



Producers and resilient field practices, transforming agriculture Credit: Jaime Urdinola, Alliance of Bioversity and CIAT.

CGIAR Research Initiative on AgriLAC Resiliente

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 has been developed in alignment with <u>CGIAR's Technical Reporting Arrangement</u>. 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 <u>CGIAR Flagship Report</u>, released in April 2025 at <u>CGIAR Science Week</u>. 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	AgriLAC Resiliente: Resilient Agrifood Innovation Systems in Latin America and the Caribbean
Initiative short name	AgriLAC Resiliente
Initiative Lead	Deissy Martínez Barón (d.m.baron@cgiar.org)
Initiative Co-lead	Bram Govaerts (b.govaerts@cgiar.org)
Science Group	Resilient Agrifood Systems
Start – end date	01 April 2022 – 31 December 2024
Geographic scope	Regions Latin America and the Caribbean
	Countries Colombia · Guatemala · Honduras · Mexico · Peru
OECD DAC Climate marker adaptation score ¹	Score 2: Principal 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 2: Principal 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 Gender equity marker score ²	Score 1A: Gender accommodative/aware Gender equality is an objective, but not the main one. The Initiative/project includes at least two explicit gender- specific outputs, and (adequate) funding and resources are available. Data and indicators are disaggregated by gender and analyzed to explain potential gender variations and inequalities.
Website link	https://www.cgiar.org/initiative/agrilac-resiliente-espanol/

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

From 2022 to 2024, the CGIAR Research Initiative on AgriLAC Resiliente (AgriLAC) advanced its mission to strengthen resilience in Latin America and the Caribbean's (LAC) agrifood systems by fostering inclusive innovation, generating scientific knowledge, and promoting collaborative action. Operating in Guatemala, Honduras, Mexico, Colombia, and Peru, the Initiative functioned as a network of networks, bridging research, policy, and local knowledge to address climate challenges and food security through sustainable transformation.

Over the three-year period, AgriLAC reported a total of 841 results, including 268 knowledge products, 26 innovations, and the implementation of 407 capacity development activities and 43 documented cases of CGIAR innovation use to more than 1.4 million users, primarily small-scale producers. These efforts were grounded in partnerships with more than 200 organizations, including national research systems, public institutions, nongovernmental organizations (NGOs), and farmer associations, in addition to collaboration with other CGIAR Initiatives working in overlapping countries.

Scientific progress was a central pillar. Between 2022 and 2024, AgriLAC produced peer-reviewed articles and technical publications on participatory climate services, gender barriers in agriculture, migration, and climate-smart practices. Notable 2024 contributions included studies on participatory agroclimatic services in Honduras and institutional actor networks for climate action. A review of the milpa system and studies on seed storage, seasonal forecasts, and women's participation further reinforced AgriLAC's evidence base for policy and practice.

Progress toward End of Initiative outcomes (EOIOs):

- EOIO 1: More than 43,000 beneficiaries—40 percent women—gained access to climate-resilient and nutritionsensitive technologies. Local research platforms in four countries provided tailored technology menus, while fieldtested commercial strategies supported market access. More than 4,000 people participated in training programs covering agronomy, food processing, and marketing.
- EOIO 2: AgriLAC strengthened digital climate services in Central America through tools such as Aclimate in Guatemala and EOLO in Honduras, reaching more than 201,000 rural producers. Collaborations with more than 100 organizations and public agencies enabled data integration, human-centered design, and dissemination through radio and bulletins, with more than 100,000 producers in Guatemala receiving climate information via radio alone.

- EOIO 3: In Colombia and Peru, the Initiative supported the design and implementation of low-emission strategies in cocoa and dairy value chains, linking mitigation with territorial planning and finance. Efforts in Colombia aimed to sustainably manage up to 150,000 hectares, while virtual platforms such as EncontrAR promoted climate-smart entrepreneurship and knowledge exchange.
- EOIO 4: The InnovaHub model was scaled across Mexico, Guatemala, and Honduras, reaching 46,743 producers and establishing 66,727 innovation plots across nearly 76,000 hectares. Local governments in Mexico adopted the model at scale, while Guatemala and Honduras advanced operationalization. Communities of practice and digital networks engaged more than 660,000 stakeholders, fostering learning and localized innovation. The InnovaHub model was initiated in Colombia.
- **EOIO 5:** The Initiative strengthened the science–policy interface in Guatemala, Honduras, and Peru. In Guatemala, an **interactive food security mapping tool** was launched, building on prior policy diagnostics and supported by new donors, while studies on gender and climate-induced migration offered inputs for targeted interventions.

Throughout the Initiative, **capacity development remained a cornerstone**, with **12,879 individuals trained directly** (and many others benefiting from spillovers), mostly through short-term programs. Emphasis was placed on equity and inclusion: 4,484 women and 122 youth were among the participants.

AgriLAC's contribution to the **CGIAR Impact Areas** was broad: 702 results supported **climate adaptation and mitigation**, 552 contributed to **environmental health**, and 550 to poverty reduction. Engagement in **gender equality, nutrition, and inclusive governance** further illustrated AgriLAC's cross-cutting approach. More information can be found in AgriLAC's flagship report.

In summary, AgriLAC Resiliente made substantial progress toward its EOIOs, demonstrating how integrated science, local engagement, and inclusive innovation can generate meaningful change in the region's agrifood systems. The results achieved over three years lay a solid foundation for further transformation, aligning CGIAR science with the urgent challenges of climate change, inequality, and food insecurity in LAC.

	2022	2023	2024
PROPOSAL BUDGET D	\$9.31M	\$10.08M	\$10.63M
APPROVED BUDGET ¹ »	\$4.00M	\$3.69M ²	\$4.75M 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.



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.





FLUENCE

Action Area Outcomes

RESILIENT AGRIFOOD SYSTEMS

- National and local multi-stakeholder platforms are strengthened to become more effective and sustainable, addressing development trade-offs and generating strategies for effective food, land, and water systems transformation.
- Research institutions, government analytical units, and scaling partners
 in the Global South have improved knowledge, skills, access to data,
 capacity to develop tools, innovations, and undertake research to support transformation of food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate objectives.

GENETIC INNOVATION

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

SPHERE OF INTEREST

IMPACT AREAS

NUTRITION, HEALTH & FOOD SECURITY 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

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

GENDER EQUALITY, YOUTH & SOCIAL INCLUSION

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

CLIMATE ADAPTATION & MITIGATION

 Implement all National adaptation Plans (NAP) and Nationally Determined Contributions (NDC) to the Paris Agreement.

ENVIRONMENTAL HEALTH & BIODIVERSIT

 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.



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Summary of progress against the theory of change

The CGIAR Research Initiative on AgriLAC Resiliente laid a strong foundation for achieving its **EOIOs** in Guatemala, Honduras, Mexico, Colombia, and Peru through agricultural innovation networks from local to regional scales. Between 2022 and 2024, the Initiative generated 268 knowledge products, primarily in collaboration with five CGIAR Research Initiatives: **Digital Innovation, Climate Resilience, National Policies and Strategies, Low-Emission Food Systems, and Livestock and Climate.** This collaboration advanced scientific research in sustainable agriculture and supported the development, analysis, and publication of key studies for future application.

In 2024, AgriLAC Resiliente strengthened its scientific contributions through two peer-reviewed articles supporting EOIO 2, providing evidence to guide tailored agroclimatic services. These focused on experiences with participatory climate services for farmers in Central America and using social-network analysis to map institutional actors' links with vulnerable municipalities under climate change in Honduras' dry corridor. Earlier contributions included the book A review of agronomic research on the milpa, the traditional polyculture system of Mesoamerica, which highlighted socioecological-technological (SET) innovations, and an article on storage technologies on postharvest insect pest control and seed germination. Both publications contributed to EOIO 1. Other studies addressed technical and adaptation challenges, such as the use of agroclimatic seasonal forecasts to improve rainfed maize agronomic management, and informed localized agroclimatic bulletins (EOIO 2). AgriLAC also contributed to gender-transformative research with an article on cultural and economic barriers to women's participation in agriculture in Guatemala, supporting EOIO 5 through science-based guidance for gender-responsive policy. Collectively, these publications reflect the Initiative's commitment to producing actionable scientific knowledge to inform inclusive and climateresilient agricultural development in the region.

For **EOIO 1**, Work Package (WP) 1 surpassed its goal of reaching 30,000 beneficiaries by roughly 46 percent during its three years of implementation. Of its almost <u>44,000 beneficiaries</u>, roughly 40 percent were women. This achievement was possible because of coordination with local partners in the four countries where WP1 had activities, as well as the participatory approach to evaluating technologies, incorporation of value-added processes, and design of differentiated commercial strategies. WP1 also strengthened the capacity of <u>4,110 individuals</u> in the agrifood systems of the four

target countries by implementing training programs that focused on agronomy, postharvest and food-processing practices, and market strategies.

Significant progress was achieved in improving farmers' access to climate-resilient and nutrition-sensitive technologies through participatory crop validation, capacity building, codesigned research agendas, and knowledge exchange promoting sustainable practices and strengthening rural livelihoods. Through the establishment of 14 research platforms, farmers in Guatemala, Honduras, and Mexico were able to access technology menus to support decision-making. In Guatemala and Honduras, the Initiative identified strategies to increase productivity. Evidence shows trained farmers in Guatemala achieved higher yields and were interested in sustaining adoption of promoted practices. In Colombia, Indigenous communities continued planting climate-resilient crops for self-consumption and market sales, while respecting cultural traditions. WP1 also designed and tested methods to improve market access to climatesmart, nutritious food, leading to eight marketing plans for producer associations in Guatemala, Honduras, and Colombia. Finally, a group of women launched their own business selling products in local markets.

For **EOIO 2**, key achievements included better data integration and collaboration among stakeholders, improved data analysis incorporating human-centered design, widespread dissemination of agricultural advisories through bulletins, improved data sharing via innovative tools, and the scaling of participatory climate service mechanisms. Through collaboration with more than 100 organizations and local technical agroclimatic committees (MTAs), and the support of public sector institutions, WP2 was able to reach more than 200,000 farmers.

In terms of data integration and collaboration, WP2 advanced the deployment of decentralized <u>data hubs</u>, enhancement of <u>digital</u> <u>tools</u> in Honduras, and creation of digital agriculture profiles for <u>Honduras</u> and <u>Guatemala</u>; all of these activities were complemented by capacity-building efforts. Innovations in data analysis focused on strengthening existing platforms or creating new ones. In Guatemala, WP2 developed a <u>methodology</u> for recommendations for maize crop management and <u>calibrated a crop model</u> to incorporate biofortified varieties, both of which strengthened the <u>Aclimate</u> forecasting platform. In Honduras, the <u>EOLO platform</u> was developed in partnership with the Centro de Estudios Atmosféricos, Oceanográficos y Sísmicos, (English: Center for Atomospheric,

Oceanographic and Seismic Studies- Permanent Contingency Commission), (CENAOS-COPECO) to improve decision-making for smallholder farmers. WP2 contributed to enhancing accessible agroclimatic bulletins, including <u>tailored information products</u>, in Guatemala and Honduras through collaboration with local stakeholders, as well as lessons learned from human-centered design approaches in <u>Guatemala</u> and <u>Honduras</u>, and <u>a study</u> on the role of agroclimatic bulletins in improving decision-making, resource use, and climate adaptation.

Dissemination of agroclimatic information was achieved through collaboration and <u>partnerships</u>. Strengthened MTAs provided climate risk management information to 201,000 producers in Guatemala, Honduras, and Mexico. In Guatemala, more than 100,000 producers had access to agroclimatic information through <u>radio</u>. A recent <u>study</u> highlighted the positive role of MTAs in disseminating information in Guatemala. Finally, in Honduras, a <u>participatory observer network</u> for climate data was established.

For **EOIO 3**, WP3 developed a diverse set of tools to integrate climate change mitigation with sustainable development across agroecosystems and value chains to fully achieve its outcomes. In Colombia, two national cocoa strategies linked sustainable practices with territorial planning and innovative

financing, with potential to reach 100,000 hectares, while enabling conditions for scaling were established to expand to an additional 50,000 hectares. This model integrates science, policy, and production practices, aligns with the <u>Sustainable Development</u> Goals, and can be replicated. WP3 also developed a methodological framework to facilitate territorial planning and sustainable scaling of agrifood value chains, digital tools and evidence-based methodologies to enhance climate mitigation decision-making in the dairy sector in Colombia and potato value chain in Peru, supported platforms such as EncontrAR and implemented the Sustainable Cocoa Innovation Challenge, and promoted the platform Perumin Inspira Challenge in Peru. The latter two platforms allowed for the identification of 87 sustainable land use systems (SLUS)-aligned startups in the cocoa sector in Colombia and 65 potential entrepreneurs in Peru's agrifood system.

WP3 also championed innovative <u>financing</u>

mechanisms, including tax-for-project schemes in Colombia. Finally, WP3 worked on building capacities of local stakeholders in <u>Caquetá</u> and <u>Cesar</u> in Colombia, where Departmental Committees of the cocoa value chain were instrumental in adapting sustainable production models to local agroecological and cultural contexts, driving the adoption of mitigation strategies in Colombia, as well as by training 191 <u>individuals in Colombia</u> in sustainable production and climate resilience and 494 individuals in Peru.

For **EOIO 4**, WP4 surpassed its outcome target, reaching more than 46,000 producers while establishing more than 66,700 innovation sites across almost 76,000 hectares in Mexico, Guatemala, and Honduras. While the InnovaHub model was adopted at scale in Mexico, in Guatemala and Honduras, it moved to a fully operational model that fosters continuous engagement of local actors and demonstrates early evidence of best-bet agronomic practices. In Colombia, it was recently implemented with sectoral meetings in two subnational locations to engage local stakeholders. These operational stages were reflected in the distribution of the outcomes. In Mexico, state governments in Oaxaca and Quintana Roo adopted the InnovaHub model, reaching 42,360 producers and 65,494 hectares, and in Chiapas, interventions supported soil fertility mapping and targeted nutrient recommendations for 8.200 hectares. In Guatemala, the model benefited 1,942 producers and established 1,945 innovation sites across 557.7 hectares, while in Honduras,

it reached 225 farmers, with 551 innovation sites covering 571.7 hectares.

WP4 also increased capacities, consolidated networks and alliances, fostered dynamic learning environments, and supported communities of practice. A network of farm professionals and advisors was trained in Mexico, Honduras, and Guatemala with technical guides and course materials on agronomy, climate advisories, and digital agriculture. Through continuous field activities, WP4 consolidated subnational networks and strengthened alliances between actors in the public sector, private sector, and civil society. The interaction between research platforms and farming communities fostered dynamic learning environments. Finally, learning communities of practice were strengthened through digital tools and social networks, reaching more than 660,000 community members and linking with extensionists and farm advisors.

For **EOIO 5**, WP5 connected CGIAR science with public and private institutions in Guatemala, Honduras, and Peru, driving improvements in food security and climate resilience policies. Given that achieving public policy impact requires a long-term vision, the three-year timeframe of the Initiative was not sufficient to achieve the desired outcomes. However, collaboration and coordination with other



WPs allowed for significant progress on evidence generation, development of innovative tools, and stakeholder engagement. To generate evidence for decision-makers and other stakeholders, WP5 implemented quantitative studies to explore <u>barriers to women's</u> <u>participation in agriculture</u> and analyze <u>climate-induced migration</u> <u>patterns</u> in Guatemala, and, in collaboration with WP3, study <u>internal</u> migration and its impacts to deforestation in Peru.

In Guatemala, an interactive food security mapping tool was launched in 2024 that improved the precision of interventions by the government and donors. This achievement was due to initial efforts conducted in 2022 to map public policies related to food security, climate change, and migration to identify critical gaps and opportunities for intervention. This work included a subnational mapping of food security programs that revealed underinvestment in certain areas, drawing attention from the Group of 13 donors, and a validation of these findings in 2023. This tool was complemented by the development of two policy briefs using the Integrated Agrifood System Initiative (IASI) methodology to improve food security in Guatemala and Honduras. WP5's work on food security was reinforced by the inclusion of Norway as a new donor. Finally, regarding stakeholder engagement, WP5 shared evidence in academic and policy forums and collaborated with government and regional bodies to support evidence-based decision-making and scaling of innovation across the region.

Progress against End of Initiative Outcomes

This infographic provides a concise summary of the Initiative's progress toward achieving its Theory of Change Endof-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

Nutrition-sensitive SET climate-smart innovations adapted and codesigned with agrifood system actors (farmers, processors, and small and medium enterprises) and national agricultural research and extension systems (NARES) enable local agrifood systems in four LAC countries to effectively align the technical aspects of the transition processes with the socioecological needs of at least 30,000 beneficiaries (2022–2024).



EOIO 2

Producer associations, agritech companies, government agencies, NGOs, and public extension services in three LAC countries are empowered by a digitally enabled ecosystem to offer agro-advisory services to at least 180,000 farmers and other value chain actors to manage climate risk more effectively and sustainably intensify production and value chains.



EOIO 3

Two national or local governments or key stakeholders in LAC countries integrate low-emission strategies with development objectives at the agro-ecosystem or value chain level, with an expected impact of at least 100,000 hectares.



EOIO 4

Public and private sector, NARES, and civil society actors across subnational agricultural innovation systems in three LAC countries use InnovaHub learning, knowledge management, and evidence to understand how to accelerate on-farm uptake of SET innovations by making them more gender responsive, production friendly, and context specific, reaching at least 15,000 people (2022–2024).



EOIO 5

Public and private institutions in two LAC countries use CGIAR science, evidence, and tools to inform and shape agrifood systems—related policies, incentives, and initiatives that are more transformative, sustainable, mitigation comprehensive, and supportive to climate adaptation (2024–2030). Efforts to promote climate-resilient and nutrition-sensitive technologies reached 43,960 beneficiaries, surpassing the established goal, through coordination with local scaling partners in Guatemala, Honduras, Colombia, and Mexico. Notably, 40 percent of these beneficiaries were women, highlighting their crucial role in the region's agriculture. This achievement was catalyzed through the participatory evaluation of technologies such as seeds of new varieties, sustainable agricultural practices, the incorporation of value-added processes, and the design of differentiated commercial strategies. These innovations were adopted in approximately 506 hectares of crops directly overseen by the Initiative, increasing the availability of sustainably cultivated harvests and ensuring food security for both self-consumption and market buyers.

Additionally, the capacity of agrifood system actors was strengthened through a codesigned and implemented on-field training program for improving the competitiveness and resilience of rural families. This program focused on three key components: agronomy, postharvest practices, and market strategies, benefiting 4,110 individuals across the four target countries. These joint actions significantly contributed to the adoption of sustainable agricultural practices and enhancement of food security in the region.

AgriLAC achieved significant progress in scaling agroclimatic information services across Latin America, particularly in Central America. Key achievements include the widespread dissemination of agricultural advisories through bulletins, improved data sharing via innovative tools such as radio spots and user-centered community advisories, and scaling of participatory climate service mechanisms. Through strengthened partnerships, the MTAs supported 201,000 rural producers in Guatemala, Honduras, and Mexico with climate risk management insights. Participatory climate services were expanded via partnerships with the World Food Programme, CENAOS-COPECO, and local organizations, directly benefiting thousands of producers. A study highlighted the bulletins' positive impact on farmers' decision-making, despite challenges in dissemination and gender equity. Additionally, radio outreach in Guatemala extended climate information access to more than 100,000 rural producers. In collaboration with private partners, including academia, producer associations, microfinance institutions, and other NGOs, AgriLAC drove innovations in climate data management, forecasting platforms, and resilient credit models. It also promoted the creation of a data hub to facilitate decentralized data sharing. With these achievements, the Initiative drove digital transformation, equipping institutions with the tools and knowledge to expand climate services across the region.

Over the past three years, the Initiative developed tools to integrate climate change mitigation with sustainable development across agroecosystems and value chains, achieving measurable impacts in Colombia and Peru. A methodological framework was created to link emission reductions with the Sustainable Development Goals, facilitating territorial planning and the sustainable scaling of agrifood value chains. Additionally, national cocoa strategies were established in both countries, incorporating low-emission practices, territorial planning, and innovative financing models to strengthen sector resilience.

The potential for scaling is significant, particularly in Colombian regions such as Arauca, Antioquia, Cesar, and Caquetá, where cocoa production could be increased by at least 50,000 hectares, provided that enabling conditions such as financing, technical assistance, and territorial governance are maintained. Platforms such as EncontrAR and the Sustainable Cocoa Innovation Challenge drove investment and knowledge exchange, promoting resilient value chains. With climate finance, technical assistance, and integrated policies, the Initiative demonstrated that the 100,000-hectare target is achievable, consolidating a replicable model for agrifood sustainability in Latin America.

In 2024, the InnovaHub model expanded across Mexico, Guatemala, Honduras, and Colombia, accelerating the on-farm uptake of innovations. Colombia joined as a new country, with sectoral meetings in two subnational locations to engage local actors. In Guatemala and Honduras, the InnovaHubs moved beyond their start-up phase, fostering continuous engagement of local actors and demonstrating early evidence of best-bet agronomic practices. Between 2023 and 2024, the model impacted approximately 16,227 individuals in Guatemala, Honduras, and Mexico, strengthening their capacities in sustainable agriculture-related topics. A total of 1,534 field plots were established in Honduras (544 hectares) and 301 hectares in Guatemala. Additionally, a network of farm professionals and advisors was trained in Mexico, Honduras, and Guatemala with technical guides and course materials on agronomy, climate advisories, and digital agriculture. In Mexico, two state governments adopted InnovaHub-supported interventions across 25,000 hectares, implementing digital farm monitoring to provide context-specific data for decision-making.

Over the past three years, the Initiative connected CGIAR science with public and private institutions in Guatemala, Honduras, and Peru, driving improvements in food security and climate resilience policies. In Guatemala, an interactive food security mapping tool was developed to guide interventions, and studies were conducted on the relationship between climate and migration, barriers to women's participation in agriculture, and the integration of policies on climate change, food security, and migration. In Honduras and Guatemala, policy briefs were published using the IASI methodology to improve food security. In Peru, migration from the Andes to the Amazon and its impact on deforestation were studied.

These efforts contributed to transformative, sustainable, and climate-adaptive policies. The mapping tool in Guatemala improved the precision of interventions by the government and donors. The studies on migration and gender provided crucial data to practitioners. The policy briefs in Honduras and Guatemala translated research into practical recommendations for decision-makers. The study on Andean-Amazon migration in Peru highlighted the complex relationship between displacement and deforestation. The Initiative succeeded in aligning policies with national and regional goals, fostering sustainable development and climate resilience in Latin America.

Section 3: Work Package progress

WP1: Shaping nutrition-sensitive SET "best bets" to operationalize the transition of local agrifood systems to a climate-resilient nutrition pathway

RESEARCH QUESTIONS Which nutrition-sensitive SET 1 nnovations have high potential to optimize the productivity of land, water, 1 · Continually updated menu of validated 1 · Four countries in LAC co-design SET gender equity, and biodiversity within agrifood systems (AFS) in Latin America and the Caribbean climate-resilient, nutrition-sensitive Innovations for nutrition-sensitive 23 technologies and livelihood strategies climate-smart AFS. tailored to LAC farmers and other agri-food system actors (LAC)? Which mechanisms or models (such as research 2 · Strengthened capacity of local research partners through improved engagement in research networks (e.g., co-leadership of research agendas; joint publications; training in research tools / methods. networks) optimize and increase nutrition-sensitive agrifood technologies at the institutional level (incentives and barriers)? 3 • Set of tools and methods for exploring demand conditions (and associated Which tools and approaches can accelerate market opportunities for and access marketing opportunities) in local and regional food systems informing targeting and scaling strategies to be used by governments, institutions, producer organizations, NGOs, and agri-sector companies. to climate-smart and nutritious food produced by rural men, women, and youth?

END-OF-INITIATIVE OUTCOME 1

Four countries in LAC co-design SET Innovations for nutrition-sensitive and climate-smart AFS.

Work Package 1 progress against the theory of change

Over the past three years, significant progress was achieved in improving farmers' access to climate-resilient and nutrition-sensitive technologies across Guatemala, Honduras, Colombia, and Mexico. These efforts included participatory crop validation, capacity building, codesign of research agendas, and knowledge exchange promoting sustainable agricultural practices and strengthening rural livelihoods.

Slightly less than 44,000 beneficiaries from 32 rural communities participated in validating climate-resilient and nutrient-rich improved varieties of maize, rice, beans, and local varieties. Fourteen research platforms were established, resulting in publicly available agricultural technology menus in Guatemala, Honduras and Mexico to support farmers' decision-making. In Guatemala, research identified diversification as the most effective strategy for improving smallholder productivity, while in Honduras, raised bed planting showed promising results for bean cultivation. In Colombia, five biodiversity plots assessed agroecological and ancestral practices. The agroecological management practices showed significant differences compared to the control, resulting in higher yields in maize and sweet potato crops. Additionally, a participatory evaluation of 20 new rice lines was conducted with small farmer associations, resulting in the selection of five varieties with good tillering, pest, and disease resistance. Two of these varieties showed high zinc accumulation, providing a foundation for future release.

The validation of SET technologies was supported through capacity building and community empowerment, engaging 4,110 participants in training sessions on seed systems, sustainable agricultural practices, postharvest management, food processing, and marketing. In Guatemala, trained farmers achieved higher crop yields and expressed interest in continuing use of these practices. In Colombia, Indigenous communities continued planting and utilizing climateresilient varieties for both self-consumption and market sales, while respecting cultural traditions.

Challenges remain in postharvest and processing technologies, infrastructure, and capacity building. Addressing these gaps could further strengthen the sector. For instance, in Larrainzar, Mexico, and Hub Oriente, Guatemala, farmers adopted maize-bean-fruit tree agroforestry systems following training through research platforms. However, continued support and training in system maintenance remain necessary to ensure long-term success.

To improve market access for climate-smart and nutritious food, a <u>demand exploration methodology and business model development</u> <u>process</u> were designed and field tested. As a result, marketing plans were developed for eight producer associations in Guatemala, Honduras, and Colombia, supporting the commercialization of maize, beans, rice, tomatoes, and processed products such as chocolate bars. A group of women trained in <u>food processing</u> successfully launched their own business selling products in <u>local markets</u>. Additionally, two commercial brands, AgroZapatero and Nunumuke, were launched in Colombia, and women and youth played a central role in the development of these brands and in managing association finances.

Regional collaboration resulted in seven joint research publications, including a decade-long <u>agronomic research summary</u> in Oaxaca, a milpa <u>system review</u>, and studies on tillage adaptation and <u>maize</u> <u>seed storage</u>. Knowledge exchange events, such as the RedAgAL symposia, further strengthened regional scientific capacity, with CIMMYT, CIAT, and the Autonomous University of Chapingo leading training on fertilization, pest management, and food processing.

WP2: Inclusive digitally enabled agro-advisories for risk management

RESEARCH QUESTIONS

- What are key levers of change for healthier digitally enabled ecosystems (such as sustained increase of equitable data availability and access) that support agricultural innovation hubs? Who are the key actors and what are their incentives?
- What types of climate and other information services are needed by AFS actors to reduce climate risk and enhance resource-use efficiency?
- What are the required data streams, services, and digital infrastructure (existing and potential) to efficiently support decision-making for climate-risk reduction and sustainable production for food systems?



END-OF-INITIATIVE OUTCOME 1

Four countries in LAC co-design SET Innovations for nutrition-sensitive and climate-smart AFS.

END-OF-INITIATIVE OUTCOME 2

 180,000 farmers and AFS actors in three LAC countries are empowered by a digitally-enabled ecosystem to manage climate risk (CRM) more effectively.

Work Package 2 progress against the theory of change

Over the past three years, WP2 played a pivotal role in transforming agroclimatic information services across LAC, particularly in Central America. Significant progress was made across all outputs and outcomes, laying the foundation for a scalable, integrated digital ecosystem for climate services.

Building on developments in the extract, transform, and load process (Private Institute for Climate Change Research [ICC], Taiwan's International Cooperation and Development Fund), WP2 advanced the deployment of decentralized data hubs (**Output 4**). The software architecture, a data catalog system, was developed to streamline access to key agroclimatic datasets. Under **Output 5**, a key milestone in 2024 was the enhancement of digital tools supporting data integration and collaboration. The digital tools for strengthening agroclimatic service networks provided new avenues for stakeholders to engage with data and improve information dissemination. WP2 also mapped flows within the digital ecosystem of climate and agronomic data, creating digital agriculture profiles for <u>Honduras</u> and <u>Guatemala</u>, highlighting key actors and their innovations. Capacity-building efforts ensured that partners could fully leverage these advancements.

Under **Output 6**, innovation in data analysis progressed through the development of a <u>methodology</u> for maize crop management recommendations and the <u>calibration of a crop model</u> using biofortified varieties. These innovations strengthened the <u>Aclimate</u> <u>forecasting platform in Guatemala</u>. In Honduras, the <u>EOLO platform</u> was developed in partnership with CENAOS-COPECO, integrating machine-learning techniques to improve decision-making for smallholder farmers. AgriLAC Resiliente also collaborated with ICC in Guatemala, and InfoAgro from the Secretariat of Agriculture of Honduras (SAG) and CENAOS-COPECO in Honduras, to enhance accessible agroclimatic bulletins. Using a human-centered design approach (learnings from <u>Guatemala</u> and <u>Honduras</u>), user profiles and stakeholder needs were identified through focus groups, enabling the creation of <u>tailored information products</u>.

For **Output 7**, WP2 scaled agroclimatic information services in Guatemala, Honduras, and Mexico, fostering a digital climate services ecosystem with more than 100 organizations. The strengthened MTA network provided climate risk management information to 201,000 rural producers. Public sector collaboration—with the Ministry of Agriculture, Livestock and Food in Guatemala, SAG in Honduras, and Secretariat of Agriculture and Rural Development in Mexico—was key.

A study highlighted the role of bulletins in improving decisionmaking, resource use, and climate adaptation, despite <u>challenges</u> <u>in dissemination and gender equity</u>. Participatory climate services, including the <u>Participatory Integrated Climate Services for Agriculture</u> (<u>PICSA</u>) <u>approach</u>, were <u>scaled through partnerships</u> and <u>radio</u> <u>outreach</u> in Guatemala, reaching more than 100,000 rural producers. In Honduras, a <u>participatory observer network</u> was established, and a user-centered approach improved service delivery (<u>Honduras</u> and <u>Guatemala</u>). WP2 continued to drive digital transformation, equipping institutions to sustain and scale agroclimatic services.

WP3: Agrifood system development that meets both mitigation and sustainable development objectives

RESEARCH QUESTIONS

- Which mechanisms, data, and tools are required for key stakeholders to integrate climate change mitigation and sustainable development priorities at agroecosystem, landscape, and value-chain scales?
- Are existing indicators designed to capture progress toward both low-emission commitments and development priorities at agroecoxystem, landscape, and value-chain scales? How can those indicators be improved to meet such a dual purpose?
- What tools are needed or available to achieve low-emissions and development priorities at agroecosystem, landscape, and value-chain scales?
- What are the business opportunities from the Paris Agreement's Article 6 for achieving low emissions and sustainable development at the agroecosystem, landscape, and value-chain scales?



Work Package 3 progress against the theory of change

AgriLAC Resiliente made significant progress in <u>integrating climate</u> <u>change mitigation strategies with sustainable development</u>, promoting resilient value chains and sustainable territorial management in Latin America. A key achievement was establishing enabling conditions to scale up **SLUS**. This progress was driven by efforts to strengthen local capacities and promote knowledge exchange among diverse stakeholders—including producers, businesses, communities, and academic institutions—engaging them across farm, regional, and value chain levels. In regions such as <u>Caquetá</u> and <u>Cesar</u>, the **Departmental Committees of the cocoa value chain** were instrumental in adapting sustainable production models to local agroecological and cultural contexts, driving the adoption of mitigation strategies in Colombia.

To accelerate innovation and investment, **WP3** promoted platforms such as the Sustainable Cocoa Innovation Initiative and the Perumin Inspira <u>Challenge</u>. These initiatives fostered entrepreneurship in sustainable agrifood value chains, identifying **87** SLUS-aligned **startups** in the cocoa sector and <u>65 potential entrepreneurs</u> in Peru's broader agrifood system. <u>Digital tools</u> and evidence-based methodologies were integrated to enhance <u>climate mitigation</u> decision-making. In the dairy sector, **19 companies assessed deforestation risks across 4,817 farms** under the <u>Zero Deforestation</u> Agreement, with potential impact on more than **6,500 farms**. In Peru, conservation agriculture practices, such as mulching and minimum tillage, were evaluated for potato production in Chugay, in northern Peru, paving the way for wider regional adoption. To address financial barriers, WP3 championed innovative financing mechanisms, including tax-for-project schemes and publicprivate competitions, effectively mobilizing resources for climate initiatives with social and environmental impact. These efforts yielded measurable results, including identified opportunities for greenhouse gas emission reduction and deforestation mitigation in key value chains across Colombia and Peru. Capacity building was substantial, with 191 individuals in Colombia trained in sustainable production and climate resilience, and 494 individuals in Peru trained through EncontrAR virtual webinars, which also drew more than 7,000 platform visits and 1,230 active users in 2024. Furthermore, 35 new sustainable agriculture experiences were collected through the "Experiences that Inspire" contest, enriching the EncontrAR repository. In Colombia, two national cocoa strategies linked sustainable practices with territorial planning and innovative financing, targeting 100,000 hectares, while enabling conditions for scaling were established to expand an additional 50,000 hectares in key regions. Collectively, these actions have the potential to contribute to the sustainable management of 100,000 hectares, consolidating a replicable model that integrates science, policy, and production practices, aligned with the Sustainable Development Goals.

WP4: InnovaHub networks for agrifood innovation and scaling

RESEARCH QUESTIONS

How can efforts for

- How can efforts be coordinated for sustainable intensification in LAC?
- sustainable intensification in LAC be articulated throughout the value chain? How can coverage and impact on subnational regions be ensured and
- How can science-based farm recommendations be finetuned and adapted to
- context-specific conditions?
 How can proven farm recommendations be scaled within and beyond particular intervention regions?



END-OF-INITIATIVE OUTCOME 2

4 180,000 farmers and AFS actors in three LAC countries are empowered by a digitally-enabled ecosystem to manage climate risk (CRM) more effectively.

END-OF-INITIATIVE OUTCOME 4

Three LAC countries use InnovaHub to accelerate on-farm uptake of SET innovations.

ID-OF-INITIATIVE OUTCOME

 Two LAC countries use CGIAR Science to inform and shape AFS-related policies, incentives, and initiatives.

Work Package 4 progress against the theory of change

Over three years of implementation, WP4 significantly advanced agrifood innovation and scaling through the InnovaHub model across Mexico, Guatemala, Honduras, and most recently, Colombia. The Initiative maintained continuous field activities, consolidating subnational networks and strengthening alliances between public sector, private sector, and civil society actors. This enabled the prioritization of research and extension activities within the InnovaHubs, engaging communities and farmer associations. Fully operational hubs in Mexico, Guatemala, and Honduras facilitated coordinated efforts, while Colombia initiated its first steps with stakeholder engagement and local actor meetings. Comprehensive characterization studies of the InnovaHubs were conducted, including assessments of geomorphological features, growing conditions, drought occurrence, diet accessibility, and last-mile provider availability.

By 2024, AgriLAC Resiliente had directly engaged 46,743 producers, establishing 66,727 innovation sites across 75,992.66 hectares. In Honduras, 225 farmers were directly supported through adaptation and adoption processes, with 551 innovation sites covering 571.71 hectares. <u>Guatemala's intervention</u> expanded to 1,942 producers, establishing 1,945 innovation sites across 557.77 hectares. Leveraging previous bilateral projects, Mexico led scaling efforts, with state governments in Oaxaca and Quintana Roo adopting the

InnovaHub model, reaching 42,360 producers and 65,494 hectares. Additional interventions in Chiapas supported soil fertility mapping and targeted nutrient recommendations for 8,200 hectares.

A critical aspect of the InnovaHubs was the interaction between research platforms and farming communities, fostering dynamic learning environments. Learning communities of practice were strengthened through digital tools and social networks, reaching more than <u>660,000 community members</u> and linking with extensionists and farm advisors. These groups actively engaged in participatory processes, validating best-bet agronomic practices and scaling strategies. A first analysis of adopted innovations provided data-driven insights on which practices show the highest potential for landscape-level scaling in each InnovaHub, informing national decision-making processes. To further support learning groups and extension efforts, a series of technical guides were developed, offering tailored information for farmers, technicians, and extensionists.

The InnovaHub network is now firmly in place, serving as a key mechanism to accelerate the adoption of SET innovations and enhance resilience in the region. With established partnerships, robust research-extension linkages, and a structured approach to scaling, the Initiative is well-positioned to sustain and expand its impact in the years ahead.

WP5: Science-informed policies, investments, and institutions

RESEARCH QUESTIONS

- How can climate change, food security and nutrition, and migration initiatives be better aligned and integrated to support the sustainable development of AFS?
- How do climate threats, socioeconomic factors, and institutional constraints affect outmigration?
- How can women be better integrated with AFS?
- What instruments and tools can help to better coordinate efforts to improve food security and nutrition and livelihoods among stakeholders?



END-OF-INITIATIVE OUTCOME S

5 Two LAC countries use CGIAR Science to inform and shape AFS-related policies, incentives, and initiatives.

Work Package 5 progress against the theory of change

Over the last three years, WP5 made substantial progress toward its objectives, focusing on promoting transformative, sustainable, and climate-adaptive policies for agrifood systems in LAC. Efforts centered in Guatemala, Honduras, and Peru, prioritizing evidence generation, development of innovative tools, and stakeholder engagement.

In 2022, WP5 established a solid foundation by mapping <u>public</u> <u>policies in Guatemala related to food security, climate change, and</u> <u>migration</u>. This exercise identified critical gaps and opportunities for intervention. Simultaneously, two quantitative studies were done: one explored <u>barriers to women's participation in agriculture</u>, while the other analyzed <u>climate-induced migration patterns</u>. A subnational mapping of food security programs revealed underinvestment in certain areas, drawing attention from the Group of 13 donors in Guatemala. An analysis of the coffee value chain provided further insights into vulnerabilities tied to food security and migration, forming the basis for stakeholder consultations and expert panel establishment.

In 2023, these efforts were consolidated. Public policy mapping was validated through consultations and presented at the Third National Forum on Migration and Climate Change in Guatemala. WP5 also advanced an interactive platform to coordinate food security and nutrition programs, projects, and interventions, optimizing resource allocation and reducing duplication. Meanwhile, the <u>gender and</u> <u>migration study</u> resulted in scientific publications and dissemination of results in multiple policy and academic forums in Guatemala and abroad, while a second migration study focusing on agricultural distortions was also started.

By 2024, WP5 achieved critical milestones, including launching the food security mapping tool in Guatemala and developing IASI Policy

Briefs in <u>Guatemala</u> and <u>Honduras</u>. These plans were developed through a participatory process involving multiple <u>workshops</u> and interviews, with the main objective of strengthening national food security policies through the feedback of partners, authorities, and donors. These activities directly addressed research question 2, aiming to inform public policies and provide insights on resource allocation for food security. The emphasis on food security was further reinforced by the inclusion of Norway as a new donor, whose prioritization of food security shaped the focus of WP5's efforts in this area. In Peru, WP5 in collaboration with WP3 conducted a study on internal <u>migration and its impacts to deforestation</u>, further contributing to evidence-based policy design.

As part of the WP's efforts to strengthen the policy–science interface, the team engaged with Ministries of Agriculture in priority countries, as well as with key regional organizations such as the Central American Agricultural Council, the Central American Commission on Environment and Development, the Latin America and Caribbean Platform for Climate Action in Agriculture, and the Inter-American Institute for Cooperation on Agriculture, among others. These partnerships were essential for scaling science and innovation across the region and for ensuring that evidencebased approaches informed agricultural and climate-related policy decisions.

While impactful public policy change requires a long-term horizon, WP5's work over three years—supported by collaboration with other WPs—resulted in actionable policy briefs, innovative monitoring tools, and greater alignment with national priorities.

WORK PROGRESS RATING & RATIONALE

On track

1

The team optimized available (reduced) resources to collaboratively deliver, together with local agrifood system actors in four countries, a streamlined research and scaling approach that developed nutrition-sensitive and climate-smart technologies to farmers and other stakeholders. This allowed WP1 to reach more than 43,000 beneficiaries—40 percent women—with climate-resilient and nutrition-sensitive technologies, offer tailored technology menus, field test commercial strategies to support market access, and increase the capacity of 4,000 people who participated in training programs covering agronomy, food processing, and marketing.

2 On track

Progress advanced as planned, with all theory of change assumptions remaining valid. WP2's four key outputs—data hubs, new partnership models, a tailored digital toolkit for climate risk management, and enhanced information services for farmers and small and medium agricultural enterprises—were on track. WP2 reached more than 201,000 rural producers, and collaborated with more than 100 organizations and public agencies to enable data integration, human-centered design, and dissemination through radio and bulletins.

3 On track

Annual progress in Peru and Colombia was largely aligned with the results plan and WP3's theory of change. This was demonstrated by the development of low-emission sustainable development strategies integrating the Sustainable Development Goals and fostering the participation of local stakeholders. Additionally, progress was made in developing instruments related to promoting markets for investments in climate change mitigation at the value chain level. Efforts in Colombia aimed to sustainably manage up to 150,000 hectares, while virtual platforms such as EncontrAR promoted climate-smart entrepreneurship and knowledge exchange.

4 On track

WP4 successfully consolidated fully operational InnovaHubs in Mexico, Guatemala, and Honduras, with Colombia progressing through initial stakeholder engagement. WP4 directly engaged with 46,743 producers and was able to establish 66,727 innovation sites covering 75,993 hectares, demonstrating significant scaling impact. More than 660,000 community members connected via social media networks tools, with 66 farm advisors completing certified technical training validated by reference institutions.

Progress was achieved in data-driven decision-making, carrying out the first analysis of innovation adoption trends, which provided insights for national scaling strategies, while InnovaHub characterization studies enhanced contextual understanding. With a structured approach, aligned partnerships, and tailored technical resources, the InnovaHub network is positioned to accelerate SET innovation adoption and resilience-building.

5

Delayed

Despite delays in fully achieving the EOIO, WP5 successfully completed all planned studies and produced robust outputs. These include an interactive mapping tool developed for Guatemala, which was already supporting donors and public institutions in coordinating and prioritizing investments, as well as two IASI policy briefs in Guatemala and Honduras. These briefs were codeveloped through participatory processes with local authorities and organizations, and aligned with national sectoral programs to strengthen food security policies. The development of impactful public policy instruments and in-depth analysis requires a long-term vision. Nevertheless, collaboration with other WPs enabled the development of actionable recommendations, innovative tools, and alignment with national priorities.

Definitions



- 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.



- 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.



- 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.

Section 4: Quantitative overview of key results

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

The data used to create the graphics in this section were sourced from the CGIAR Results Dashboard on 04 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.

OVERVIEW OF RESULTS BY CATEGORY



Between 2022 and 2024, AgriLAC reported a total of 816 results, with a consistent increase over the three-year period: 62 in 2022, 315 in 2023, and 439 in 2024. Of the total, 758 corresponded to outputs and 58 to outcomes, reflecting both knowledge generation and its practical application.

Within the outputs, capacity sharing for development stood out, expanding from 15 reported cases in 2022 to 248 in 2024. Similarly, the production of knowledge products and innovation development maintained a consistently high level across the period, contributing to the Initiative's objective of strengthening capacities and fostering context-specific solutions.

In the outcomes category, the use of CGIAR innovations accumulated 41 documented cases over the three years, while policy changes and other types of outcomes were also increasingly reported, with a total of nine and seven instances, respectively. Overall, the data illustrate sustaine d progress in both the generation of outputs and the achievement of outcomes, demonstrating the ongoing implementation and use of AgriLAC's contributions.

NUMBER OF RESULTS BY IMPACT AREA CONTRIBUTION



• 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 <u>CGIAR 2030 Research and Innovation</u> strategy.

• Not applicable: Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

The chart above illustrates the distribution of results across the five CGIAR Impact Areas from 2022 to2024. The data reflect strong and widespread engagement with all five areas, with the majority of results classified as either significant or principal contributions.

The largest number of contributions was recorded under climate change adaptation and mitigation, with a total of 702 results; of these, 267 were categorized as principal and 435 as significant. This was followed by environmental health and biodiversity and by poverty reduction, livelihoods, and jobs, with 552 and 550 significant contributions, respectively. Additional areas of focus included nutrition, health and food security, with 436 results, and gender equality, youth, and social inclusion, which accounted for 263 significant contributions.

NUMBER OF INNOVATIONS AND THEIR READINESS LEVELS

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

INNOVATIONS BY TYPOLOGY AND NATURE



AgriLAC codeveloped 26 innovations comprised of 12 technological, 11 capacity development, and 3 policy, organizational, or institutional innovations. These innovations span incremental (16), disruptive (4), and radical (5) categories. Incremental innovations denote existing innovations undergoing constant progress and improvement, which built upon previous CGIAR work in the region. Disruptive innovations introduce new concepts necessitating significant reconfiguration of farming, market, and policy/business models. Radical innovations, on the other hand, introduce entirely new products, systems, or services without necessitating major reconfiguration of existing models.

INNOVATIONS USERS BY ACTOR TYPE



AgriLAC reported 41 results related to the use of CGIAR innovations across LAC, including collaborative efforts with Climate Resilience (three) and Livestock and Climate (one). The adoption and use of these innovations reached 1,401,437 users from a wide range of stakeholder groups. The vast majority, more than 1.4 million, were farmers, reaffirming their role as the core beneficiaries of AgriLAC's work. Of this total, 712,174 were reached directly through AgriLAC, 681,769 through collaboration with Climate Resilience, and 7,259 through work with Livestock and Climate. These figures underscore the strength of cross-Initiative collaboration and the broad reach of CGIAR innovations in rural communities.



KNOWLEDGE PRODUCTS BY TYPOLOGY

The chart above provides an overview of the knowledge products generated by AgriLAC Resiliente between 2022 and 2024, highlighting both the thematic focus and the diversity of types. On the left, the word cloud illustrates the wide range of topics addressed. Central themes include agriculture, climate change adaptation, climate services, capacity development, livelihoods, gender, and food security, reflecting AgriLAC's multidimensional approach to climate resilience in agrifood systems.

Over the 2022–2024 period, AgriLAC generated a total of 268 knowledge products, covering a broad spectrum of types aimed at sharing evidence, tools, and lessons learned. These included 134 reports, 24 briefs, 15 journal articles, 10 manuals, and 9 working papers. In addition, a wide range of dissemination products were developed to enhance accessibility and outreach, such as presentations (27), blog posts (11), videos (7), posters (3), and other knowledge-sharing formats (28), helping to ensure that technical content reached diverse stakeholders across research, policy, and practice domains .

NUMBER OF INDIVIDUALS TRAINED BY THE INITIATIVE



AgriLAC placed strong emphasis on capacity development as a key strategy to enhance resilience in agrifood systems. Between 2022 and 2024, the Initiative contributed to 407 documented results, working in collaboration with 109 partners and four CGIAR Centers. A total of 12,879 people were trained, primarily through short-term training activities. Of these, 4,484 were women and 8,157 were men.



POLICIES BY STAGE AND BY TYPE

The chart above summarizes the nine policy contributions reported by AgriLAC in collaboration with Climate Resilience and Low-Emission Food Systems between 2022 and 2024, categorized by stage and type. Of these, six corresponded to Stage 1 (research uptake without enactment), and three to Stage 2 (enacted policies). The majority were policies or strategies, although results also included legal instruments and programs or investments, demonstrating engagement across different types of policy tools. These contributions reflect AgriLAC's role in informing and supporting policy processes across the region, from early-stage influence to formal adoption and implementation.



AGRILAC RESILIENTE'S EXTERNAL PARTNERS

The diagram maps the external partners of AgriLAC Resiliente Initiative, organized by partner type. The numbers in brackets represent the number of results each partner contributed to, reflecting the scale and diversity of collaborations. To allow for a clearer view, a maximum threshold of four partners was applied for each typology. The list of partner acronyms is available <u>here</u>.

Partnerships and AgriLAC Resiliente's impact pathways

Partnerships played a central role in advancing AgriLAC's theory of change and in achieving progress toward EOIOs. Collaboration across sectors, including with NARES, NGOs, public institutions, universities, financial entities, and the private sector, enabled the codesign and scaling of climate-resilient innovations, sustainable land use systems, and inclusive value chains throughout the region.

The Initiative engaged with more than **200 organizations,** as illustrated in the partnership network graph, reflecting a diverse and dynamic ecosystem of collaborators. This external partner network was intentionally shaped to support AgriLAC 's systemic and demanddriven approach. Partners were selected based on their proven experience working with CGIAR, strong technical expertise, capacity to reach farmers at scale, and influence on public policy across LAC agrifood systems.

NARES and universities played a central role in AgriLAC's achievements by leading the validation, adaptation, and scaling of innovations across diverse agroecological and sociocultural contexts. Institutions such as AGROSAVIA in Colombia, the Institute of Agricultural Science and Technology in Guatemala, the Directorate of Agricultural Science and Technology in Honduras, and the National Institute of Forestry, Agricultural and Livestock Research in Mexico significantly contributed to translating research outputs into locally relevant solutions. Their scientific leadership and strong territorial presence ensured that innovations, ranging from climate-resilient and nutrition-sensitive technologies to biofortified crop varieties and climate information services (EOIO 1 and EOIO 2), were effectively contextualized and adopted by end users.

Local partners including NGOs, community-based organizations, and academic institutions played a crucial role in implementing AgriLAC's innovations and ensuring their relevance and impact at the territorial level. These organizations contributed to participatory research, gender-responsive approaches, and knowledge exchange across farm and landscape scales. Collaborations with NGOs such Asociación Regional de Servicios Agropecuarios de Oriente in Honduras, Fundación Promotora del Canal del Dique in Colombia, Asociación de Cooperación para el desarrollo Rural de Occidente, and Asociación Regional Campesina Chortí in Guatemala enabled the adaptation and scaling of solutions tailored to local priorities and realities **(EOIO 1, EOIO 2, EOIO 4).** Through joint efforts with more than 60 local partners, more than **12,000 beneficiaries** were engaged in training and collaborative innovation processes **(EOIO 1, EOIO 2, EOIO 3, EOIO 4).**

Partnerships with universities and local research centers also enhanced the design and impact of capacity development initiatives. Notably, the collaboration with the Centro Universitario de Oriente (CUNORI-USAC) in Guatemala supported co-innovation processes that benefited both the academic community and nearby rural populations. A clear example was the establishment of a digital plot on the CUNORI campus **(EOIO 4)**, where various digital technologies were tested to strengthen farmers' resilience. This space not only served as a demonstration site for local producers but also functioned as a living lab where students could gain hands-on experience with emerging technologies and were encouraged to design and test new innovations. AgriLAC worked closely with public sector institutions to strengthen their capacities and support the formulation and implementation of science-based public policies aligned with national and international climate commitments. Collaborations with the Ministries of Agriculture of Colombia, Guatemala, Honduras, and Mexico, as well as the meteorological services of Guatemala (the National Institute for Seismology, Vulcanology, Meteorology and Hydrology) and Honduras (CENAOS-COPECO), were particularly important in this regard. These partnerships enabled the joint development and scaling of digital innovations such as Aclimate Guatemala and EOLO in Honduras, as well as climate-resilient practices and inclusive business models to directly contribute to national adaptation and mitigation goals. By providing evidence-based solutions and technical support, AgriLAC Resiliente contributed to strengthening institutional frameworks and aligning agricultural strategies with the region's sustainable development and climate action agendas (EOIO 2, EOIO 3, EOIO 5).

The importance of these partnerships was confirmed through a <u>social network analysis</u> conducted as part of the Initiative's MELIA framework. The study revealed that AgriLAC Resiliente contributed significantly to strengthening collaboration among stakeholders, increasing the number of actors in the network and enhancing overall connectivity. Key metrics such as network diameter, average distance, and transitivity showed improvements in network efficiency, cohesion, and collaboration. These shifts indicate that the Initiative not only expanded its partner base but also fostered deeper, more strategic relationships across sectors and countries, laying the foundation for sustained multi-actor engagement in support of climate-resilient agrifood systems.





AGRILAC RESILIENTE'S INTERNAL NETWORK OF COLLABORATIONS

The diagram presents the internal collaborations of AgriLAC Resiliente 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.

Portfolio linkages and AgriLAC Resiliente's impact pathways

From 2022 to 2024, AgriLAC strengthened its impact through strategic collaborations with various CGIAR Research Initiatives, thus enhancing the scope of its objectives. Its partnerships with Climate Resilience, Livestock and Climate, Low-Emission Food Systems, Digital Innovation, and Fragility, Conflict and Migration were particularly noteworthy. The dynamics of these collaborations were reflected in 270 interactions, with the Climate Resilience Initiative leading with 41 percent participation (132 interactions), followed by Livestock and Climate at 20 percent. Low-Emission Food Systems and Digital Innovation maintained close participation, with 17 percent and 16 percent, respectively, while the CGIAR Research Initiative on Fragility, Conflict, and Migration contributed 8 percent. It is important to note that these interactions often involved the simultaneous participation of two or more Initiatives. Of the total interactions, 47 percent (128) resulted in knowledge products, 29 percent (78) focused on capacity development, and 8 percent (22) drove the development of innovations.

The collaboration with the Climate Resilience Initiative not only facilitated the generation of agroclimatic information <u>disseminated</u> through various channels, such as <u>bulletins</u>, <u>workshops</u>, and <u>radio spots</u>, among others, but also strengthened the capacity of technicians and farmers for informed decision-making in the field. A key tool involved the use and <u>implementation of PICSA</u>, which

aims to generate, provide, and analyze site-specific meteorological and climate information for the benefit of farmers, enabling risk management and crop planning. In synergy with Livestock and Climate, efforts were combined to implement the <u>human-centered</u> <u>design methodology</u> in creating digital agriculture profiles for countries such as <u>Guatemala</u> and <u>Honduras</u>. These profiles prioritized the needs of individuals to offer solutions tailored to specific contexts, aiming to reduce digital, income, and welfare gaps in environments vulnerable to the impact of <u>climate change</u>.

Furthermore, significant efforts were made with Low-Emission Food Systems to promote sustainable supply chains. This included advancing the development of strategies to achieve <u>deforestationfree</u> value chains, exemplified by the creation of <u>roadmaps to</u> <u>access financing</u> instruments that enable the fulfillment of zerodeforestation commitments in the cocoa and dairy production chains. In the case of cocoa, support was also provided to the chain's steering committees in the departments of <u>Cesar</u> and <u>Caquetá</u> in Colombia, strengthening governance and collaboration among key stakeholders. All these efforts were approached with a comprehensive focus on promoting <u>sustainable</u> land use and <u>peacebuilding</u> in the territories.

Through collaborative work with Digital Innovation, significant progress was also made in promoting digital media as a tool for

sustainable agricultural development in Central America. Evidence of this includes the development and improvement of dissemination mechanisms for <u>climate information services</u> to meet the needs of local farmers in Guatemala. Furthermore, digital agriculture was boosted with monitoring systems for sustainable and climate-smart production in countries across the region. The ecosystem of actors and platforms for agroclimatic digital services was strengthened along with the use of climatic and agricultural data for decisionmaking. This was achieved through the application of machinelearning techniques in agriculture and the development of tools such as the Aclimate R API package for generating recommendations on crops such as maize. Finally, efforts focused on characterizing and scaling digital technologies within the InnovaHubs, adapted to the specific contexts of Guatemala and Honduras; a comprehensive value chain analysis in these countries identified market access opportunities for producers, as well as potential vulnerabilities that threaten the resilience of the InnovaHubs.

Lastly, AgriLAC and Fragility also worked together with other Initiatives, including Climate Resilience, to address the intersection of conflict and climate and human insecurity in Central America, focusing on generating knowledge and influencing policies. A prime example of these interactions was a study analyzing climate security in the region, exploring the risks of and relationship between climate change, human security, and conflicts, and considering fragility, violence, and socioeconomic factors such as poverty and inequality. Additionally, an analysis of the political narrative on climate change, migration, food insecurity, and peace/security revealed that, although environmental factors are recognized as drivers of mobility, the Guatemalan political discourse avoids identifying environmental migrants as a distinct legal category, highlighting the focus and commitment of these two Initiatives to generating relevant knowledge and influencing policies to address Central America's complex challenges.

Producers actively participating at InnovaHub meeting 2023 - Honduras. Credit: Daniela Salas, Communications Associate, Alliance of Bioversity and CIAT.

Collaborative action research at the heart of climate-resilient and sustainable agriculture

Over 1.4 million producers gained climate-resilience through locally driven innovation, scientific research, and strategic partnerships across the region.



Primary Impact Area



Other relevant Impact Areas targeted



Geographic scope



Regions: Latin America and the Caribbean **Countries:** Guatemala, Honduras, Mexico, Colombia and Peru

Contributing Initiative

Digital Innovation · Climate Resilience · National Policies and Strategies · Low-Emission Food Systems · Livestock and Climate

Contributing Centers

Alliance of Bioversity and CIAT · CIMMYT · CIP · IFPRI

Contributing external partners

Local Technical Agroclimatic Committees · Ministry of Agriculture · Livestock and food of Guatemala · Secretariat of Agriculture of Honduras · Center for Atmospheric, Oceanographic and Seismic Studies of Honduras · Ministry of Agriculture and Rural Development of Mexico · Ministry of Agriculture and Rural Development of Colombia · National Institute of Forestry · Agricultural, and Livestock Research Mexico · University Center of the East · Western Rural Development Coop eration Association · AGROSAVIA · Asproabelén · Asoproagro · Chortí Regional Farmer Association $\,\cdot\,$ Mennonite Social Action Commission Public Sector Entities · Eastern Regional Association of Agricultural Services of the East · Organization for the Development of Corquin · Rural Savings Banks Head Office · Association of Municipalities of the Montaña de Celaque National Park · College of Postgraduates · Autonomous University of Chapingo · Autonomous University of Yucatán- State and municipal governments · Producers

The AgriLAC Resiliente Initiative brought together collaborative research, and local knowledge to co-create climate-smart solutions with over 200 partners across Latin America and the Caribbean. It reached over 1.4 million small-scale producers through climateadapted crops, digital decision-making tools, learning platforms, and nutrition-sensitive technologies, empowering farmers to manage climate risks and boost productivity. By combining datadriven insights with community-led action, AgriLAC strengthened territorial innovation, particularly for women, fostering a more inclusive and sustainable future for agrifood systems in the region.

Latin America and the Caribbean is currently facing a critical scenario: climate change threatens agricultural production, food insecurity is on the rise, and ecosystems are under pressure. In response to this reality, the CGIAR Research Initiative on AgriLAC Resiliente showed that science, innovation, and local knowledge can converge to transform agrifood systems sustainably and inclusively.

Led by the Alliance of Bioversity International and CIAT, together with CIMMYT, IFPRI, and CIP, AgriLAC Resiliente promoted a regional strategy based on collaborative research, digitalization, capacity building, and territorial action, with an approach that stemmed from a clear premise: resilient agriculture is possible when scientific solutions are cocreated with those who inhabit and manage the territory.

As a result, more than 1.4 million people benefited from climateadapted crops and digital decision-making tools.

This work was supported by **43** documented cases of CGIAR innovation use, reaching more than 1.4 million users, primarily **smallscale producers** and training more than **12,800** people. These efforts were grounded in partnerships with more than **200 organizations**, including national research systems, public institutions, NGOs, and farmer associations, and collaboration with other CGIAR Research Initiatives in overlapping countries.

The Initiative's efforts quickly achieved notable impacts. More than **43,000** beneficiaries—40 percent women—gained access to climateresilient and nutrition-sensitive technologies. By leveraging weather forecast platforms, AgriLAC strengthened digital climate services in Central America, providing more than 201,000 farmers with access to agroclimatic data, enabling more efficient planning, risk

mitigation, and improved yields. Moreover, collaborations with more than **100 organizations** facilitated data integration, human-centered design, and widespread dissemination, reaching more than **100,000** producers in Guatemala via radio.

Building on networks from previous CGIAR Initiatives—such as local technical agroclimatic committees and climate-smart villages in Guatemala and Honduras, and the multisectoral hub model in Mexico-AgriLAC Resiliente developed and scaled the InnovaHubs approach. This integrated model of subnational innovation platforms combines elements of these three successful frameworks to promote the adaptation and bundling of multi-thematic innovations aimed at enhancing climate resilience, ecosystem services, and nutrition, going beyond productivity alone. Through the InnovaHubs, AgriLAC supported the transformation of territories into spaces for learning, experimentation, and cocreation. With 66,700 innovation sites spanning nearly 76,000 hectares across the region, these "living laboratories" facilitated the validation of agronomic, digital, organizational, and commercial innovations tailored to local contexts, which was made possible through sustained dialogue and collaboration among scientists, farmers, and local communities.

Additionally, in collaboration with the CGIAR Research Initiatives on Livestock and Climate and on Climate Resilience, a digital financial product for small-scale cattle farmers was designed and tested in Guatemala, showing that innovation can also drive rural financial inclusion. At the institutional level, the Initiative supported lowemission strategies in cocoa and dairy value chains in Colombia and Peru, linking mitigation with territorial planning and finance. In Colombia, two national cocoa strategies connected sustainable practices with planning and innovative financing, targeting **100,000** hectares and enabling scaling to **50,000** more. Moreover, local Colombian brands positioned value-added products in national and international markets, linking sustainability to local economic development.

AgriLAC Resiliente demonstrated that when science is put into action and innovation stems from community dialogue, urgent challenges can be addressed collectively and effectively, demonstrating that collaboration among producers, institutions, the public and private sectors, academia, and civil society strengthens agrifood networks through cocreated solutions, local capacity-building, and territoryfocused innovations. Results included tangible gains in productivity, technology access, and community empowerment, as well as stronger, more diverse relationships among key actors. These effects amplified impact and left a clear roadmap to show how building collaborative platforms, strengthening multistakeholder alliances, and maintaining a shared innovation approach are key to transforming agrifood systems in the region, making them more equitable, sustainable, and ready for the future.

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In Honduras, the integration of climate networks and digital tools on farms strengthened agricultural resilience. InnovaHubs, science, and local knowledge combined to drive sustainable innovations, improve decision-making, and transform climate adaptation in rural communities.

Marlon Durón, Researcher, Alliance of Bioversity and CIAT, Honduras Focal Point, AgriLAC Resiliente Initiative.



2022 key result story

CGIAR Initiative on AgriLAC Resiliente



2023 key result story

CGIAR Research Initiative on AgriLAC Resiliente



