

SECTION I. FROM GLOBAL TRANSFORMATION TO REGIONAL ACTION: AGRI-FOOD SCIENCE AND INNOVATION IN LATIN AMERICA AND THE CARIBBEAN 1,2,3,4,5,6,7,8,9,10,11,12,13

- 1.1 Humanity faces one of the greatest challenges in its history: ensuring food security on a planet that will reach nearly 10 billion inhabitants by 2050, with 50 percent belonging to the middle class. Meeting this demand will require increasing food production by approximately 70 percent and reducing hunger, which currently affects more than 735 million people, and food insecurity, which impacts millions more. However, this challenge unfolds in a context of climate uncertainty, natural resource degradation, and growing demand for more nutritious, accessible, and sustainable food. Competition for the use of water, energy, and arable land will intensify, and agri-food systems will be exposed to extreme events such as droughts, heat waves, and floods that will affect production, distribution, and food waste, already estimated at between 30 and 50 percent of what is produced. The coming decades will therefore demand more productive, efficient, and resilient agriculture capable of sustaining food security with fewer resources and a smaller environmental footprint.
- **1.2** The global agri-food system is also undergoing a profound transformation. It is no longer only about climate, soils, or water: structural and temporary factors such as geopolitical tensions, trade policies, financial volatility, pandemics, and changes in consumer preferences are shaping agriculture. The COVID-19 pandemic exposed the fragility of global supply chains and the need to strengthen local and regional production. In this uncertain and changing environment, the countries of Latin America and the Caribbean (LAC) must design adaptive strategies that combine sustainability, inclusion, and international competitiveness, also integrating ancestral knowledge to reinforce resilience and the

conservation of strategic ecosystems. Emerging trends in genetics, biotechnology, digitalization, robotics, artificial intelligence, and traceability will not only shape the future direction of agricultural research, development, and innovation (R&D&I) globally but also define opportunities and risks for the region. Digitalization and automation make it possible to optimize inputs and anticipate climatic and sanitary risks; biotechnology and genetic improvement facilitate the development of crop varieties resistant to extreme conditions; and traceability, supported by blockchain and digital platforms, ensures transparency and opens access to more demanding markets. However, their effective adoption requires addressing bottlenecks in rural connectivity, technical training, financing, and regulation.

- **1.3 Unprecedented risks.** Climate uncertainty introduces unprecedented risks for agriculture. Droughts, floods, pests, and emerging weeds alter productive geography and reduce production stability. In this context, R&D&I systems represent the first line of action to increase productivity and resilience and to mitigate losses. Advances in biotechnology, digital agriculture, remote sensing, predictive modeling, gene editing, artificial intelligence, and precision agriculture are transforming the efficient use of water and nutrients. It is therefore urgent for LAC to invest in infrastructure, human capital, and governance to drive these technological advances.
- 1.4 Latin America and the Caribbean possess unique strategic assets and challenges: 28 percent of the world's arable land, 34 percent of renewable freshwater resources, and up to 60 percent of terrestrial biodiversity. According to the Agricultural Outlook 2025–2034 (OECD/FAO), the region will remain key to global supply, particularly in soybeans and corn, and in animal proteins, while maintaining leadership in sugar, bananas, and pineapples, among others, consolidating itself as a net global supplier of raw materials and food. Beyond volume, LAC is diversifying diets and offering greater added value: fruits, vegetables, grains, meats, fish, bioproducts, organics, and differentiated foods, among others. The real potential lies in transforming comparative advantages into competitive ones through technological, organizational, and institutional innovation, and in consolidating more productive, resilient, and low-emission agricultural, agri-food, and agro-bio-industrial systems. LAC must increase food supply in a sustainable, competitive, and profitable way, and with a smaller

^{1.}FAO (2021). El estado mundial de la agricultura y la alimentación. Lograr que los sistemas agroalimentarios sean más resilientes a las perturbaciones y tensiones.

^{2.}IPCC (2022) Sixth Assessment Report, Climate Change 2022: Impacts, Adaptation and Vulnerability, the Working Group II contribution. https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/

^{3.}FAO, FIDA, OMS, PMA y UNICEF (2022). El estado de la seguridad alimentaria y la nutrición en el mundo 2022. FAO, Roma. https://www.fao.org/publications/home/fao-flagship-publications/the-state-of-food-security-and-nutrition-in-the-world/es

^{4.}Reardon, T., Echeverria, R., Berdegué, J., Minten, B., Liverpool-Tasie, S., Tschirley, D., y Zilberman, D. (2019). Rapid transformation of food systems in developing regions: highlighting the role of agricultural research & innovations.

^{5.}Zilberman, D., Zhao, J., y Heiman, A. (2012). Adoption versus adaptation, with emphasis on climate change. Annu. Rev. Resour. Econ., 4(1), 27-53.

^{6.}Sunding, D., y Zilberman, D. (2001). The agricultural innovation process: research and technology adoption in a changing agricultural sector. Handbooks in Economics, 18(1A), 207-262.

^{7.}Aker, J. C. (2011). Dial "A" for agriculture: a review of information and communication technologies for agricultural extension in developing countries. Agricultural economics, 42(6), 631-647.

^{8.} Jones, A. D., Shrinivas, A., y Bezner-Kerr, R. (2014). Farm production diversity is associated with greater household dietary diversity in Malawi: findings from nationally representative data. Food Policy, 46, 1-12.

^{9.}Sibhatu, K. T., y Qaim, M. (2018). Meta-analysis of the association between production diversity, diets, and nutrition in smallholder farm households. Food Policy, 77, 1-18.

^{10.}FAO (2021). Climate-Smart Agriculture Sourcebook - Segunda Edición. Organización de las Naciones Unidas para la Alimentación y la Agricultura, Roma. https://www.fao.org/climate-smart-agriculture-sourcebook/en/

^{11.}Rosenzweig, C., et al. (2020). "Climate change responses benefit from a global food system approach". Nature Food, 1, 94–97. https://www.nature.com/articles/s43016-020-0031-z

^{12.}CGIAR (2024). Breakthrough agenda report. Agriculture. Accelerating sector transitions through stronger international collaboration. https://www.cgiar.org/2024-breakthrough-agenda-report-agriculture/

^{13.}FAO (2023), El estado mundial de la agricultura y la alimentación. Revelar el verdadero costo de los alimentos para transformar los sistemas agroalimentarios, https://openknowledge.fao.org/items/9016b195-c4de-4a8e-a42f-af83861c420b

environmental footprint. This challenge is not only about withstanding climate variability but about increasing productivity per hectare and per unit of input, stabilizing yields, and improving producers' incomes. The priority is to innovate and scale up proven solutions: accelerated breeding and genetics, high-performance soil and water management, precision and digital agriculture, remote sensors and predictive models for real-time decision-making, biologicals and regenerative practices that improve productivity, and efficient nutrient management. The main bottleneck lies in adoption and scaling, which require extension services, advisory support, capacity building, financing, and insurance to reduce investment risk, as well as simple and verifiable data and metrics to measure productivity, costs, and margins, and governance that links public—private consortia to bring solutions from pilots to implementation. The most vulnerable areas (arid and semi-arid zones and territories dominated by small-scale agriculture) require adapted technological packages and business models that facilitate producer organization and improve access to inputs, services, and markets.

1.5 Agricultural productivity and profitability in LAC: innovation to close gaps, reduce the environmental footprint, and improve competitiveness ^{14,15,16,17,18,19}. In LAC, global dynamics combine with structural challenges that limit the development of agricultural and agri-food systems. The region faces the need to substantially increase productivity and efficiency, while strengthening farm profitability and advancing toward sustainable competitiveness, reducing the environmental footprint and increasing resilience in the face of climate uncertainty. Achieving this transformation requires generating and applying new knowledge, accelerating innovation, and facilitating technological change processes at all production levels. This demands a systemic approach and close coordination among universities. research centers, the private sector, and technical organizations, so that environmental sustainability becomes a driver of greater profitability and economic competitiveness. Territorial heterogeneity and wide productivity gaps represent a key challenge. According to ECLAC and FAO (2023), agricultural productivity in LAC could increase by up to 40 percent with the adoption of technological innovations and improved management practices. However, low historical investment in agricultural R&D and weaknesses in extension systems have limited this potential. Overcoming these constraints requires strengthening regional cooperation and coordinating efforts among academic institutions, research centers, producers, and the private sector, so that innovations are relevant, accessible, and scalable, thus contributing to closing gaps, increasing profitability, and consolidating a more globally competitive agriculture.

1.6 Key role of science and technology for the transformation of agri-food systems toward greater productivity, efficiency, and resilience with a smaller environmental footprint. Adaptation and resilience in the agricultural sector are strategic priorities to ensure productive sustainability with a lower environmental footprint. To this end, new technologies must focus on developing more resilient agricultural systems capable of facing the effects of climate uncertainty and, at the same time, reducing environmental impacts. Among the most urgent innovations are drought-, heat-, and flood-resistant crop varieties; improvements in water and soil management; and the incorporation of precision agriculture and digitalization tools that allow optimization of resource use through monitoring and data analysis technologies. In this framework, early warning systems are essential, as they provide timely information to anticipate extreme events and reduce potential losses. Innovation in agricultural practices also plays a key role in the resilience of the sector. Crop diversification offers flexibility in the face of adverse conditions and contributes to the sustainability of production systems. At the same time, approaches such as agroecology and regenerative agriculture make it possible to restore ecosystems, improve soil health, and increase adaptive capacity. Biotechnology plays a crucial role in the development of improved or genetically modified varieties with greater tolerance to climatic stress factors, thus consolidating a technological foundation to face new production challenges. The adoption of integrated approaches that combine adaptation and mitigation is essential. Nature-based solutions, such as the restoration of degraded ecosystems and the protection of watersheds, offer benefits in terms of both sustainability and risk reduction. However, these measures must be supported by public policies that promote climatesmart innovation, along with regulatory frameworks that facilitate the implementation of technologies and adaptive practices at the local and regional levels. Technology transfer among countries and territories is essential to ensure solutions adapted to each productive context. Finally, international cooperation and public-private partnerships are essential pillars to accelerate the adoption of innovative technologies, while access to climate finance is decisive so that farmers can invest in the tools needed to strengthen their resilience and ensure long-term production sustainability.

1.7 FONTAGRO and the 2025–2030 Flagship Programs: strategic framework for the Call. In view of the magnitude of regional and global challenges, FONTAGRO has designed its 2025–2030 Medium-Term Plan (MTP), structured into **Flagship Programs** that constitute the institution's new strategic architecture. These programs respond to the need to focus efforts on priority areas, integrate science and public policy, and guide international cooperation toward high-impact solutions. Within this framework, FONTAGRO promotes the creation of **Regional Public Goods** through the co-financing of regional R&D&I consortia and the launch of calls aimed at identifying high-quality projects with

^{14.} CEPAL & FAO. (2023). Perspectivas de la Agricultura y del Desarrollo Rural en las Américas: Una mirada hacia América Latina y el Caribe 2023-2024. CEPAL/FAO/IICA.

^{15.} Fuglie, K., & Rada, N. (2023). International Agricultural Productivity. United States Department of Agriculture (USDA), Economic Research Service.

^{16.} Pardey, P., Beintema, N., & Hurley, T. (2016). Agricultural R&D is on the Move. Choices, 31(4).

^{17.} Pray, C., & Fuglie, K. (2015). Agricultural Research by the Private Sector. Annual Review of Resource Economics, 7(1), 399-424.

^{18.} World Bank. (2022). Harvesting Prosperity: Technology and Productivity Growth in Agriculture. Washington, DC: World Bank.

^{19.} FONTAGRO. (2024). Análisis de resultados del PMP 2020-2025. FONTAGRO. BID-IICA.

high potential for adoption and scaling with both public and private sectors. The projects are expected to generate concrete evidence of how to promote technologies and innovations with a strong onthe-ground impact, contributing to improving the productivity, efficiency, and resilience of agri-food systems while reducing their environmental footprint. In this regard, the projects submitted must align with at least one of the Flagship Programs of the 2025–2030 MTP.

SECTION II. ABOUT FONTAGRO

- 2.1 FONTAGRO was created in 1998 with the objective of establishing a sustainable financing mechanism for the development of agricultural technologies in LAC, and a forum to discuss priority issues of technological innovation. Its purpose is to promote increased competitiveness in the agrifood sector, ensure the sustainable management of natural resources, and reduce poverty in the region. It is currently composed of 15 member countries and has two sponsors: the Inter-American Development Bank (IDB), which also serves as its legal representative, and the Inter-American Institute for Cooperation on Agriculture (IICA), which acts as FONTAGRO's co-administrator. Its 2025–2030 Medium-Term Plan (MTP) reaffirms its vision to "transform agri-food systems through knowledge, promoting their inclusion and sustainability for the benefit of the environment and society." Its mission is to "lead the articulation, cooperation, and regional dialogue through the sustainable co-financing of initiatives that generate public goods, strengthen knowledge and innovation in agri-food systems, and contribute to improving the quality of life of society. "Within this framework, FONTAGRO's actions are guided by essential values that underpin regional cooperation: integrity, solidarity, efficiency, transparency, and respect.
- **2.2** FONTAGRO co-finances initiatives that generate agricultural Regional Public Goods. Co-financing is aimed at creating and/or strengthening regional R&D&I consortia, leveraging resources from other agencies and participating institutions. The consortia promoted by FONTAGRO are themselves a Regional Public Good, as are the knowledge and lessons learned that they produce. To date, FONTAGRO has supported 212 projects and initiatives totaling US\$156 million: US\$32 million from FONTAGRO, US\$21.6 million from other strategic partners, and US\$102.4 million in counterpart contributions.

SECTION III. OBJECTIVE OF THE CALL

3.1 Objective. The objective of this call is to identify regional research, development, and innovation (R&D&I) projects that promote increased productivity, profitability, and competitiveness with a lower environmental footprint in the agri-food systems of LAC. Priority will be given to projects that generate

technologies and innovations with high potential for adoption and scaling, capable of demonstrating concrete impacts on the ground and consolidating more efficient, sustainable, and competitive production models at the national and regional levels. In doing so, progress will be made toward building a pathway for transforming the region's agri-food systems, making them more competitive and sustainable in the long term.

3.2 2025–2030 Flagship Programs. Each program includes specific lines of action and indicators of results and impact detailed in the 2025–2030 MTP document. For this call, the following five of FONTAGRO's six Flagship Programs will be considered:

Flagship Program 1. Transformation of resilient and carbon-neutral crop systems.

Flagship Program 2. Transformation of livestock and animal protein systems: productive efficiency with a lower environmental footprint.

Flagship Program 3. Impact 2030: effective scaling of R&D&I through new models of extension, technology transfer, and public-private partnerships.

Flagship Program 4. Digital revolution in agriculture: robotics and Al for regional innovation.

Flagship Program 5. The Future Food Basket: diversification and biodiversity use for sustainable nutrition.

SECTION IV. FINANCING

- **4.1 Amounts**. The total amount of the call is **US\$1,250,000**, from FONTAGRO's own resources. Up to five projects will be co-financed, **one per Flagship Program**, with a maximum individual contribution of up to **US\$250,000**. If there is no competitive proposal for one of the Flagship Programs, the Board of Directors (BD) may reallocate funds to competitive projects under other Flagship Programs.
- **4.2 Counterpart**. The organizations participating in the consortia must jointly contribute counterpart funds, in cash and/or in kind, amounting to at least **twice the amount requested from FONTAGRO**.
- **4.3 Policies and conditions**. This call is subject to the provisions detailed in these Terms of Reference, FONTAGRO's Operations Manual (MOP) Section II, the policies of the IDB and IICA, and any other decisions of the BD recorded in the Minutes.

4.4 Additional sources of financing. This call may include additional sources of financing if, at the time of the final selection of projects, there are agencies interested in co-financing them.

SECTION V. ESTABLISHMENT OF A REGIONAL RESEARCH, DEVELOPMENT AND INNOVATION CONSORTIUM

- **5.1** Regional Research, Development and Innovation (R&D&I) Consortia. All consortia composed of one executing agency and at least one co-executing agency from a minimum of two FONTAGRO member countries will be eligible for co-financing. This means that the technical activities to be carried out in the project must be implemented in at least those two member countries. At least one of the agencies must be a public research institution. It is recommended that the consortium include no more than four institutions, including the executing agency, but always with representation from a minimum of two FONTAGRO member countries. In addition, a consortium may include **associated organizations** from any IDB member country, financed through other sources.
- **5.2** Each consortium must include, as **direct project beneficiaries**, producer organizations that may act as co-executing agencies or associated organizations, ensuring the validation and adoption of results. Consortia are expected to promote the public–public and/or public–private entrepreneurial ecosystem and connect producers with science and technology actors.
- **5.2 Technical role of the members**. The consortium members are expected to be complementary, multi- and interdisciplinary, with a multidimensional approach (scientific, productive-agronomic, social, economic, technological, environmental, value-added, among others) consistent with the technology or innovation proposed for validation.
- **5.3 Regionality.** As indicated in section 5.1, the consortium must be formed by a public–public or public–private alliance of distinct organizations from at least two FONTAGRO member countries. This means that the technical activities of the project must be implemented in those two member countries. Consortia composed of organizations from different LAC subregions (Southern Cone, Andean Region, Central America) and the Dominican Republic, and from regions outside LAC, when possible and IDB members, will be positively valued.

5.4 Organizations from non-IDB member countries. Organizations from non-IDB member countries may participate as associated organizations, contributing their own funds to the project, provided it is feasible to enter into an agreement with the IDB, or directly with the consortium institutions, and in agreement with the IDB/FONTAGRO in accordance with their policies and regulations. The Board of Directors will authorize such participation, if applicable.

SECTION VI. PROCESS OF PROJECT APPLICATION AND EVALUATION (SINGLE PHASE)

The project submission and evaluation process for this call is organized in **a single phase**. Consortia may begin designing their projects as of the publication of this call.

- **6.1 Opening and closing of the call.** The call will be open from March 2, 2026, until March 30, 2026, at 3:00 PM (Eastern Time, U.S., Washington, D.C.). Projects submitted after the closing date and time will not be accepted.
- **6.2 Online application to the call. One proponent per project** must request a single **username and password** for each project well in advance of the closing date of the call. Once registered in the online system of the call, the proponent must complete the registration of the executing and co-executing agencies, and, if applicable, associated organizations. Proponents should request the registration of any new institutions that are not previously listed in the system.
- **6.3** Preparation of the project. The project consists of a Word document and an Excel document, both of which must be submitted through the online system of the call. The project must be submitted as final, in Spanish, and in compliance with these Terms of Reference, the Operations Manual (MOP) Section II, and the applicable instructions. The project cannot be modified after submission. **Projects submitted after the deadline, through means other than the online system, or missing either of the required documents (Word and Excel) with all their sections completed, will not be accepted.**

- **6.4 Evaluation of the projects**. An external panel will evaluate the projects according to the criteria set forth in the Operations Manual Section II. The panel will recommend to FONTAGRO's Board of Directors (BD) those projects with a score equal to or greater than 75 points (on a scale of 100 points). The BD will decide on the co-financing allocation, and its decision will be final and not subject to appeal.
- **6.5 Interview**. FONTAGRO may request that a project participate in a virtual interview.
- **6.6 Notification of selected projects**. The Technical Administrative Secretariat (TAS) of FONTAGRO will notify the authorization of co-financing **exclusively** to the selected projects through an official

communication sent by email and by publication on the institutional website. Non-selected projects may request the evaluation report within **30 days** from the date of the official publication.

6.7 Financing authorization. Projects selected by the BD must incorporate the recommendations of the evaluation panel and make the necessary adjustments within **30 days from the date of the official communication**.

SECTION VII. CALENDAR

Single Phase	Dates
Announcement of the Call	December 2025
Opening for registration of institutions and project submission	March 2, 2026
Deadline for project submission (Single Phase)	March 30, 3:00 PM (Eastern Time, United States, Washington, D.C.)
Project evaluation	April 1 to May 26
Selection of winning projects	July/August

GLOSSARY

FONTAGRO member countries: Argentina, Bolivia, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Honduras, Nicaragua, Panama, Paraguay, Peru, Spain, Uruguay, and Venezuela.

Regional Research, Development and Innovation (R&D&I) Consortium: A regional R&D&I consortium is defined as a public–public and/or public–private alliance of organizations from a minimum of two FONTAGRO member countries that share objectives, capacities, and technical, financial, and administrative responsibilities for the joint design, execution, and validation of agricultural and agri-food innovation projects of a regional nature.

Project: A project is defined as the set of Word and Excel documents mentioned in the previous section. The Word document represents the project's descriptive document, while the Excel document represents the budget and results matrix, among others.

INFORMATION

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