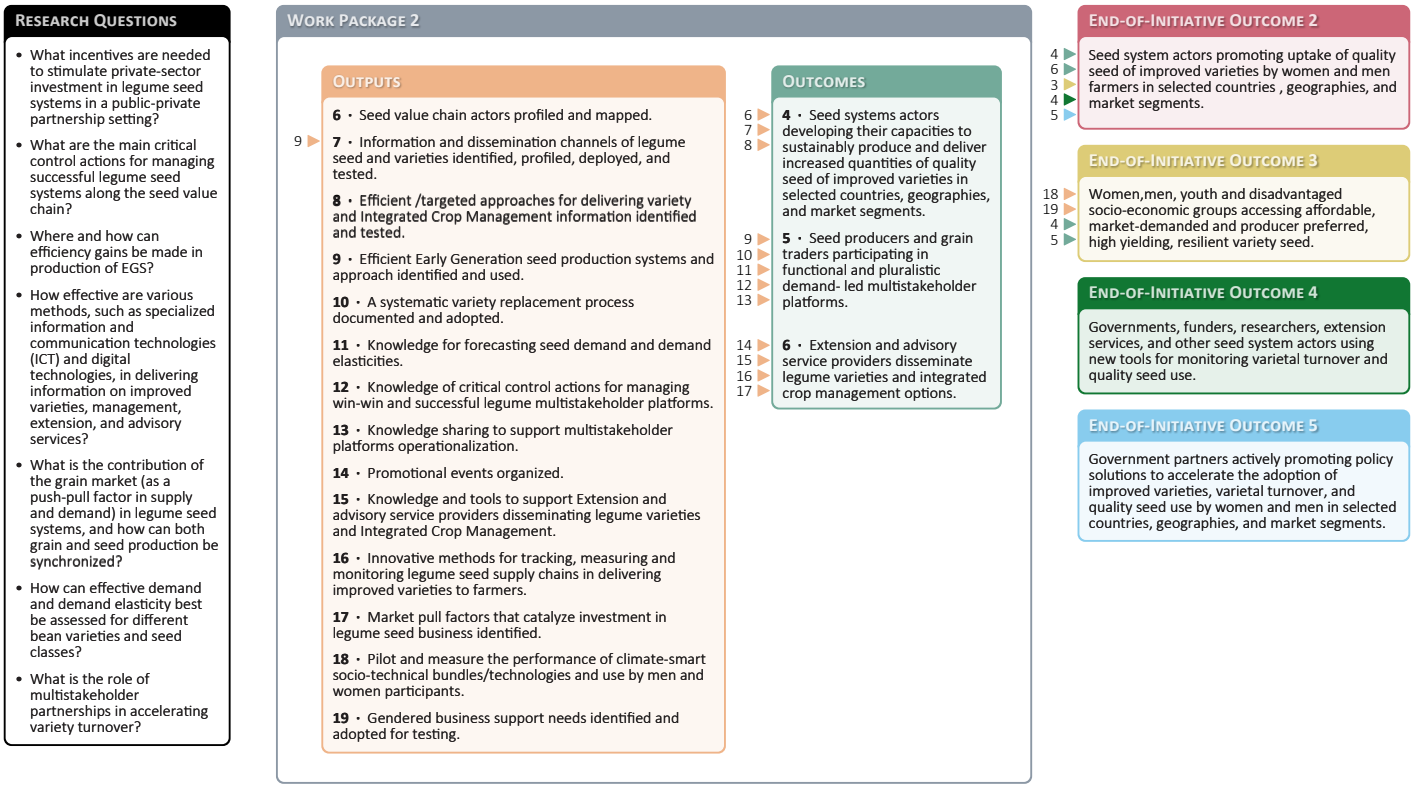

### Work Package 1 progress against the theory of change

**WP1 outcome 1** focused on establishing public-private partnerships and engaging CGIAR-NARES-SME networks for production and supply of quality seed of new cereal products (inbreds and hybrids) in response to demand signals. By 2024, more than 200 key seed institutions and actors representing public and private sector partners were engaged, specifically focusing on strategic EGS linkage and capacity development around multiplication, commercialization, or distribution of promising products. While 95 institutions were added in 2024, more than 100 existing collaborations were also strengthened.

**WP1 outcome 2** focused on farmers accessing improved varieties, quality seed, and associated information. Through strategic partnerships with breeding institutions and public, private, community, and nongovernmental seed multipliers, estimated volume of at least 10,000 MT of quality seeds of different cereal crops (approximately 3,000 MT of rice seed, more than 900 MT of wheat, and more than 6,000 MT of maize, as well as more than 50 for pearl millet) were in circulation in seed systems (either as certified or truthfully labeled or alternative quality labeled/declared seed [QDS]) through the Initiative's efforts. In collaboration with the Dryland Crops project (formerly AVISA), the Initiative supported the production and delivery of 6,129 MT, 30.2 MT and 30.3 MT of certified seed of sorghum, pearl millet, and finger millet, respectively. Over the three-year period, more than 200 improved products of various crops were systematically positioned and scaled across more than 35 market segments and diverse ecosystems and with traits of higher yield, varied degree or type of climate resilience, nutritional traits, and more.

**WP1 outcome 3** focused on developing the capacity of seed systems actors to sustainably produce and deliver increased quantities of quality seed of improved varieties in selected countries, geographies, and market segments. Focusing on mainstream seed chain actors and institutions, as well as the alternate institutions and communities of smallholders and women farmers, the ToT-based trainings on quality seed production and use of improved varieties led to more than 100,000 direct clients being reached. The alternative institution trainings on quality seed production were primarily focused on different steps of seed production, including selection, cleaning, roguing, management, and storage practices. In addition, the trainees received product catalogues, brochures, profiles, and trainings in new product placement and old product replacement that targeted overall varietal awareness (traits or performance parameters). The manuals shared in the trainings contained a variety of these elements, often in combination with practical demonstrations. With an anticipated spillover and farmer-to-farmer dissemination of 1:10 in any community, at least 1 million smallholders were expected to have access to quality seeds of introduced products through semi-formal and informal systems as well.

## WP2: Boosting legumes through a demand-led seed approach




## Work Package 2 progress against the theory of change

**WP2** used the DLSS approach to accelerate adoption and varietal turnover. This approach was implemented in Burundi, Cameroon, Ethiopia, Eswatini, Ghana, Kenya, Mozambique, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe. The underlying assumption of the DLSS was that seed demand is derived from grain demand. For example, in Zambia, approximately 360 MT of certified/QDS seed would be required to meet the projected 6,000 MT of grain from three major off-takers.

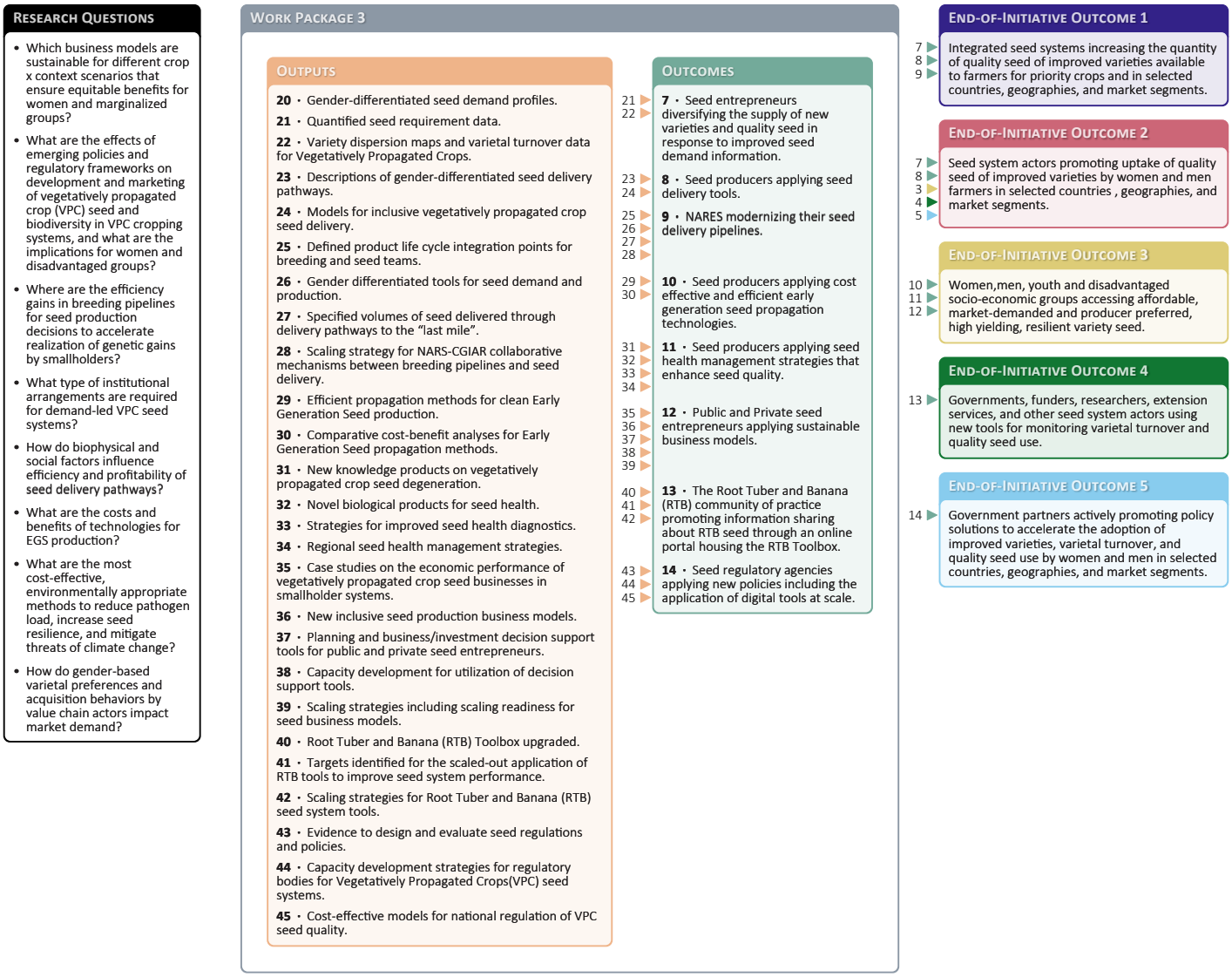
The WP was operationalized through an MPS framework. The DLSS was adopted in Nigeria and Ghana especially, where it was being piloted for cowpea and soybean seed systems.

**WP2 outcome 1** focused on enhancing seed production and varietal turnover, focusing on legume seed. In 2023, 8,313 seed actors, including 3,512 women, were trained in seed production, marketing, and business management, marking a 262.5 percent increase from 2022. An additional 7,654 producers (3,154 women) were trained in 2024, totaling 18,478 trainees. This resulted in significant quality seed production, including 52,487 MT of certified bean seed, 10,146 MT of certified cowpea seed, and 8,001 MT of certified soybean seed. In collaboration with Dryland Crops, the Initiative supported the production and delivery of 4,689.2 MT, 16.4 MT, and 6.9 MT of certified seed of groundnut, chickpea, and pigeon pea, respectively. Notably, 85 percent of the new varieties accounted for most of the certified seed production, indicating a shift toward modern varieties. Collaborations with the private sector supported these efforts through variety replacement plans.

**WP2 outcome 2** involved engaging seed producers and grain traders through MSPs. In 2024, 61 MSPs with 661 actors played a key role in promoting new varieties, fostering business linkages, attracting investments, and testing innovative technologies. Over three years, MSP-driven activities led to 10,472 demonstrations, 224 field days, and 169 agricultural events, reaching more than 100,000 individuals, with 47 percent women. In Nigeria, an off-taker-led MSP model reached 1,500 smallholder farmers (46 percent women) with improved cowpea varieties. This approach contributed to a tenfold increase in certified cowpea seed production, from 157 MT in 2022 to 1,748 MT in 2024.

**WP2 outcome 3** focused on strengthening extension services for disseminating legume varieties and integrated crop management. In collaboration with public and private extension services, 367 extension agents (198 women) from Cameroon, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe were trained in various aspects of the seed value chain, including production, business, and marketing operations. They were also engaged as facilitators during capacity-building events where they learned various technical and facilitation skills (such as using animated videos) for working with seed producers. These agents supported seed producers in inspecting seed fields and conducting demonstrations and field days.

# WP3: Scaling and delivery of vegetatively propagated crops




## Work Package 3 progress against the theory of change

The key theory of change (TOC) assumption behind WP3 activities centered on whether sustainable delivery of VPC seed at scale can be achieved for different market segments and farmer preferences by applying novel technologies, tools, and business models. **WP3 outcome 1** aimed to diversify supply of varieties in response to demand. Significant progress was made in seed demand characterization and enhancing breeding pipelines. Notably, the SeedTracker platform was used to estimate the WAVA for cassava in Nigeria and Tanzania (2018–2022). Additionally, a web-based tool was developed for sweet potato to estimate national-level seed requirements, and validated for sweet potato, potato, cassava, and banana. This tool was prototyped with key users such as policymakers and seed producers. Further developments include the application of machine learning to improve forecasting methodologies. Demand studies conducted in 2024 focused on willingness to pay for sweet potato and cassava seed, with results providing insights into pricing strategies and the importance of quality signaling.

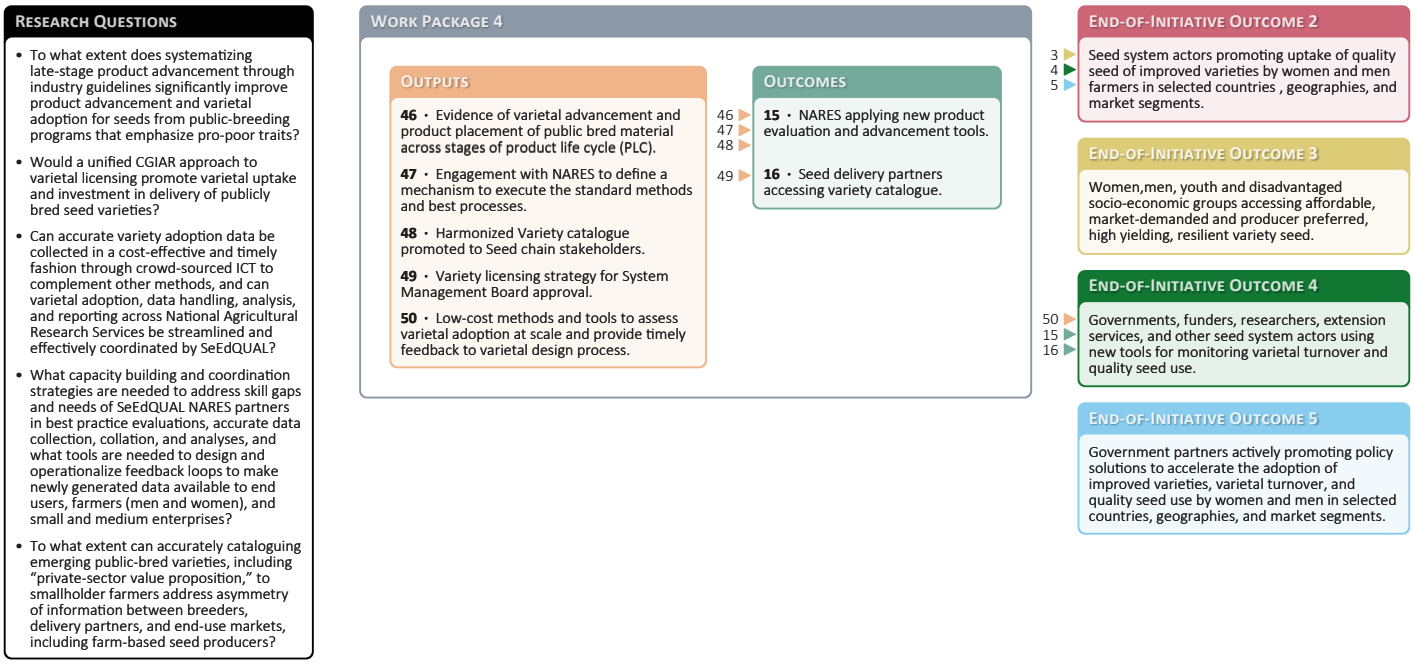
Through **WP3 outcome 2**, seed producers applied improved seed delivery tools. Improvements in seed delivery were achieved in Uganda and Tanzania through strengthening the operation of seed producer associations. **Outcome 3** targeted improvements in breeding pipelines, leading to enhanced seed delivery. WAVA data for cassava in Nigeria and Tanzania demonstrated the effectiveness of national breeding and seed delivery systems in introducing and popularizing new varieties, leading to reductions in the WAVA.

**WP3 outcome 4** implemented cost-effective propagation technologies such as sandponics, apical rooted cuttings, and semi-autotrophic hydroponics to enhance EGS production. More than 50 participants from various institutions were trained in these techniques across countries including Nigeria, Tanzania, Uganda, Cameroon, DRC, Peru, and India. Techniques were being applied by trainees in their respective territories and further refined in several locations to ensure that methods were appropriate for local conditions. A cost-effectiveness analysis of apical rooted cuttings for potato seed multiplication in India confirmed its economic viability. These cuttings can increase yields by 30–50 percent, boosting profits by $500 –$1,200 per hectare. Switching from farm-saved seed to apical rooted cuttings can double net income in two to three seasons.

**WP3 outcome 5** strengthened seed systems by promoting the value of certified seed. Research showed that certified cassava and sweet potato seed could yield 80 percent more than recycled seed. Business models for sweet potato seed businesses in Uganda and Tanzania were developed, along with an enhanced BID tool. This tool supported seed entrepreneurs in creating business plans and assessing financial feasibility, with future updates incorporating artificial intelligence for progress monitoring.

**WP3 outcome 7** focused on updating the tools platform for seed systems research to enhance VPC seed systems, especially in humanitarian contexts. Additionally, progress was made in establishing protocols for self-certification by QDS producers in Tanzania and validating new seed standards in Kenya.

## WP4: Partnerships, capacity building, and coordination to ensure uptake of public-bred varieties and other innovations




## Work Package 4 progress against the theory of change

The key **TOC assumption** driving **WP4** activities centered on whether partnerships on product advancement tools, licensing strategies, digital data for varietal adoption, or seed catalogue availability can promote best practices and decision-making for seed value chain actors.

**WP4 outcome 1** focused on promoting best practices in seed value chains through partnerships. NARES partners were trained in product advancement practices across six countries in Southeast Asia and sub-Saharan Africa. Existing and potential seed producers (NARES, seed farmers, and private SMEs) were trained on rice quality seed production and business essentials in India, Bangladesh, Tanzania, and Kenya. The potential seed producers were help to register as seed producers and start quality seed production. Additionally, potato seed production training was provided to scientists from Yemen. NARES partners from 15 sub-Saharan African countries were trained in Nigeria on adoption of demand-driven seed production models and digital tools such as SeedTracker to manage seed demand and supply. This training helped NARES to track seed demand and plan EGS and certified seed production. Partnerships with seed industry bodies, such as ISF and APSA, advanced quality seed use among farmers. A report on the product advancement meetings was completed for several crops, including rice, potato, soybean, beans, and groundnut. Draft CGIAR germplasm licensing guidelines were developed and will be finalized in 2025.

To achieve WP4 outcome 2, significant progress was made in using VarScout, a low-cost data collection tool, to monitor varietal adoption and biodiversity. Initially targeting 10 crops and 20 countries, VarScout was expanded to extension officers in Kenya, Mozambique, Zimbabwe, Colombia, and Bolivia. This tool helps track varietal use and biodiversity, supporting better decision-making in seed systems.

For **WP4 outcome 3**, efforts on the CGIAR Product Catalogue moved forward, with discussions on its scope, harmonization, and hosting platforms. A prototype for rice was developed in 2024, which included 170 rice products for different traits, countries, and agroecologies, contributing to better seed cataloging and access for stakeholders. Initiated by the Dryland Crops project, a digital prebooking system leveraging real-time seed inventory was developed as a prototype in collaboration with TARI in Tanzania to improve the supply of EGS for dryland crops. The system was presented to partners for feedback, which highlighted key enhancements such as the inclusion of product overviews (stock levels, agronomic practices), user-friendly navigation, transparent pricing for both bulk and retail needs, and a secure payment system integrated with the Government Electronic Payment Gateway. In response, TARI was strengthening its Internal Business Support System to integrate this tool, ensuring seamless connectivity across its internal systems

# WP5: Policies for varietal turnover, seed quality assurance, and trade in seeds

**Research Questions**

- Does retirement of specific varieties from varietal release catalogues lead to increases in varietal turnover and yield outcomes?
- What are the relative costs, benefits, and risks to seed quality assurance systems according to the degree of centralized and external oversight and enforcement (such as truthful labeling vs. seed certification vs. quality-declared seed?)
- What are the returns to exclusive supply of EGS in seed access, equity, and market growth, as compared to non-exclusive supply?
- Do agrodealer training programs, business development services, and credit instruments targeted to women and youth entrepreneurs lead to higher returns for their enterprises and other outcomes?
- Does the inclusion of crop index or other insurance instruments in varietal promotion programs or extension packages lead to greater varietal turnover among smallholders, women farmers, or other disadvantaged groups?
- Can crop, index, or other insurance instruments be scaled nationally in an equitable and cost-effective manner?
- Do digital quality assurance systems at point-of-sale (such as SMS-based e-verification systems) increase farmers' perceptions of seed quality and their willingness to purchase new varieties?
- Do these systems result in higher yields, outputs, or other outcomes for smallholder farmers?
- What are the potential returns to a reduction in varietal release rules and procedures?
- Do social benefits of a (de)listing strategy exceed the costs of seed subsidy programs?
- Does the (de)listing of specific varieties in seed subsidy programs lead to increases in varietal turnover and yield outcomes?
- Do projects aimed at formalizing and commercializing farmer- or cooperative-run seed production/marketing enterprises lead to increased access to new varieties, higher sales and revenues, and improved access to seeds and traits for smallholders, women, and disadvantaged groups?

**Work Package 5**

**Outputs**

**51** · Actionable, evidence-based policy recommendations specific to context that advance inclusive and sustainable seed system and market development.

**52** · Improved capacity of partners at the institutional and individual levels to conduct policy analysis for seed system and market development using new methods, tools, and data.

**53** · New methods, tools, data, and systems to monitor and evaluate policy change processes in seed system and market development.

**Outcomes**

51 ▶ **17** · Government partners increasing the participation and representation of diverse stakeholders in seed policy reform processes.

52 ▶ 17 ▶ **18** · Government partners making evidence-based decision to: improve policies and programs for seed subsidies; enhance extension and advisory services; and provide financial and related services linked to improved varieties and quality seed.

53 ▶ **19** · Government partners making evidence-based decision to: foster policies and programs that promote greater integration of formal and informal seed systems, as well as more inclusive engagement, entrepreneurship, and empowerment of women and youth in seed sector development.

**End-of-Initiative Outcome 1**

17 ▶ Integrated seed systems increasing the quantity of quality seed of improved varieties available to farmers for priority crops and in selected countries, geographies, and market segments.

**End-of-Initiative Outcome 2**

19 ▶ 3 ▶ 4 ▶ 5 ▶ Seed system actors promoting uptake of quality seed of improved varieties by women and men farmers in selected countries , geographies, and market segments.

**End-of-Initiative Outcome 3**

17 ▶ 19 ▶ Women,men, youth and disadvantaged socio-economic groups accessing affordable, market-demanded and producer preferred, high yielding, resilient variety seed.

**End-of-Initiative Outcome 4**

5 ▶ Governments, funders, researchers, extension services, and other seed system actors using new tools for monitoring varietal turnover and quality seed use.

**End-of-Initiative Outcome 5**

17 ▶ 18 ▶ 19 ▶ Government partners actively promoting policy solutions to accelerate the adoption of improved varieties, varietal turnover, and quality seed use by women and men in selected countries, geographies, and market segments.

## Work Package 5 progress against the theory of change

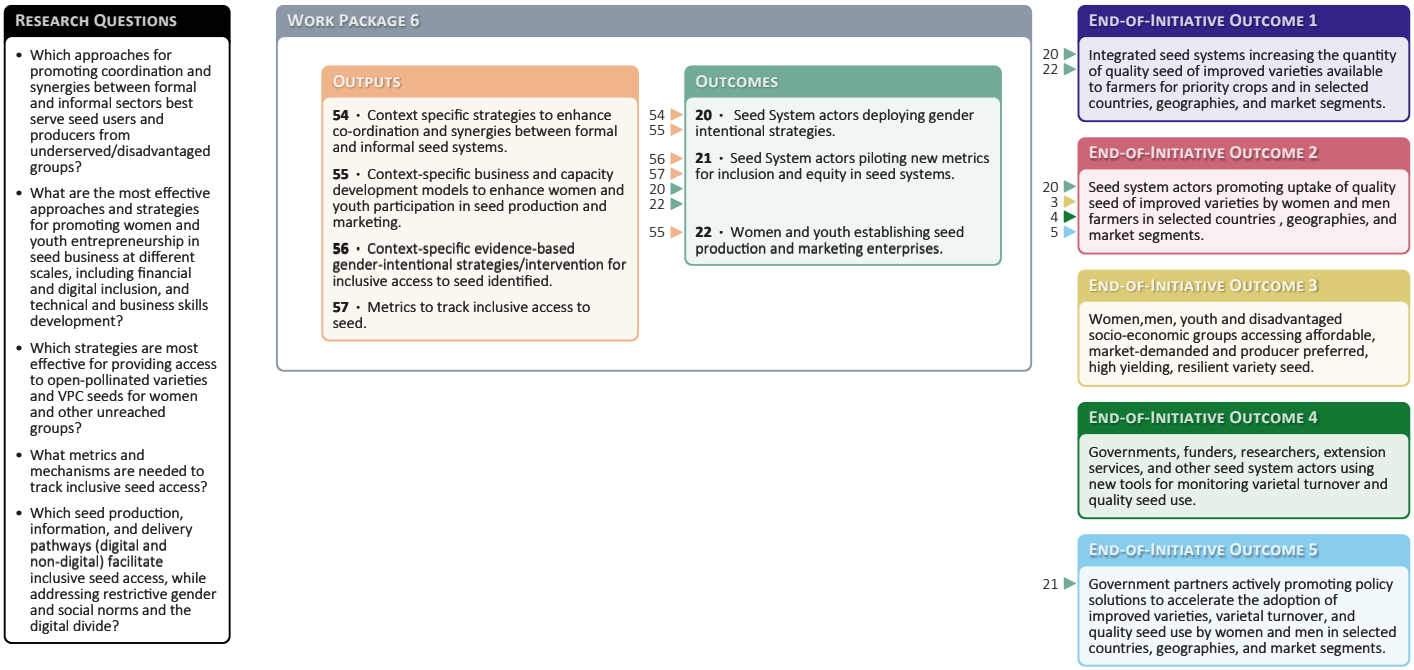
**WP5's** underlying assumption was that evidence-based policy recommendations and policy engagement are necessary to advance efficient, sustainable, and inclusive seed market development. WP5's work in 2024 jointly contributed to its **outcome 1** (inclusive seed sector growth resulting from improved policies, investments, and regulation for variety registration and release), **outcome 2** (accelerated varietal turnover and increased demand for quality seeds resulting from improved policies and programs for seed subsidies, extension and advisory services, and credit insurance), and **outcome 3** (at least three countries will invest in capacity development to strengthen their policy analysis, design, and implementation capabilities and introduce a predictable policy environment).

During this period, WP5 provided evidence-based recommendations on policy solutions aimed at increasing the rate of varietal turnover, improving seed quality assurance systems, and advancing trade in seeds (EOIO 5), while also contributing to a wider range of outcomes in the Initiative's TOC. WP5 directly informed policy change processes in five countries: Ethiopia, Kenya, Nigeria, Rwanda, and Uganda. Significant progress was made in generating novel evidence and Seed Equal recommendations on a set of challenging regulatory issues in each country, all of which supported seed industry growth and better access to quality seed of improved varieties for farmers. As a result of WP5's collaborative work, several major policy, investment, and regulatory changes advanced rapidly.

In **Kenya**, WP5 continued to support national regulatory change process aimed at reforming the regulatory regime governing the production and sale of vegetive planting material, with new rules favoring small-scale farmers expected to be published in 2025. In **Nigeria**, national regulators advanced plans to enhance their capacity to manage the challenge of quality seed supply in a large and fragmented market. In **Rwanda**, CGIAR and its national partners identified legal and procedural gaps in the country's nascent seed regulatory system, supported private sector participation in seed sector development, and committed CGIAR to the new Seed Centre of Excellence operated by the One Acre Fund with the Rwanda Institute for Conservation Agriculture and the Buffett Foundation. In **Uganda**, WP5 continued to generate evidence and engage seed policy actors on issues related to legal and regulatory changes needed to bring the seed sector into closer alignment with national strategies and policies, while also promoting innovative services meant to improve seed market performance and inclusion, such as video-mediated extension services and a crowdsourced agrodealer ratings platform. Across the board, these policy outcomes represented steps in the right direction, which is to create an enabling environment that supports seed industry growth and improves farmer access to quality seed of improved varieties.

At the regional and global levels, **WP5** provided technical support and strategic guidance to entities such as AGRA, ISF, and the African Union on regional and country policies including regional seed trade, regulatory harmonization, and mutual recognition of released varieties and seed products; the strategic role of licensing, access and benefit sharing, and material transfer agreements to advance seed sector growth; and strategies to address the untapped potential for private sector development in the seed sector.

# WP6: Scaling equitable access to quality seed—Reaching the unreached with quality seeds and traits




## Work Package 6 progress against the theory of change

**WP6** focused on developing evidence-based strategies to enhance access to quality seeds for women and underserved groups. The Initiative began with a scoping study examining the coordination between formal and informal seed systems across various regions, including Asia, Africa, the Middle East, and Latin America. Insights from this study led to a partnership with CBCC to increase awareness of improved seed varieties and engage youth and women in seed enterprises.

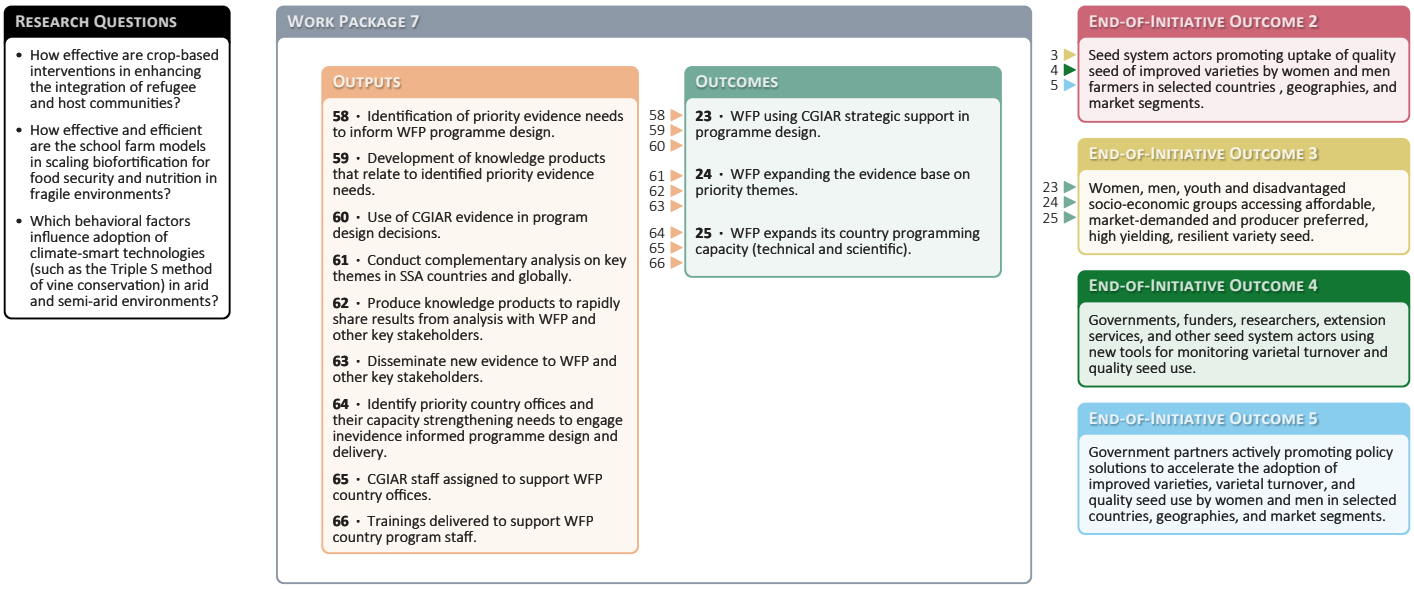
WP6 organized a workshop in South Asia to strengthen synergies between formal and informal seed systems, promoting inclusivity. Building on this, gender-intentional strategies and interventions were developed to improve access to quality seeds for groundnut and sorghum in Tanzania, millet in Kenya and rice and common bean in Uganda.

Four YWQCs were established to provide information and training, reaching more than 1,500 farmers. The YWQCs provide capacity-building initiatives, equipping youth and women with training in farming practices, local seed production, and business skills. The model further promotes collective action by encouraging farmers to form associations, strengthening their bargaining power and collective marketing efforts. These centers became hubs of opportunity, providing essential infrastructure and resources such as access to certified seeds, extensive training, and advanced farming technologies such as the multi-crop thresher through a cost-sharing arrangement. This model not only improved efficiency but also ensured the quality of processed seeds, increasing their market value. The model also facilitated crucial linkages between the women and certified seed producers, ensuring they not only had access to high-quality inputs for their production, but also linkages to grain offtakes for their quality produce.

In Kenya, four YWQCs focused on finger millet were established, training 4,124 farmers and reaching an additional 769,275 community members through radio campaigns. In Tanzania, five YWQCs were set up to support groundnut and sorghum seed access, providing training to more than 5,000 farmers and reaching more than 1 million farmers through community radio programs. In Uganda, WP6 trained 221 farmers in seed production, with a focus on increasing participation from women and youth. This training extended to other countries, such as Burundi, Cameroon, Zimbabwe, and Zambia. Radio messages from this effort reached more than 1 million farmers, and the approach was scaled to other countries such as Burundi, Cameroon, Zimbabwe, Tanzania, and Mozambique.

Data on seed production and marketing models were collected across 10 countries, revealing a shift toward integrated community seed models. In India, 306 farmers were trained in quality seed production, with women playing a significant role in seed production for sorghum and millet. WP6 adopted the gender-intentional social and behavioral communication strategy codesigned with CBCC, which was being scaled across several countries to improve seed access. Additionally, WP6 partnered with TASAI to develop indicators to track equitable access to seeds. These indicators were piloted in Uganda, capturing critical data to assess equity within seed systems and informing decisions to promote inclusive seed access.

# WP7: Strengthening resilience through inclusive seed and product value chains




## Work Package 7 progress against the theory of change

**WP7** was designed primarily to provide demand-driven technical backstopping to WFP and other stakeholders operating on the ground. WP7 activities received important buy-ins from all stakeholders. It was important to establish a collaborative workplan on each outcome from the beginning, thus ensuring the achievement of **outcome 1**, focused on WFP using CGIAR strategic support in program design. WP7 collaborated with WFP and its partners to introduce OFSP and IRB to refuge settlement camps in southwestern Uganda, HGSF programs in Karamoja (Uganda), Kigoma (Tanzania), and across five districts in Malawi. These organizations facilitated training on nutrition and OFSP cultivation, ensuring community engagement and knowledge dissemination. Training focused on equipping refugees, schoolteachers, school food committees, and smallholder women and men farmers with technical skills for producing OFSP (960,300 vine cuttings and 62.3 MT of roots) and IRB (7.5 MT) and utilizing them in various ways, including processing into value-added products to increase intake of vitamin A and iron for improved nutritional status.

**Outcome 2**, which focused on WFP expanding the evidence base on priority themes, was also achieved as planned. WP7 developed three manuscripts detailing the evidence on integrating climate-smart nutrition-sensitive agriculture (NSA) interventions in humanitarian settings to improve nutrition outcomes. The NSA interventions helped build the population's resilience to various shocks in these fragile environments. Some of these manuscripts were accepted for publication in peer-reviewed journals. WP7 also made important progress in achieving **outcome 3**, focused on WFP expanding its country programming, technical, and scientific capacity, through its work in Uganda, Tanzania, and Malawi. WFP increased the number of schools where they were implementing the HGSF program in Karamoja from about 20 schools in 2022 to 120 schools in 2023 (500 percent increase). In Uganda, four additional refugee settlements were included in their resilience programming , while in Malawi, OFSP production using irrigation to multiply available vines to reach 20,000 beneficiaries was adopted by WFP and partners.

## Work Package progress rating summary

| WORK PACKAGE | PROGRESS RATING & RATIONALE |
|---|---|
| 1 | On track<br>**WP1** progress was on track. Spillover impacts were potentially much higher, as several seed fare-led dissemination efforts and truthfully labeled seed markets were expected to add to the scale and volume of impact, in terms of seed access and varietal turnover. Complementary studies and impact assessment could be planned, provided resources were made available. |
| 2 | On track<br>**WP2** progress was on track. WP2 results aligned with the Plan of Results and Budgets (PORB) and qualified 2024 progress as being on track. |
| 3 | On track<br>**WP3** was on track, and work proposed in the PORB was achieved. **WP3** expanded its activity in India, Bangladesh, Cambodia, Lao PDR, and Peru, in addition to the geotargeting regions in Nigeria, Tanzania, and Uganda. Important outcomes were achieved as partners delivered large volumes of seed of target crops in selected geographies. The benefits of these deliveries to national seed and germplasm development systems were clearly demonstrated through the publication of data highlighting reductions in WAVA for some VPC crops. The Tools4SeedSystems platform, curated and enhanced by **WP3**, will provide a rich set of clearly explained online seed system tools that will serve as a strong basis from which to build any future integrated platform housed under the Breeding for Tomorrow Science Program. |
| 4 | On track<br>**WP4** progress was on track, and 2024 outputs, available in draft reports, will be sent for system-wide consultation. |
| 5 | On track<br>**WP5** progress was on track and aligned with the PORB. Outputs were produced as planned. |
| 6 | On track<br>**WP6** was on track. The WP carried out all of its activities and met its outputs and outcomes, aligning it with the TOC. |
| 7 | On track<br>**WP7** progressed well throughout the project period and remained very much aligned with the PORB. All three Outcomes included deliverables reported and carried out in the implementation countries of Uganda, Tanzania, and Malawi, in collaboration with WFP country offices. The WP worked with WFP and other stakeholders to design and implement crop yield estimates for OFSP in Karamoja, as well as engaging in capacity sharing with stakeholders on Good Agronomic Practices (GAP) for sweet potato and bean value chains. |

## Definitions

**On track**

- Progress largely aligns with Plan of Results and Budget and Work Package theory of change.
- Can include small deviations/issues/delays/risks that do not jeopardize success of Work Package.

**Delayed**

- Progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas.
- Deviations/issues/delays/risks could jeopardize success of Work Package if not managed appropriately.

**Off track**

- Progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas.
- Deviations/issues/delays/risks do jeopardize success of Work Package.

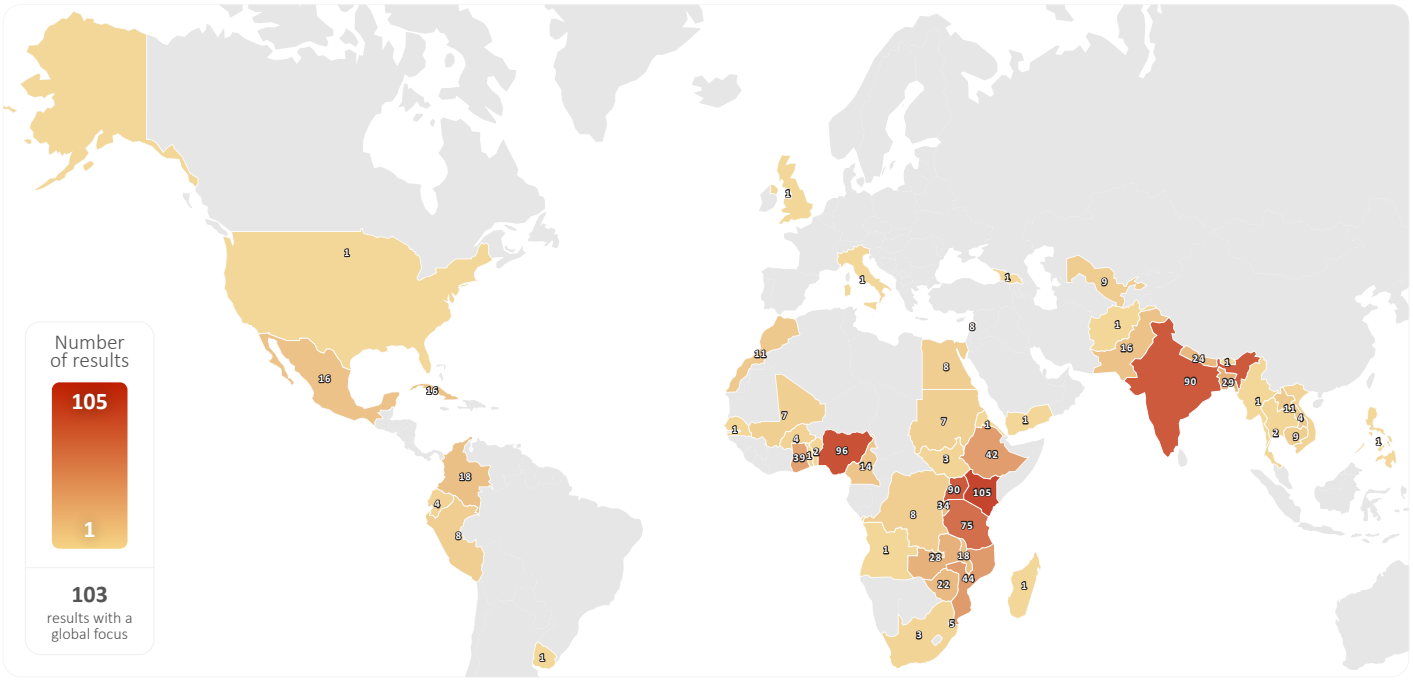

*Credit: Dr Swati Nayak (International Rice Research Institute)*

# Section 4: **Quantitative overview of key results**

This section provides an overview of results reported and contributed to, by the CGIAR Initiative on Seed Equal from 2022 to 2024. These results align with the CGIAR Results Framework and Seed Equal's theory of change. Further information on these results is available through the CGIAR Results Dashboard.

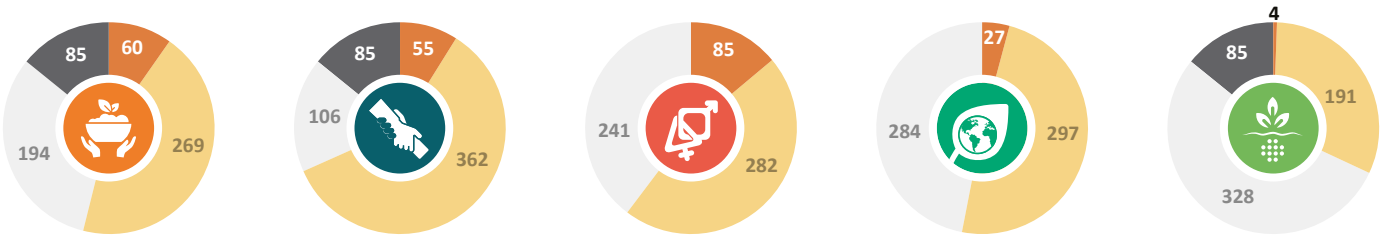
The data used to create the graphics in this section were sourced from the CGIAR Results Dashboard on 7 April 2025. These results are accurate as of this date and may differ from information in previous Technical Reports. Such differences may be due to data updates throughout the reporting year, revisions to previously reported results, or updates to the theory of change.

## Geographic focus of Seed Equal's work




One result can impact multiple countries and can therefore be represented multiple times. Kenya, Nigeria, India and Uganda emerged as key countries, with the highest number of results reported by or in collaboration with the Initiative, while 103 reported results had a global focus.

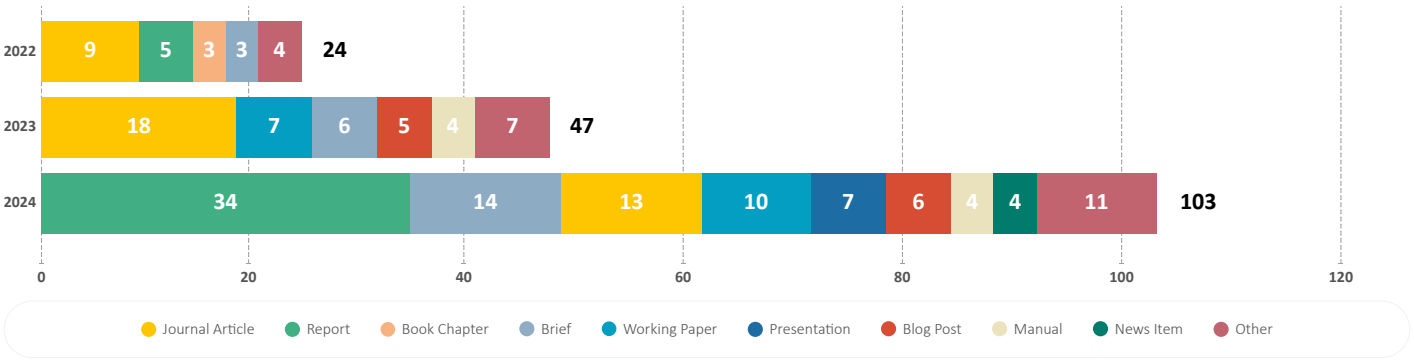
## Seed Equal's contributions to CGIAR Impact Areas




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

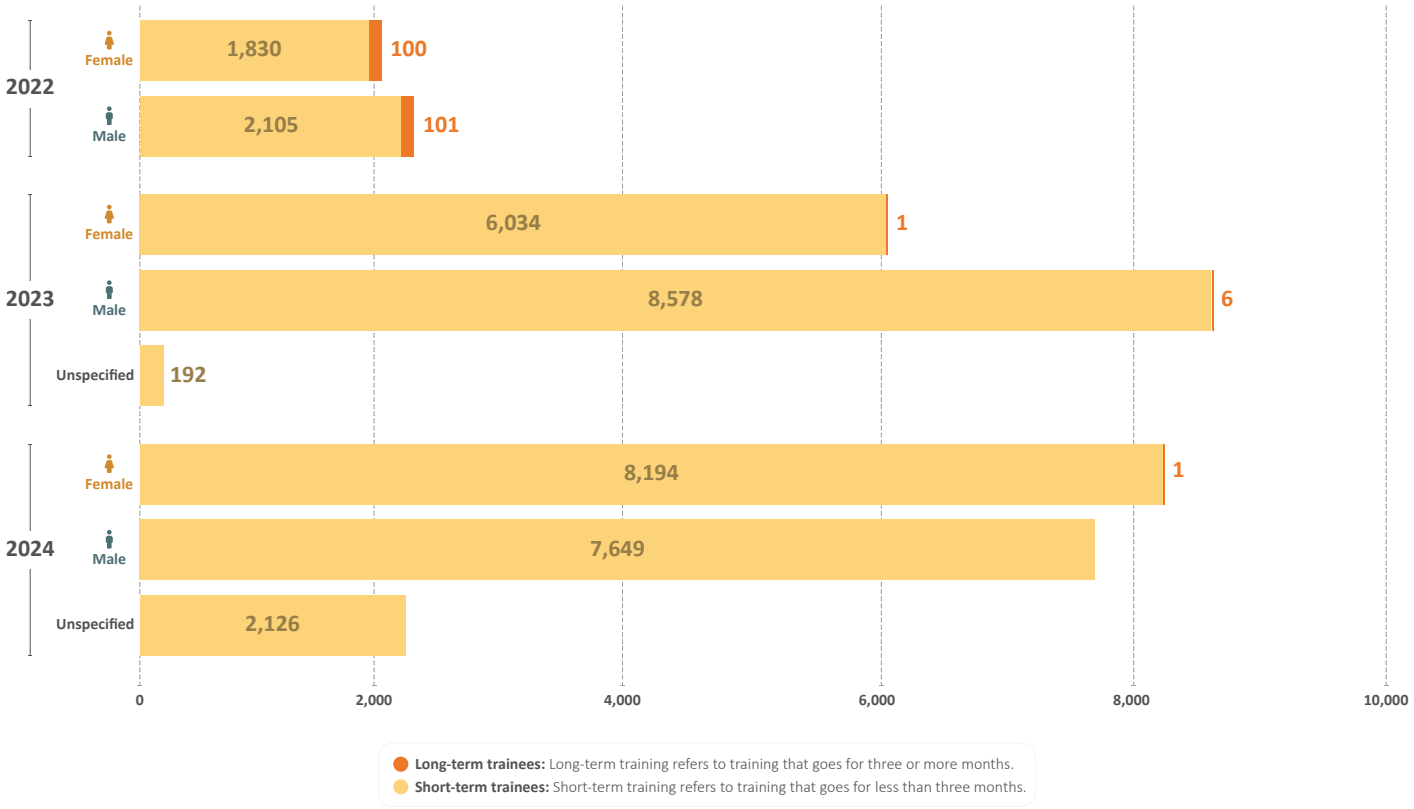
With 69 percent of Seed Equal's results tagged as either significant or principal for Poverty reduction and not climate change, this Impact Area emerged as a central focus of the Initiative. It was followed closely by closely by gender, nutrition, climate and environment/biodiversity, each showing a substantial number of tagged results—highlighting Seed Equal's broad, multisectoral contribution across key development priorities.

## Knowledge products by typology



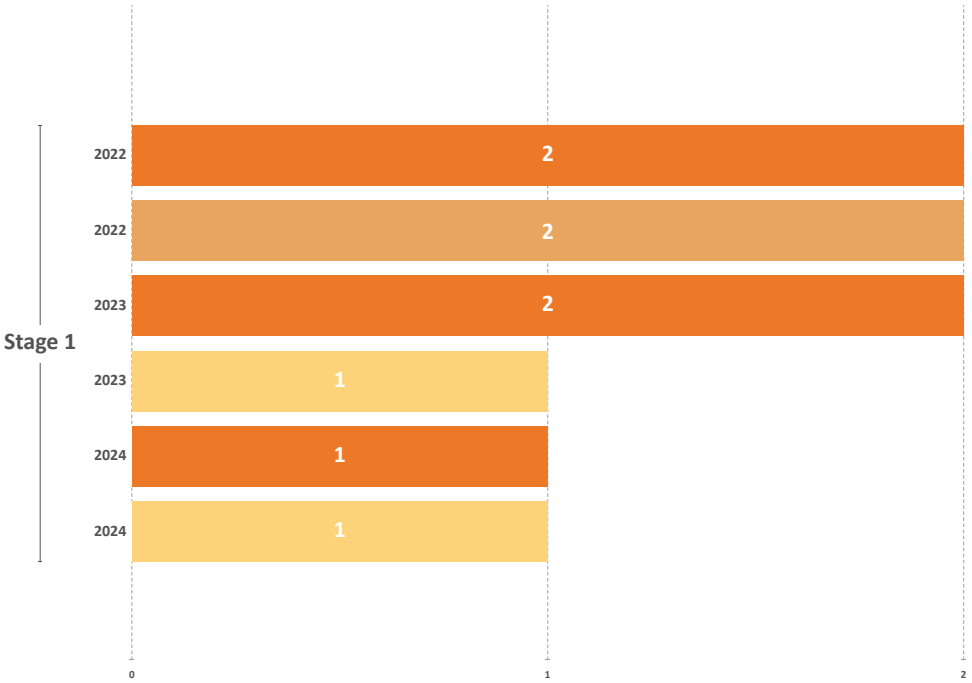

Reports (42) and journal articles (40) were the most common types of knowledge products generated, followed by briefs (23) and other outputs (22). This distribution highlights a strong emphasis on formal documentation and peer-reviewed dissemination for the Initiative.

## Number of individuals trained by the initiative




A total of 36,917 trainees participated in Seed Equal activities, with short-term training accounting for the vast majority.

## Policies by stage and by type




**STAGE 1**
Research taken up by next user, policy change not yet enacted.

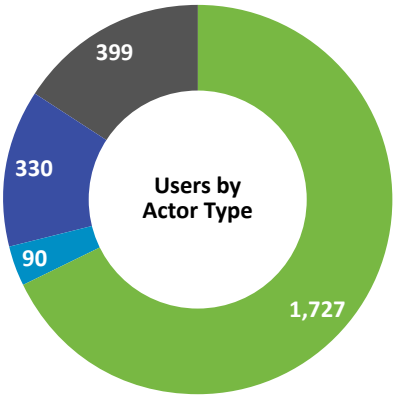
**LEGAL INSTRUMENT**
Legal instruments include laws, which are defined as Bills passed into law by the highest elected body (a parliament, congress or equivalent); or regulations, which are defined as rules or norms adopted by a government. These laws and regulations dictate very specifically actions and behaviors that are to be followed or prohibited and often include language on implications of non-compliance.

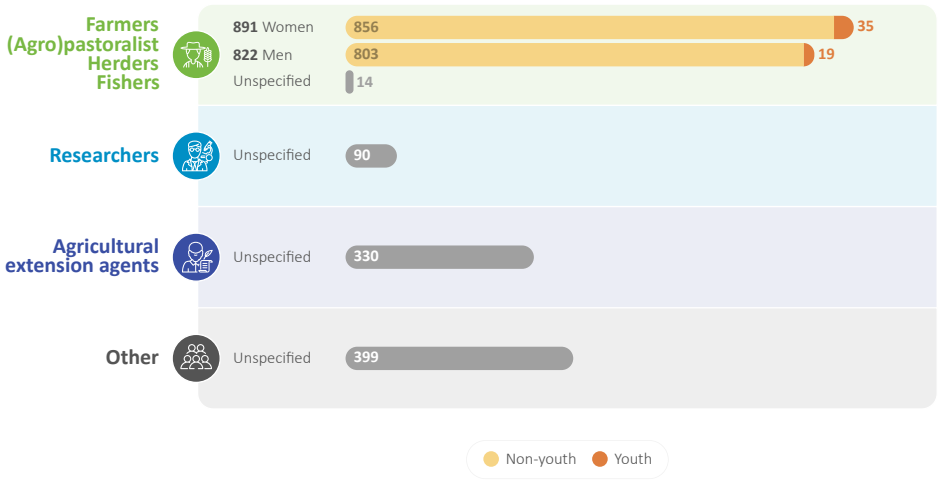
**POLICY OR STRATEGY**
Policies or strategies include written decisions on, or commitments to, a particular course of action by an institution (policy); or a (government, NGO, private sector) high-level plan outlining how a particular course of action will be carried out (strategy). These documents show the intent of an organization or entity. Examples are country growth strategies, country agricultural policies, organization strategic plans or road maps. This could also be observed as information campaigns (e.g., for improved diets). These documents set the goalposts but then require other instruments for implementation.

**PROGRAM, BUDGET OR INVESTMENT**
These are implementing mechanisms that often follow from a strategy, policy or law. There is typically a well-defined set of actions outlined over a specific period of time and with a specific budgetary amount attached. National Agricultural Investment Plans is an example, the budget within a ministry is another, investments from the private sector fit here, as well as programs launched by public, private and NGO sectors.

Seed Equal contributed to nine policy results, all at Stage 1. These contributions were concentrated at the national level in countries such as Nigeria, Kenya, Uganda, and Rwanda, highlighting early-stage policy engagement across key partner countries.

## Innovations users by actor type



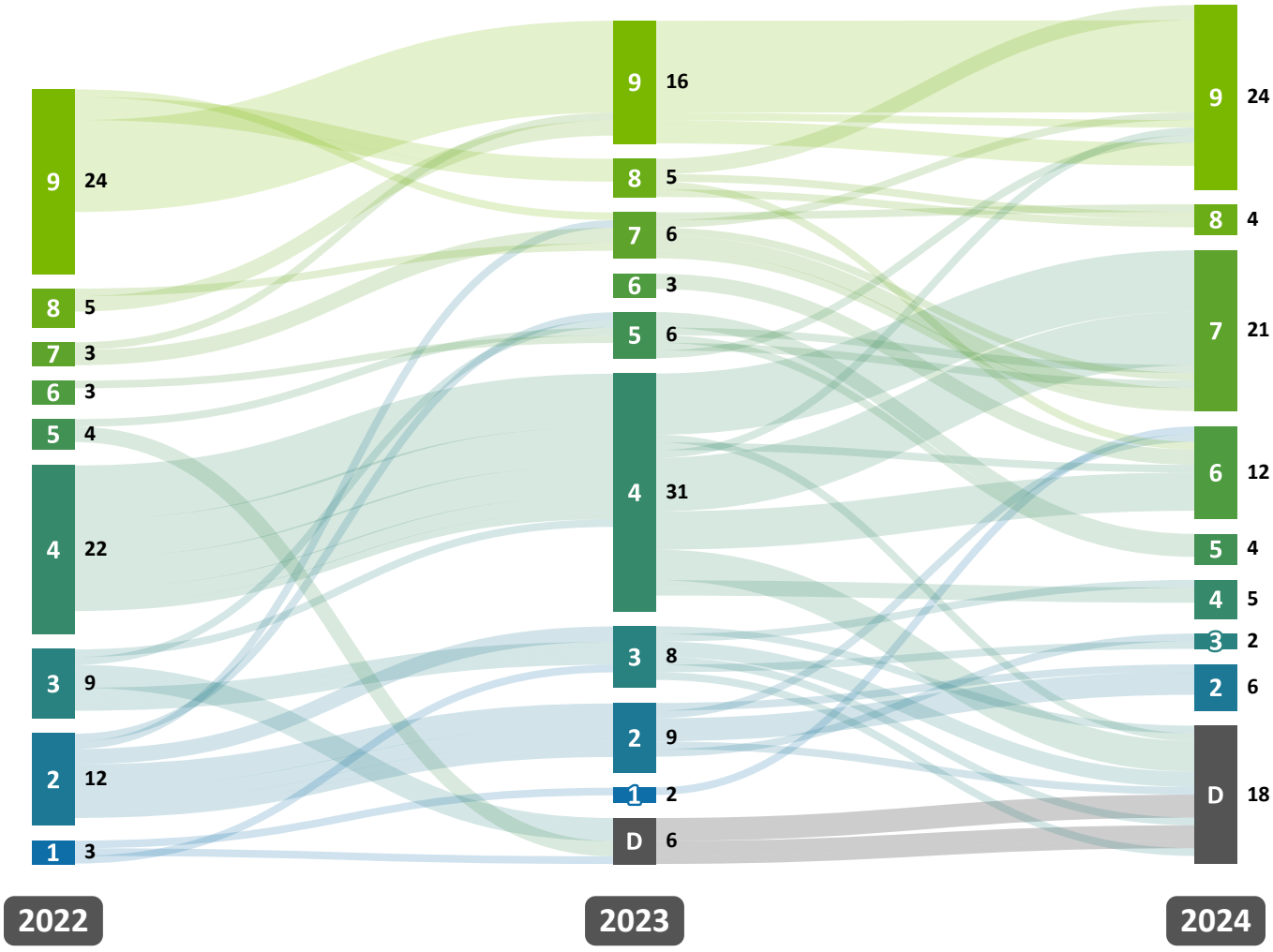




A total of 2,546 users adopted innovations under Seed Equal, with farmers, (agro)pastoralists, herders, and fishers representing the largest group (1,727 users; 68 percent). This distribution reflects the Initiative's strong focus on end-user engagement, particularly among rural producers and intermediaries.

## Number of innovations and their readiness levels


Seed Equal reported 108 innovations across all stages of development. The largest share—24 innovations—reached the highest readiness level (Stage 9: Proven Innovation), demonstrating validated impact under real-world conditions. Significant numbers were also seen in Stage 7: Prototype (24) and Stage 6: Semi-Controlled Testing (12), indicating strong progress toward field validation.

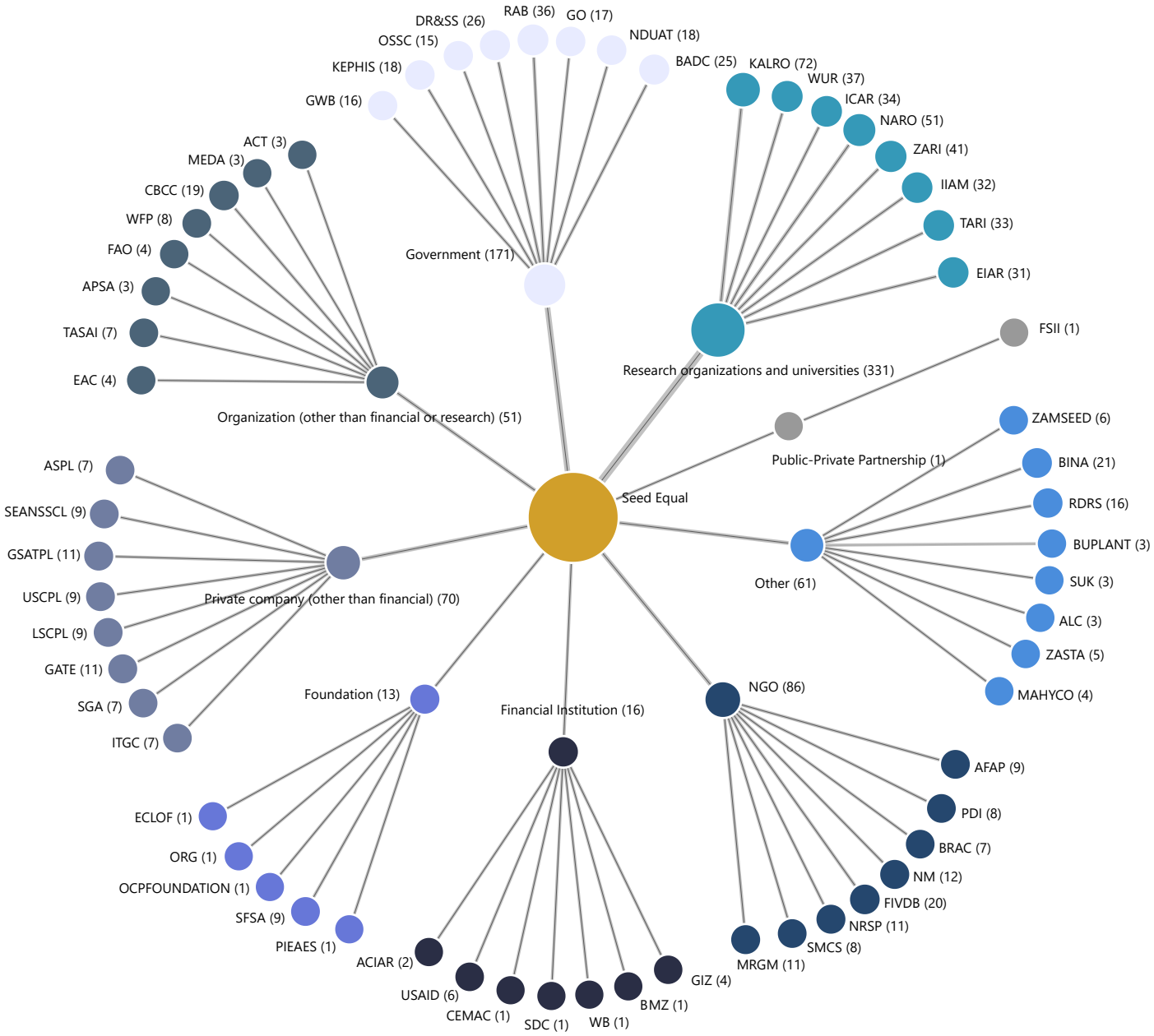
## Innovations readiness levels progression (2022-2024)




9 Proven Innovation · 8 Uncontrolled Testing · 7 Prototype · 6 Semi-Controlled Testing · 5 Model/Early Prototype · 4 Controlled Testing · 3 Proof of Concept · 2 Formulation · 1 Basic Research · 0 Idea · D Discontinued

# Section 5: **Partnerships**

## Network of external partners by type (cumulative overview 2022-2024)




The diagram maps the external partners of Seed Equal, organized by partner type. The numbers in brackets represent the number of results each partner has contributed to, reflecting the scale and diversity of collaborations. To allow for a clearer view, a maximum threshold of eight partners was applied for each typology. The list of partner acronyms is available here.

## Partnerships and Seed Equal's impact pathways

Over the 2022–2024 period, significant strides were made by Seed Equal in establishing and nurturing partnerships across various WPs focused on enhancing seed systems in Asia, Africa, and Latin America. **WP1** successfully built 230 partnerships across national organizations, public seed trade groups, private seed agencies, farmer companies, and NGOs, targeting a range of cereal crops. These collaborations focused on validating, creating awareness, and establishing pathways for new varieties and quality-assured seeds in regions such as Asia, Africa, and Latin America.

In **WP2**, 661 partnerships with value chain actors in 61 MSPs facilitated the adaptation of seed systems to local contexts, focusing on soybean, cowpea, common bean, and other crops. Notable achievements include partnerships in Tanzania, Nepal, Zambia, Morocco, Egypt, and Uzbekistan to implement DLSS, with a particular emphasis on expanding adoption of new varieties in sub-Saharan Africa. **WP3** saw partnerships with 15 countries, notably in Nigeria, Tanzania, Kenya, Uganda, and Bangladesh, aiming to strengthen EGS technologies and quality control. Collaborations with academic institutions, NARS, and private entities led to innovations such

as the development of tools like the BID and seed requirement estimation tools. The successful establishment of memorandums of understanding (MoUs) in Tanzania and Uganda, fostering public-private partnerships and supporting seed producer cooperatives. In 2024, efforts to create draft certification regulations for Kenya were driven by a multi-institutional collaboration.

**WP4** collaborated with the ISF, APSA, AfSTA, American Seed Trade Association, Syngenta Foundation, and academic institutions to advance seed system innovations. Participation in global seed congresses strengthened partnerships with private seed producers, leading to MoUs with ISF and APSA to scale quality seed. Over three years, WP4 engaged seed value chain actors to standardize variety release, licensing, and ensure CGIAR-bred varieties reached smallholder farmers through private sector channels. These partnerships enhanced seed accessibility and market integration.

**WP5** formed partnerships with government ministries, research agencies, private sector associations, and civil society organizations in its five focal countries to address policy questions and data needs. These collaborations, including with policy think tanks and research organizations, aimed at developing innovative solutions to seed policy and regulatory challenges. Additionally, partnerships focused on translating policy ideas into actions, emphasizing capacity building for public research and regulatory bodies.

**WP6** made notable strides in reaching marginalized groups such as women and youth. In Africa, partnerships with organizations such as the CBCC and Kilimo Trust led to the establishment of youth and women seed centers in Uganda, providing access to quality seeds and training. Additionally, partnerships in India, such as with the Centre for Sustainable Agriculture, contributed to empowering women through FPCs and enhancing access to quality seeds. A significant highlight of 2024 was the collaboration with Sattva Consulting Pvt. Ltd. to develop research on gender-responsive business models for seed entrepreneurship, further empowering women in the sector.

Lastly, **WP7** focused on partnerships in Malawi, Tanzania, and Uganda to improve seed access and promote food security, and worked with organizations such as WFP and Ripple Effect to support these efforts. The 2022–2024 period marked a dynamic phase for partnerships across these WPs, with a clear focus on developing sustainable seed systems, empowering women and youth, and enhancing food security through improved seed access.


*Crop cafeteria evaluation program in Bangladesh.*
*Credit: Dr Swati Nayak (International Rice Research Institute (IRRI)*

# Section 6: **CGIAR Portfolio linkages**


*Cafeteria evalution program in Bangladesh.*

## Portfolio linkages and Seed Equal's impact pathways

WP1, WP2, and WP3 accelerated seed delivery and varietal adoption for cereals, legumes, and VPCs, leveraging breeding programs, market intelligence, and partnerships. WP1 integrated with WP4 for capacity building and convergence initiatives in Asia and Africa, adding 234 promising varieties to the seed chain across more than 35 market segments. More than 200 seed system partners received training in varietal intelligence, business support, licensing, and seed production.

**WP2** connected with WP6 for equitable seed access, WP7 for emergency seed supply, and WP4 for legume seed value chain development. It also collaborated with PABRA on DLSS and MSPs for sustainability. **WP3** engaged WP4 and WP5 in policy and certification standard development in Kenya, WP6 in gender and diversity studies, and multiple bilateral projects for VPC seed delivery. **WP4** supported WP1 through workshops and digital tools such as SeedCast, collaborated with WP2 for legume seed value chain enhancements, and integrated with WP5 for capacity building. WP4 also collaborated with the Accelerated Breeding Initiative through product advancement meetings, giving feedback on varieties to be advanced for release and handed over for seed production and promotion.

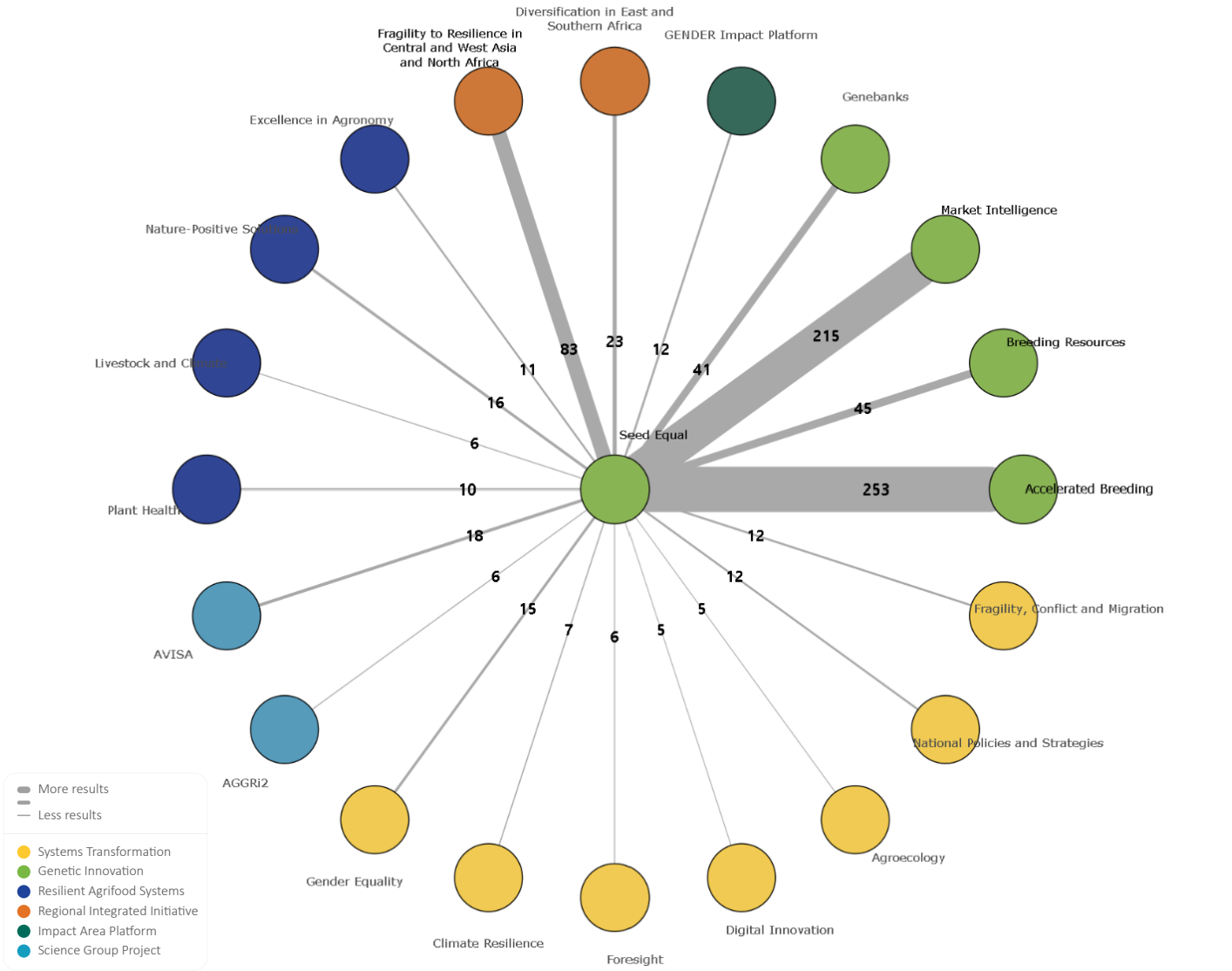
**WP5** was cross-cutting in nature, such that all progress reported in 2024 can be viewed as occurring jointly with the other five WPs and contributing to all of Seed Equal's EOIOs. Activities in India were done jointly with WP1 (cereals) and WP6 (gender and inclusion). Activities in Kenya occurred jointly with WP3 (RTBs) and WP4 (capacity development). Activities in Uganda were aimed at providing mutual support to WP6 (gender and inclusion). Activities in Nigeria were conducted in collaboration with WP1 (cereals), WP3 (RTBs), and WP4 (capacity development). In Rwanda, activities occurred jointly with WP3 (RTB) and WP4 (capacity development). WP5 also collaborated closely with the Market Intelligence Initiative in the Genetic Innovation Science Group, focusing on generating and amplifying evidence on innovative interventions designed to increase varietal turnover, improve seed quality, and strengthen seed markets.

**WP6** worked closely with WP2 and WP3 to codesign strategies and pilot them in five countries in Africa and India, aiming to increase access to and use of improved varieties, and it also developed peer-reviewed and working papers being made available to a broader audience through the Gender Impact Platform. **WP7** focused on capacity building in humanitarian settings.

Seed Equal WP2 continued to strengthen linkages with PABRA through DLSS and made efforts to scale it to cowpea and soybean. WP1 and WP2 were supported by the Dryland Crops, Southern Africa Accelerated Innovation Delivery Initiative, and Vision for Adapted Crops and Soils projects in both scale and scope, covering additional geographies and cross-sharing innovations along Impact Pathways and Market Intelligence studies, as well as innovative business models. Seed Equal WP3 collaborated with PROSSIVA project, the latter undertaking complementary research focused on innovations to address specific seed system bottlenecks in Ghana, Nigeria, Rwanda, Tanzania, and Uganda. Seed Equal WP4 implemented a grant by the CGIAR Research Initiative on Ukama Ustawi: Diversification for Resilient Agrifood Systems in East and Southern Africa to scale up VarScout, a digital ecosystem for collecting, storing, monitoring, and visualizing crop varietal data by farmers, extension agents, government officials, private companies, and researchers in Kenya. WP6 partnered with projects such as ClimatePRO and ICARDA through the CGIAR Research Initiative on Fragility to Resilience in Central and West Asia and North Africa to engage women in rice and pulse seed production, respectively. WP6 was also scaling the YWQC model on rice and beans in Uganda. The model was piloted by Dryland Crops in Tanzania on groundnut and sorghum.

WP4 also partnered with FAO and the International Seed Federation (ISF) to create awareness of germplasm access through the standard material transfer agreement and licensing of plant breeding products for wide commercial use through an online webinar attended by more than 400 participants.

## Seed Equal's internal network of collaborations




The diagram presents the internal collaborations of Seed Equal with other CGIAR Initiatives, Impact Area Platforms, and Science Group Projects. Connections are sized according to the number of shared reported results, highlighting the depth of collaboration across the CGIAR Portfolio.

A results threshold filter is applied (set to a minimum of five results) to focus the view on the most significant collaborations. Thicker lines represent stronger collaborative links based on a higher number of shared results..

# Section 7: **Key result story**

## Expanding access to quality seeds for women and youth in Uganda and beyond

*Bean field inspection focusing on the use improved seeds, Uganda.*
*Credit: Allan Bomuhangi (IRRI)*

**Primary Impact Area**

**Contributing Initiative**

Seed Equal

**Contributing Centers**

IRRI · Alliance of Bioversity and CIAT

**Contributing external partners**

Kilimo Trust, South-South Corporation, the Japan International Cooperation Agency (PRiDE Project), Rikolto Uganda, Agricultural Crop Production Department in the districts and the Doho Irrigation Farmers' Cooperative.

**Geographic scope**



**Regions:** Nationals

**Countries:** Uganda

In Butaleja district in eastern Uganda, women and youth face challenges in accessing quality seed. Seed Equal developed the youth and women quality centers (YWQC) model, which integrates behavior change strategies with technical interventions to overcome barriers in seed production and marketing across the seed value chain. The YWQC model was embedded within four farmer cooperatives and facilitated by partners, including Kilimo Trust, South-South Corporation, the Japan International Cooperation Agency (PRiDE Project), Rikolto Uganda, Agricultural Crop Production Department in the districts, and the Doho Irrigation Farmers' Cooperative.

Access to improved seed varieties for rice and beans remains a challenge in Uganda, as well as for other countries worldwide. Women face additional barriers due to a lack of information, financial constraints, and restricted access to critical resources such as land. Over the past two years, Seed Equal forged strategic partnerships to develop and implement training and capacity-building initiatives aimed at enhancing the participation of women and youth in seed production and access to quality seed.

**Strengthening seed systems in Uganda**

Improved seed varieties are beneficial for multiple reasons. They are bred for climate, disease, and pest resistance, contributing to greater yields and food security. They often mature earlier and, in some cases, offer greater nutrition benefits than local varieties.

In Butaleja district in Uganda, Seed Equal collaborated with four farmer cooperatives specializing in common beans and rice. Since 2023, 30 women and men farmers received training in seed production, resulting in 2.8 MT of certified bean seeds and 15.4 MT of quality declared seed rice being added to the market each season. As access to improved seed expanded, almost 600 farmers adopted high-quality seed varieties, including about 300 rice farmers and 300 bean farmers, evenly distributed among youth, women, and men.

Building on this success, Seed Equal extended the training programs to Burundi, Cameroon, Zimbabwe, and Zambia, reaching about 800 farmers. In Uganda's Mpigi, Gomba, Butambala, Ssembabule, Lyantonde, Lwengo, Rakai, Kyotera, Masaka, Kiboga, Kasanda, and Mayuge districts, Seed Equal worked with SAWA Agricultural Development Company Limited (SADCL) to strengthen seed production and market linkages. Through this collaboration, six producer associations, comprising 441 farmers, received training on bean seed production. To enhance farmer learning, six technology transfer learning centers were established in Mpigi, Mityana, and Masaka. To date, these centers have trained 324 farmers (101 men, 223 women) in accessing and using improved quality seed to boost yields. Additionally, farmers were connected with market actors to facilitate seed sales and improve market access. To ensure the production of high-quality seeds, farmers received comprehensive training on capacity building that covered:

- Good farming practices, including where to source seeds, types of seeds, and their proper use
- Seed production processes focusing on growing improved seed varieties, licensing, and best agronomic practices
- Business skills to equip farmers with manuals, training guides, and other communication materials, codeveloped with the district production department and agricultural officers to train farmers on seed selection, farm management (agronomy), storage, and enterprise development

Through one regional radio station and four community radios, Seed Equal reached more than 205,000 listeners in Butaleja District and more than 1 million listeners across five surrounding districts.

An endline study involving 853 rice and bean farmers showed significant improvements in the adoption of improved seed varieties. Adoption of improved rice varieties rose from 43 percent to 89 percent among youth farmers and from 38 percent to 91 percent among women farmers. Adoption of improved bean varieties increased from 67 percent to 98 percent for youth farmers and from 67 percent to 83 percent for women farmers.

**Gender-intentional strategies for inclusive seed access**

Through continued collaboration with the Centre for Behaviour Change and Communication, SADCL, Uganda's National Agricultural Research Organisation, and other stakeholders, Seed Equal codeveloped gender-intentional strategies to promote inclusive seed access. These included:

- A social behavior change and communication strategy to increase awareness and adoption of quality seeds
- A policy brief and production manuals to improve equitable access to rice and common bean seeds
- Four YWQCs established as access points for seed-related information and training

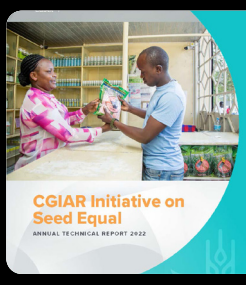
Through the YWQCs, Seed Equal mobilized and trained 30 youth champions, including 50 percent of women, in seed business and financial management. Each champion was tasked with reaching 50 to 70 smallholder farmers, forming a network of more than 1,500 farmers (including 60 percent of women). This successful model is being scaled in Burundi, Cameroon, Zimbabwe, Tanzania, and Mozambique.

In Masaka, Mityana, and Mpigi, Seed Equal trained an additional 221 farmers. Six community seed banks, which are locally governed institutions dedicated to the preservation and exchange of seeds, were established, increasing access to quality seeds for 484 farmers, the majority of whom were women.

**Scaling impact and reaching millions**

Collaborative efforts to promote the adoption of quality seed reached more than 1 million farmers. As these efforts expand across multiple countries, the Initiative remains committed to ensuring women and youth have equitable access to opportunities in seed production and marketing, driving inclusive and sustainable agricultural development.

> Youth participants from Doho shared a positive shift in mindset: "We used to waste time gambling, but now we focus on farming, and it pays off." A youth champion added, "Farming is no longer just about survival; it's a business and a way to build our future."


2022 key result story

**Advancing regulatory change for quality assurance of planting material for vegetatively propagated crops in Kenya**


2023 key result story

**Demand-led approaches boost common bean access in Zambia**

CGIAR

INITIATIVE ON

# Seed Equal

*Self-sufficient labor-intensive farming in Oman. Traditional sustainable agriculture.*

*Credit: monticello/Shutterstock*