

ANNUAL REPORT 2022



FONTAGRO



[FONTAGRO](#) is a cooperation mechanism administered by the InterAmerican Development Bank (IDB) with membership, governance, structure and assets of its own. FONTAGRO is internationally recognized for strengthening agri-food and agro-industrial innovation in a sustainable way, through the strategic co-financing of projects that constitute international innovation platforms. As of 2021, FONTAGRO's Technical Administrative Secretariat (TAS) is located at the Inter-American Institute for Cooperation on Agriculture (IICA) until 2023. This publication is a summary of the XXVI Annual Meeting of the Board of Directors of FONTAGRO, where the results and achievements of the 2021-2022 period are presented.

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FONTAGRO

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Technical Administrative Secretariat (TAS)

ANNUAL REPORT

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To the sponsors, for their constant support in strengthening FONTAGRO and especially in this period of transition of the operational management model.

To the Inter-American Development Bank (IDB), the Vice Presidency of Sectors, especially the Climate Change and Sustainable Development Sector, the Environment, Rural Development and Disaster Risk Management Division, the Climate Change and Sustainability Division, the Knowledge, Innovation and Communication Sector, the Strategic Partnerships Office, the Grants and Co-financing Management Unit, the Finance Department, the Legal Department and the Human Resources Department. To the Inter-American Institute for Cooperation on Agriculture (IICA), especially its General Director, Dr. Manuel Otero, and the staff of the General Directorate, the Directorate of Technical Cooperation, the Directorate of Corporate Services, External Relations, and Administration and Finance.

To the project leaders, researchers and assistants of the different work teams for their constant dedication to scientific activity, capacity building and the great contribution to knowledge they make daily.

To the Government of New Zealand, through the Global Research Alliance and its work team, who are constantly committed to strengthening science,

technology and innovation for adaptation and mitigation of greenhouse gases in the agri-food sector, favoring participatory and collaborative research, and the training of new cohorts of scientists and technicians.

To the rest of the international, regional and local organizations, and especially to the universities, both in the region and internationally, for their constant interest in participating in activities together with FONTAGRO, promoting the transformation of the agrifood systems of the region and the world, the generation of new knowledge and global public goods, thus supporting a more sustainable, resilient, inclusive and equitable agriculture. These include the Food and Agriculture Organization of the United Nations (FAO), the OneCGIAR together with its institutes in Latin America and the Caribbean, the Bioversity International Alliance - CIAT and the CGIAR International Commission on Sustainable Intensification (CoSAI). We highlight the joint work with Ohio State University, the World Bank, the Department of State and the United States Department of Agriculture.

Finally, we would like to thank the Technical Administrative Secretariat team and external support staff for their great dedication to meeting the proposed goals while always supporting the needs of the region.

About FONTAGRO

FONTAGRO is a unique global mechanism for the strategic and sustainable co-financing of agricultural R&D&I and innovation in Latin America and the Caribbean. It is also a forum for the discussion of priority science and innovation issues for LAC and the rest of the world. FONTAGRO was created to increase the competitiveness of the agrifood sector and reduce poverty through the sustainable management of natural resources. It is made up of 15 member countries: Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Honduras, Nicaragua, Panama, Paraguay, Peru, Spain, Uruguay and Venezuela. These countries are represented by the highest authority of the institutes of agricultural research and innovation (INIAs). Each lead national policies in this area and are members of FONTAGRO's Board of Directors. The Inter-American Development Bank (IDB) and the Inter-American Institute for Cooperation on Agriculture (IICA) are the sponsors.

FONTAGRO was created in 1998 in an effort to promote agricultural research and development and offset the decline in investment in the sector in recent decades. Members have contributed US\$83.05 million in capital, with an investment portfolio of US\$103.4 million as of December 31, 2021. The governance structure includes the Board of Directors, the Executive Committee, the Finance Committee and the Technical-Administrative Secretariat under the responsibility of an Executive Secretariat. The institutional documents are the Constitutive Agreement, the Operations Manual and the Medium-Term Plan (MTP) 2020-2025. In addition, annual external audit reports and publications on the analysis of FONTAGRO's results and impact are presented.

The co-financed projects are regional and international platforms made up of at least two FONTAGRO member countries, although other non-member countries also participate, each contribute their own funds. To date, 187 regional research and innovation projects have been co-financed

for a total of US\$137.8 million, with FONTAGRO contributing US\$27.9 million (20%), other agencies US\$19.4 million (14%) and the participating institutions (counterpart) US\$90.5 million (66%). This means for every dollar invested by FONTAGRO, between 1998 and 2021, it has leveraged up to three dollars from other organizations, supporting operations in 27 countries, in which 467 public and private institutions have participated. These include national research institutes, universities, companies, non-governmental organizations, along with regional and international organizations.

FONTAGRO has strategic alliances with the Food and Agriculture Organization of the United Nations (FAO), the Bioversity International Alliance - CIAT, and the Ministry of Primary Industries of New Zealand through the Global Research Alliance, among other new regional and international partners. A unique organizational and institutional model of convergence and inclusion of stakeholders for research, innovation and development in agriculture and food has been consolidated. Over the years, studies of results and impact revealed outstanding achievements, not only in technical aspects, but also creating networks, spillovers, spinoffs, and especially in the strengthening of the capabilities of all the stakeholders in the value chains. Seventy-seven percent of the results achieved by FONTAGRO projects form part of the scientific heritage of the national agricultural research systems and 69% are being used by the final beneficiaries. Seventy-four percent of the results are regional public goods. A study carried out in 2020 on a group of eight projects showed that the total economic benefit, expressed as Net Present Value (NPV) was US\$ 83,753,240, far exceeding the investment of US\$ 8,112,428.

FONTAGRO has consolidated its position in recent years, becoming a key co-financing mechanism for science and innovation in Latin America, the Caribbean and Spain, generating public goods of international scope, thus highlighting its strategic role in the global arena.

Letter from the President

We are pleased to present the results report for the 2022 period, characterized by the establishment of a new normality due to the pandemic, a war crisis that has highlighted the fragility of food systems and the continuing challenge of climate change in the region and the world.

All the crises we have been through make it increasingly evident that FONTAGRO's presence in the region is a necessity, continuing to enhance its growth and adding more allies in our daily work is critical so, together, we can achieve the goal of feeding more than 10 billion people by 2050. Latin America and the Caribbean face old and new challenges. In this regard, we are excited to note that since 1998 we have co-financed 187 regional projects for a total of \$137.8 million, of which \$27.9 million was contributed by FONTAGRO, \$19.4 million by other agencies and \$90.5 million in counterpart contributions from the institutions themselves. Even with all the investments made, the fund has maintained its initial capital, even increasing its value to \$102.6 million. This financial stability has been achieved with great effort to maintain proper financial management.

Due to the nature of our work and the experience that supports us, more and more organizations and potential allies are showing interest in working with us. During the period, we were able to develop various activities that broadened the opportunities for agreements and increased the positioning and visibility of the fund. Among them, we highlight the signing of new agreements with EMBRAPA. We also note our participation in the Carbon Research and Management Alliance, a project led by Ohio State University. In addition, other partnerships were initiated and will continue in 2023.

Program activities were implemented according to the annual schedule, and the extraordinary call for proposals 2022 "Innovations to improve the sustainability and resilience of farms to the impact of climate change in Latin America and the Caribbean" was successfully carried out, from which 9 projects will receive funding. IICA also approved seed funds and consensus projects. IICA continued to follow up on operations in execution, disbursing \$1.4 million, and supported the coordination of meetings to promote seed funds, consensus projects and training. We currently have a portfolio of 58 operations registered for \$11.1 million, representing a total investment of \$47.1 million.

FONTAGRO's visibility worldwide is growing more and more, in this sense, knowledge management, communication and dissemination of results continued the growing trend in that 1,005 knowledge products were generated. During the year, and by request of the country representatives, activities continued. In the case of the Knowledge Management and Communication Committee and the Strategic Scientific Intelligence Committee, created in 2021, two workshops were held, and this year a new "International Relations Committee" was formed. Its aim is to strengthen synergies between countries and with other international agencies.

In an effort to continue working successfully, the Steering Committee has initiated a process of internal updating of the operating model seeking to increase synergies with sponsors, and improve efficiency while fulfilling FONTAGRO's vision for the future. I thank you for allowing me to lead this mission, now for a new period. I have no doubt that the fund will emerge stronger from this process.

Finally, I must remind you that our 2022 annual meeting had been planned to be held in person in Managua, Nicaragua. However, given the passage of Hurricane Julia in the Central American region, it was decided for it to change to a virtual format, a reminder that we must always be prepared in the face of obstacles, something we have been strengthened by in recent years. This has allowed us to continue doing the work that the region needs so much and that is only possible with the support of our partners and allies, whom we thank for their continuous efforts to make science an increasingly collaborative space, for the benefit of the sectors that need it most.

Arnulfo Gutiérrez

President of FONTAGRO,

General Director of the Institute for Agricultural Innovation of Panama (IDIAP)

Message from the Executive Committee

It is with great enthusiasm that we share this annual report 2022, which presents the activities developed and the most outstanding results of the period. FONTAGRO is increasingly consolidating its position as a key player in Latin America, the Caribbean and Spain. FONTAGRO was created in 1998 as a sustainable financing mechanism for the development of agricultural technology in Latin America and the Caribbean, and to institute a forum for the discussion of priority issues for technological innovation. Today, after 24 years, we have more than confirmed the purpose for which it was created, while highlighting the growth achieved by the Board of Directors, the IDB and IICA sponsors, other partner agencies, the research teams and the members of the Technical Administrative Secretariat, to name a few.

In these last decades we have demonstrated that working collaboratively is possible and also generates greater value, measured not only by the potential for generating new knowledge and therefore the opportunity to create new technologies and innovations for the sector, but also the strengthening of the capacities of students, professionals and producers, the creation of networks and the mobilization of resources, as just a few of the advantages. Additionally, in recent years FONTAGRO has made established a forum, created three ad hoc working committees, and with broad public-private participation, focused on knowledge management, science, and international relations.

Over the years, we have migrated from basic science projects to a more diversified current portfolio that also encompasses applied, adaptive and strategic science

in some cases. Our total portfolio today reaches 187 operations for an amount of \$137.8 million, and we are currently executing 58 operations representing a total investment of \$47.1 million. Our projects address cross-cutting issues of climate change, innovation, sustainable intensification and value chain; they are also related to issues of enormous importance in the region, food and markets, crops, forestry, livestock and natural resources. With the results of the 2022 Extraordinary Call for Proposals, we added nine projects to the seed funds and consensus projects on topics related to how to improve farm productivity in the face of the impact of climate change, in a sustainable and resilient manner. This has been achieved through a great shared effort of strategic alliances with key partners, who understand the importance of science, technology and innovation to maintain healthy agri-food systems in the global arena.

The last few years brought great challenges which were overcome by keeping our work focused on the development of the region and its people. This has been possible thanks to the outstanding support of the Board of Directors, our sponsors, and the Technical Administrative Secretariat team. We are currently in a period of updating our operating model, which we are sure will make us more efficient and effective. We look forward to returning to you in 2023 with more shared achievements for our agriculture of today and tomorrow.



Arnulfo Gutiérrez
President of FONTAGRO
General Director of IDIAP
of Panama



Carlos Parera
Vice President of FONTAGRO
National Director of INTA Argentina



Eugenia Saini
Executive Secretary
of FONTAGRO

Board of Directors

Country	Name	Last name	Representative
Argentina	Mariano	Garmendia	Representative
	Carlos A.	Parera	Alternate Representative
Bolivia	Félix Terceros	Martínez	Representative
Chile	Iris	Lobos Ortega	Representative
	Maria Teresa	Pino	Alternate Representative
Colombia	Jorge Mario	Díaz Luengas	Representative
	Rodrigo	Martínez Sarmiento	Alternate Representative
Costa Rica	Nevio	Bonilla Morales	Representative
	Enrique	Martínez	Alternate Representative
Ecuador	Raúl	Jaramillo Velastegui	Representative
Spain	Esther	Esteban Rodrigo	Representative
Honduras	Arturo	Galo	Representative
	Mario	López	Alternate Representative
Nicaragua	Miguel	Obando Espinoza	Representative
Panama	Arnulfo	Gutiérrez	Representative
	Próspero	Aguirre	Alternate Representative
Paraguay	Edgar	Esteche	Representative
Peru	Jorge Juan	Ganoza Roncal	Representative
	Juan Carlos	Guerrero	Alternate Representative
Dominican Republic	Eladio	Arnaud Santana	Representative
Uruguay	José	Bonica Henderson	Representative
	Walter	Baethgen	Alternate Representative
Venezuela	Giomar	Blanco	Representative

Our Philosophy

In the context of the major global and regional shifts that impact investment in R&D&I in agriculture and food, in 2020 FONTAGRO renewed its philosophy. FONTAGRO defined a new mission, vision and values that consolidates its role as a mechanism for sustainable co-financing of the sector and deepen its actions as a forum for the discussion of agri-food innovation issues. This philosophy brings together a set of principles that correlate what we are and what we want to achieve while constituting a core of consistent work aligning all the actors that participate in the organization along with the initiatives to be promoted in the coming years.

VISION

FONTAGRO's Vision is "Transforming agri-food systems through the use of knowledge so that they are more inclusive and sustainable for the environment and society".

MISSION

FONTAGRO's Mission is "Leading regional articulation, cooperation and dialogue through the sustainable co-financing of public goods initiatives that will contribute to the knowledge and innovation of agri-food systems and to the improvement of the population's quality of life".

VALUES

Our values are: Integrity, Solidarity, Efficiency, Transparency and Respect.

THE STRATEGIES

Strategy I:

Resilient and sustainable farm network.



Strategy II:

Sustainable production systems, agroecosystems and territories.



Strategy III:

Food, nutrition and health.



FONTAGRO today

FONTAGRO, thanks to its Board of Directors, sponsors and other partner agencies, has achieved a great strength of collaborative work for the promotion of science, technology and innovation in the agro-bio-industrial sector. We have become a key mechanism for scientific-technical articulation in Latin America and the Caribbean. During the pandemic we transformed ourselves. On the one hand, we digitalized our tasks, and on the other, we decided to review our management model in order to achieve greater effectiveness and efficiency, and thus facilitate the achievement of results and impacts. Since 2021, FONTAGRO's TAS has been relocated to IICA's offices, and since then it has been working collaboratively on the implementation of activities together with numerous offices and representations in the different countries. We have expanded our team and our desire to support the region more closely.

Administration and Finances

With an initial common equity of \$83.05 million, made up of contributions from the Southern Cone (36%), the Andean Region (33%), Spain (18%), and Central America and the Caribbean (14%), the fund now stands at \$102.6 million, while mobilizing \$138 million in operations. View [financial statements](#).



USD 83.05

millions
Initial common
equity

USD 102.6

millions
Total fund

USD 138

millions
Mobilized in
operations



36%

Southern
Cone

33%

Andean
Region

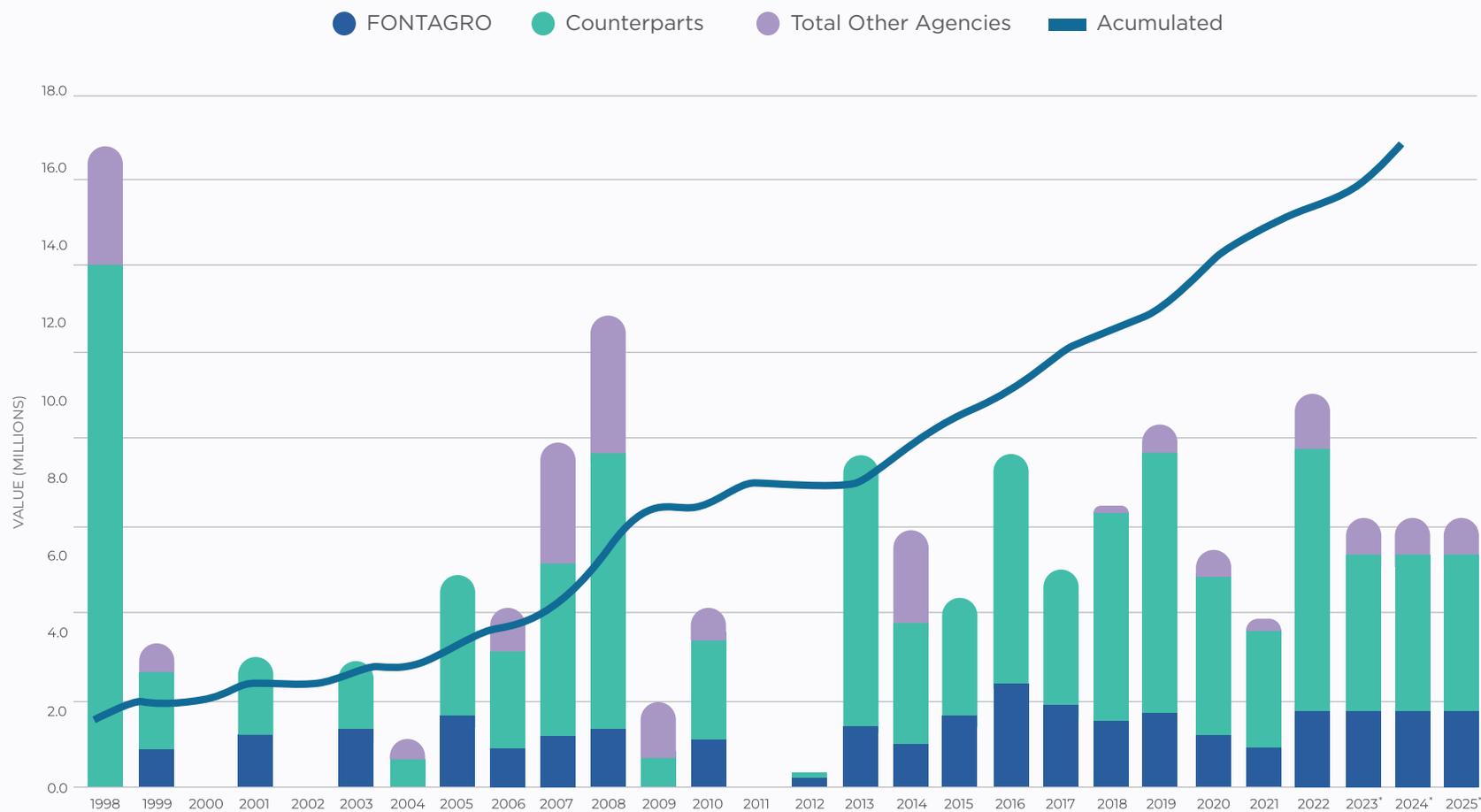
18%

Spain

14%

Central America
and the Caribbean

Evolution of co-financing of FONTAGRO and its strategic partners (in millions of \$)



Source: FONTAGRO Technical Administrative Secretariat, 2021. Note: (*) projected figures (**) There was no call for projects in 2000, 2002, 2004, 2009, 2011, and 2012. (***) Funds from "Other Agencies" include contributions executed and/or mobilized by FONTAGRO.

HIGHLIGHTS

187 projects

137,850,513

USD FUNDS

- 58 active projects at year-end 2022, \$47.1 million total.
- 48,824 direct beneficiaries and 81,771 people attended workshops.
- 576 pilot experimental sites.
- 709 networks and 165 work teams.
- 85 scientific papers, 367 publications, 232 knowledge products delivered, and 25 theses.
- 687 workshops.
- 1,254 records of researchers participating in FONTAGRO's projects.
- XVII Annual Technical Follow-up Workshop held in Mendoza, Argentina, with the participation of 17 speakers, representatives of FONTAGRO's BD and Argentine government authorities.



Our Projects in Latin America, the Caribbean and Spain



- AHORA: Application for musaceae family farmers**
AGROSAVIA, Colombia
- Platform for water management in agriculture 2030 - 2050**
INIA, Chile
- Scaling continuous improvement in organic bananas for family export (BOFX)**
IDIAF, Rep. Dominicana
- Sustainable control of the Huanglongbing (HLB) vector**
Fundación Argentina/INTA, Argentina
- Cacao Platform 2030**
ESPOL, Ecuador
- FONTAGRO AOP 2019-2020**
Proyectos ejecutados por la STA
- Sustainable intensification with legumes (NZ)**
Fundación Argentina/INTA, Argentina
- Sustainable intensification with legumes (FTG)**
Fundación Argentina/INTA, Argentina
- Irrigation advisory system**
Fundación Argentina/INTA, Argentina
- Early warning for potato late blight management**
INIA, Chile
- Sustainable irrigation and fertilization management in quinoa**
Argentina
- Geographical Indications for Mesoamerican Cacao**
Costa Rica
- Innovation and intensification in livestock farming to adapt and grow**
Fundación Argentina/INTA, Argentina
- Implementation**
Proyectos ejecutados por la STA
- Climate Change Resilient Potatoes for the Andean Region**
AGROSAVIA, Colombia
- Digitalization of small-scale agriculture**
ZAMORANO, Honduras
- HUB SmartFruit ALC: smart solutions for family fruit systems LAC**
UFRO, Chile
- Nanotechnology for moisture management in agricultural soils**
Bolivia
- Satellite monitoring of quantity and quality of available biomass in pastoral livestock systems in LAC (NZ)**
Argentina
- Feasibility of vertical farming technologies in LAC**
Panamá
- Yield improvement for potatoes and other Andean tubers (Root to Food)**
PUJ, Colombia
- Agroecological model for poultry coccidiosis**
Fundación Argentina/INTA, Argentina
- Multipurpose silvopastoral systems and family livestock farming**
AGROSAVIA, Colombia
- Bovine productivity in the South American Chaco region**
Fundación Argentina/INTA, Argentina
- Towards more productive and sustainable rice**
INIA, Chile
- Agtech for climate-smart dairy**
Fundación Argentina/INTA, Argentina
- Innovation for grazing and forage reserve management**
INIA, Uruguay
- Prevention and management of Fusarium wilt for Musaceae**
AGROSAVIA, Colombia
- Genetic Editing**
Fundación Argentina/INTA, Argentina
- Biofortified Beans**
IICA - IDIAP, Panamá
- Nanofertilizers in soils and nitrous oxide emissions**
IICA - UIS, Costa Rica
- Bioprocess to reduce the solubility of rhizospheric Cadmium**
IICA - UTM, Costa Rica
- Increased agricultural production with lower nitrous oxide emissions**
Fundación Argentina/INTA, Argentina
- Carbon Sequestration NZ**
INIA, Uruguay
- Carbon Sequestration FTG**
INTA, Uruguay
- Satellite monitoring of quantity and quality of available biomass in pastoral livestock systems in LAC (FTG)**
Argentina
- Crop management online support platform**
Universidad Austral de Chile
- Network of resilient farms with sustainable forest management**
Fundación Argentina/INTA, Argentina
- Tropical Agriculture 4.0 efficient water management**
AGROSAVIA, Colombia
- Wellness for livestock farm resilience**
Fundación Argentina/INTA, Argentina
- Innovations to reduce methane emissions in ruminants**
AGROSAVIA, Colombia
- Platform for transfer and use of bioproducts**
Centro de Estudios Avanzados en Zonas Áridas (CEAZA)
- Resilience to climate change with the use of bioproducts**
AGROSAVIA, Colombia
- Sustainable livestock in the Peruvian and Ecuadorian Amazonia**
Universidad Nacional Agraria La Molina, Perú
- Satellite Monitoring of Methane in Rice Crops**
INIA, Uruguay
- Nitrogen Optimization FTG**
INIA, Chile
- Nitrogen Optimization NZ**
INIA, Chile
- Knowledge management and communications FONTAGRO**
Proyectos ejecutados by STA
- Seed fund FONTAGRO**
Proyectos ejecutados by STA

Our Projects and their contribution to the Sustainable Development Goals



SECTOR

- POTATO
- LIVESTOCK
- RICE
- CITRUS
- SOIL
- BANANA
- BIRDS
- KNOWLEDGE
- CACAO
- WATER
- CROPS
- QUINOA
- DAIRY

TOPIC

- CLIMATE CHANGE
- MARKET
- SUSTAINABLE INTENSIFICATION
- PEST AND DISEASE MANAGEMENT
- AGTECH
- PRODUCTIVITY
- GENETICS
- KC&C

SUSTAINABLE DEVELOPMENT GOALS



FLAGSHIP PROGRAMS

New discoveries, technologies and innovations

- 1** | Potato, the main food crop of family agriculture in LAC, is affected by a late blight disease (*Phytophthora infestans*) that seriously damages productivity and quality. Chile, Argentina, Ecuador and Panama joined forces to create an early warning system aimed at reducing chemical control and making production systems more sustainable and resilient. [ATN/RF-16678-RG](#).
- 2** | Every year, heavy losses are reported in citrus due to HLB (Huanglongbing), a disease caused by a bacterium. Argentina, Bolivia, Paraguay and Uruguay joined forces to validate and disseminate an Integrated Pest Management (IPM) to control and reduce the population of the insect vector by 35%. [ATN/RF-17232-RG](#).
- 3** | Organic bananas are an important source of income for family farming in some countries in the region. The Dominican Republic, Ecuador and Peru are scaling up technologies for red rust thrips management, using apps for data capture and transmission, improving productivity and profitability. [ATN/RF-17233-RG](#).
- 4** | Cacao, one of the most traded products worldwide, has been affected by the increased presence of cadmium. Ecuador, Colombia, Costa Rica, Germany, Belgium, the United States, Italy, Panama, Peru and the Dominican Republic joined forces to homologate and standardize cadmium quantification methods and generate amendments to reduce its concentration in the cacao kernel. [ATN/RF-17235-RG](#).
- 5** | Chile, Costa Rica and Argentina create a public-private partnership to develop an open-access technological tool called OpenFruit, which integrates geospatial, meteorological, edaphic and productive data to generate alerts and facilitate decision making for fruit producers, increasing productivity and quality. [ATN/RF-17245-RG-Agtech19056](#).
- 6** | Colombia and Bolivia join forces to improve Andean tuber (potato, oca and mashua) family production systems through the use of seeds of good genetic and phytosanitary quality alongside agronomic management. [ATN/RF-18120-RG](#).
- 7** | Argentina and Chile are looking for a technological alternative to the poultry health problems of coccidiosis. The implementation of an agroecological and sustainable model is expected to increase productivity by 15%. [ATN/RF-18136-RG](#).
- 8** | Ecuador, Argentina, Spain and Venezuela will work on a bioprocess consisting of a consortium of native fungi that are efficient in reducing cadmium in cocoa beans. [ATN/RF-18951-RG](#).
- 9** | In response to the first report of *Fusarium oxysporum* (FocR4T), Colombia, Costa Rica, Ecuador, Nicaragua, Panama, Dominican Republic, Bolivia, Paraguay and Peru joined forces to strengthen capacities and develop an effective methodology for the diagnosis of the pathogen. [ATN/RF-18761-RG](#).
- 10** | Argentina, Chile, Colombia, Ecuador, Paraguay, Uruguay and Brazil innovate in the use of biotechnological tools and gene editing to obtain plant and animal varieties with characteristics of productive, economic and social interest. [ATN/RF-18757-RG](#).
- 11** | Panama, Colombia, Honduras, Nicaragua, and the Dominican Republic increase the dissemination of iron-rich bean varieties by validating and scaling up bean varieties with the highest market demand which strengthens food and nutritional security for the population. [ATN/RF-19314-RG](#).

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- 12** Colombia, Ecuador and Bolivia are working to reduce vulnerability to climate change with the incorporation of new potato families and advanced potato clones with early maturity and drought resilience for the Andean Region. This allows for a 1.5-3% increase in yield and tuber quality of new potato clones under drought stress conditions in the agroecological zones of intervention compared to local cultivars. [RG-T4045](#).
 - 13** Costa Rica, Nicaragua, Panama, Honduras and Spain seek to establish the territorial determinants of the differentiated quality profile of cacao of origin for the development of Geographical Indications in Mesoamerica. [RG-T4046](#).
 - 14** Argentina, Chile, Ecuador and Peru are seeking to optimize water and nitrogen management in quinoa by generating and transferring a Latin American online tool for agronomic management of the crop. This will allow optimizing strategies related to the choice of cultivars, sowing dates, irrigation and fertilization in the Andean region (inter-Andean valleys and coastal environments in Peru) and central-southern Chile based on knowledge of its eco-physiology. [RG-T4048](#).
 - 15** Argentina, Uruguay, Colombia and Costa Rica are working to lower the cost of estimating in real time, and with precision, the quantity and quality of biomass available in pastoral livestock systems using a satellite tool. This information will make it possible to improve grazing management decisions and, therefore, forage harvesting, as well as to quantify more accurately and reduce the intensity of greenhouse gas emissions from these systems. [RG-T4049](#).

Together for greater resilience to climate change

- 16** Argentina, Chile, Ecuador, Nicaragua, Paraguay, Dominican Republic, Uruguay and Brazil improve livestock production systems through the use of leguminous plants in pastures, increasing the capacity to fix nitrogen, carbon sequestration in soils and reducing the use of fertilizers. [ATN/RF-16926-RG y ATN/RF-16927-RG](#).
- 17** Panama, Costa Rica and Nicaragua reduce vulnerability to climate change through the intensive system of rice cultivation (SICA), reducing the use of agrochemicals, seed and water, increasing yields by more than 40% and water use efficiency by more than 17%. [FTG/RF-14891-RG](#).
- 18** Honduras and Colombia develop a low-cost soil moisture sensor to maximize production and optimize water use. [ATN/RF-17245-RG-Aqtech19043](#).
- 19** Argentina, Spain, Nicaragua, Uruguay and the Netherlands create a public-private partnership that develops a mobile application called Irrigation Advisory Service (SAR) to strengthen the decision-making capacity of producers on water management. [ATN/RF-17245-RG-Aqtech19037](#).
- 20** Increasing the efficiency of water use in agricultural fields is one of the great challenges. Chile, Argentina, Colombia, Spain and Uruguay have joined forces to implement a consultation platform that provides accurate temporal and spatial information on production systems, enabling farmers and decision makers to operationalize the quantitative management of irrigation in crops. [ATN/RF-17950-RG](#).

- 21** | Colombia, Peru and the Dominican Republic, banana producing countries, develop a software platform that converts local climate data into projections of banana growth, flowering and harvest, in order to support decision making in the management of small banana plantations. [ATN/RF-17245-RG-Agtech 19055](#).
- 22** | Argentina, Bolivia and Paraguay, together with funding from the Government of New Zealand, are implementing an extension network in the South American Chaco for sustainable livestock production. [ATN/RF-18079-RG](#).
- 23** | The technology of the Intensive System of Rice Cultivation (SICA) is being validated in Chile, Argentina, Panama, Colombia and Venezuela, in order to transfer it to small farmers and thus optimize the use of natural resources and reduce production costs. [ATN/RF-18105-RG](#).
- 24** | Argentina, Costa Rica, Honduras, Dominican Republic and Uruguay, with funding from the Government of New Zealand, are developing digital tools for real-time monitoring of productive, climatic and management aspects of dairy herds. [ATN/RF-18078-RG](#).
- 25** | Uruguay, Argentina, and Costa Rica with funding from the Government of New Zealand, develop a tool for remote measurement of available biomass of pasture, optimizing real-time grazing decisions, increasing 30% of the pasture harvest. [ATN/RF-18077-RG](#).
- 26** | Colombia and Ecuador seek alternatives to halt soil degradation by synthesizing nanofertilizer formulations that reduce the use of fertilizers and nitrous oxide emissions. [ATN/RF-18959-RG](#).
- 27** | Argentina, Chile, Colombia, Spain and Uruguay reduce nitrous oxide emissions by improving the productivity and quality of 20 crops through the use of genetically improved strains with greater efficiency in plant growth promoting activity, increasing production by 3% and reducing nitrous oxide emissions by 35%. [ATN/RF-18786-RG](#).
- 28** | Uruguay, Argentina, Colombia, Costa Rica and Chile identify opportunities for soil carbon sequestration. [ATN/RF-18769-RG](#) and [ATN/RF-18770-RG](#).
- 29** | Colombia and Argentina join forces to reduce emission intensity by 10% (g of CO₂Eq/kg Meat) in bovine production systems through the implementation of technological innovations developed in Latin America for the quantification and mitigation of greenhouse gas emissions. [ID 1378](#).
- 30** | Colombia, Argentina and New Zealand collaborate to generate a strategy to improve corn crop production (+5%) and resilience to climate change through the use and integration of beneficial fungi. [ID1535](#).
- 31** | Argentina, Bolivia and Paraguay will form a network of resilient farms with sustainable forest management; the beneficiaries will be 2,100 producers in the regions of Salta - Argentina, Villa Montes - Bolivia and Presidente Hayes in Paraguay. [ID1643](#).
- 32** | Uruguay, Peru and Panama are working to develop a web platform to facilitate access to validated satellite information on atmospheric methane content in different rice-growing regions of LAC. [ID1732](#).

33 | Bolivia and Ecuador seek to promote the sustainability and resilience of fragile Andean agroecosystems through efficient soil moisture management to increase productivity and crop diversification. This will serve as an alternative for food security and adaptation to climate change. [RG-T4053](#).

Intesustainable intensification and natural resources

34 | Talking about sustainable intensification of dairy farming in Latin America and the Caribbean was a challenge due to the great diversity of production systems, lack of characterization and different approaches. LACTIS developed a regional cooperation platform that established a baseline, developed and validated sustainability indicators for 11 countries. [ATN/RF-15940-RG](#).

35 | Arid and semi-arid zones in LAC are environmentally fragile and have high levels of rural poverty. Improvements in forage evaluation, adjustment of stocking rates, strategic supplementation and health management were some of the strategies implemented by 120 producers in Argentina and Peru to adapt to climate challenges and strengthen local food security. [ATN/RF-16680-RG](#).

36 | Rice producers in Colombia, Chile and Peru are facing climate variability and reduced water availability. FEDEARROZ, together with other organizations, validated the system of sustainable intensification of rice cultivation, reducing water use and GHG emissions, and increasing crop yields. [ATN/RF-16681-RG](#).

37 | Peru, Colombia, and Germany will work to generate a technological solution using multipurpose silvopastoral systems to improve milk production and producer profitability. [ATN/RF-19277-RG](#).

38 | Chile, Argentina, Uruguay and Honduras seek to increase the productivity and sustainability of production systems through a free online platform to support decision-making in agronomic crop management in the context of climate change. [ID1356](#).

39 | Developing a platform for linking producers, technicians and scientists to contribute to the development, transfer and efficient use of bioinputs on farms in Latin America is the objective of project [ID1613](#), which will be developed by joining the efforts of Argentina, Chile, Colombia and Uruguay.

40 | Peru, Ecuador, Costa Rica and New Zealand seek to sustainably intensify dual-purpose livestock farming in the Peruvian and Ecuadorian Amazon through supplementation with feed obtained from agro-industrial waste. [ID1581](#).

41 | Argentina, Chile, and Colombia are working to implement good animal husbandry practices for cattle and sheep based on animal welfare principles. [ID1698](#).

42 | In pursuit of sustainable, resilient and productive agriculture, Colombia, Ecuador and Honduras are working on the project "Tropical Agriculture 4.0: efficient management of water resources" with the aim of increasing the efficient use of water by applying Agriculture 4.0 technologies to tropical crops of commercial and social importance. [ID1740](#).

PROGRAMMATIC ACTIVITIES



TERMS OF REFERENCE 2022 CALL

Extraordinary Call “Innovations to improve the sustainability and resilience of farms to the impact of climate change in Latin America and the Caribbean”.



FONTAGRO’s BD authorized a total of 20 seed funds for technical cooperation development assistance for \$552,000, which mobilized \$1.31 million in counterpart funds.



From 2014 to date, 18 consensual projects were implemented for a total amount of \$4.0 million (representing a total investment of \$18.1 million).



In order to stimulate the development of new knowledge, science, technology and innovation to facilitate the transformation of agrifood systems, FONTAGRO created a [Scientific Committee](#) made up of experts from member countries.



Since 2015, FONTAGRO’s Board of Directors decided to support the strengthening of Knowledge Management and Communication (KM&C) of the results and impacts of projects co-financed by FONTAGRO. For this reason, in 2021, a KM&C Committee was established, in which representatives from FONTAGRO member countries participate.

Our committees

Knowledge Management and Communication

Objective: increase dissemination of results and visibility of FONTAGRO



Scientific Committee

Objective: : strengthen the scientific-technical agenda of FONTAGRO



International Relations Committee

Objective: facilitate dialogue and the mobilization of resources for science, technology and innovation in LAC

(Proposal in progress)

ALLIANCES AND MEMBERSHIPS

We continue to strengthen alliances to promote the development and transformation of the agro-bio-industrial sector in Latin America and the Caribbean, hand in hand with the following institutions and companies:



Sprout AI
Beyond Farming



BCIE
Banco
Centroamericano
de Integración
Económica



**GAP
REPORT
INITIATIVE**



Palladium
MAKE IT POSSIBLE



IFAMA



**WESTERN
GROWERS**



ucrop.it



auravant
AGRICULTURA DIGITAL



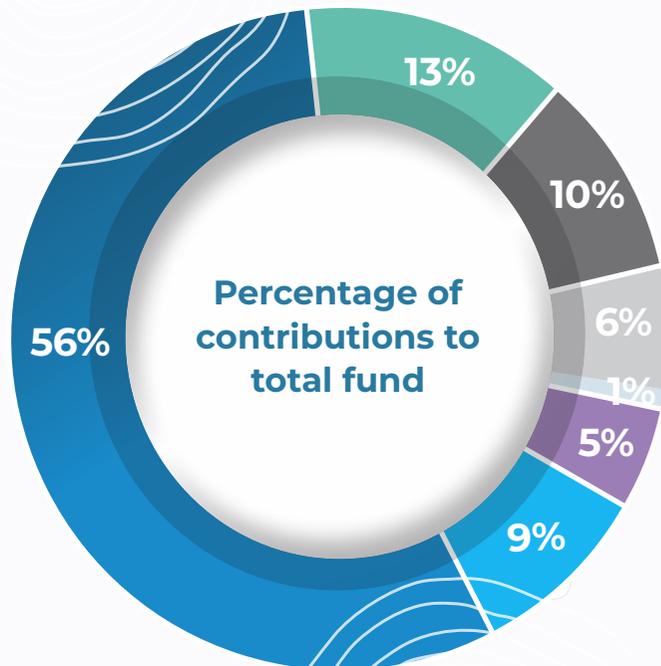
**WORLD
ECONOMIC
FORUM**



croper.com



Eiwa

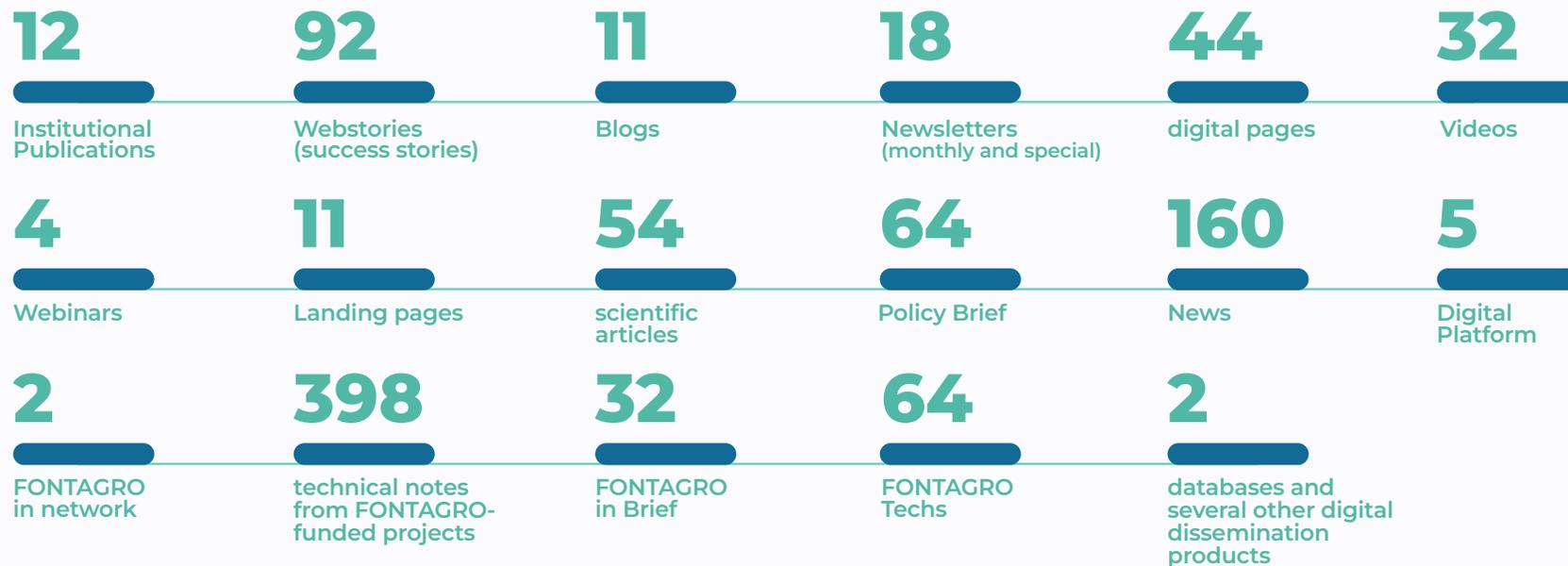


- National Institutions
- International Universities
- International Institutions
- Regional Institutions
- Extra-regional Institutions and Universities
- Non Governmental Organizations
- Private Sector

KNOWLEDGE MANAGEMENT AND COMMUNICATION

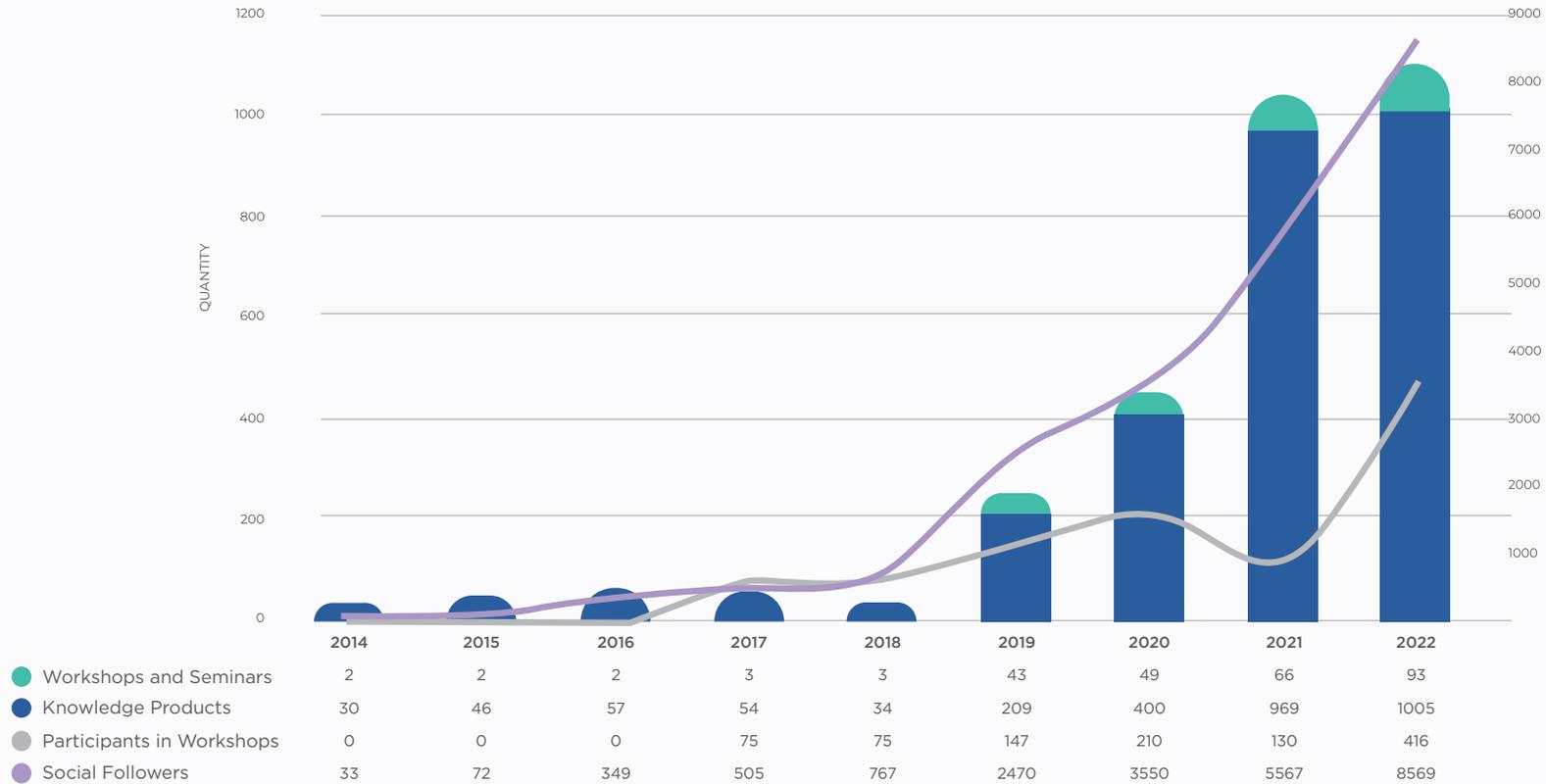
Our Knowledge Management and Communication (KM&C) 2020-2025 strategy allowed us to continue growing in the dissemination of results and visibility, promoting strategic alliances and initiatives with new agencies. During the year we were able to consolidate a methodology for the presentation of project knowledge products, including:

1005 New Knowledge Products During 2022, the following were created:



93 workshops and seminars, including those carried out by the projects.

Number of products derived from Knowledge Management and Communication activities

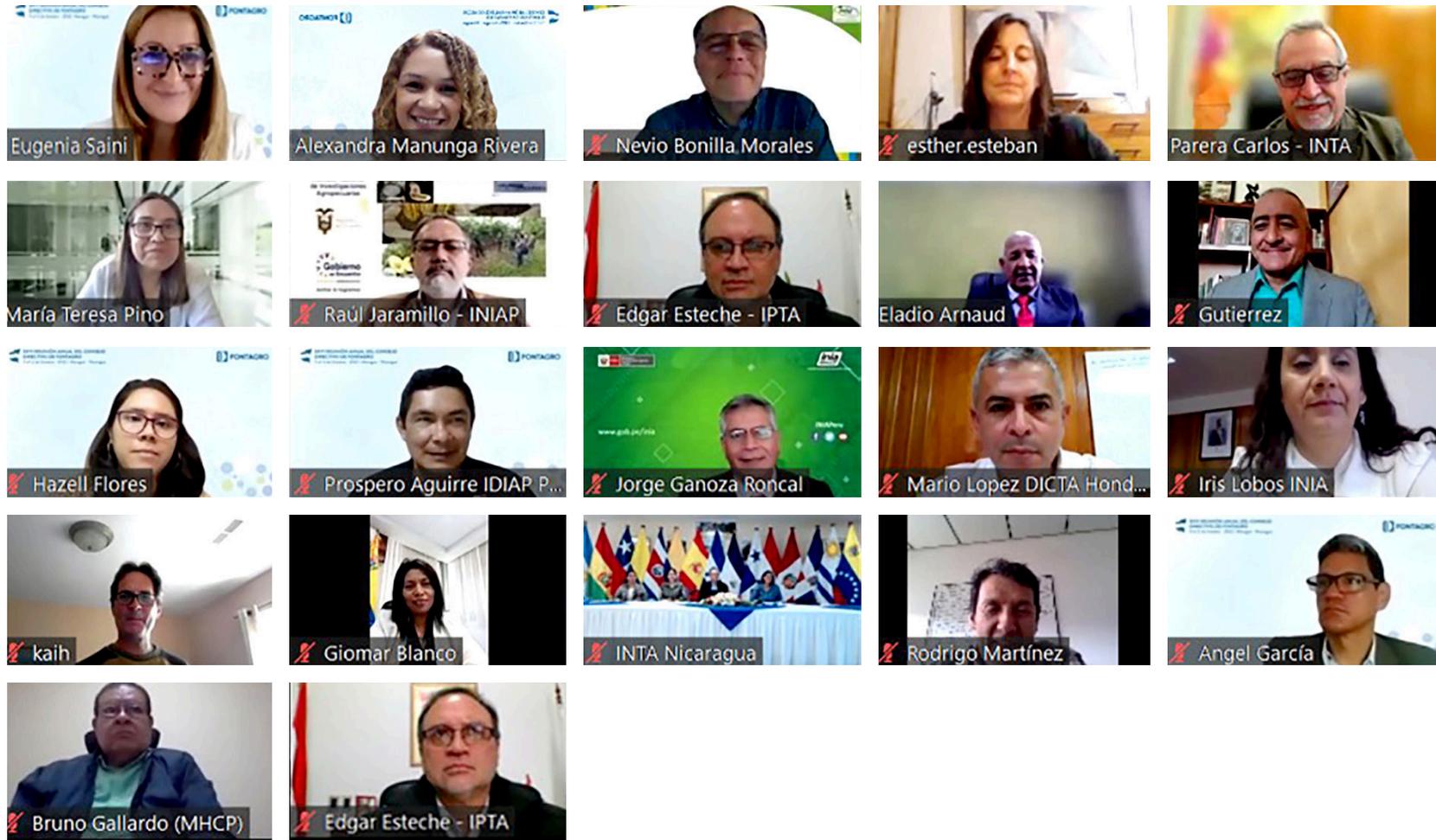


Source: Prepared based on TAS data, 2022.

Technology transfer actions

FONTAGRO's project platform is open source; any institution is allowed and encouraged to use the project platform according to its needs. During 2022, Panama's IDIAP installed the Project Platform in its internal management systems and became the first successful case of using a public good created by FONTAGRO. See here: [IDIAP - Initiatives and projects](#).

ANNUAL MEETING PHOTO



OUR PARTNERS

International Institutions



National Institutions



Regional Institutions



Extra-regional Institutions and Universities



Non Governmental Organizations



Private Sector





Regional Universities





Universidad de Nariño



CONSTRUIAMOS FUTURO



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ANNUAL REPORT 2022

