

STDF PROJECT GRANT APPLICATION FORM

Project Title	Reducing Latin American pesticide residue through biopesticides and other integrated pest control options to boost agricultural trade
Objective	Promote the use of biopesticides and other integrated pest control options on export crops in Latin America and the Caribbean to improve compliance with pesticide MRLs and facilitate agricultural trade.
Budget requested from STDF	USD \$900,473
Total project budget	Total project budget with partners in-kind contributions = USD \$1,839,373
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I. BACKGROUND & RATIONALE

1. Relevance for the STDF

Latin American (LATAM) countries account for about a quarter of global exports in agricultural and fisheries products, especially for fruit and vegetable crops (OECD-FAO, Agricultural Outlook, 2019-2028). In addition to food security, the exports of agricultural crops in LATAM countries provide significant rural economic opportunities, especially to small and medium farmers. To maintain or increase the economic sustainability of agricultural production, LATAM farmers must protect their crops from agricultural pest damage by implementing integrated pest management (IPM) strategies and using pesticide chemicals judiciously. However, the use of pesticides in crop protection programs can leave residues on food crops and increasing international restrictions on pesticide residue standards are becoming a serious challenge to LATAM farmers and creating potential barriers to market access and agricultural trade.

A Project entitled “Strengthening Capacity in Latin America to meet Pesticide Export Requirements” (STDF/PG/436) was completed in November 2016. It was implemented by USDA and IR-4 in collaboration with the IICA Secretariat in 2010 with the aim to enhance capacity of some LATAM countries to meet pesticide-related export requirements based on international (Codex) standards in order to improve market access of their agricultural commodities. As a result, several countries increased their capacities, showed leadership and ended up establishing Codex standards for selected pesticides in tropical crops. A follow up of that initiative is being supported by the Minor Use Foundation (MUF), with new countries participating in magnitude of residues being trained by participants that were prepared and excelled in the STDF/PG/436 project.

This new proposed project as a complement aims to build on the results in capacity building and advance with new countries looking for strategies to further mitigate residue pesticides based on the lessons learned. This current proposal allows to take advantage of the knowledge acquired in the STDF/PG/436 project and adapts the present needs and conditions of looking for biological alternatives for pest control in order to overcome commercial barriers linked to maximum residue limits. The project will strengthen capacities in more countries and promote horizontal cooperation to improve the productive and commercial conditions of producers. Since it works with minor crops, the project focuses its benefits a lot on small and medium producers, which improves the living conditions of the vulnerable rural population.

From the evaluation done in the PG/436 we made sure to include their recommendations [Strengthening capacity to meet pesticide export requirements | Standards and Trade Development Facility \(standardsfacility.org\)](https://standardsfacility.org)

including to scale up partnerships to add more countries and enable new participants to benefit from studies, allow countries’ greater involvement in pesticide and crop selection, increase the budget in order to be able to visit remote experimental stations or plots for research, work towards harmonized

registration and if the project is approved, we will make sure to carefully select the team and work toward establish regional technical group through the minor use foundation.

The proposed project was formulated through STDF/PPG/753 under which the following activities have been conducted:

- Identification of priority crop export concerns for the participating LATAM countries and the conventional pesticides causing trade irritants.
- Identification of the key target pests in the last control application that have been the source of trade irritants for the priority export crops.
- Consultations with international experts, agricultural research organizations, and industry on the commercial availability of biopesticides and other IPM control tools to manage the selected late season pests.
- Literature search on IPM mitigation strategies, decline curves/persistence of residues, pre-harvest intervals (PHIs), retreatment intervals, and extrapolation from pesticide products with residue trial data.
- Co-participation and technical exchanges with comparable STDF projects being implemented in Southern Africa and Southeast Asia.

The main purpose of this project will be to mitigate pesticide residues on export food crops and facilitate agricultural trade through compliance with trade standards, and by identifying and promoting the use of non-residue-generating biopesticides and other integrated pest management strategies to control key pests especially at the end of the crop growing period (the period when pesticides mostly contribute to residues at the time of harvest).

It is in line with STDF'S strategy to increase and sustain SPS capacity in developing countries based on countries synergies and collaboration, with training and development of good practices at regional level. This project will apply a similar cross-cutting approach that is being implemented in STDF projects conducted in Southeast Asia and Southern Africa with similar agricultural pest control challenges and conditions as in Latin America.

This approach will be based on a scientific rationale towards meeting Sanitary and Phytosanitary (SPS) standards in export destination markets, implementation of effective and problem-solving integrated pest management options, and development of technical regulatory capacity in the LATAM region.

This project will draw upon cooperation by participating countries, pest control expertise and experience from international experts, international and national agricultural research institutions, and other stakeholder organizations.

The SPS standards that will be addressed include the regulations established in export markets (MRLs) and compliance with internationally accepted MRLs in the Codex Alimentarius, in addition, the generation of regulations that facilitate the use of biological alternatives for pest control will be promoted. Therefore, work will be done on compliance with existing regulations, on the promotion of new standards based on science and trade facilitators, and on the improvement of national and regional regulatory frameworks.

In this project, IPM will be the standard practice for reducing the reliance on conventional chemical pesticides for pest control prior to harvesting selected crops. Biopesticides will be the main tool for mitigating residue problems caused by chemical pesticide on exported LATAM crops. Economically damaging pests at the end of the crop season are the target of conventional chemical pesticide

applications. Therefore, the selection of priority crop/pest/pesticide combinations in the LATAM region will be based on the chemical residues that mostly impact international trade.

As one of its first steps, the project will develop decline residue data and better understand how the timing of IPM control practices and end of season pesticide applications will impact the expected residues. Additionally, all available IPM strategies will be utilized to determine how to best avoid pesticide residue trade issues, including data generation, testing of less toxic pesticides available, literature review and validation and efficacy trials to support registration of both biopesticides and new pesticides to be available for growers of the LATAM region.

As part of the sustainability strategy for technical capacity within the LATAM region, the project will also develop and jointly establish with partners a regional training Regional Training Center to increase knowledge and experience working on pesticide residue trials under international standards for Good Laboratory Practices (GLP). This Center that is being established, through an agreement between IICA and USDA and financial support by the MUF, will be located in a strategic spot in Latin America and will develop both theoretical and practical learning opportunities to be accessed by all LATAM countries and will offer training during the implementation of the project. The center will continue to conduct training activities through support by MUF and others.

In addition to pesticide residue mitigation and building regulatory capacity in MRLs, the project will coordinate efforts with other regional projects being implemented in the Central American and Andean regions, including projects led by IICA with the Foreign Agricultural Service of the U.S. Department of Agriculture (USDA/FAS). This IICA-USDA/FAS project is advancing the modernization of the regulatory frameworks for the registration of conventional pesticides and biopesticides and its harmonization and with the regional projects being executed in Africa and Asia with the STDF. See appendix 8: Summary of the IICA / USDA project.

The evaluator of the PG/436 (Strengthening capacity to meet pesticide export requirements / <https://www.standardsfacility.org/es/PG-436>), Erica Spears, provided a series of recommendations that are pertinent to take into account in the implementation of this Project.

Visualize at an early stage the expansion of alliances to add more countries and allow new countries to benefit from the studies, the participation of countries in the selection of pesticides and crops, increase the budget in order to be able to visit remote experimental stations or plots for research, work towards harmonized registration and if the project is approved. We will make sure to carefully select the team and work toward establish regional technical group through the minor use foundation.

Other projects such as “INNOVA” <https://cordis.europa.eu/project/id/324416/> reporting and “From microbial interactions to new-concept biopesticides and biofertilizers” <https://cordis.europa.eu/project/id/722642> funded by the EU were found to have similar goals and objectives, and the project is interested to have access to experiences exchange and activate synergies in areas of research and adapt new technologies using biopesticides for pest control for that, representatives for each of the projects mentioned were contacted, and a response is awaited that allows the start of a fluid interaction that allows identifying good practices, successful experiences or other elements that can be considered or adapted to this project.

The main aim of this proposal (INNOVA) was to reach a better integration between public research and private sector by a close collaboration specifically oriented to industrial and social needs. Their strategy was to select biopesticides from scratch and start doing different evaluations until registration. Our strategy started with already developed biopesticides.

Main objectives of the INTERFUTURE project are i) to bridge the gap between the most recent discoveries of science and the industrial development of products by the creation of multidisciplinary and inter-sectoral doctorate programs, ii) to train early stage researchers through an industrial doctoral program that integrates academic research with product development in EU companies with a strong curriculum in development and innovation and iii) to explore new approaches and to identify new cutting edge solutions for pathogen and insect control and for crop fertilization based on natural tools that will be developed by a strict collaboration of academic and industrial partners. Main focus is to understand interactions between microorganisms and plants.

Project representatives may be invited to selected workshops and to share their experiences with the steering committee to make presentations of the results obtained, share good practices and receive comments on the plans and proposals of this project.

2. SPS context and specific issue/problem to be addressed

Under the World Trade Organization/Sanitary and PhytoSanitary (WHO/SPS) Agreement, Codex Alimentarius is the globally recognized body responsible for setting food safety standards to facilitate international trade in foods. WTO Members are encouraged to harmonize or base their national food safety standards on international standards, guidelines and recommendations developed by Codex. As an outstanding agenda item in the Codex Committee on Pesticides Residues (CCPR), specialty or minor use crops have been a major priority to most LATAM countries because of the high value and niche export markets in North America, Asia and the European Union. Among the specialty or minor use crops considered by the CCPR, tropical fruit and vegetable crops dominate LATAM exports, and a survey of farming practices across the region shows that the rural farming communities rely on tropical fruits and vegetable crops as their primary source of income. If producers are unable to meet export market requirements, market access is impeded, resulting in losses in farm income and rural development. Hence, ensuring market access and building capacity are critical to achieving poverty alleviation in rural regions. In terms of international standards, there are still no Codex MRLs for many of the tropical fruits and specialty or minor use crops¹ exported from LATAM. This is largely because of lack of economic incentives by pesticide registrants to generate the residue data needed to establish Codex MRLs. As a result, governments are establishing “specialty or minor use” programs to help fill these data gaps and take a more active role in identifying, registering, and setting pesticide MRL trade standards to support their agricultural sectors; however, this initiative has not materialized in the majority of LATAM countries. Building the capacity of developing countries to actively generate mitigation strategies such as residue data generation, adoption of biopesticides use and access to newer lower toxicity pest control tools are important priorities for the region.

Over the past several years, some LATAM countries have participated in pesticide-related training programs led by the USDA, IICA, the U.S. Environmental Protection Agency, the United Nations Food and Agricultural Organization (FAO), CropLife Latin America, the International Agency for Atomic Energy (IAEA), and other international organizations. Many LATAM countries are now demonstrating a better understanding of the process of pesticide MRL establishment and assessment of the potential risk from dietary intake of pesticide residues. The project will now support LATAM countries in working towards implementing concrete actions to address specific barriers to expanding agricultural trade.

The project will address and resolve specific trade problems caused by missing or restrictive low MRLs in LATAM priority specialty or minor use crops by implementing an alternative approach to pesticide

¹ Crops grown on a small scale (minor crops) and often are high value specialty crops. OECD <https://www.oecd.org/chemicalsafety/pesticides-biocides/minoruses.htm>.

residue mitigation. Agricultural economies in Latin America face increasing challenges in conforming to pesticide MRLs, either because these MRLs are not established ('missing') or because these MRLs are too low to reasonably comply with real-world pest control needs and use patterns by farmers. There are several reasons why pesticide MRLs may be missing in a destination export market. For example, the destination export market for a crop may not have established a pesticide MRL or may not have adopted the existing Codex MRL for the particular export crop. Agricultural producers may also consider the pesticide MRLs to be too low or restrictive in destination markets affecting their ability to control pests in their crops.

Trade obstacles and calls for collaborative action have been highlighted at the 3rd Global Minor Use Summit (2017) <https://www.gmup.org/>, the WTO/SPS Committee (2018) https://www.wto.org/english/tratop_e/sps_e/sps_major_decisions18_e.pdf, the 11th Session of the WTO Ministerial Conference (2017) [https://www.wto.org/english/thewto_e/minist_e/mc11_e/mc11_e.htm#:~:text=The%20Eleventh%20Ministerial%20Conference%20\(MC11,Minister%20Susana%20Malcorra%20of%20Argentina](https://www.wto.org/english/thewto_e/minist_e/mc11_e/mc11_e.htm#:~:text=The%20Eleventh%20Ministerial%20Conference%20(MC11,Minister%20Susana%20Malcorra%20of%20Argentina), and most recently at the Conference of Ministers of Agriculture of the Americas Inter-American Board of Agriculture (2019) <https://iica.int/en/press/news/western-hemisphere-ag-leaders-unite-support-science-based-standards>. These international conferences recognized that the foundation of working toward aligned pesticide MRLs and providing critical pest control tools for farmers originate with strong and coordinated national pesticide registration systems. Furthermore, these coordinated programs are most effective if conducted through existing economic and technical mechanisms on a regional level.

SPS priorities or issues identified

The globalization of the food supply affords vast trade opportunities to many countries that rely on imports for their food security and food diversity. Increasingly, governments worldwide are moving toward implementing risk-based approaches to food safety management that requires all operators in the supply chain to share responsibility for food safety and apply measures to reduce food safety hazards. In addition, importing countries are setting increasingly restrictive pesticide MRLs, or removing pesticide MRLs, including those for many of the tropical and sub-tropical fruits and vegetables produced in Latin America. This represents a significant barrier to market access for LATAM farmers of these minor or specialty crops.

The impacts from missing or too low pesticide MRLs plus the policies to minimize food safety hazards can vary by country and may be particularly problematic to LATAM farmers of specialty and minor use crops. LATAM farmers in tropical and sub-tropical countries typically face greater pest pressure and may have fewer resources available for addressing these challenges. In addition, the shifting climate patterns are also changing pest pressure and allowing agricultural pests to increase its incidence and affect new growing areas.

Most biopesticides by their nature are not subject to pesticide MRLs, and the potential residues are therefore not subject to regulatory enforcement by importing countries. It is anticipated that the primary type of biopesticide to be utilized in residue mitigation would be microbial products used as the last control application before harvest and allow residues of many conventional pesticides a longer period for degradation. In addition to developing a framework for conducting coordinated studies, the project will facilitate the integration of biopesticides and other integrated pest management options as a good agricultural practice on tropical crops.

To avoid the risk of transporting pests through trade, scouting would be done weekly and the research that show presence of pests even after combination of chemical and biological pesticides would not be recommended to growers.

The project will address the aforementioned challenges through the following activities:

- Facilitate the registration, access, and use of biopesticides and IPM strategies to mitigate residues of conventional chemical pesticides which is a unique way to facilitate compliance with MRL requirements in export market destinations.
- Overcome obstacles to export (and regulated domestic) markets access due to the absence or very low corresponding pesticide trade standards for specialty crops (fruits and vegetables) and other tropical crops of importance to Latin America.
- Increase technical expertise concerning residue analysis and monitoring in laboratories as well as a better understanding of residue decline over time.
- Build a sustainable and harmonized process for regional data generation required for the registration of biopesticides for LATAM priority and minor use crops in order to comply with Good Agricultural Practices.
- Develop a grower outreach program to promote the use of biopesticides in export promotion programs and domestic markets, based on scientific generated data.
- Create a regional network for data generation and IPM applied to crops of common interests.
- Reduce gaps between countries in the same region, in the regulatory field, institutional procedures and commercial opportunities by promoting regional collaboration and cooperation.
- Establish a Regional training Center for increasing technical knowledge and expertise in planning and conducting pesticide field and lab residue trials.

3. Links with national/regional development plans, policies, strategies

The use of biopesticides is expanding rapidly worldwide. According to the report by Dunham-Trimmer and Markets 2019, the global biocontrol market is estimated at US\$3.0 billion in 2018 and will continue growing to over US\$11 billion in 2025. Latin America is growing at a fast rate (about 18%) and will overtake Asia as third largest region in the world market by 2025. Bautista et al 2018² showed that in Latin America the production of Bt, a toxin produced by *Bacillus thuringiensis* that has been widely used in biocontrol, and other fungal biopesticides constitute the majority of biopesticide marketed with 40% and 48% respectively. However, production is made with low technology and high manual labor and most of the time by the very same producers. The same review shows that most publications concentrate in biopesticides selection and low technology development.

The United Nations has estimated a one-third increase in the world's population by the year 2050; therefore, food production will have to be increased by 70 percent requiring the need to improve agricultural production systems in an efficient, sustainable and productive way. The intensification of agriculture to achieve greater food production must be aligned with IPM practices, in which it becomes key to learn to use pesticides in an astute and responsible way. This trend generates a series of challenges for the LATAM region, and this can lead to the implementation of mitigation plans for pesticide residues under IPM control options to achieve an intelligent use of pesticides.

The project also addresses a second sustainable development objective to ensure access to safe and nutritious food for all to alleviate hunger and promote an agricultural production that respects nature.

²http://wrir4.ucdavis.edu/events/2017_SLR_Meeting/Presentations/GeneralPresentations/1%20Trimmer%20-%20Global%20Biocontrol%20Market%202017.pdf

In turn, it responds to the strategic development policies and plans of the participating countries, as summarized in the Annex 7.

4. Past, ongoing or planned programs and projects

A Project titled “Strengthening Capacity in Latin America to meet Pesticide Export Requirements” (STDF/PG/436) was completed in November 2016. It was implemented by USDA in collaboration with the IICA Secretariat in 2010 with the aim to enhance capacity of some LATAM countries to meet pesticide-related export requirements based on international (Codex) standards in order to improve market access of their agricultural commodities.

Under this project led by the U.S. Inter-Regional Program No. 4 (IR-4), pesticide residue studies were carried out on avocado, pineapple and banana after conducting a series of trainings and planning sessions. Field trials and laboratory analysis work was completed for all studies under the project. The project helped LATAM countries by providing theoretical and practical experiences in conducting field trials, laboratory analysis by exposure to practice, techniques and expertise of Good Laboratory Practices (GLP) studies. It improved the capability of Latin American countries to generate quality data for establishing an MRL based on international guidelines (e.g., OECD-GLP, EPA-GLP, FAO Manual (2009)). LATAM scientists networked to learn and share experiences on the coordination of work and capacity building efforts, between government regulatory officials, laboratory, and field technicians, as well as pesticides industries. Most importantly, the Joint Meeting on Pesticide Residues (JMPR) reviewed and recommended establishment of new Codex MRLs based on the data generated from this project, and Codex MRLs for spinetoram/avocado and pyriproxyfen/banana were established in 2018 and 2019, respectively.

There is growing investment of major multinational companies in biopesticide research. CropLife Latin America and national pesticide industry organizations have the infrastructure needed to facilitate outreach within the farmer community and to advocate for good regulatory principles among the government co-operators that will be involved in this project. The status of biocontrol registration has been reviewed by Ceballos in 2016³. Almost all LATAM countries have legislation with different levels of development as well as with different objectives and scope. A need for harmonization is recommended to stay aligned with Good Regulatory Practices.

The countries of the Central American region have two technical regulations: RTCA 65.05.62.11 Botanical Pesticides for Agricultural Use. Requirements for Registration and RTCA 65.05.61.11 Microbial Pesticides for Agricultural Use. Requirements for, both regulations constitute the normative base and mandatory compliance for countries, however, their characteristics are very close to the requirements of chemical pesticides, which constitutes a disincentive for their manufacture, registration and eventual marketability. All Andean countries have national regulations on biopesticides, however there is still no harmonized regional regulation in this field. The two countries with the most advanced biopesticide regulations are Colombia and Argentina.

There are several initiatives in the LATAM region that are promoting the use of biopesticide use and safer pest control strategies. An IICA-USDA/FAS Project started in 2019 for the Central American region and in 2020 for the Andean region that is promoting modern, harmonized and scientifically supported regulatory frameworks for biopesticides by the end of 2024. This joint project is currently laying the foundation for biopesticides to have adequate regulatory requirements to promote the production, use and commercialization of these products, thus becoming environmentally and

³https://www.researchgate.net/publication/309348281_ARTIULO_RE}SENA_Registro_sanitario_de_bioplaguicidas_microbi_anos_en_America_Latina_y_Cuba_Caso_de_estudio_bionematicida_cubano_KlamiCR

economically viable phytosanitary solutions for producers. In both regions, this project works with regional integration forums (the Central American Agricultural and Regional Integration Councils and the Andean Community of Nations), and once the regulatory process is completed, it will be mandatory for the countries to its adoption.

During the Global Minor Use Summit 3 in Canada, there was agreement on the need for Harmonization of Exemptions from MRL, focused on biopesticides. IR-4 in cooperation with the European Union Minor Uses Coordination Facility, part of the EPPO secretariat, is leading the effort to extend the recognition of exemptions from MRLs. This project is learning from and cooperated with the existing STDF project PG/634 in Asia and PG/694 in Southern Africa that have shown significant advances, where members from this proposal are attending virtual meetings and field and laboratory trainings. From these experiences and based on the many changes done due to Covid-19, aspects from organization, prioritization, strategy, and objectives learned from the other projects will be followed.

A strategy for expanding the acceptance or recognition of MRL exemptions for biopesticides was recommended by the United States and Chile on international biopesticide regulatory harmonization that is being done through the Codex Committee on Pesticide Residues (CCPR). IICA, through its project on capacity building for the Codex Committee for Latin America (CCLAC) in Codex Alimentarius, will be able to support the link between the countries and the result of the Codex-CCPR process in biopesticides. Additionally, it will be able to support the coordination between the project countries and the coordination of the CCLAC (Ecuador) to establish training processes, implementation and follow-up of the project results in CCPR. This was identified as one of the priorities to promote international harmonization of products that are of extremely low toxicity, where many countries do not set MRL standards.

In addition, OECD and Chile is continuing efforts with IR-4 involved. This focuses on recognizing existing biopesticides and to develop a method for recognizing the exemption from MRLs across multiple regulatory authorities to avoid residue issues. We will be sure that the biopesticides we utilize in this project are ones that fit the criteria for mutual recognition of exemptions from MRLs. Participating countries will meet the quarantine requirements and phytosanitary measures of the exporting countries. Additionally, in response to the concern about the possibility or risks that crops treated with biopesticides accidentally introduce plant pests through trade, during all project implementation activities, the Standards for Phytosanitary Measures #11 will be taken into account, #3 and #40, and any others that may be related.

5. Public-public or public-private cooperation

Based on the previous STDF-funded project (Latin America Pesticide Residue Data Generation), industry through CropLife Latin America provided technical expertise, products, and analytical standards used for the analysis of the residues. Similar contributions will be available for this project as well. National agricultural institutions also contributed with funding in the studies. Wherever possible, this project will explore all opportunities to join other meetings organized by supporters of this PG such as CropLife or Biopesticide manufacturers to increase interaction and decrease meeting costs.

Regarding how to ensure the participation of the different actors involved in the project, the first thing that is recognized is that each country has its own characteristics, which lead us to think that developing "National Public-Private Coordination Committees" in each country may be more efficient. What this means is that the country's own actors are the ones who must maintain permanent communication and provide feedback to the central management of the project with strategic inputs necessary for decision-making.

Recognizing that each country has its own characteristics, the project will ensure that:

- i) National Public-Private Coordination Committees in each country will conduct internal coordination to be done in person or resort to virtual or hybrid coordination.
- ii) Organized groups from the private sector, both agricultural producers and producers of phytosanitary solutions, will participate in the internal teams.
- iii) National Public-Private Coordination Committees will be part of the Steering Committee that will manage and coordinate all aspects of the project.

These aspects, among others, lead us to think about the need to have a simple but efficient mechanism that provides feedback to the central coordination of the project and for this purpose the creation of an internal project management group is proposed.

The National Public-Private Coordination Committees. will be coordinated by the country's focal point(s) for the project and a delegate from the IICA office in the country. They will keep the central coordination of the project informed about the management of the project in the country. More detailed information about this committee can be found in annex #9.

Local registrants (manufacturers of biopesticides) were consulted during the preparation of this proposal so that the selected biopesticides are utilized appropriately in terms of application and economics. Local registrants have pledged to provide biopesticide standards to test, as in-kind contributions (see letters of support).

USDA, IR-4 and the Minor Use Foundation are committed to give in-kind support for this project by providing time to help design and direct the plans and give guidance along with FAO experts. Several partners were approached to support the project grant either in-kind or financially, including National authorities and private sector including biopesticide manufacturers. Guidelines set forth by STDF were followed for obtaining matching funds depending on the degree of development of the countries involved in the full proposal. FAO contributed to ensure that that the resulting project complements existing efforts of FAO. CropLife Latin America was also be consulted about the need to harmonize pesticide registration and biopesticides, across LATAM countries to support regional and world trade.

Learning from the STDF/PG/436 and following the recommendations to scale up partnerships, new countries were added in this project (Nicaragua, El Salvador, Honduras, Ecuador, Perú, Argentina, Paraguay, Dominican Republic) where the study teams will be carefully selected to ensure commitment and trust working towards establishing a regional technical discussion group.

A larger, primary goal of this project would be to ensure its sustainability by securing long-term financial commitments from these various organizations. This in turn, would continually establish crop/pesticide priority lists and assist local registrations and data generation to establish trade standards, in coordination of the work by the Minor Use Foundation's Global Priorities Workshops. The success of this project may provide significant incentives for a long-term program to be established through partnerships between the public and private sectors.

6. Ownership and stakeholder commitment

As part of South-South cooperation, four representative areas including Central America, Andean region, the South Cone and the Caribbean will participate in the implementation of this project. In each of the mainland regions there would be a leading country (Costa Rica, Colombia and Argentina) that will help plan and guide. Nicaragua, Guatemala, Honduras and El Salvador (lower middle income)

in Central America and Bolivia (lower middle income), Ecuador and Peru (upper middle income) in the Andean region and Paraguay (upper middle income) in the south region. Dominican Republic (upper middle income) will be included and could be supported by any of the leading countries. This aims to develop a framework for conducting coordinated studies to mitigate conventional pesticide residues through the incorporation of biopesticides into national IPM programs. As leading countries may be progressed in policy fields (such as biopesticide registration), advances in the development and use of biopesticides, and experiences within the framework of associativity, they will be able to be incorporated into training and transferring processes, such as virtual experience-sharing events, specific virtual trainings, or participation as experts in the training to be developed at the academy. Universities from leading countries were identified, University of Costa Rica, University of Buenos Aires and National University in Costa Rica, Argentina and Colombia respectively. Different colleges and departments within each one will participate in the project and attend preparation in a way to maintain sustainability with new students and participants in their own countries when they replicate the training and include the topic in courses.

Some of these countries previously participated in the STDF residue project (STDF/PG/436) that helped establish national study teams in selected LATAM countries. They will be utilized to further this work on pesticide residue mitigation⁴. These national study teams along with others were invited to be part of this project grant proposal and also participated during preparations for the global minor use foundation workshop <https://minorusefoundation.org/events/gmup-workshop-2020/>, which helped established a base in terms of countries' communications, platforms for meetings, countries and regional needs and biopesticides research, availability and products. Additionally, several Latin American countries are currently implementing another round of trials with priorities identified in the Minor Crops Foundation.

Considering that the four participating regions have different crops that could result in different or overlapping priorities, during the PPG implementation two virtual meetings were held to discuss and select priorities where regional leaders and IR-4, IICA and MUF consultants participated. Results from these meetings were collected and processed and presented to biopesticide producers to get possible solutions from them. As a result, a list of priorities of crop/pest/pesticide/biopesticide were selected. These results were presented to potential partners, private sector, national and international organizations, donors to get interest and support. Before drafting the final document, a final workshop was held with participants for its validation and final discussion.

The PPG's Steering Committee was comprised by IR-4, IICA, MUF, and representatives from the leading countries in each of sub regions, FAO (Regional Office for Latin America and the Caribbean). In addition, representatives of the STDF Southeast and South African Projects on residue mitigation and regulatory harmonization were invited to participate to ensure cross fertilization and learn from each other's success and challenges. This was also an opportunity to understand trade in a cross-cultural forum. The Steering Committee helped incorporate good practices of coordination, prospecting, and strategy throughout the entire process since it is seen as the managing and coordinating body.

It is expected that the combination of the strengths of each organization that participates in the Project's Steering Committee will generate a tangible benefit to the project. IR-4's and MUF's experience in field and laboratory work, institutional presence and participation in regional forums that IICA has, and FAO's experience in Integrated Pest Management will help to comprehensively recommend a set of good practices for the implementation of the project grant proposal.

⁴ Colombia, Guatemala, Costa Rica, Panama and Bolivia participated.

FAO's participation with its regional offices in Chile will allow consultations with its experts on what they have determined to be the best IPM practices for Latin America. Using IPM as standard practice, we selected with FAO which crop residue situations we intend to focus on.

The project will call upon expert knowledge of minor use research by IR-4, USDA, MUF and technical country experts. This will involve the selection of field trial locations, crops/pesticides/biopesticides, development of trial protocols to demonstrate biopesticide efficacy, and coordinating efforts for data reports and utilization. The project will aim to demonstrate efficacy of biopesticides and to promote their use through increased commercialization and registration and thus availability to producers.

II. PROJECT GOAL, OBJECTIVE, OUTPUTS & ACTIVITIES (LOGICAL FRAMEWORK)

7. Project Goal / Impact

Improved compliance in participating LATAM countries with pesticide MRLs of Codex and ensuring growers access to important export markets is the main impact expected from this project. This project will develop a process for identifying and prioritizing pesticide residue trade barriers, then establishing a methodology for mitigating those barriers, coordinated regionally and globally for twelve countries in Latin America. The overall impact also includes improved human and environmental health (reducing risk to consumers, pesticide applicators, and the environment). In summary, this project will contribute to the higher development goals of poverty reduction and economic growth, with technical capacity building delivery as a means to achieve these higher-level development goals.

8. Target Beneficiaries

Four sub-regions within LATAM will participate, as follows:

Caribbean:	Dominican Republic
Central America:	Costa Rica, Nicaragua, Guatemala, Honduras, El Salvador
Andean:	Colombia, Bolivia, Ecuador, Peru
South Cone:	Argentina, Paraguay

The primary beneficiaries of the project will be national pesticide regulatory authorities, farmers, industry associations, agri-food export companies, and domestic consumers in all countries participating especially in the lower middle-income countries according to the OECD DAC list of ODA Recipients (Bolivia, Nicaragua, El Salvador and Honduras) <https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/daclist.htm>. Specific benefits include increased availability of IPM tools for farmers to better protect crops and mitigate pest resistance; increased worker, environmental, and consumer safety by reducing residues and increased economic output by accessing lucrative international markets.

A risk and cost-benefits analysis will be determined to quantify the benefits of this project on trade. For the residue data that is generated, the relationship between time and the decline in residues will be calculated.

Therefore, it will be possible to calculate how this project is impacting the percent of the crop available for export. The differences in input costs with and without the biopesticide will be compared with the difference in domestic versus export crop values to determine how the residue mitigation impacts

economic returns. The risk of increase crop damage from pests will also be considered based on the ability of the biopesticide to maintain effective pest management.

(a) Gender-related issues

The project seeks alternative phytosanitary solutions to help farmers improve access to international markets and implement strategies that allow achieving gender equity and empowerment. Addressing gender inequalities and reducing the gaps that rural women face through policies, programs or projects requires knowledge of the daily experience rural women face as producers, members of peasant or union organizations or as members of a family farm. This gender situation will not be ignored by the project and it will implement certain actions to ensure the transfer of the benefits of the project towards gender equality.

According to IICA, Latin America and the Caribbean (LAC) has 58 million rural women, 17 million are registered as economically active and only 4.5 million are considered as agricultural producers. Despite the fact that many rural women are agricultural producers, exporters and leaders of mixed organizations, still they may be considered as “the producer's wife” or an “assistant”; in other words, they continue to be placed in a subordinate role. Important efforts have been made to improve the participation, visibility and highlight the contribution of rural women in agricultural production.

In a farm setting, rural women play a fundamental role in the home, but also have a high level of involvement in productive tasks. According to ECLAC, the food security of many rural households in Central America and Mexico depends on them. The project will ensure that these efforts will be implemented towards enhancing gender equality.

The project will address many crops that have very diverse productive characteristics and, therefore, the opportunities presented to the project are also diverse. For example, the production of snow peas in the Guatemalan highlands is concentrated in small indigenous producers, in many cases with high participation of women in some agricultural tasks, but this is also the case of bananas, where we find a significant concentration of large-scale companies and entrepreneurs. Each crop that is addressed in the project will have particular conditions to be approached from a gender point of view.

Another facet of the project working in gender equality will involve the participation of women as scientists as trainers and the generation of field and analytical tests. The gender approach is not simply about adding a female or gender equity component to project activities, or about increasing women's participation, but about incorporating the experience, knowledge, interests and needs of women in the project. In the project implementation, gender will be tackled in the productive and technical-scientific field.

In order to achieve this objective of a gendered approach, the project will not carry out specific or special activities aimed at women (there is no specific financial resource for this), but it will work to reach two specific areas of intervention: i) rural women and producers of the crops in which it will intervene, and, ii) scientific/technical women who will be able to actively participate in training, field trials or studies and extension processes .

In chapter 5 of the project, the extension actions will include those producer's organizations that include women producers among their associates, in order to ensure that the transfer or extension of the knowledge developed reaches rural women.

For them, it will be investigated if the extension institutions with which they will work have mapped the organizational profile of the producers with whom they will have to work, and it will be

investigated if in the countries that participate in the project, their ministries of agriculture have offices, or responsible of the gender issue, so that they can contribute or complement the process. This does not require specific actions, since the work to be carried out with these organizations can include this topic as an additional element of discussion and analysis.

The project will also monitor and quantify the relationship of the scientific/technical woman who will participate in the implementation of the project, and will make it possible to estimate the gender relationship in the research and extension processes.

Through the measurement of participation in all the forums and extension processes, it will be possible to measure the relationship generated in both fields of intervention.

IICA's Directorate for Gender and Youth will advise the project in order to implement appropriate measurement and follow-up strategies for the gender issue.

Measurement indicators will be implemented such as:

- i) Assessment of the gender relationship in all the activities carried out by the project.
- ii) Assessment of the gender relationship of the associations or organized groups of farmers with whom they work and interact.
- iii) Assessment of the gender relationship in the national technical-scientific work teams that participate in the implementation of the project.

The increase in the participation of women in the labor market could increase the productivity of countries, which would increase the diversification of the economy, innovation and fight against poverty. Trade can fuel this economic growth by supporting the empowerment of women and promoting gender equality. This expanded objective is supported by the project's gender objectives, in the sense of involving women in the project's intervention spaces and providing women producers with more and better production tools.

Intervention modalities:

In the productive sphere, women in rural areas have the worst rates of employment and access to basic services, and they predominate in low-quality and low-paid informal jobs. If they had the same access to productive resources as rural men, their crop yields would increase between 20% and 30%, with a reduction in hunger of between 12% and 17%. The project will generate a greater quantity of phytosanitary, efficient and environmentally more suitable solutions. Getting these new options to the right places and promoting them in the right way could help bring these new technological options closer to both male and female agricultural producers in an equitable way.

From a global point of view, the World Economic Forum estimates that, if the gender gap closes, the world's gross domestic product (GDP) could rise by 25%, which is equivalent to about USD 5.3 billion, so improving an economy with equity of opportunity ensures growth and greater equity. In the technical-scientific field, the project will promote the reduction of the gender gap with respect to the knowledge transferred.

9. Project objectives, priority crop/pest/pesticide cases, outputs and activities (including logical framework and work plan)

Project Objectives

Consistent with the logical framework of this project (Appendix 1), the objective of this project will be "Increased regional collaboration and capacity to generate and evaluate pesticide residue data that combines conventional pesticides with biopesticides and alternative pesticides to resolve trade concerns due to MRLs in the Latin-American region."

The problem to be addressed by the project is the hindered access to export markets due to a lack of strategies to comply with existing MRL trade standards. A purely biopesticide program would result in lower residues but may not be sufficient alone to control the pest or be financially viable. This project aims to balance the advantages of conventional pesticides (generally lower cost and generally greater efficacy) with the advantages of a biopesticide at the end of the season (to result in lower residues while providing sufficient extension of pest control caused by extending the PHI of the conventional product). The innovative approaches that are included in this project, besides the use of conventional pesticides with biopesticides, are the capacity building through of the regional training center and the creation of the minor use foundation chapter to further integrate cooperation in the region.

Under this project, a process will be implemented, under the guidance of FAO, to determine the best approaches for incorporating biopesticides to agricultural production that reduce residues to a level meeting Codex and importing countries MRLs.

To achieve its objectives, the project will deliver technical and functional capacity development, including a series of trainings through the regional training center of the National University located in Colombia, as long as workshops, and consultations, each building upon the other, which will culminate in the conduct of actual field trials, data generation, sample analysis and registration of new products.

Table 1: Below is a matrix showing how the countries will be involved in the project.

Country	GLP field training	GLP lab training	Functional capacities	Pesticide residue mitigation studies	Final result dissemination	Regional cooperation guides
Argentina	A	A	A	D/S	P	P
Bolivia	A	A	A	D/V	P	P
Colombia	T	T	T	D/S	P	P
Costa Rica	T	T	A	D/S	P	P
Ecuador	A	A	A	D/V	P	P
Perú	A	T	A	D/V	P	P
Guatemala	A	A	A	D/V/O	P	P
Paraguay	A	A	A	D/V/O	P	P

Salvador	A	A	A	D/V/O	P	P
Honduras	A	A	A	D/V/O	P	P
Nicaragua	A	A	A	D/V/O	P	P
Dominican Republic	A	A	A	O	O	O

A	Will attend training
T	Could participate as trainer
V	Will validate (repeat)
D	Will do mitigation study
P	Will participate (dissemination and regional collaboration)
O	Will participate as observer
S	Support lagging countries

In case D/V/O the country could participate in at least one of the options

PRIORITY CROP/PEST/PESTICIDE CASES

The project will conduct field experiments for two priority crop/pest/pesticide cases where:

- There is an existing pesticide MRL in destination markets, but the MRL has been exceeded causing trade disruptions.
- There is no pesticide MRL in destination markets causing trade disruptions.

The project will also research mitigation measures on selected crops and pests based on available IPM strategies, but that will not lead to implementation of field trials.

In developing the list of the priority crop/pest/pesticide cases, the project sought input from the participating countries based on a virtual coordination workshop and follow-up communications. After receiving key information from the participating countries, the project also reviewed cases where crop shipments have been rejected due to pesticide MRL violations in key destination markets. The following tables describe the priority crop/pest/pesticides cases. (See Appendix 8 for more information).

Table 2: Priority crop/pest/pesticide where there is an existing pesticide MRL in destination markets, but the MRL has been exceeded causing trade disruptions.

Crop	Pest(s)	Chemical pesticide(s)	Potential biopesticide or IPM control tool
Banana	<i>Fusarium oxysporum f.sp. cubense</i>	Imazalil, diflubenzuron, tebuconazole	Project will consult with industry. India has published information on the use of a biopesticide based on Trichoderma (EC). There are also reports of a Natsure, Musacare as a preventative measure. Biottol (Malaleluca and clove).
Banana	Antracnose (<i>Colletotrichum musae</i>)	Imazalil, diflubenzuron, tebuconazole	Project will consult with industry. India has published information on the use of a biopesticide based on Trichoderma (EC).
Banana	Thrips (<i>Frankliniella parvula</i>)(<i>Chaetanaphot hrips signipennis</i>)	Chlorpyrifos, imidacloprid, pyrethroids	Spinosad, spirotetramat, insecticidal nets, Pyganic (chrysanthemum extract)

Avocado	Mites	Spiromesifen, abamectin	Biolife (citric extract), <i>Euseius hibisci</i> , <i>Glendromus helveolus</i> , <i>Neoseiulus californicus</i>
Avocado	Whiteflies	Spiromefesin, abamectin	<i>Encarsia</i>
Avocado	Leafminers	Spiromefesin, abamectin	Project will consult with industry.
Passion fruit	Cladosporium (Roña) (<i>Cladosporium cladosporioides</i>) Botrytis (<i>Botrytis cinerea</i>) Anthracnose (<i>Colletotrichum gloesporioides</i>)	Difenoconazole	Project will consult with industry.
Snow peas	Several insects	Profenofos, thiamethoxam, abamectin, emamectin benzoate	Project will consult with industry.
Citrus fruits	Several pathogens (spots, fungi)	carbendazim, imazalil, mancozeb	Project will consult with industry.

Table 3: Priority crop/pest/pesticide where there is no existing pesticide MRL in destination markets causing trade disruptions.

Crop	Pest(s)	Chemical pesticide(s)	Potential biopesticide or IPM control tool
Banana	Black sigatoka (<i>Mycosphaerella fijiensis</i>)	Mancozeb, thiophanate methyl, carbendazim, triazoles	There are new safer fungicides being developed (Penthiopyrad, Corteva) and there is one company STK Bio-Ag Technologies that claims efficacy for a product Timorex Gold (melaluca (a tree) extract) for black sigatoka. The company claims to have conducted efficacy studies in several countries, but it is uncertain whether the studies were large scale and involve aerial applications. There is a need to conduct more research with industry.
Banana	Banana weevil (<i>Cosmopolites sordidus</i>)	Chlorpyrifos	Pyroproxifen
Coffee	Coffee borer beetle (<i>Hypothenemus campei</i>)	Chlorpyrifos	Guarda (Biosafe Systems)
Passion fruit	Insect pests	methomyl, fipronil, cypermethrin, dimethoate, omethoate	Project will consult with industry.
Snow peas	Fungal pathogens	Chlorotalonil	Project will consult with industry.
Cilantro	Insect pests	Acephate, diazinon, dimethoate, fipronil, indoxacarb, omethoate	Project will consult with industry.
Sweet potato	Insect pests	Flonicamid	Project will consult with industry.
Sesame	Cutter ants, locusts, caterpillars, aphids, thrips	Chlorpyrifos, fipronil, carbaryl, imidacloprid, ethropos	Project will consult with industry.
Avocado	Fungal pathogens	Flutriafol	Project will consult with industry.

Table 4: Priority crop/pest/pesticide where the project will research mitigation measures based on available IPM strategies, but that will not require the implementation of field trials.

Crop	Pest(s)	Chemical pesticide(s)	Potential biopesticide or IPM control tool
Coffee	Anthracnose	Copper oxychloride	Project will consult with industry.

Cilantro	Fungal pathogens	Tebuconazole, triadimenol	Project will consult with industry.
Cacao	Phytophthora sp.	Mancozeb, ethaboxam, fluopicolide, proparmocarb, amectotradin, dimethomorph, metalaxyl	Project will consult with industry.
Dragon fruit	Insect pests	Dimethoate, emamectin benzoate, lambda cyhalothrin, profenofos	Project will consult with industry.
Pineapple	Phytophthora sp.	Mancozeb, ethaboxam, fluopicolide, proparmocarb, amectotradin, dimethomorph, metalaxyl	Project will consult with industry.
Sweet potato	Fungal pathogens	Carbendazim. Thiophanate-methyl, prochloraz	Project will consult with industry.

Outputs

The Project contemplates 5 outputs, focused on different areas, which together manage to achieve the objective of the project and give it sustainability.

The first output is aimed at support and assist the recently created a research and training structure that should provide sustainable capacities over time so that it is the LAC region itself that can generate its own research in the future.

The second output is aimed at promoting the use of science-based and harmonized regulatory frameworks as a basis for facilitating trade and regulatory administration.

The third output is considered the heart of the project and represents science and technology, reflected in the waste mitigation studies.

The fourth output represents the strategic alliance with the minor uses foundation and the interest in sustainably positioning the participation of the countries in their work agenda, and finally, the fifth output represents the strategy to transfer knowledge to the field.



Output 1: Regional Research and Training Center on pesticides residues and biopesticides is operational in the region

Activity 1.1. Building Regional Research Capacity

This activity will bolster current efforts by IICA and USDA to establish a regional research “Center of Excellence” at the National University of Colombia (NUC). The vision for this regional Center is to provide a hub for continual education for pesticide researchers and regulators across the continent to conduct internationally-recognized residue field trials, laboratory analyses, and efficacy studies, with an emphasis on incorporating biopesticides into national Integrated Pesticide Management programs. The IICA/USDA program will focus on magnitude of residue studies for establishing Codex MRLs and entering into the formal agreements with NUC departments and the Minor Use Foundation while the STDF portion of this activity will emphasize research related to residue decline studies, biopesticide efficacy studies, and “soft-skill” development to bridge technical data and concepts to policy adoption. The project will target NUC’s Department of Science and Agriculture.

Under this activity, the project’s Expert Team (see composition under section IV. Project implementation and management) will collaborate with NUC’s professors to gain technical skills to transmit knowledge to students, scientists, regulators and stakeholders in the region on GLP research for field, laboratory, and regulatory support. The Expert Team will 1) develop training course materials with NUC professors; 2) provide in-depth instruction and guidance to the NUC staff over the course materials; 3) assist the NUC staff in delivering the first courses to country participants included under in this project; 4) provide on-going, long-distance support to NCU’s professors in later courses.

With this program as a foundation, other leading universities in the region will have access to this work, with additional faculty trained to expand teaching on the subject to students, increasing participation and knowledge throughout the region. The broader objective is to build regional capacity

of university researchers in the areas of regulatory science, training skills, leadership skills and teamwork, management of relationships between science and politics, execution of studies to establish MRLs (magnitude of the residue studies), and incorporation of agroecological management alternatives such as the use of biopesticides, behavioral control (attract-and-kill and trap cropping), and biological control within IPM programs.

The technical characteristics of the project suggest the convenience and relevance of working on the project's own economic pest thresholds, in order not to "borrow" these thresholds from other countries or areas with different characteristics, however, developing precise thresholds requires several years of multi-location field testing and data analysis. Therefore, there is currently no alternative option and the project does not have the resources available (time, personnel, financing) to carry out these activities. Although the ideal would be to have local thresholds, it is believed that the current thresholds will be effective because agricultural commodities and insect species are the same in each region. In addition, it will be possible to quantify the abundance of insects and the damage throughout the field tests, which will serve to advance towards that goal.

The project will be able to establish the necessary institutional and technical conditions to ensure an effective coordination with CABI (<https://www.cabi.org>) and to be able to use the databases they have to promote the results of the investigations. Likewise, the appropriate contacts can be established with Dunham and Trimmer (<https://dunhamtrimmer.com>) for the same purposes. This suggests the possibility of generating a network of organizations that can benefit from the project's research and serve as a source of dissemination and promotion. Within this network of interested organizations linked to the project's objectives, COLEACP is also included, which has a particular interest in the Dominican Republic and can help generate links with successful experiences carried out in the European Union.

Activities 1.2 and 1.3. Strengthening functional capacities through university faculty exchanges (NC State and UCR). The project recognizes that the overall capacity development of project stakeholders should not only focus on the competencies needed to achieve technical results, but also on what is needed to build more effective and dynamic relationships between multiple actors. As such, both technical and functional capabilities (soft-skills) are essential for individuals and organizations to achieve the goals of this project.

Under this activity, UCR and NC State faculty will jointly develop soft-skills curricula to support the technical component of the IICA-USDA Center of Excellence for research at the NUC. UCR and NC State will develop curricula centering on leadership skills and knowledge transfer directed at effecting policy and decision makers. First, NC State faculty will travel to Costa Rica to align course content and begin to develop joint on-line curricula. NC State faculty will provide a seminar to UCR staff and faculty on NC State's current program with its Center of Excellence for Regulatory Sciences in Agriculture (CERSA), and how CERSA hopes to expand with international collaborations with Latin American partners. Later, UCR faculty will travel to NC State to finalize curricula, hold joint seminars with CERSA staff and NC State students, and plan roll-out of the on-line content.

Activity 1.4: Courses (in-person and on-line) Offered to Beneficiary Groups (IR4/MUF-UCR; CICAP-UCR)

This activity aims to develop soft skills in beneficiaries to achieve three objectives:

1. Develop the skills, knowledge, attitudes, and behavior necessary to apply, organize and coordinate technical capabilities so that individuals and organizations can work effectively. To

this end, workshops will be held to cover topics such as “effective assertiveness”, team leadership, and science communication techniques.

2. Develop skills to formulate and implement relevant policies and standards and strategic planning, ability to leverage and manage knowledge, ability to build and maintain partnerships, strong leadership skills, and the ability to navigate the political dimensions of organizations.
3. Develop teaching skills that passes meaningful knowledge to those trained.

Four training groups have been identified among the beneficiaries of this output **1) a technical group**, involved in the experimental/research phase of the project, that is divided into field and laboratory technicians, **2) a public officials** group that is in charge of applying the regulation related to pesticide residues, and **3) a farmers** group that advocates for new science-based pest control needs, and 4) a **university** group with the responsibility to convey and bridge knowledge between farmers, technicians and regulators.

The first objective of soft skills, related to being assertive and teamwork will target all four groups; the second objective will target the group of public officials that seeks bridge science and policy; and the third objective will target the university group which seeks to enhance teaching and outreach competencies to technicians and farmers, and agricultural extension to public officials.

This area will be developed with the leadership of the Center of Excellence for Regulatory Science in Agriculture (CERSA) of North Carolina State University, with the support of the Center for Research and Training in Public Administration (CIPAC) of the University of Costa Rica and EPOPEYA of Colombia.

In order to achieve a long-term benefit for the region, CIPAC in conjunction with CERSA, will develop a virtual course covering Objective 2 above, so that it is available to the region and the benefit can be extended.

Output 2: Countries take national measures in support of regional biopesticide regulatory harmonization

Activity 2.1. Biopesticide regulatory strengthening at the national and regional levels

This activity will provide biopesticide regulatory strengthening at the national level and alignment (harmonization) at the regional level in coordination with the current IICA/USDA LATAM regulatory program.

Activity 2.2: Biopesticide registrations for residue mitigation

This activity will support regulators in the participating countries in implementing concrete measures for the registration and use adoption of biopesticides identified as mitigating measures under this project

Activity 2.3: Harmonized evaluation criteria

This activity will promote the use of harmonized criteria for evaluating and recording the efficacy of these biopesticides

These three activities will be carried out in close coordination, and in parallel with each other, with the current IICA/USDA pesticide regulatory program in Latin America and will include activities aimed at biopesticide regulatory strengthening at the national level and alignment (harmonization) at the regional level. As a priority, the Expert Team will support regulators in the participating countries in implementing concrete measures for the registration and use adoption of biopesticides identified as mitigating measures under this project. This will include promoting the use of harmonized criteria for

evaluating and recording the efficacy of these biopesticides. While the project activities are expected to register biopesticides within the participating countries, these activities working with industry will also facilitate regional trade in biopesticides and promote the adoption and use of safer pest control tools in the agricultural sector. In addition, given that many LATAM countries face similar pest control issues, the project will promote greater coordination and exchange of technical information between the respective pesticide regulators and address any current registration challenges. Therefore, the Technical Team in coordination with the current IICA/USDA regulatory program will develop a detailed strategy to facilitate greater regulatory coordination among the participating countries.

In close coordination with the current IICA/USDA pesticide regulatory program in Latin America, the project will support the following ongoing regulatory efforts:

- The development of an updated and harmonized regulatory guidelines (Central American Technical Regulation or RTCA) for the registration of biopesticides in the Central American region. As of December 31, 2021, a Central American Technical Workgroup has already developed a draft RTCA and it is expected that a formal RTCA will be finalized in 2022 in coordination with the Technical Committee of the Central American Council of Agricultural Ministers. The Dominican Republic will require additional consultations, under this project, to engage them in this process.
- Close coordination with the Technical SPS Committee (COTASA) of the Andean Community to address biopesticide regulatory harmonization in the countries of the Andean Community. The COTASA has identified the regulatory harmonization of biopesticide regulations as a priority in its 2022 workplan.
- For the southern region, Argentina is one of the countries with the most advanced biopesticide regulatory framework in the region. The project will work closely with Argentinian officials to support Paraguay in regulatory harmonization and strengthening.

To accomplish this output, the Expert Team will conduct a series of workshops with regulatory officials of the participating countries, and consultation travel to Argentina, Paraguay and the Dominican Republic. These workshops will also include the participation of key policymakers in order to ensure adequate acceptance, ownership and adoption of project outcomes.

Output 3: Residue data and improved knowledge to interpret it on the use of biopesticides (Residue Mitigation Studies)

This output will support Honduras, Guatemala, Nicaragua, El Salvador, Ecuador, Perú, Bolivia, Paraguay and Dominican Republic to strengthen research capacity and conduct residue mitigation studies. With support of Costa Rica, Colombia and Argentina (experienced residue programs in place already), these countries will provide regional leadership by also conducting residue mitigation studies and sharing their expertise, promoting South-South and regional cooperation.

It is anticipated that up to 15 residue trade irritant situations can be resolved through studies for the commodities selected for the project. These somewhat follow crop grouping strategies, but unlike new MRLs, compliance with MRLs does not require JMPR review and Codex approval. This project will therefore provide and test a process, which could be replicated for other crops/products and/or in other regions in the future.

Residue mitigation studies will be conducted based on two different scenarios:

1. Situations where there is an MRL, but the MRL is exceeded, causing trade problems. In these cases, the residue will be mitigated by extending the PHI and supplement it with biopesticides.

2. Situations where there is no MRL for the pesticide causing trade problems. In these cases, a different conventional pesticide that does have an MRL will be needed as an intermediary, and it will be determined if the intermediary product also needs to be mitigated.

In all cases, proper IPM practices will be used, in line with FAO's guidance and recommendations. These include sanitation, utilizing pest free transplants, pest scouting, preservation of beneficial insects, utilizing pesticides only when the pest is present, following economic thresholds when known and crop specific practices to avoid or manage pests. The possible mitigation studies under consideration are listed in Tables 2-4 above.

Activity 3.1. Group training on field and laboratory research (12)

During the first year, field and laboratory preparations will be made: Standard Operating Procedures (SOPs), establishment of Quality Assurance and Quality Control (QA/QC) system, documentation, data management, facilities, etc. A series of group trainings/workshops will be conducted by the Expert team of consultants for laboratory staff, field staff, and national Principal Investigators to develop protocols, field research notebooks, learn calibration techniques, and field experimental design, etc. The Technical Director and Project Manager will follow up with each of the countries and provide assistance throughout the year to monitor progress and ensure that the countries are adequately prepared to initiate the studies.

In addition to the regional group training provided by the Expert Team and NCU, UCR and NC State will link here to provide the soft-skill development for the technical country team members.

Activity 3.2. Individual training on field and laboratory research (12)

For countries with little or no experience conducting residue research, individual trainings will be held through site visits and in-person team consultations. Field residue trials will not be initiated until the Technical Director is confident that the countries are prepared. More tailored and in-depth assistance will include designing experimental protocols specific to the country's crop/pesticide/biopesticide selections, field work related to conducting pesticide residue decline trials, method development for the analytical laboratories, experimental design for biopesticide and bioprotectant efficacy studies, report writing and data package submissions, and consultations/coordination with national registration officials.

Activity 3.3. Countries conduct residue decline studies and bioefficacy studies (12)

Field residue mitigation studies: Once all preparations are in order, the Technical Director will initiate the first series of trials with national Principal Investigators, increasingly handing over responsibilities. The Study Director consultant will provide assistance in-country. Those countries that are less advanced in their technical capacity will have access to additional guidance through the regional lead countries (train the trainer type model) on an as-needed basis.

To accomplish this activity, the following tasks will be performed:

Sample analysis: Upon completion of the fieldwork, samples will be prepared and analyzed under supervision of the Study Director. Again, a mentor from the leading countries will oversee the first series of analyses and will increasingly transfer responsibilities and oversight to national Principal Investigators. Those countries that are less advanced in their technical capacity will have Costa Rica, Colombia or Argentina as resources (Trainers as mentioned above) of analytical assistance, as needed.

Efficacy studies with biopesticides: After the initial series of residue decline data are developed, the incorporation of biopesticides into the system will be included to determine the ability of different products to maintain pest control while allowing for residue decline.

Report writing: Once a study is complete, the Study Director will assist in the preparation of a final report. National Principal Investigators will increasingly assume responsibilities of the report preparations and complete them in their own countries.

Output 4: Regional strategy to improve the supply of phytosanitary solutions for minor crops established (Minor Use Foundation Chapter Latin America)

The project will develop regional strategies to support minor crops (crops that are missing important pest control tools due to their low-area production), considering improved food safety, trade facilitation, and the environment. The Minor Use Foundation (MUF) has established processes for assisting countries to collaborate in identifying and prioritizing research and policy to address minor crop needs. The Latin America and the Caribbean region can benefit by strategically, and more effectively, engaging with the MUF to adopt technical procedures and incorporate them into national institutions.

The work of the MUF complements the objectives of this project, since it provides chemical and biological phytosanitary solutions for minor uses in order to comply with the regulations established by international markets regarding MRLs.

Linking national and regional interests requires substantial coordination with the regional integration organizations (CAC, OIRSA, COTASA, CAN, COSAVE), national institutions of the Latin American and the Caribbean countries, IICA, and MUF. Coordination will be achieved by focusing the project's work on four main areas through instruments and tools that favor institutional changes in the countries and the adoption of strategies aimed at developing this issue.

Outputs of this engagement include:

- **Positioning the MUF before the countries**
- **Political positioning of the MUF at the regional level**
- **Developing methodologies for the institutional incorporation of minor uses**
- **Regional communication and information strategy on minor uses and MUF**

The success and sustainability of these components strongly depend on influencing decision-makers at regional forums, rather than on the technicians responsible for leading the issue of minor uses. Output 4 will be carried out by a Multimedia Manager consultant, who will support all the activities below.

Activity 4.1 Positioning the MUF before the countries. Two virtual workshops and one in-person workshop. One virtual and one in-person workshop (in addition to engagement with other opportunities outside this project as they arise) will be held to publicize, position, and recognize the importance of active participation in MUF strategies and activities. These workshops will strengthen understanding of the Foundation's work and support the regional crop prioritization process, while providing a platform for regulators, pesticide industry, crop associations, and researchers to share regulatory updates and crop protection technologies. Sharing experiences from countries that have already participated in MUF work will be an important modality to transmit positive experiences and past successes.

Activity 4.2 Political positioning of the MUF at the regional level. Six virtual dialogues with regional organizations. This activity will situate the MUF with the regional integration or regional regulatory organizations, such as the CAC, OIRSA, COTASA, CAN, and COSAVE. The intention is to position the Foundation's strategies at the regional political level. Two virtual dialogues will be held with each

organization, including partner dialogs at the inception of the project and at the conclusion of the project (seven total dialog activities).

Activity 4.3 Developing methodologies for the institutional incorporation of minor uses. One consultancy, two virtual events. In order to support and adopt minor use agendas locally, the project will develop two instruments to incorporate management tools to guide the countries in establishing sustainable minor use programs and a regional strategy for the participation of LAC in the work plans of the MUF. These tools will serve any country that lacks experience in working with minor uses. This activity will require a consultancy to generate, validate and inform processes at the country level, achieved by holding two virtual events.

Activity 4.4 Regional communication and information strategy on minor uses and MUF. This activity will develop multimedia tools to help disseminate and communicate the work of the MUF and promotion of minor uses, through the optimization of social networks, press offices of the participating institutions and other multimedia.

Output 5: Grower outreach program to promote biopesticides established and linked to export promotion programs domestic markets

The extension program represents the mechanism that makes it easier for producers to adopt the new agronomic technologies generated by the project. The initial stage will consist of making an inventory of private sector associations and produces associations and agricultural extension agencies, and establishing the appropriate links to initiate a dialogue on the positioning of the project, its results and the benefits for the producers. Activities included to this first stage will include:

5.1 Inventory of distribution channels of the knowledge generated in the project (includes public and private extension programs, international organizations (such as CABI) and inventory of private sector associations and producer's associations. In charge of IICA and the central administration of the project.

5.2 Develop a plan of approach to the extension programs identified to achieve their involvement in the dissemination of the knowledge developed. In charge of the consultant, the multimedia manager and the central management of the project.

5.3 Develop IPM documents for the phytosanitary solutions identified in the project. In charge of the consultant, the multimedia manager and the central management of the project. These dissemination and training products will include, in addition to integrated pest management, the positive effects for the environment and trade, the use of biological tools or other modern alternatives for pest control.

5.4 Develop a virtual training program for trainers and / or extension workers of the public and private sector. In charge of the consultant

5.5 Develop a package of informational products to be delivered to the different extension instances for their use and dissemination. In charge of the consultant, the multimedia manager and the central management of the project.

5.6 Incorporate into the multimedia and communication program what is related to the scientific results obtained in the project. In charge of the consultant, the multimedia manager and the central management of the project.

Special attention will be paid on how to optimize the information and knowledge transfer to women leaders of farms or estates linked to the organizations contacted.

The activities of this output are characterized by being easy to implement in all the participating countries. In fact, all countries should benefit from the activities contemplated here.

Through the IICA offices in each of the countries, plus the support that the National Committee for Public-Private Coordination can provide, it will be possible to compile the inventory and contact database of all the institutions linked to this output, without no cost.

The training and dissemination events are virtual, and will allow 100% coverage of the participating countries. Similarly, the materials developed are public goods that everyone will have access to.

10. Environmental-related issues

The project anticipates that the substitution of the last application of a conventional chemical pesticide with a biopesticide or a safer IPM control tool will have a positive environmental impact through a reduction of chemical pesticide usage. Biopesticides typically have reduced non-target effects on beneficial insects compared with conventional insecticides. We will quantify non-target effects using bee bowls for pollinators and yellow sticky cards for predators. Bee bowls and yellow sticky traps will be deployed in both treatment plots two weeks prior to biopesticide applications and will be surveyed each week for five weeks. Pollinator and predators will be identified by participating institutions and Universities. The residue mitigation of this project will lead to the enhancement of technical capacities, contributing to reduced chemical pesticide use and the promotion of non-toxic biopesticide use as well as the adoption of IPM systems contributing to environmental protection. In addition, this project will ensure that no project activities have a negative environmental impact.

The substitution of the last application of a conventional chemical pesticide with a biopesticide or a safer IPM control tool will decrease the chance of exceeding the MRL, thus a greater percentage of the crop will become available for export. The differences in input costs with and without the biopesticide will be compared with the difference in domestic versus export crop values to determine how the residue mitigation impacts economic returns. The risk of increased crop damage from pests will also be considered based on the ability of the biopesticide to maintain effective pest management. Potential risks have been identified, as well as proposed measures to manage risks. Possible risks and steps for mitigation as necessary are presented in Table 2.

11. Risks

Risk	Impact	Probability	Prevention/Mitigation
Even with mitigation, the residues do not fall below MRLs.	High	Low	The project team is working with a large number of active ingredients and spans of time. It is expected that in a majority of cases, the active ingredients selected are likely to diminish sufficiently with an extended decline period.
Uptake/adoption of project outputs by the national authorities due to lack of political will or proper compliance by project partners.	High	Low	This will be overcome by bringing various stakeholders of the countries at one platform, bringing awareness on the importance of work for IPM and for trade, and getting their commitments. There will be knowledge management and dissemination on the activities and the practical utility of the scientific rationale in promoting biopesticides. Development of both technical and functional skills will also facilitate the uptake/adoption of the outputs.
The biopesticides are not effective in controlling the pest at the end of the season.	Medium	Low	a. The mitigation-based pest management is not only dependent on biopesticides alone. It is expected that the conventional pesticides will provide a high level of control during the season and the residual activity of the last conventional application will cover part of the period until harvest. Therefore, it

			<p>will not be necessary for the biopesticide to control an intense population and the period of time will be brief.</p> <p>b. As in the IPM philosophy, the goal is not perfect control, but below an economic threshold. It also varies by pest. For example, an aphid or thrips infestation is critical during crop development and flowering, but very close to harvest there is not so much of an impact. On the other hand, an infestation of leaf chewing insects such as diamondback moth larvae on leafy vegetables is serious. However, Bt is widely known as an effective Biopesticide product for controlling caterpillars.</p>
Biopesticides are too expensive and growers will not want to use them.	Medium	Medium	<p>a. Even if the biopesticides are more expensive, this will be partially offset by using less of a conventional pesticide and increasing the value of the crops by making them eligible for export markets.</p> <p>b. Harmonization of regulations that would result with the complementing USDA-IICA project will result in greater ease and speed of registration, which should also increase competition and reduced costs.</p> <p>c. All trends point to a large increase in this market. One of the keys is developing an effective model program to demonstrate the utility of biopesticides coupled with an economic incentive, which is the basis of this project.</p>
Growers do not want to use biopesticides.	Medium	Medium	The work resulting from this project, that would be based on scientific work under international standards, will prove that the use of biopesticides is effective in controlling diseases. Also, with the increase of requirements from importing countries in terms of chemical pesticide use, would encourage growers on the use of biological products.
Limited uptake of biopesticide due to ineffective communication of project outcomes and effective adoption of the new GAP by farmers	Low	Low	The project will put in place an elaborate communication strategy to communicate relevant information. To ensure sustainability of information dissemination, videos and brochures will be developed for distribution by CroLife, IICA and National Institutions. Social media platforms as Instagram and Twitter will be used to have results and advances in real time with exponential dissemination.
The COVID-19 pandemic making it impossible to travel and organize face to face meetings/workshops/ training programs.	High	High	Many project activities will be conducted virtually. Those requiring in-person engagement will be deferred to a later stage of project implementation, by which time it is anticipated that more definite ways to handle the COVID-19 crisis will be available. Working in labs under biosafety conditions and traveling to the field individually will decrease the risk of transmitting the virus or other pathogens that could appear.

12. Sustainability

The project is not only based on national demand and priorities, but is actively supported by relevant Latin American stakeholders, including government agencies responsible for SPS management, as well as the private sector – which have provided letters of support in respect of this project. IICA, which is working towards the promotion of biopesticide use and regulation harmonization in Latin America, further strengthens the technical capability and sustainability prospects of the project and its outputs. Also, the creation of the LATAM/MUF chapter, would allow the countries to meet, interact and participate in relevant projects for the region. Finally, with the strengthening of the regional training center in the National University in Colombia, participating countries and other actors from the region will be able to participate and interact for years to come.

IICA envisaged role throughout and subsequent to project conclusion brings to bear a substantial network of technical experts and longstanding relationships with participating and invited countries, serving to enhance the strength of project partnerships, its ability to monitor the appropriate utilization of developed capacities, and securing requisite resources and follow-up in participating countries. The project's outputs are also expected to contribute to best practices and protocols on effective biopesticide use in IPM programs and MRL detection capacities, which can be used regularly, not only by participating countries but also for regional scaling up of outputs.

The IR-4 project has enduring accomplishments in capacity development, which has benefited stakeholders in several developing countries. By way of illustration, several Asian, African and LATAM government authorities have benefitted from STDF's concluded regional MRL projects. These countries continue to engage IR-4 on tangential residue studies and related partnerships, building and scaling up the experiences and results achieved under previous STDF projects. In this project, a similar approach and sustainability plan is expected and planned for in this project.

The residue mitigation strategy supplements the conventional magnitude of residue studies and utilizes much of the same skill set applied to the latter. The entire infrastructure, therefore, which has been established in Global Minor Use Summits, priority setting workshops and MUF, will be incorporated into the mitigation strategy. Should other priority needs arise, it will be determined if it makes more sense to solve a given problem by using a conventional residue MRL setting strategy, or a mitigation strategy.

Project manager will identify key national decision-makers and stakeholders, determine the role they are to play in the project, and develop strategies to co-opt and retain them at critical points at project inception, implementation and conclusion. Since rotation of public servants is common, the training would be key to give sustainability of the project training new generation of agronomists and chemists. To achieve stability, functional capacities in policy change will be developed so that the mitigation approach becomes part of the country standard for dealing with MRL-related trade issues. Surveys and interviews will be conducted to gauge recognition of the importance of involving the private sector (growers, exporters and/or their associations), universities and extension services (where they exist) in pesticide mitigation initiatives, in the interest of success and sustainability of efforts. The sustainability of the project will, further, be enhanced by the intentional prioritization of partnerships, to enhance synergies and resource and knowledge maximization.

This project will be supported by among others the IR-4 Program, USDA, FAO and MUF all of which will provide technical guidance and share information. [The FAO Pest and Pesticide Management team](#) could be invited through FAO Regional LAC office in Chile to project training activities and meetings (with virtual communication in the intervening periods) and have committed to provide advice on IPM practices and regulatory harmonization guidance. Bioprotection global through its members, and CropLife will provide technical support of field trials, laboratory analyses (including test and analytical standards, if applicable); the data generated under this project could also be utilized for other purposes, such as requests in respect of import tolerance in other countries/regions. The existent biopesticide organizations in the region (Asobiocol and Cabio), as well as CropLife which includes

producers in several of the participating countries as well as Bioprotection global will help disseminate the project results and will incorporate its findings into strategies integrating biopesticides into conventional systems.

The project's sustainability strategy will be supported by the dissemination plan (see point 19) and by the future work plans of the participating organizations (USDA, MUF, IICA, IR4, Private Sector). The dissemination plan will help position the results of the project before the international community and decision makers, which is vital for government institutions to adopt and appropriate the new technologies and institutional strategies that the project will recommend. The results, including how to use the information, will be published on the IR-4 and Minor Use portals and the website of each country's residue mitigation results extension and national institutions as part of the GAP guidance. With respect to the future work plans of the participating organizations, it is the other promoter of sustainability, since through the cooperation and assistance of these organizations, the need to continue working in topics related to the project. Special mention should be made of the support for the work plan of the MUF, through output 4, which will help strengthen the link between the countries and their work agenda.

For the last semester of project implementation, a sustainability strategy must be developed, involving the participating organizations and the necessary mechanisms to ensure the continuity of the capacities developed.

III. BUDGET

13. Estimated budget

IICA as the implementing partner will engage USDA, IR-4 and MUF technical expertise through in-kind support, and technical experts through professional services contracts. IICA will ensure arrangements for project implementation. All partners will ensure that the project links to similar and related efforts in the target countries including FAO, CropLife Latin America, pesticide manufacturers, exporter organizations, etc.

The project will call upon expert knowledge of minor use research by the USDA, IR-4, MUF and local technical experts. This will involve the selection of field trial locations, crops/biopesticides, development of trial protocols to demonstrate biopesticide efficacy, and coordinating efforts for data reports and utilization. The project will demonstrate efficacy of biopesticides and promote their use through increased commercialization and, thus, availability to producers. Learning from STDF/PG/436, enough travel expenses were included to be able to cover all countries involved.

A detailed breakdown of the total project budget is included in Appendix 3. It has been prepared on the basis of the outputs identified above, and the resources needed to complete the specified activities. The budget includes expenditures for expertise, travel, training, workshops, minor equipment items, project management, general operating expenses, etc. The total amount requested from STDF is USD \$ 900,473 out of the total project cost of USD \$1,839,373 The matching funds include USD \$ 938,900.00 of contributions from several sources.

14. Cost-effectiveness

There are eleven countries (potentially twelve) involved in this project, so the per-country cost of this project is actually very low. Several meetings will be virtual and some meetings will be organized to

coincide with the other meetings, like training at the National University and MUF/LATAM chapter. This was successfully accomplished during the PPG-planning meeting, and this pattern will continue during the full project

The aim of this project is to establish a process that promotes adherence to of MRL standards across the region. Some of the more widely grown crops such as banana will be conducted cooperatively across multiple countries. This will create a more robust data set without over taxing the capacity of any single country. This project seeks to coordinate work, harmonize practices and standards as much as possible, and ultimately conserving valuable resources.

Through this coordinated and strategic approach, it is estimated that a savings of over 90% can be achieved as compared to conducting individual field trials for each crop/pesticide combination that only result in a single MRL. In addition, by targeting the most restrictive existing MRLs, not only will these meet Codex MRLs but also produce crops that are unrestricted for trade across a disharmonious set of different MRLs from different regulatory bodies. In addition, by aiming for 0.01 ppm or not detectable there may be an indirect benefit of meeting some secondary standards imposed by retailers.

In addition, while some country specific research on sesame in Paraguay will be conducted, the problems with residues on banana, café, pineapple, berries, passion fruit and mango are broader problems that exist and are therefore applicable across all the Latin American countries participating.

IV. PROJECT IMPLEMENTATION & MANAGEMENT

15. Implementing organization

IICA will be the implementing partner for this project and will collaborate closely with the U.S. Inter-regional Research Project 4 (IR-4) and the Minor Use Foundation (MUF) which will provide technical guidance and support. The USDA Foreign Agricultural Service (USDA/FAS) will also provide technical advice (in-kind) to the project at no expense to the project.

Written consent and CVs from implementing organizations are attached in Appendix 5.

16. Project management

IICA will hire a Project Manager who will look after the stakeholder's routine communications and all the operational matters. As STDF projects are three years long, there is always a possibility of disruption due to turnover of personnel, experts, and consultants. The project will build in resilience measures to ensure that the project can continue smoothly in the case of departures of key persons. To do this, two technical consultants (part of the expert team) will be hired as Co-Technical Leads who will take responsibility of the various components of the project to ensure continuity of work. The Capacity Coordinator will lead the development of technical, regulatory, and functional training; the Technical Team Leader will organize, plan, and ensure delivery of the research activities, identifying and on-boarding additional experts and consultants when needed.

The Project Manager will keep IR-4, MUF, USDA, STDF, and other key partners regularly informed about the progress and issues and will seek technical and managerial advice on regular basis. This will help the key technical players stay well informed and will allow them to play their technical and advisory roles in an efficient manner.

The logistical and financial aspects of the projects will be managed by IICA. A project staff will be tasked with daily operational activities and housed at IICA. The daily operational activities are not

limited to administration, but will also include signing of sub contracts with project partners, making preparation for trainings such as purchase of airline tickets, contracting with hotels, arranging local transportation, etc. For field trial work, the project staff will help make funding transfers to the relevant, participating country agencies or institutions. The project staff will work under the supervision of the Project Manager and will work closely with the Co-Technical Leads and other collaborators. The project staff will prepare quarterly, annual, and final financial reports with support from the Co-Technical Leads.

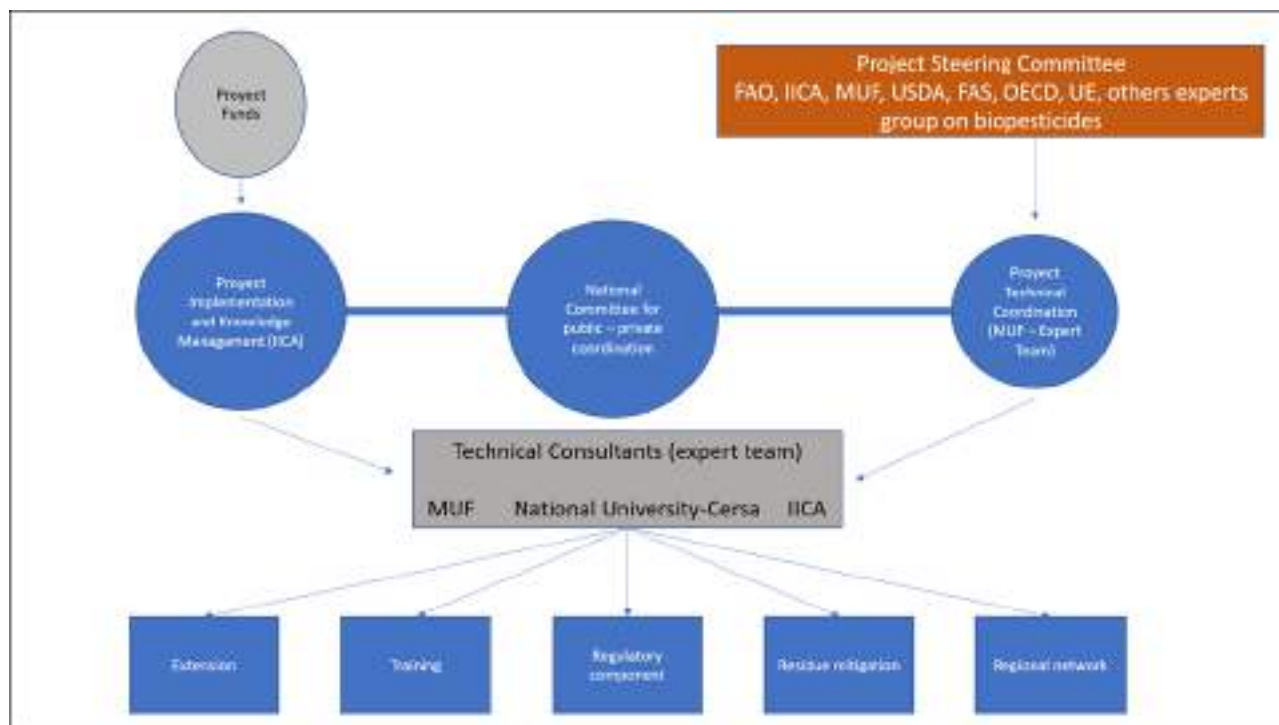
A **Project Steering Committee (PSC)** will be formed from a combination of each countries contact point, IR-4, MUF, IICA, USDA-FAS, FAO, OECD Expert Group on Biopesticides and other experts on biopesticides. The STDF will be invited to all PSC meetings. Additionally, the European Communities will be invited as observers to this committee through their representation of Peru. The characteristics of observers will be defined together with them in common agreement with IICA. Growers from inside the region and importers from outside the region could be invited if needed. The PSC shall meet at least twice annually as part of their regular meeting schedule and correspond electronically between scheduled meetings; the Project Coordinator will report on the progress of the project to the PSC. The Project Steering Committee will consider Progress Reports and will advise on any modification to the project plan, which will be discussed with STDF.

Logistics: Participating countries will help, as much as possible, to provide the logistical support for the project in cooperation with IICA.

Technical Consultants ("Expert team"):

- Co-Technical Leads: Ms. Veronica Picado; Dr. Jason Sandahl.
- USDA-FAS will assign a program staff member to provide technical and regulatory input and guidance to the project as an in-kind contribution.
- Dr. Grace Lennon, Minor Use Foundation, will lead field research.
- Dr. Wayne Jiang, IR-4 chemist from Michigan State University, will lead laboratory analytical research.
- Dr. Kevin Rice, entomologist from U. Missouri will provide guidance on biopesticides and efficacy research.
- Dr. Danesha Seth Carly, North Carolina State University, will be collaborate in functional capacity building activities.
- Mr. Luis Suguiyama, retired EPA, will lead regulatory capacity efforts both at national and regional levels.

Figure 1. Project Management Structure



V. REPORTING, MONITORING & EVALUATION

17. Project reporting

Reporting will be conducted in line with the workplan schedule, such that a progress report of activities and outputs will be generated every 6 months and sent to the STDF, according to the instructions. The minutes and activity reports of workshops, meetings and related capacity building activities will be reported with the main conclusions incorporated into the narrative. Project performance will be monitored using the projects logical framework, including indicators (baseline and targets) and annual work plans and budgets.

An inception workshop is going to be held where the logical framework will be reviewed to finalize identification of: i) outputs ii) indicators; and iii) missing baseline information and targets and workplan. A baseline survey will be done to register the outcomes of the inception meeting. The results of the inception meeting and baseline survey is expected to be a set of defined activities, outputs and indicators (and updating of the logical framework) against which project progress will be measured. These will then be discussed and finalized at the PSC meeting, and also shared with the STDF Secretariat, and will form the basis for tracking and monitoring progress throughout the project duration.

The responsibility of tracking project progress will be by the Project Manager, with project partners and country focal points expected to provide relevant information to track the indicators. The Project Manager will work closely with the Technical Team Director and other collaborators to prepare comprehensive interim progress reports and make inputs to the final project report, ensuring holistic and comprehensive monitoring of project

indicators and measures. An overall assessment of project progress against all indicators and outputs will be done towards completion of the project.

Towards the end of the project, a progress assessment against all indicators and outputs will be done. A report will be developed for presentation and discussion at the final meeting at which an implementation program (involving the project multi - stakeholder network) of final project outputs will be finalized

18. Monitoring and evaluation, including performance indicators

IICA will ensure that project activities are monitored, and project outcomes and impacts are appropriately being assessed, based on the project's logical framework and following the STDF Monitoring, Evaluation and Learning Framework⁵. For this, the project will develop a M&E plan that will identify data sources, data collection methods, sources of quantitative and qualitative, to establish a baseline for monitoring the project indicators. Special attention will be given to monitor gender for each activity.

Among others, we will use the STDF's new LogAlto tool for MEL <https://www.logalto.com/en/> Link to program indicators, STDF results framework where relevant. The participant countries, institutions and the rest of stakeholders will provide information in regular basis and by request of the expert team or project management. At least once every six months indicators will be measured from the log frame and the MEL matrix and an internal evaluation of indicators will be done during the biannual steering committee meeting and actions will be taken if needed.

Monitoring of activities and outputs will aim to ensure that the project is on track or course corrected as appropriate, dependent on the identification of unplanned or unintended changes. Evaluation will focus on measuring outcomes and impacts, to assess if progress is being made towards project-stipulated goals; to document any changes that have occurred; to identify whether any unintended or unplanned changes have been observed; and to gauge the durability of impacts over time.

According to STDF's rules, the Project will undergo an independent end-of-project assessment, carried out by an external evaluator, and whose report will be attached to the final Project report. The budget for such an assessment is included in the budget. The development of the terms of reference, selection of the evaluator and contracting of this assessment is the responsibility of IICA.

In addition, after project's completion, the project could be subjected to an ex-post evaluation, drawing on the OECD-DAC Principles for the Evaluation of Development Assistance. The development of the terms of reference, selection of the evaluator and contracting of this assessment is the responsibility of the STDF. IICA will collaborate closely with the selected consultant in due time.

19. Dissemination of the projects results to the International Community

The communication plan of the project is designed to maintain close contact and communication with all the actors involved and serve as a means of disseminating the progress and results obtained.

Due to the nature and characteristics of the project, there are many sectors and actors involved, such as:

⁵ See: [STDF MEL Framework Final English.pdf \(standardsfacility.org\)](#)

- Institutions responsible for the implementation of the project and their scientists.
- Institutions responsible for agricultural extension and their technicians.
- International organizations linked directly or indirectly (WTO/STDF-CMSF, FAO, IICA, FUM)
- Private sector organizations (CABI, Croplife, Associations and Federations, etc.)
- Press and communication offices of all the organizations involved
- Regional organizations for standardization and integration (CAC, CAN, COSAVE)
- Agricultural and pesticide producers

Therefore, it is strategic to have a communication plan that ensures the effectiveness and efficiency of the information products and communication strategies that are implemented. For this, it is necessary to reach the actors at the right time and with the right products.

The Communication Plan (CP) will help manage the information and results that the project obtains internally and externally. It will help identify and facilitate the participation of key stakeholders. The CP will identify the actors, the activities that must be carried out, and will establish indicators and expected products.

The following components will constitute the key pillars of the CP: i) Identification of key actors, partners and target audience; ii) Communication mechanisms and tools; iii) Definition of communication strategies; iv) Evaluation and impact. These components define what and why, how, and will help measure the impact achieved with the project.

The project will have a multimedia manager responsible for developing a communications strategy and related calendar throughout the life of the project, including the target audience, media to be used, products to be developed and expected results. This CP must consider all the aspects contemplated in the STDF Communications Plan (https://www.standardsfacility.org/sites/default/files/STDF_Comms_plan_Final.pdf).

The communication strategy must include the development of information products, dissemination and positioning of information products about the project including results-focused, human-oriented content. Among these may be considered the development of multimedia (photos, videos, photographs, interviews, etc.), human-interest success stories, press releases, web updates, social media posts and technical information sheets. The products to be developed will have the purpose of keeping all the key actors informed and promoting the dissemination of the project, its progress and its results.

The use of currently existing platforms and social networks will be essential to try to massify the information that will be shared and for this the "multimedia manager" will be responsible for its administration and permanent management, working in collaboration with the STDF Secretariat during the life of the project. Platforms of dissemination can include YOUTUBE, FLICKR, LINKEDIN, Facebook, Instagram, twitter (using hashtags such as #STDF and #SafeTrade).

Furthermore, the project will appropriately use the STDF logo on all project-generated external communication materials, including social media, to ensure its prominence and visibility, as specified in the STDF Communications Plan. Project results will also feed into STDF's corporate publications and dissemination channels.

The multimedia manager must have efficient and regular contact with the press officers of IICA, STDF and the FUM, including through participation in the informal communications officers' group to be organized by the STDF Secretariat in order to maintain a coherent and efficient line on the

communication policies of both organizations and to participate in joint communications campaigns, where relevant.

The communication strategy is cross sectional in nature, this means that it will be used by all the other components of the project, in such a way that the strategy is part of the activities of each component, and makes each one of the products and actions available to them what to do.

ATTACHMENTS

Appendix 1: Logical Framework

Appendix 2: Work Plan

Appendix 3: Project Budget

Appendix 4: Letters of support from organizations that support the project request

Appendix 5: Written consent from an STDF partner that agrees to implement the project **OR** evidence of the technical and professional capacity of another organization proposed to implement the project.

Appendix 6: Key technical staff involved in project implementation.

Appendix 7: Countries' baseline

Appendix 8: Crop/Pest/Pesticide Priority Selection

- (i) **A logical framework** summarizing what the project intends to do and how, what the key risks and assumptions are, and how outputs and outcomes will be monitored and evaluated (Appendix 1). See Qn. 15 (l) of the Guidance Note and the template attached to this application form.
- (ii) **A detailed work plan** indicating the start and completion date of the project, as well as sequence in which activities would be carried out (Appendix 2). See Qn. 15 (m) of the Guidance Note and the template attached to this application form.
- (iii) **Terms of Reference (TORs)** for key national/international experts to be involved in implementation of activities included in the work plan. The TORs should include information on specific tasks and responsibilities, duration of assignments, number of missions (if appropriate), and required qualifications/experience (Appendix 6). See Qn. 15 (n) of the Guidance Note.

APPENDIX 1: Logical Framework⁶

	Project description	Measurable indicators	Sources of verification	Assumptions and risks	STDF Programme Indicators ¹
Goal	Improved compliance in participating Latin American countries with pesticide MRLs of Codex and ensuring growers access to important export markets	<p>Increase in exports of targeted crops from participating countries within five years of project completion Ten 10 (%)</p> <p>10% increase in production under systems that help mitigate waste (GAP or MIP) according to the conditions and characteristics of each country (this means that each country will determine its own baseline).</p>	<p>Surveys with growers/associations participating in the project.</p> <p>National government bodies reports</p> <p>Online information such as EU rapid alerts and other information relating to pesticide residue MRL violations will be monitored to see if the particular problems still appear as trade issues.</p>	<p>Target markets accept Codex or currently established MRL standards.</p> <p>Target biopesticide products are available in participating countries.</p> <p>There is pesticide with reduced toxicity and approved MRL to replace old technology</p> <p>Growers agree to incorporate mitigation measures developed</p> <p>New pests will not affect crop production and exports</p> <p>The monitoring of the indicators could be done by other organizations if the results are achieved outside the project execution period.</p> <p>Additional pesticides used in the crop will not be prohibited</p>	<p># of STDF initiatives and PPGs/PGs contributing to changes in SPS legislation, regulation, policies, strategies, structures and/or processes, including attention to cross-cutting issues (climate change, environment, gender, inclusion).</p> <p>x US\$ value of exports for target HS code products and target markets (i.e. regional, intra-regional, global, etc.)</p> <p>Value (US\$) of new investments Leveraged</p> <p>#, type of collaborative networks, relationships, initiatives at global, regional and/or national level that support the delivery of change in SPS systems, including attention to partnerships addressing climate change, environment, gender, and inclusion</p> <p>Evidence of market access and exports/imports directly facilitated through STDF support, with particular attention to climate change, environment, gender, and inclusion</p>

⁶ See the CIDT Handbook on Project Identification, Formulation and Design, available on the STDF website, for guidance on the preparation of logical frameworks.

<p>Immediate objective / Result</p>	<p>Increased regional collaboration and capacity to generate and evaluate pesticide residue data that combines conventional pesticides with biopesticides and alternative pesticides to resolve trade concerns due to MRLs in the Latin-American region.</p>	<p>Increased understanding among regulatory authorities and growers of how time, IPM production practices and end of season mitigation impact residues</p> <p>Regional work-sharing framework for the identification of regional pesticide residue concerns for key export crops developed</p> <p>Decrease in number of rejections (%)</p> <p>Trade limitations reduced (%)</p> <p>Proportion of producers trained that implement mitigations measures using biopesticides (disaggregated by gender)</p>	<p>Reports written by participants</p> <p>Certificates by trainers</p> <p>List of participants that attended meetings, workshop, work sessions</p>	<p>Countries willing to participate</p> <p>Participating institutions continue</p>	<p>Evidence of improved implementation and/or enforcement of food safety, animal and/or plant health measures for trade, with attention to climate change, environment, gender and inclusion# and type of STDF knowledge products completed/published</p> <p># Knowledge products that address climate change, environment, inclusion or gender equality</p> <p># of people reached (disaggregated by gender and geography/region) with STDF good practices, knowledge products</p>
<p>Output 1:</p>	<p>Regional Research and Training Center on pesticides residues and biopesticides is operational in the region</p>	<p># of people trained by the Center (disaggregated by gender) capable of (i) ensuring strict adherence to the study protocol and (ii) demonstrating technical knowledge in data generation competencies;</p> <p>Number of laboratories implementing (or in process to implement) ISO Certification and/or GLP recognition</p> <p>Number of Biopesticides efficacy experimental protocols designed</p>	<p>National University records and registration</p> <p>Reports from expert team</p> <p>Social media publications</p>	<p>Some meetings will be held virtually</p> <p>Participating institutions continue</p>	

Activities	1.1. Building regional research capacity 1.2. NC State to UCR to develop and deliver soft-skill curricula 1.3. UCR to NC State for staff exchanges and further development of soft-skill curricula 1.4. Courses (in-person and on-line) Offered to Beneficiary Groups (IR4/MUF-UCR; CICAP-UCR)				
Output 2	Countries take national measures in support of regional biopesticide regulatory harmonization	<ul style="list-style-type: none"> - Number of registered biopesticide products identified as mitigation measures. - Number of participating countries registering biopesticides. - Development of regional harmonized guidelines for the registration of biopesticides in coordination with the IICA/USDA Regulatory programs. 	<ul style="list-style-type: none"> - Close communication/coordination with pesticide regulators in the participating countries. - Close communication/coordination with industry. 	<ul style="list-style-type: none"> - High level commitment by key policymakers and regulators in the participating countries. - Industry cooperation. - The development of regional regulatory harmonization guidelines may take time and may be subject to national legal domestication challenges. 	
Activities	2.1 Biopesticide regulatory strengthening at the national and regional levels 2.2 Biopesticide registrations for residue mitigation 2.3 Harmonized evaluation criteria				
Output 3:	Residue Data and Improved Knowledge to Interpret it on the use of Biopesticides (Residue Mitigation Studies)	<ul style="list-style-type: none"> Number of field residue mitigation studies on specific pesticides / commodities (Target =12) Number of protocols generated for pesticide mitigation. 	<ul style="list-style-type: none"> Published reports CABI website Laboratory data 	<ul style="list-style-type: none"> In-kind and financial contributions provided by relevant stakeholders Normal growing season devoid of significant inclement weather or any other factors that would render the field trial data unacceptable Scientists available to attend trainings and apply knowledge gained in follow- 	

		Number of commercial biopesticides of participating countries listed in CABI Bioprotection portal		up	
Activities	<p>3.1 Group training on field and laboratory research (12)</p> <p>3.2 Individual training on field and laboratory research (12)</p> <p>3.3 Countries conduct residue decline studies and bioefficacy studies (12)</p>				
Output 4	<p>National and regional strategy to improve the supply of phytosanitary solutions for minor crops established through collaborative work between the STDF 753 project and the MUF.</p>	<p>Two regional priority proposals, with at least 50 prioritized crop/chemical combinations, submitted by Latin America and the Caribbean in MUF consultative processes.</p> <p>Two proposals developed for the institutional incorporation of minor uses at the country level and methodological proposal for the development of a regional strategy for minor uses.</p> <p>Developed a communication and dissemination strategy on minor uses.</p>	<p>MUF Database and products prioritized.</p> <p>Reports webpage and social media sites.</p> <p>Institutional decisions at the country level and in regional forums (CAC and CAN).</p> <p>Official documents on meetings of regional forums.</p>	<p>The MUF continues with its work plan in the coming years, as it is established today and has adequate financing to operate in the LATAM region.</p> <p>Reception and openness by the decision makers of the countries and regional forums to adopt minor uses as part of their priorities.</p> <p>Decision-making or the implementation of actions at the institutional level can exceed the lifetime of the project.</p> <p>The regional organizations give opening for the presentation, the dialogue and the positioning of the themes linked to the project.</p>	
Activities	<p>Activity 4.1 Positioning the MUF before the countries. Two virtual workshops and one in-person workshop.</p> <p>Activity 4.2 Political positioning of the MUF at the regional level. Six virtual dialogues with regional organizations.</p> <p>Activity 4.3 Developing methodologies for the institutional incorporation of minor uses. One consultancy, two virtual events.</p> <p>Activity 4.4 Regional communication and information strategy on minor uses and MUF.</p>				

<p>Output 5</p>	<p>Grower outreach program to promote the use of biopesticides established and linked to export promotion programs and domestic markets</p>	<p>Number of producers targeted with information (including step down training by master trainers) (disaggregated by gender and medium of communication)</p> <p>Number of existing extension agencies incorporating into their work plans related to the new phytosanitary solutions identified in the project.</p>	<p>Annual work programs of public and / or private institutions that have incorporated the results of the project.</p>	<p>The extension programs of the ministries of agriculture, research institutes and private sector organizations are willing to incorporate the results of the project into their agricultural extension programs.</p>	
<p>Activities</p>	<p>5.1 Inventory of distribution channels of the knowledge generated in the project (includes public and private extension programs, international organizations (such as CABI) and inventory of private sector associations and producer’s associations. In charge of IICA and the central administration of the project.</p> <p>5.2 Develop a plan of approach to the extension programs identified to achieve their involvement in the dissemination of the knowledge developed. In charge of the consultant, the multimedia manager and the central management of the project.</p> <p>5.3 Develop IPM documents for the phytosanitary solutions identified in the project. In charge of the consultant, the multimedia manager and the central management of the project.</p> <p>5.4 Develop a virtual training program for trainers and / or extension workers of the public and private sector. In charge of the consultant</p> <p>5.5 Develop a package of informational products to be delivered to the different extension instances for their use and dissemination. In charge of the consultant, the multimedia manager and the central management of the project.</p> <p>5.6 Incorporate into the multimedia and communication program what is related to the scientific results obtained in the project. In charge of the consultant, the multimedia manager and the central management of the project.</p>				

APPENDIX 2: Work Plan⁷

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Management													
I. Inception Meeting: project goals, plans, outputs shared with partners, input provided and project guidance	Eric Bolaños EB Adriana Castañeda AC Nigel Hunter NH Michael Braverman MB Dirk Drost DD Veronica Picado VP Jason Sandahl JS Danesha Seth Carley DC Luis Suguiyama LS Kevin Rice KR												
II. Steering/Advisory Committee Meeting: annual meetings for guidance and progress	EB AC												
III. Reports to STDF: quarterly reports and final report	EB AC												
IV. Closing Meeting: review results, final evaluation, recommended follow up	EB AC												

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Output 1: Regional Research and Training Center on pesticides residues and biopesticides is operational in the region

⁷ Please shade or otherwise indicate when the activity will take place.

1.1. Building regional research capacity	VP JS												
1.2. NC State to UCR to develop and deliver soft-skill curricula	LS GL												
1.3. UCR to NC State for staff exchanges and further development of soft-skill curricula	Danesha Carley DC Wayne Jiang WJ Kevin Rice KR												
1.4: Courses (in-person and on-line) Offered to Beneficiary Groups (IR4/MUF-UCR; CICAP-UCR)													

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 2: Countries take national measures in support of regional biopesticide regulatory harmonization													
2.1 Biopesticide regulatory strengthening at the national and regional levels	JS EB LS												
2.2 Biopesticide registrations for residue mitigation													
2.3 Harmonized evaluation criteria													

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 3: Residue data and improved knowledge to interpret this data on the use of biopesticides (Residue Mitigation Studies)													
3.1 Group training on field and laboratory research (12)	JS KR WJ												
3.2 Individual training on field and laboratory research (12)	Grace Lennon GL MB DD												
3.3 Countries conduct residue decline studies and bioefficacy studies (12)													

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 4: Regional strategies to improve the supply of phytosanitary solutions for minor crops established (Minor Use Foundation Chapter Latin America)													
4.1 Positioning the MUF before the countries. Two virtual workshops and one in-person workshop.													
4.2 Political positioning of the MUF at the regional level. Six virtual dialogues with regional organizations	EB AC VP LS												
4.3 Developing methodologies for the institutional incorporation of minor uses. One consultancy, two virtual events.	JS MB DD												

4.4 Regional communication and information strategy on minor uses and MUF.													
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Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Output 5: Grower outreach program to promote the use of biopesticides established and linked to export promotion programs and domestic markets

5.1 Inventory of distribution channels of the knowledge generated in the project (includes public and private extension programs, international organizations (such as CABI) and inventory of private sector associations and producer’s associations. In charge of IICA and the central administration of the project.													
5.2 Develop a plan of approach to the extension programs identified to achieve their involvement in the dissemination of the knowledge developed. In charge of the consultant, the multimedia manager and the central management of the project.	EB JS												
5.3 Develop IPM documents for the phytosanitary solutions identified in the project. In charge of the consultant, the multimedia manager and the central management of the project.	LS VP KR												
5.4 Develop a virtual training program for trainers and / or extension workers of the public and private sector. In charge of the consultant													
5.5 Develop a package of informational products to be delivered to the different extension instances for their use and dissemination. In charge of the consultant, the multimedia manager and the													

<p>central management of the project. 5.6 Incorporate into the multimedia and communication program what is related to the scientific results obtained in the project. In charge of the consultant, the multimedia manager and the central management of the project.</p>													
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APPENDIX 3: BUDGET

STDF LATAM Project Budget	STDF	IN-KIND	
		Beneficiary Countries	Partners
Inception workshop			
Consultancy fees	\$3,900		
Interpretation services	\$1,000		
Subtotal Inception workshop	\$4,900		
Output 1: Regional Research and Training Center on pesticides residues and biopesticides is operational in the region			
Activity 1.1: Building Regional Research Capacity			
Consultancy fees	\$6,500		
1.2. NC State to UCR to develop and deliver functional capacities curricula			
Consultancy fees	\$6,500		
Air travel to Costa Rica	\$7,000		
DSA (5 days)	\$3,750		
Miscellaneous (visas, vaccinations, PCR test, travel insurance)	\$1,000		
Local transportation	\$625		
Venue conference space		\$2,500	
NC State and UCR staff salary in-kind		\$5,000	\$10,000
1.3. UCR to NC State for staff exchanges and further development of functional capacities curricula			
Consultancy fees	\$6,500		
Air travel to Costa Rica	\$7,000		
DSA (5 days)	\$4,675		
Miscellaneous (visas, vaccinations, PCR test, travel insurance)	\$1,000		
Local transportation	\$1,000		
Venue conference space		\$2,500	
NC State and UCR staff salary in-kind		\$5,000	\$10,000
Activity 1.4: Courses (in-person and on-line) Offered to Beneficiary Groups (IR4/MUF-UCR; CICAP-UCR)			
Consultancy fees	\$19,000		
Training of Trainers (Communication Skills)			\$4,000
Training of Trainers (Technical Skills)			\$161,000
On-Line courses of soft skills	\$7,000		
Sub-total	\$71,550	\$15,000	\$185,000
Output 2: Countries take national measures in support of regional biopesticide regulatory harmonization			
Activity 2.1: Biopesticide regulatory strengthening at the national and regional levels			
Consultancy fees	\$4,000		
Activity 2.2: Biopesticide registrations for residue mitigation			
Consultancy fees	\$4,000		
Activity 2.3: Harmonized evaluation criteria			
Consultancy fees	\$11,000		

Air travel to Argentina, Paraguay, Dominican Republic (to support Activities 2.1, 2.2, and 2.3)	\$8,000		
DSA (4 days x 3 trips)	\$5,000		
Miscellaneous (visas, vaccinations)	\$600		
Venue conference space		\$3 000,00	
Local transportation	\$600		
Sub-total	\$41,200	\$3,000	
Output 3: Residue Data and Improved Knowledge to Interpret it on the use of Biopesticides (Residue Mitigation Studies)			
Activity 3.1: Group training on field and laboratory research. (12)			
Consultancy fees	7,800	0	
IR4, MUF in-kind staff salary		0	2,500
Interpretation services	3,000	0	
Activity 3.2: Individual training on field and laboratory research. (12)			
Consultancy fees	27,300	0	
IR4, MUF in-kind staff salary			5,000
Air travel to 7 project countries	39,500	0	
DSA (3 days per country visit)	18,480	0	
Venue conference space		3,500	
Local transportation	3,200	0	
Miscellaneous (visas, vaccinations, PCR test, travel insurance)	5,000	0	
Interpretation services	17,000	0	
Activity 3.3: Countries conduct residue decline studies and bioefficacy studies (12)			
Consultancy fees	58,500	0	
IR4, MUF in-kind staff salary		0	10,000
Budget for each country x 12 countries		0	
Field multi-residue decline studies (Field)	72,000	0	
Field multi-residue decline studies-analysis (Lab)	54,000	0	
Field bipesticide efficacy studies	72,000	0	
Small equipment - grinders and dry ice generators	42,000	0	
Personnel, field and Laboratory equipment use fees and maintenance contracts, use of hoods and physical space and scientific personnel (In-kind by hosting institutions)		480,000	
Analytical, field test substances and biopesticides contributed by industry		0	42,000
Sub-total	419,780	483,500	59,500
OUTPUT 4 Regional strategy to improve the supply of phytosanitary solutions for minor crops established (Minor Use Foundation Chapter Latin America)			
Activity 4.1 Positioning the MUF before the countries. Two virtual workshops and one in-person workshop.			
Consultancy fees	6000		
IR4, MUF in-kind staff salary and support			41500
Air travel to Colombia	25000		
DSA (3 days)	15600		
Miscellaneous (visas, vaccinations, PCR test, travel ensurance)	5200		
Venue conference space	12000		
Local transportation	1300		
Interpretation services	7500		

Activity 4.2 Political positioning of the MUF at the regional level. Six virtual dialogues with regional organizations			
Consultancy fees	6000		
MUF in-kind staff salary			2500
Activity 4.3 Developing methodologies for the institutional incorporation of minor uses. One consultancy, two virtual events.			
Consultancy fees	6000		
MUF in-kind staff salary			2500
Activity 4.4 Regional communication and information strategy on minor uses and MUF.	Develop multimedia tools to help disseminate and communicate the work of the MUF and promotion of minor uses		
Consultancy fees	8250		
MUF in-kind staff salary			2500
Sub-total	92850		49000
Output 5: Grower outreach program to promote the use of biopesticides established and linked to export promotion programs and domestic markets			
5.1 Inventory of distribution channels of the knowledge generated in the project (includes public and private extension programs, international organizations (such as CABI) and inventory of private sector associations and producer's associations. In charge of IICA and the central administration of the project.			
IICA In-Kind activity	0	0	\$10,000
5.2 Develop a plan of approach to the extension programs identified to achieve their involvement in the dissemination of the knowledge developed. In charge of the consultant, the multimedia manager and the central management of the project.			
Consultancy fees	\$5,000		
5.3 Develop IPM documents for the phytosanitary solutions identified in the project. In charge of the consultant, the multimedia manager and the central management of the project.			
Consultancy fees	10,000		
5.4 Develop a virtual training program for trainers and / or extension workers of the public and private sector. In charge of the consultant			
Consultancy fees	14,000		
Translation services	2,000		5,000
5.5 Develop a package of informational products to be delivered to the different extension instances for their use and dissemination. In charge of the consultant, the multimedia manager and the central management of the project.			
Materials	10,000		
5.6 Incorporate into the multimedia and communication program what is related to the scientific results obtained in the project. In charge of the consultant, the multimedia manager and the central management of the project.			
Materials	10,000		
Sub-total	51,000		15,000
FINAL DISEMINATION MEETING (Virtual)			
Consultancy fees	\$4,550		
Interpretation services	\$1,000		
Subtotal	\$5,550		
OTHERS			
End of project independent assessment	\$15,000		
Subtotal Others	\$15,000		
Program Management			

IICA's contribution in management, administration and administration. (Headquarters and 11 IICA Offices). Approximately 25 officials.			\$116,400
Community manager	\$14,000		
Program Assistant IICA	\$10,800		
Consultant Project Manager	\$53,000		
IR4, MUF, USDA in-kind staff salary			\$12,500
Sub total PM	\$77,800	\$0	\$128,900
PROJECT SUBTOTAL 1 (SUM of all outputs + PM + OTHERS)	\$779,630	\$501,500	\$437,400
Contingency funds (5% of subtotal above)	\$38,982		
PROJECT SUBTOTAL 2	\$818,612		
IICA Overhead (10% of project subtotal 2)	\$81,861		
TOTAL REQUESTED FROM STDF (Sum of subtotal 2 + overhead)	\$900,473		
GRAND TOTAL (REQUESTED STDF + beneficiary countries and partners)	\$1,839,373		