

# CALL FOR THE PROPOSALS 2019

“From Science to Impact: Innovations for Climate-Smart Agriculture Using Agtechs in Latin America and the Caribbean”

TERMS OF REFERENCE  
TECHNICAL ADMINISTRATIVE SECRETARIAT (TAS)

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## SECTION I. BACKGROUNDS

### **1.1 Global and regional challenges of food and sustainable management of natural resources, in the context of climate change between 2030-2050.**

Looking ahead to the coming decades, one of the greatest challenges facing humanity is understanding how to meet the growing needs of the population in terms of the demand for food while at the same time ensuring the sustainability of natural resources and resilience to climate change. It is estimated that, by 2050, the world population will surpass 9 billion people and that the middle class will constitute more than half the population<sup>1</sup>. Food production will have to increase by 70% to meet demand, and 80% of this increase will have to be generated from improvements in productivity and intensification of agricultural systems, while the rest will come from expansion of the use of land. The increase in population will intensify competition for resources between agriculture and heighten the level of urbanization. Several studies indicate that current food systems are responsible for 20-30% of GHG emissions, 70% of water extraction and 70% of biodiversity loss<sup>2</sup>. Latin America and the Caribbean (LAC) has 38% of the land allocated to the agricultural sector and one of the most important reserves of biodiversity, soils, and freshwater resources. The extensive area dedicated to agriculture, combined with its great diversity of climates, makes this region a key to strengthening regional and global food security. However, a large proportion of the territory is under the control of medium- and small-scale agriculture, estimated at 15 million productive units covering some 400 million hectares<sup>3</sup>. It is in this sector of small- and medium-scale farmers where the differences in productivity are greater than could be achieved with the appropriate adoption and use of a new generation of technological solutions. FAO<sup>4</sup> considers that climate change will be one of the constant challenges affecting agricultural production, and will require transformation to new adapted and sustainable systems. Climate change adaptation measures include diversification and combination of agricultural activities, promotion of intercropping, integrating silvopastoral systems with other activities, use of intelligent irrigation systems, agriculture under controlled environmental conditions and/or vertical agriculture and other sustainable intensification measures. Similarly, knowing the variation in greenhouse gas (GHG) emission rates will also be key for determining how a productive system can be more efficient with a lower level of emissions, in support of GHG inventory reduction targets.

**1.2 The Fourth Industrial Revolution, the role of science and technological innovation in LAC. In recent decades, the development and convergence of information and communication technologies (ICT), together with greater connectivity, the Internet of Things (IoT), artificial intelligence, robotics, digitization and other disciplines, have led to the evolution of the conditions in which global agriculture development takes place.** The Fourth Industrial Revolution (4IR) has thus started a new stage in agriculture, where different types of knowledge and actors converge to create new technological solutions that stimulate greater productivity, optimization of the use of resources and agricultural efficiency. LAC has significant comparative advantages for strengthening food security and reducing rural poverty. However, there are still challenges in the region to generating new technologies that offer inclusive solutions for actors in the research, development and innovation (R+D+i) system, and for rural producers and other agents in the value chain.

**1.3 How can we collaborate to create new technological solutions to overcome the challenges of agriculture in LAC from 2030 to 2050? The emergence of AgTech solutions. In recent decades, the multidisciplinary approach and the convergence of different scientific disciplines has fostered development of a new generation of solutions for agriculture, based on the use of AgTech<sup>5</sup>.** The term AgTech refers to technological innovations where different disciplines, such as digital technologies (blockchain, big data, IoT, satellite images, machine learning), converge with life sciences (biotechnology and basic sciences) and changes in the physical environment (robotization, automation, use of new materials). AgTech solutions have generated new disruptive, dynamic, low-cost solutions with high capacity for acceleration. Although LAC agriculture will face important challenges in the future, the holistic and integrated vision, the interdisciplinary work teams and the new generations of 4IR technology offer an alternative solution. LAC has important R+D+i centers and a strong entrepreneurial sector which, jointly and incipiently, are promoting a new ecosystem of knowledge generation and solutions for agriculture. This new ecosystem model of generation of AgTech technological solutions will join forces with the improvement of agricultural, agri-food, and agroindustrial systems (AAAS), fulfilment of the strategic lines of the FONTAGRO Medium-Term Plan (MTP 2015-2020) and the [Sustainable Development Goals \(SDG\)](#).

**1.4 Some impacts and examples of AgTech solutions are:** AgTech solutions show positive impacts at productive, environmental, social, economic, business model, and governance levels. Some examples are: a) promotion of biotechnological solutions combined with other disciplines which improve productivity, tolerance to abiotic stress, pest and disease resistance, nutrition, and industrial quality with impact on waste reduction and greater efficiency of production, of plants and animals such as bio-factories, including developments in biotechnology, gene editing and genomics of crops, animals and fish; b) development of synthetic proteins or natural derivatives for industrial use (such as natural pigments); c) precision agriculture solutions that optimize the use of water and soil and plant nutrients; d) biological solutions for crop and animal protection (bio-inputs); e) micronutrient management solutions, innovations in hydroponics and vertical agriculture; f) innovations in animal health, nutrition, reproduction and handling, g) development of software and mobile applications that capture real-time information on soil moisture, program risks and improve use and recycling of water; traceability software for crops and animals; applications to identify pests and diseases; digitization of data in georeferenced layers, use of drones, satellites, sensors and others for real-time information capture to improve decision making; h) use of artificial intelligence and robotics to automate activities and tasks; i) Internet of Things for creation of digital data management platforms at the level of public and private institutions, big data, information dissemination, knowledge management, facilitating the process of transfer of technology and management practices, rural extension, marketing platforms that generate economic benefits for producers, and other tools for digitization of agriculture with capture of real-time data, which are transformed into new knowledge key to decision making and an integrated understanding of the evolution of production systems and their relationship to the environment and climate.

**1.5 The importance of AgTech solutions in LAC. A 2017 study identified 130 AgTech ventures in LAC, of which more than 60% were created in the last five years, and more than 70% are concentrated in digitization of agriculture. This trend has been increasing, especially given the financial support of a growing number of angel investors, venture capital funds, accelerators, international corporations, and other programs. The same study points out that to make this ecosystem grow, it is important to facilitate contacts between scientists and entrepreneurs, to create synergies and enhance the impact of the knowledge generated by the scientific sector with development of new technological solutions of use to society.** The study also points to areas of technological innovation which could have

greater impact on agriculture. These are: new production systems, mechanization and automation of work, genetics and protection of crops and animals, big data and precision agriculture, management software and information services for decision making, innovative sales platforms, outsourced services and financing, technologies in the logistics and food distribution chain, innovative food products and services, bio-energy and biomaterials. However, a distinctive aspect is that AgTech developments in LAC are, for the most part, located in Argentina, Brazil, Chile and Colombia.

**1.6 AgTech's new entrepreneurial landscape in LAC.** The new AgTech ecosystem being created in LAC fosters the generation of disruptive solutions through formation of multi- and inter-disciplinary work teams where actors from different scientific disciplines come together and participate with an entrepreneurial group, willing to co-finance technological development of AgTech solutions, and their potential users. At the same time, to promote equitable development at regional level, AgTech work teams must include countries from different regions. Combining institutions from different countries and regions will facilitate capacity building where all the institutions can “learn-by-doing.” AgTech work teams will promote innovation, not only by bringing together actors from different backgrounds, disciplines, and experiences, but also by its application to different geographical environments in LAC.

**1.7 Strengthening regional innovation platforms in AgTech for LAC. FONTAGRO wishes to strengthen regional AgTech innovation platforms with a call for proposals titled “From science to impact: innovations for climate-smart agriculture through AgTech solutions in Latin America and the Caribbean.” The objective of the call is to stimulate AgTech solutions to promote technological innovations based on previously validated scientific knowledge, promoting new solutions or validating promising or successful ones already in existence with the aim of improving the productivity, efficiency, and sustainability of family farming in LAC.** The technical innovations must be consistent with the FONTAGRO Medium-Term Plan [MTP 2015-2020](#) and aligned with the [Sustainable Development Goals \(SDG\)](#). AgTech regional platforms will link actors in science and academia with the entrepreneurial sector, creating public-private AgTech models.

## SECTION II. ABOUT FONTAGRO

**2.1** FONTAGRO was created in 1998 with the aim of contributing to the sustainable management of natural resources, improvement of competitiveness and poverty reduction through development of technologies and innovations relevant to society. It currently has 15 member countries and two sponsors: the Inter-American Development Bank (IDB) and the Inter-American Institute for Cooperation on Agriculture (IICA), the former being its legal representative.

**2.2** MTP 2015-2020 has renewed the vision and mission of FONTAGRO, defining it as a cooperation mechanism for strengthening agrofood innovation in member countries and not as a traditional fund dedicated solely to financing projects. Consequently, FONTAGRO financing is mainly used to establish and/or support cooperation platforms, leveraging resources from other agencies and member institutions on the platforms, to achieve common objectives. This call for proposals is in line with the four strategic areas of MTP 2015-2020: (1) technological, organizational, and institutional innovation in member countries, (2) adaptation and mitigation to climate change, (3) sustainable intensification of agriculture and management of natural resources, and (4) competitive value chains and territories in a framework of equity and sustainability.

**2.3** To date, FONTAGRO has supported more than 135 projects and initiatives, representing a total investment of US\$106 million, of which US\$39 million (37%) was contributed by FONTAGRO and other strategic partners (IDB, CGIAR-World Bank, AECI, Governments of Korea, Japan and New Zealand, among others); and US\$67 million (63%) has been contributed by the executing institutions as counterpart.

**2.4** FONTAGRO co-finances initiatives that generate agricultural Regional Public Goods (RPGs) for LAC, where countries share challenges and opportunities for growth and development which are more efficiently addressed when institutions work in a collective, participatory and cooperative manner. In this respect, the regional platforms promoted by FONTAGRO are, in themselves, an RPG, as are the knowledge and lessons learned that they generate.

## SECTION III. OBJECTIVE OF THE CALL

**3.1** Objective. The objective of the call is to encourage AgTech solutions that promote technological innovations for climate-smart agriculture based on prior and validated scientific knowledge, which promote new solutions or validate existing, promising or successful ones already in existence for improvement of productivity, efficiency, and sustainability of family farming in LAC. The technical innovations must be in line with the FONTAGRO Medium-Term Plan PMT 2015-2020 and with the Sustainable Development Goals (SDG).

**3.2** Development and validation of innovations. The proposals submitted to this call must express clearly and specifically how development of new or existing prototypes of AgTech innovations will be achieved. They must be based on validated research, and be suitable for scaling up to commercial level by the end of the co-financing period. Proposals must clearly demonstrate the real feasibility of implementation, validity in a representative group of receivers, and how they will obtain results and evidence of results and potential impact.

**3.3** Based on the previous paragraphs and the interest of member countries of FONTAGRO and LAC, some examples of AgTech innovations consistent with this call have been mentioned in the previous paragraphs and can be arranged into groups in the following way (although not the only way):

i. AgTechs as capital investments to promote prototypes of equipment that generate greater efficiency in agricultural activities, in management of natural resources (water and soil) and in climate management. For example, computer systems, hardware, robotic systems, sensors or others, which constitute technological innovations for monitoring of use of water (intelligent irrigation systems) and nutrients. Other examples are high precision sensors and geographic information and imaging systems, automation of operations, variable rate application systems, intelligent harvest systems, soil monitoring systems, indoor vertical farming systems, among others.

ii. AgTechs as knowledge-based services that produce and transfer data generating key information for decision making. For example, development of climate-smart agriculture systems, based on the capture of key data for crop management (optimization for planting, nutrient and pest and disease management) and animal husbandry (feeding, health, reproduction, handling), specialized software, food safety, traceability, big data, collaboration platforms, market information and sales platforms, among others.

iii. Biotechs such as development of a new generation of biotechnological tools for genetic improvement (NBTs), gene editing, genomics, or others with the aim of developing improved varieties of plants and animals which adapt to and/or mitigate the effects of climate change, through efficient use of resources (water, soil, nutrition), and tolerance to abiotic factors (thermal extremes, flooding, drought) with an impact on sustainable production; industrial and/or nutritional value added (biofortification, functional foods, elimination of anti-nutritional compounds); including use of plants and animals as bio-factories that can be developed by biotechnology-based companies.

## SECTION IV. FINANCING

**4.1 Amount of Call for Proposals 2019.** This call will be held with FONTAGRO's own resources. The total amount of the call is US\$800,000. FONTAGRO will co-finance up to four proposals for AgTech solutions up to a maximum of US\$200,000 each.

**4.2 Counterpart.** The institutions that participate in the platforms must, individually or in association, co-finance the proposal contributing counterpart funds in cash or kind, or a combination of both. The minimum amount of counterpart of the proposal must be at least the amount requested by the financing entity.

**4.3 Policies and conditions.** This call will be subject to the provisions detailed in the current [FONTAGRO Operations Manual](#), IDB policies, and these Terms of Reference.

**4.4 Additional sources of financing.** This call may receive additional funding sources if, at the time of final selection of proposals, other agencies are interested in co-financing them, in accord with their regional priorities and/or other special conditions.

## SECTION V. ESTABLISHING A REGIONAL INNOVATION PLATFORM (RIP)

**5.1 Regional Innovation Platform (RIP).** This call for proposals will support existing and new Regional Innovation Platforms (RIP) constituted by public agents or public-private partnerships that share vision, mission and objectives. These RIPs must promote practices and/or institutional arrangements that promote public and/or public-private entrepreneurs and facilitate development of promising or successful AgTech solutions for family farming in LAC. AgTech platforms (Regional Innovation Platforms, RIP) will link scientific and academic actors with entrepreneurial and other strategic actors, creating public-public or public-private AgTech organizational models.

**5.2 Participants in RIP.** RIP must link scientific and academic actors with the entrepreneurial sector and end users (family producers or others). To do this, RIPs must consist of: a) at least one public or private scientific research center, b) an entrepreneur or entrepreneurial team, c) users (family producers or other agents targeted by the proposed solution) which must be included in the testing

process or pre-commercial validation of the proposed AgTech solution, and d) other institutions related to the solution (optional).

**5.3 Administrative role of participants during RIP implementation.** One of the institutions involved must act as the executing agency, and therefore, be legally authorized to sign a contract with the IDB and manage funds in US dollars on behalf of the other participants in the platform, which will act as co-executing agencies (should they receive funds from FONTAGRO) or optionally as partner organizations (if they participant with their own funds).

**5.4 Technical role of participants during RIP implementation.** RIP participants must be multidisciplinary and interdisciplinary, and demonstrate a multidimensional approach (productive-agronomic, social, economic, technological, environmental, value added, among others) consistent with the proposed AgTech solution. In terms of technical complementarity of functions, participants can be public, private, national, regional, and/or international institutions, namely:

- i. At least one scientific-academic center with proven basic scientific knowledge which will be used to develop the proposed AgTech solution.
- ii. At least one entrepreneur or entrepreneurial group that proposes an alternative of transformation of basic scientific-academic knowledge into a prototype for the AgTech solution. Participants in this category can be national or international institutions, public or private (the latter must always be in public-private partnerships).
- iii. At least one group of users targeted by the AgTech solution (farmers, especially family farmers or other agents) from a FONTAGRO member country.

- iv. Other related institutions that provide supplementary resources to achieve the desired objective. In this case, international or regional institutions, based inside or outside of the LAC region, in partnership with national LAC institutions may be considered, as long as they act in a facilitating and/or complementary role with their own funds.

**5.5 General Aspects of Regionality.** This call prioritizes establishment of platforms integrated by partners from different regions with different technical disciplines to complement their capacities and strengthen the platforms. The following regions are recognized: (1) Southern Cone, (2) Andean Region, (3) Central America, (4) Caribbean Region, and extra-LAC region.

**5.6 Aspects of Regionality of FONTAGRO.** FONTAGRO will cofinance proposals executed by RIPs constituted by public institutions or public-private partnerships of at least two FONTAGRO member countries. This means that the activities to be carried out in the proposal must be implemented in at least two FONTAGRO member countries. Other institutions from non-FONTAGRO member countries but members of the IDB, and regional and international organizations, may participate as partner organizations with a facilitating or complementary role, with their own resources. FONTAGRO requires both institutions and users of the AgTech solution to belong to at least two (2) member countries.

**5.7 Aspects of Global Regionality.** Institutions from non-IDB member countries may participate by contributing their funds to RIPs, either by having an agreement with the IDB, legal representative of FONTAGRO, or directly to the platform institutions and in agreement with IDB/FONTAGRO.

## SECTION VI. SUBMISSION AND EVALUATION PROCESS OF PROFILES AND PROPOSALS

The application and evaluation process of the proposal is organized in two phases: PHASE 1 (submission and evaluation of the profile) and PHASE 2 (submission and evaluation of final proposals).

### PHASE I: SUBMISSION AND EVALUATION OF PROFILES

**6.1 Opening date for proposals.** The 2019 call will be open from February 1 to April 22, 2019 at 12 PM Eastern Time. Section VII contains more details of the relevant dates.

**6.2 Preparation of a profile.** A profile is a brief presentation of the project proposal. The profile must be prepared with the participation of the members of the RIP, in Spanish, following the Instructions for the Electronic Profiles Application Form, which is accessed on the FONTAGRO [website](#).

**6.3 Submission of the profile through the electronic form on the FONTAGRO website.** The profile is submitted on an [electronic form](#) on the FONTAGRO website. The participant acting as the executing agency must register the profile, after generating a username. Each profile will have a unique code assigned

automatically. Profiles submitted to FONTAGRO by other means or formats will not be accepted.

**6.4 Deadline.** The deadline for submission of the profile is **April 22, 2019 at 12 PM Eastern time**. We recommend that profiles be submitted a few days before the deadline to avoid overloading the website.

**6.5 External profile evaluation panel. FONTAGRO will select a group of qualified scientific and entrepreneurial referees to form an external evaluation panel to review the profiles submitted under this call. This panel will carry out the evaluation (Phase I) and prepare a report recommending the profiles that will continue to Phase II. The profile evaluation phase will take place from April 22, 2019 to May 20, 2019.**

**6.6 Profile evaluation criteria. The evaluation criteria for the profiles are detailed in the current FONTAGRO [operations manual](#). In Phase I, two evaluations will be made: i) evaluation of compliance with the formal eligibility criteria and ii) technical evaluation of profiles.**

**I. Evaluation of formal eligibility criteria. The formal eligibility criteria are listed in the FONTAGRO [Operations Manual](#) (Table 2) supplemented by those listed in this section (Box 1). Compliance with the formal eligibility criteria of legality, term, amount and counterpart will be examined. Profiles that do not meet any of these requirements will be disqualified. Profiles that meet the above requirements will then be evaluated based on the remaining formal eligibility criteria of congruence, regionality, technical capacity of the platform and coordination of the profile. Additionally, the profiles must meet the following supplementary requirements:**



### Box 1. FORMAL ELIGIBILITY CRITERIA FOR THIS CALL AND SUPPLEMENTARY TO THE OPERATIONS MANUAL

- 1. Legality:** The institutions participating in the RIP must provide evidence of their legal status.
- 2. Maximum Term:** The maximum execution period will be 24 months.
- 3. Maximum Amount:** The maximum amount that may be requested is US\$200,000 per profile.
- 4. Minimum Counterpart:** The profiles must offer minimum counterpart contributions of at least the amount requested, indicating whether it is a counterpart in cash, in kind, or a combination of both.
- 5. Congruence:** The profiles must be original in their approach and include activities in accordance with the stipulations of the terms of reference for this call.
- 6. Regionality:** The profile must clearly specify the institutions that constitute the RIP and that the activities to be carried out are in accordance with the requirements mentioned in Section V “Constitution of the RIP” in these Terms of Reference.
- 7. Technical Capacity of the RIP:** The profile must detail the participants in the RIP, emphasizing experience in the area, roles and responsibilities, and time to be spent on the initiative.
- 8. Coordination of the RIP:** The profile must clearly detail how the institutions participating in the RIP complement each other in their roles and responsibilities for achieving the proposed AgTech solution.

II. Evaluation of profiles based on technical criteria. After the previous verification, the profiles that meet the formal eligibility criteria listed in Phase I will be evaluated on the formal technical criteria detailed in the Operations Manual (Box 3) and the supplementary criteria listed in this section (Box 2). Once this evaluation is completed, the profiles that receive scores of 75 points or more (based on a total of 100 points) will be invited to present complete project proposals.

### Box 2. TECHNICAL EVALUATION CRITERIA FOR PROFILES IN THIS CALL AND SUPPLEMENTARY TO THE OPERATIONS MANUAL

- 1. Evidence validated scientifically:** The profile must demonstrate that the purpose of the Project is based on scientific evidence validated by the organizations that developed it.
- 2. Evidence of market potential:** The profile must describe the market potential for the proposed AgTech solution, describing, for example, the value to potential users with quantitative, technical and economic indicators.
- 3. Scaling-up strategy:** The profile must describe a scaling-up strategy for the proposed AgTech solution once funding for the call is finalized. For this, the profile must consider the factors that affect the upscaling process, such as minimum scaling up needed to make the AgTech solution profitable, generation and access to data and information, connectivity infrastructure, and country regulations, among others.

**6.7 Communication of shortlisted profiles.** FONTAGRO will only invite shortlisted profiles to submit complete project proposals. These shortlisted profiles will be available on the FONTAGRO website starting May 22, 2019. Other institutions interested in participating or contributing to preparation of the final proposal may contact the platform leader, who may accept or reject the offer of participation of the other interested parties.

### PHASE II: SUBMISSION AND EVALUATION OF FINAL PROPOSALS

**6.8 Preparation of the final AgTech proposal.** The final proposal must be prepared with the participation of the members of the RIP, in Spanish and in accordance with the “FONTAGRO Project Proposal Submission Instructions” which are available on the website. The final proposal must be prepared in Word format and additionally tables and charts must be prepared in Excel format.

**6.9 Submission of the final proposal through the FONTAGRO website.** The final proposal must be submitted through the same online system, in accordance with the instructions. The final proposal will consist of two documents: a) the Word document with the written proposal, and b) as supplementary information, the Excel spreadsheet with the tables and charts. Final proposals submitted to FONTAGRO using other formats will not be accepted.

**6.10 Deadline.** Final proposals will be received until **August 9, 2019, 12:00 PM Eastern Standard Time.** Once received, the proposals cannot be modified. Proposals cannot be received after the established closing date and time.

**6.11 Evaluation of final proposals.** The external panel will evaluate the final proposals according to the criteria listed in the [Operations Manual](#) (Table 4) and other supplementary criteria for this call. The panel will recommend funding for proposals that score 75 points or more (based on a maximum of 100 points). The final proposals will be evaluated from August 9, 2019 to September 13, 2019.

### **Box 3. TECHNICAL CRITERIA FOR EVALUATION OF THE PROPOSALS AND SUPPLEMENTARY TO THE OPERATIONS MANUAL**

**1. Evidence validated on a scientific basis:** The profile must demonstrate that the objective of the Project is based on scientific evidence validated by the organizations that developed it.

**2. Institutional capacity and proposal for coordination of the RIP:** The proposal must describe the capacity of the participating institutions to develop the roles mentioned in section V and how they complement each other technically and economically for achieving the proposed objective.

**3. Scaling-up strategy and business plan:** The proposal must describe the business plan, market potential, and scaling-up strategy of the AgTech solution after finalizing the financing of the call, considering the factors that could affect it (such as demand segmentation, regulations, intellectual property, etc.)

**6.12 Co-financing recommendation report.** The panel will prepare a report recommending the co-financing proposals to be sent to the FONTAGRO Board for consideration. The Board will approve the allocation of co-financing. Its decision will be final and unappealable.

**6.13 Interview with finalists.** FONTAGRO may request a consultation on the finalist proposals in a virtual or face-to-face interview to consider the co-financing decision.

**6.14 Communication of shortlisted proposals.** The FONTAGRO Technical Administrative Secretariat (TAS) will only inform the winners of the co-financing approval, both via email and on the FONTAGRO website.

**6.15 Authorization of co-financing.** Final proposals that receive comments from the external panel must incorporate these recommendations and make any necessary adjustments to the proposal within 30 days of the official FONTAGRO selection announcement.

## SECTION VII. TIMELINE

ACTIVITY	DATES
<b>Phase I</b>	
Announcement for Call for Proposals	January
Opening of the Call for Proposals (12 weeks)	February 1 to April 22
Deadline for the submission of profiles	April 22
Profile evaluation (4 weeks)	April 22 to May 20
Invitation of profiles to prepare final proposals	May 22
<b>Phase II</b>	
Development of final proposals (11 weeks)	May 22 to August 9
Final proposals submitted	August 9
Evaluation of final proposals	August 9 to September 13
Approval by the Board of Directors and communication to the proponents	October

## INFORMATION Y CONSULTANTS

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 FONTAGRO, <http://www.fontagro.org>

# GLOSSARY OF TERMS

**Family farming:** this term broadly encompasses producers who use family labor to perform agricultural activities in any form (technical, economic, commercial, industrial services, etc.). According to Berdegue et al (2010) there are 15 million family units covering approximately 400 million hectares in LAC.

**AgTech:** Innovations arising from the convergence of different disciplines based on digital agriculture, life sciences, and physical transformation processes.

**Entrepreneur:** the agent of the RIP which identifies scientific knowledge with the potential to scale up viable AgTech solutions. They accompany development of the solution with financing and supplementary services (such as consulting, advice, mentoring, networking, etc.).

**Multidimensional approach: the analytical methodology based on different criteria used to analyze a particular topic. The criteria can be social, economic, technological, environmental, and/or related to the subject of study.**

**Innovation:** “Innovation is a participatory process by which individuals or organizations generate and/or use technological, organizational and institutional knowledge that results in new goods and services, and which, once appropriated by society, generates a social, economic, environmental and/or cultural benefit.”

**Institutional innovation:** changes in the rules of the game that govern the relationships and interactions of agents in the chain and other public actors in research and development, which offer more space and negotiating capacity to small producers. Examples: new standards, regulations, policies, new public-private relations that facilitate adoption of knowledge and technologies in a given context.

**Organizational innovation:** transformational changes in organizations that allow the use of knowledge and jointly develop or improve economic or social products or processes. Examples: (1) inclusive, competitive and sustainable associative models, (2) organization of small producers for marketing purposes.

**Technological innovation:** changes in the practice and processes required to increase the efficiency or quality of production and transformation processes to meet market demand. Examples: new varieties or more productive breeds put on sale or for processing; seed production techniques; machinery adapted to specific conditions; techniques or practices for water and soil management, introduced where they were not known, etc.

**Participatory research:** research and/or extension method beginning with joint definition of priorities with users, where they contribute actively throughout the process, which results in their empowerment and better use of the knowledge generated. Examples: field schools and local innovation committees, producer research groups.

**Prototype:** A prototype is an object or design that, once proven to function correctly, can be used as initial model for scaling up. During creation of the prototype, the teams identify points of improvement or need to develop new features that ensure its operation, competitiveness and sustainability. The prototype is used to learn (allowing changes to be made during the development phase), to adopt new features so the final product is accepted by the market, or to allow quality control tests by users.

## REFERENCES

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