



Agricultural Health,  
Safety and Food Quality



# Agricultural Health, Food Safety and Food Quality Program



**Inter- American Institute for  
Cooperation on Agriculture**

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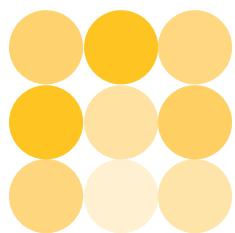
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In **1979**, a Ministerial resolution established IICA's first Program in Agricultural Health. At the time, the Program was established to provide technical support to countries in the Americas to address animal diseases and plant pests that threatened agricultural production. Since its establishment, the Program has grown and evolved, firstly to address emerging concerns around food safety, then to include modernization of national services in line with the World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), and currently, based on the current MTP (2018-2022), to include food quality. Throughout its history, the Program's success has rested on the relevance and importance of topics addressed, the high quality of IICA's technical interventions, and the deep network of human resources that IICA counts on throughout the Americas and around the world.



But why is this topic so important to countries, and what opportunities do we have for continuing to provide necessary support while growing in a strategic way? The Americas provide food for the world and agriculture is a source of growth and development for the countries of the Region. Moreover, the importance of agriculture will continue to increase because of the growing global demand for food due to population growth, increasing purchasing power, and globalization (OECA/FAO 2018). However, despite this positive forecast, diseases and pests continue to directly and significantly affect the productivity of agricultural systems and therefore the availability of food. Food safety, which is closely tied to consumer preference and demand, now encompasses the entire production system from farm to fork, and all actors need to be aware of and take measures to ensure that the food they sell will not sicken those who eat it. This challenge is complicated by the use of biological and chemical inputs that, while often



necessary to maximize yields, may affect the final quality of products and have an impact on marketing and exports.

Most of the countries of the Americas have made important investments in the development and strengthening of public services with competence in agricultural health and food safety, as well as those oriented to regulate and control quality systems. Through these, they establish and implement policies geared at preventing the entry and spread of pests and diseases and maintaining a safe food supply. They also work to guarantee sanitary and phytosanitary status, as well as the quality of the agricultural products and food they export, while taking into consideration the regulations of the country of destination and international standards. National services have multiple public and private sector actors that intervene and interact in the value chains, and it is very important to coordinate and harmonize their work with these important stakeholders.

In accordance with the international agreements, international plant health, animal health, and food safety standards should be based on scientific evidence. Ideally, international standards such as those established by the International Plant Protection Convention (IPPC), the World Animal Health Organization (OIE), and the Codex Alimentarius help countries in the Americas meet the needs of their consumers while engaging in safe trade. Challenges remain though, and some countries attempt to use international standard setting bodies to legitimize or advance domestic policies that are not based on science. This reality demands an active participation of countries in international fora to defend their interests and influence the standard setting process.

The goal of the Agricultural Health, Food Safety and Food Quality Program is to promote a productive, competitive, and sustainable agricultural sector that provides safe food to local, regional and global markets through the development, improvement and application of agricultural health and food safety policies. This document will outline the nature of challenges in the Americas, our approach to addressing these opportunities, and the capacities we currently have to meet these demands.



# Some Illustrative Data

The Central<sup>1</sup> and South Regions of the Americas are net exporters of agricultural crops and livestock products, while the Caribbean Region is a net importer (FAOSTAT). In South America, the ratio between the value of imports and exports is 1:4 (FAOSTAT), indicating the extreme importance of trade for the financial well being of countries in this region.

OECD/FAO (2018) predicts that agricultural and fisheries production in Latin America and the Caribbean will expand by 17% over the next ten years. Increased crop and livestock production will account for over 90% of this expected increase, with fisheries expected to expand by 8%.

Total crop production in the region is projected to grow by 1.8% per year. About 60% of this growth will be due to yield improvements, which will rise across the region over the coming decade by 11% on average, with the most important changes expected for the cereals and oilseeds sectors. The remainder of the expansion of crop production will be due to an expansion in area harvested (OECD/FAO 2018).

Based on recent research, global estimates for yield loss based on plant pests are 21.5% for wheat, 30% for rice, 22.5% for maize, 17.2% for potato and 21.4% for soybean, and these losses are frequently associated with emerging or re-emerging pests and diseases (Savary et al. 2019).

Meat production in the region will expand by 19%, to meet growth in global and domestic demand. While domestic meat consumption is set to rise by 17% by 2027, regional production will become increasingly export oriented, with meat exports from the region expanding by 31% from the 2015-17 base period, or an expansion four times that of the past ten years. (OECD/FAO 2018).

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<sup>1</sup> While valuable, exports in the Central Region are mainly limited to tropical fruits and overall, the region imports many food products.

While specific data are unavailable, experts (Rushton et al. 2018) estimate that the burden of individual animal diseases, such as foot and mouth disease, is high, ranging from 20% reduction in global production of animal-source food in upper income countries to losses of up to 50% in developing countries.

The World Health Organization (WHO 2015) estimates that foodborne illnesses sicken over 600 million people each year, leading to nearly half a million deaths. At the global level, *Salmonella* is one of the most highly ranked foodborne hazards based on disability-adjusted life years.

Development of antimicrobial resistance (AMR) has the potential to affect the entire population of the Americas- over 1,000,000,000 individuals.

## Potential Benefits

Food – fruits, vegetables, grains, meat, and dairy – is essential to sustain life. All countries count on their agricultural sectors to help ensure that they have the food they need to feed their people. Beyond simply feeding people, the culture of agricultural production is an important part of national identity. Most countries cannot produce all of the food their populations need and trade is necessary to fill this gap. Agricultural trade is one of the few, and most important means by which countries can increase their national wealth by receiving capital from other countries.

To take advantage of these opportunities, countries and their productive sectors must have national services that function, access to technology and best practices, and a fair trade environment to ensure that they can provide the food they need and capitalize on the business opportunities that drive the national economy. Through the application of diagnostic tools and follow-up development activities, IICA helps countries modernize their national agricultural health and food safety services. IICA works with national services, producers, and other actors within the agricultural sector to provide access to





the tools, technologies, and services they need to maintain and improve their production. Finally, IICA works with countries, international organizations, and diverse groups of stakeholders to develop and implement international standards that help ensure and facilitate safe trade in agricultural products. Generally, opportunities to strengthen Agricultural Health, Food Safety and Food Quality systems at the national level include the following:

Area to Benefit	Definition	Practices (examples)
Modern National Services	<p>National Animal Health, Plant Health, and Food Safety Services are able to fulfill their mandates to protect consumers, production systems and the environment.</p> <p>National Services are able to capitalize on foreign market opportunities by complying with SPS requirements.</p>	<ul style="list-style-type: none"> <li>• Strong technical capacities</li> <li>• Productive interaction with the private sector</li> <li>• Sufficient human and financial capital</li> <li>• Capacity to seek and maintain market access for agricultural products</li> </ul>
The SPS Agreement and International Standards	<p>Countries are able to comply with and benefit from their rights and obligations under the WTO SPS Agreement.</p> <p>International animal health, plant health, and food safety standards reflect and account for country and sector preferences and perspectives.</p>	<ul style="list-style-type: none"> <li>• National SPS and standard setting committees are established and function</li> <li>• Countries are aware of and comply with requirements under the SPS Agreement</li> <li>• Countries actively participate in the standard setting process as conducted by the OIE, the IPPC, and the Codex Alimentarius</li> </ul>
Sound Production Practices	<p>Agricultural producers have access to the knowledge, techniques and tools they need to maximize their opportunity to earn a living.</p>	<ul style="list-style-type: none"> <li>• Capacity to prevent and respond to pest, disease, and food safety outbreaks</li> <li>• Access to and use of appropriate tools to increase yield and profitability</li> <li>• Use of Good Agricultural Practices (GAPs) and Good Manufacturing Processes (GMPs)</li> <li>• Understanding of third party accreditation programs and other private sector initiatives</li> </ul>





## Main opportunities and challenges

### *Strengthening and modernizing of capacities in agricultural health, food safety and food quality*

Countries need developed institutions and modern systems at the national and regional levels to take advantage of new opportunities in national and international markets while protecting consumers, agricultural production, and natural resources. Public-private interaction is critical for the design and implementation of robust, effective policies. Therefore, it is necessary that these sectors collaborate with each other to take advantage of and maximize technical capacities and investments such as those made by the private sector in food safety systems.



Beyond the national level, regional integration mechanisms coordinate and facilitate cooperation and are increasingly linked to coordinated strategies on issues of common interest and the development of consensus positions in international arenas. In this way regional integration can drive modernization across the hemisphere, as countries that rely on one another are more likely to work together in positive, productive ways.

## *Effective implementation of international standards*

Fair, transparent rules based on scientific evidence are the basis for functioning national and international markets. Countries in the Americas must have the capacity to participate in and influence standard setting processes to safeguard their commercial and production interests. The three international organizations that conduct this work (the International Plant Protection Convention (IPPC) for plant health, the World Animal Health Organization (OIE) for animal health, and the Codex Alimentarius for food safety) generate new standards and new revised codes every year, and many countries struggle to keep up with these new developments while meeting their responsibilities to implement national laws and regulations.

The wide diversity of sanitary and phytosanitary requirements applied by importing countries to protect their markets, sometimes beyond what is justified based on scientific evidence, constitute a challenge to international trade and food security. In addition, obligations under the new WTO Trade Facilitation Agreement require harmonization of sanitary and phytosanitary requirements and development of approaches that speed up border processes while maintaining safe trade. Coupled with SPS requirements imposed by importing countries, this combination of demands may place a considerable strain on limited technical and institutional resources.

## *Adoption of good practices and improved response to emergencies*

Pests, diseases, and foodborne illnesses are a constant threat to production and markets. Countries and agricultural producers need to develop and use surveillance programs and available knowledge to increase productivity and address health problems in an integrated manner (a “One Health” approach, for

example). Regulations and practices that guarantee the safety and the quality of agricultural products are necessary, taking into consideration the great diversity of production systems across the Americas. Variability in agricultural systems caused by climate change is a new and evolving challenge, resulting in increased frequency and severity of pests and diseases outbreaks. These emerging challenges and emergencies can generate profound impacts on production, economy, and development. As such, countries require greater investments, as well as the strengthening of technical and institutional capacities, to address these needs.

## Guidelines for the Agricultural Health, Food Safety and Food Quality Program

IICA's work on AHFS issues is geared at promoting a productive, competitive, and sustainable agricultural sector that provides safe food to local, regional and global markets through the development, improvement and application of agricultural health and food safety policies, and this program will contribute to the 2018-2022 MTP's four strategic objectives. In addition, Program actions either indirectly or directly support a number of the United Nations Sustainable Development Goals (SDGs), including Goal 2, *End hunger, achieve security and improved nutrition and promote sustainable agriculture*; Goal 10, *Reduce inequality within and among countries*; Goal 12, *Ensure sustainable consumption and production patterns*, and Goal 17, *Partnerships for the goals*.

Specifically, actions implemented through this Program will contribute to doubling agricultural productivity of small-scale food producers by providing knowledge, helping to identify markets, and seeking opportunities for value addition (Goal 3). Through our work with the WTO and the International

Standard Setting Bodies, we will support correction and prevention of trade restrictions and distortions in world agricultural markets (Goal 10). We will also work to ensure enhanced representation and voice for developing countries in decision-making in global international institutions (Goal 10). Per Goal 12, we will support our countries as they seek to halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses. Finally, we will continue to foster partnerships between governments, the private sector and civil society built on principles and values, a shared vision, and shared goals (Goal 17).

The five Hemispheric Programs work closely together to achieve the objectives mentioned above. We will work closely with the International Trade and Regional Integration Program, as issues related to the health, safety and quality of food for national, regional and international markets are relevant to both Programs. Key linkages with the Bio-economy and Production Development Program are related to the use of technology to address production challenges and market access support for new products. We will leverage our knowledge around food safety and good agricultural practices to support actions by the Territorial Development and Family Agriculture Program aimed at improving access by small farmers to local, national, and regional markets. Finally, we will share our knowledge and expertise on pest and disease management with the Climatic Change, Natural Resources and Management of Production Risks Program to provide guidance that agricultural producers request and need.







# Línea 1

## **Line 1: Institutional Strengthening**

Following the guidelines of the MTP, the Program will promote the application of its Signature Product, the Performance, Vision and Strategy (PVS) tool, and will strengthen organizational systems that facilitate implementation, impact evaluation, and transparency of national services. The success of the PVS is based on the implementation of specific strategies defined by each of the countries and the Program will support the formulation and implementation of such strategies at national and regional levels. It will also continue to support work to strengthen and modernize regional institutions, such as CVP, COSAVE, and CAC, and identify opportunities for the generation of new projects, mechanisms and new collaborative arrangements.

Likewise, we will promote the participation of the private sector in regulatory processes and in the design, implementation and evaluation of national and regional technical programs. IICA will also implement capacity building initiatives to strengthen key leadership and project management skills to ensure that countries have the human resources they need to be successful in the future.

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# Línea 2

## **Harmonization, updating and implementation of agricultural health, food safety and quality standards.**

In collaboration with the Commerce and Regional Integration Program, we will promote harmonization, updating and implementation of sanitary and phytosanitary measures within the framework of the WTO Agreements for the Application of Sanitary and Phytosanitary Measures, Trade Facilitation, and Technical Barriers to Trade. We will implement projects to strengthen negotiation and decision making skills, as well as promote active and effective participation by countries in strategically important international forums. We will attempt to strengthen National SPS Committees, which play a key role in harmonization of regulations and standards, through the exchange of information, horizontal cooperation and strategic alliances.

Working with a number of external partners, we will continue to strengthen capacity for the effective implementation of international standards and technical regulations, and support compliance with requirements necessary for access to international markets.

## Línea 3

### Development of capacities for the adoption of good agricultural practices and addressing emerging issues for agricultural health and food safety emergencies, especially in cross-border emergencies.

In order to reduce pest damage, loss due to disease, and promote efficient use or production inputs, we will encourage understanding and use of Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP), both in production for export and for national consumption. In order to leverage private sector investments, we will facilitate dialogue with relevant stakeholders regarding third-party accreditation programs. We will continue to develop and implement cost-effective training programs that use technology to promote a solid culture of food safety and quality in the Americas.

In collaboration with the Climate Change Program, we will strengthen national and regional capacities in surveillance systems, risk management, and





preparation and response to sanitary and phytosanitary emergencies, including early warning systems. By leveraging our human resources and networks, we will continue to develop and implement targeted interventions in specific diseases and pests when the need and demand arises. Technical capacities to deal with antimicrobial resistance (AMR) will be developed and strengthened. Likewise, we will continue to support countries as they develop and implement integrated surveillance plans for AMR.

Finally, based on specific requests from member countries, IICA will expand its work on the design and evaluation of sanitary and phytosanitary programs that include economic considerations.



# IICA's experiences, knowledge, and tools

IICA has worked in the area of agricultural health for over 40 years and, during that time, has amassed considerable experience and expertise in areas that are critically relevant to our Member Countries. Beyond capacities within the Institute, we count on a large network of collaborators in both the public and private sector to support implementation of technical capacity building projects. In this way, knowledge management is both an internal and external process, as this network can shift and change focus depending on the short-, medium-, and long-term needs.

Regardless of the timeframe, IICA's key strengths in Agricultural Health, Food Safety and Food Quality fall into three categories: modernization, sanitary and phytosanitary measures, and technical capacity building.

***The following are some of the Institute's conceptual and methodological approaches on which it is possible to further capitalize.***

**Modernization:** Cooperation to modernize and strengthen sanitary and phytosanitary services, as well as food safety systems, is one of the topics in greatest demand from a technical, methodological and financial point of view. As part of a process of innovation in technical cooperation, IICA has focused its efforts on the development of diagnostic instruments, known as Performance, Vision, and Strategy (PVS) tools, that contribute to the strengthening and modernization of National Services and which serve as a model for Member States to adapt their services and systems to address the challenges of globalization (IICA 2008, 2012, 2015).

For over more than fifteen years, we have acquired enormous experience in the application of these tools, which, due to their flexibility, allow them to be adapted to the objectives of the counterparts that request their use. It is possible to guide the application towards the definition and restructuring of a new service through a project with its own or external financing, or to







address the strengthening of specific areas or topics such as the capacity to respond to emergencies or the performance of laboratories. In recent years, the methodology has been updated to allow the characterization stage to be conducted virtually, which significantly reduces implementation costs.

The PVS tools are international public goods that IICA places at the service of its member countries and whose process and strategy have served as the basis for other international reference organizations such as the OIE and the IPPC to structure and develop their own evaluation tools. The tools are also used by other international organizations both before and after granting financial resources to recipient countries. Although IICA initially intended the PVS as a tool for application at the national level, other application modalities such as sub-national, sectoral and regional have generated interest and have great potential.

Increasingly, countries look to economic evaluations to justify and support decision-making. Official veterinary services plan and execute animal disease control programs that affect producer organizations, growers, and private companies that comprise the animal product value chain. Countries are interested in analyzing the economic aspects of these control programs, considering the importance of their official sanitary status, budget constraints, the growing availability of diagnostic technology, preventive measures and treatments, and commercial demands for animals and products of animal origin. This situation has created an enabling environment to incorporate economic considerations into the decisions of official services and producer groups.

In this sense, the design and economic evaluation of animal health programs is a growing demand, including prioritizing sanitary actions, identifying and justifying public and private sector financing, and supporting efficient allocation of economic resources. Since 2015, IICA has organized capacity building workshops, participated in technical and scientific events and published IICA technical documents and articles in refereed journals on the subject. The continuous demand for technical cooperation on topics related to the design of animal health programs and their economic components and the invitation to participate in technical-scientific events has positioned IICA as a leader in the Americas and a strategic partner for global activities in this area.

**Sanitary and Phytosanitary measures:** Market opportunities are an important aspect of agricultural development, and we implement strategic activities that help member countries implement international agreements, and develop and comply with international and regional standards. These actions promote trade while protecting human, animal, and plant health.

IICA has a privileged position as Official Observer in these forums (WTO SPS Committee, the Commission on Phytosanitary Measures, the OIE Global Assembly of Delegates, and the Codex Alimentarius Commission, among others), through which it has developed a reputation as an ideal collaborator and partner to identify strategic alliances and opportunities for technical cooperation. Current partnerships include IICA's valued role in the Standards and Trade Development Facility (STDF), WTO support for IICA's SPS Leadership Program, IICA support for the WTO Advanced SPS Course, and work to develop guidance to help countries in SPS negotiations. IICA will continue to take advantage of this trusted position and use its independence and objectivity to convene relevant actors to develop capacity building programs and implement high-impact activities. Likewise, we will continue to support participation in international forums, integrating lessons learned and concentrating efforts and resources. IICA will also continue ongoing work to strengthen National SPS Committees, National Codex Committees and other national bodies while promoting good regulatory practices and regional harmonization of SPS processes.

International standards address many issues associated with agricultural products and may include guidance that refers to product quality. Beyond these standards, producers and buyers often use third-party assurances, which are outside of the international SPS regime, to ensure that products that enter the market are safe for consumption and of high quality. It can be difficult for countries and producers to navigate various importer requirements, resulting in lost market opportunities. Through partnerships with the private sector, IICA promotes improved use and understanding of tools and programs related to food quality. In this way, we work to ensure that producers and national services understand how such quality programs can improve market access, profitability, and leverage both public and private sector investments.

**Technical capacity building:** IICA offers a large number of training opportunities to address specific country and sector needs by leveraging human resources inside and external to the Institute. In food safety, IICA has demonstrated capacity to support countries as they work to comply with the United States Food Safety Modernization Act (FSMA). Starting in 2014, we established a large network of trained professionals across the Americas that support Member Countries in this technical area. In addition, by working with virtual platforms, IICA established the Regional Virtual Food Safety Inspection School to provide training to competent authorities in Central America. In addition to these courses, IICA developed and offers online training on HACCP, GAPs, and third-party programs.

Regarding animal health, IICA traditionally has supported targeted interventions to address specific disease challenges facing agricultural producers in the Americas (foot and mouth disease [FMD], Brucellosis, Tuberculosis, highly pathogenic avian influenza [HPAI], etc.). In recent years, we expanded our actions to reflect increased demands for emergency preparedness training, particularly as related to the FAO Good Emergency Management Practices (FAO 2011). Our partnerships with the FAO, the OIE, the Pan-American Health Organization (PAHO), and OIRSA are and will continue to be critical as we address animal health needs in the Americas, including our work on AMR.

Finally, with regard to plant health, IICA has a long history of strengthening phytosanitary capacity in the Americas. From interventions that address specific pest outbreaks (*Fusarium* in banana, exotic fruit flies, grasshoppers, etc.) to technical capacity building around pest risk assessment and risk management (among many others), IICA is a regional leader in plant health, including the recent establishment of the Regional Virtual Plant health inspectors School in South America. Building on these historic strengths, we will incorporate new strategic issues like strengthening surveillance systems, improving risk management, developing early warning systems and emergency responses, building phytosanitary intelligence systems, and economic evaluation of phytosanitary programs, as well as developing new mechanisms and strategic partnerships.





## Partnership and Alliances

It is important to have a broad and varied network of alliances that contribute to improving and expanding technical cooperation projects. Also, it is important to have diverse strategic allies and financial partners, including countries, international and regional organizations, national and multilateral financing institutions, the private sector and others. Taking advantage of IICA's presence and focus on agriculture in the Americas, we will continue to promote new strategic alliances and increase interaction with other regional and international organizations.

The following table provides examples of some key partnerships but is not an exhaustive list:

Type of Partner	Examples	Type of Interaction and Collaboration
International Organization	<ul style="list-style-type: none"> <li>• World Trade Organization</li> <li>• Food and Agriculture Organization</li> <li>• The World Bank</li> <li>• World Animal Health Organization</li> </ul>	<ul style="list-style-type: none"> <li>• IICA provides technical training and support to increase the relevance and use of these organizations</li> <li>• IICA relies on experts to provide technical backstopping</li> <li>• In some cases, these organizations fund IICA's work</li> </ul>
Regional Organization	<ul style="list-style-type: none"> <li>• Permanent Veterinary Committee of the Southern Cone (CVP)</li> <li>• Committee of Plant Health of the Southern Cone (COSAVE)</li> <li>• International Regional Organization for Agricultural Health(OIRSA)</li> <li>• Pan-American Health Organization (PAHO)</li> <li>• North American Plant Protection Organization (NAPPO)</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate technical cooperation around key regional issues</li> <li>• Develop and implement joint funding projects and initiatives</li> <li>• IICA provides technical and financial support for some regional organizations</li> </ul>
National Services and Agencies	<ul style="list-style-type: none"> <li>• USDA/FAS, USDA/APHIS</li> <li>• AAFC, CFIA, PHAC Canada</li> <li>• European Union</li> <li>• SENASICA Mexico</li> <li>• ACHIPIA Chile</li> </ul>	<ul style="list-style-type: none"> <li>• Source of the majority of funding for this Program</li> <li>• Provide technical and strategic guidance regarding national, regional, and hemispheric priorities</li> <li>• Source of technical expertise</li> </ul>
Private Sector	<ul style="list-style-type: none"> <li>• Global Food Safety Initiative</li> <li>• S-SAFE</li> <li>• Bayer</li> </ul>	<ul style="list-style-type: none"> <li>• Provide technical and strategic guidance regarding sectoral priorities</li> <li>• Source of technical expertise</li> <li>• In some cases, these organizations fund IICA's work</li> </ul>
Academia	<ul style="list-style-type: none"> <li>• Ohio State University</li> <li>• University of Nebraska-Lincoln</li> <li>• Iowa State University</li> </ul>	<ul style="list-style-type: none"> <li>• Support technical training and capacity building initiatives</li> <li>• Supply experts for technical backstopping</li> </ul>







## Literature Cited

- FAO. 2019. FAOSTAT, online data base. Rome, Italy.
- FAO. 2011. Good Emergency Management Practices: The Essentials. Edited by Nick Honhold, Ian Douglas, William Geering, Arnon Shimshoni and Juan Lubroth. FAO Animal Production and Health Manual No. 11. Rome, Italy.
- IICA. 2017. CEPAL, FAO, IICA Perspectivas de la agricultura y del desarrollo rural en las Américas: una mirada hacia América Latina y el Caribe 2017-2018. San José, Costa Rica. 266 p.
- IICA. 2018. Medium Term Plan 2018-2022. San Jose, Costa Rica.
- IICA. 2015. Performance, vision and strategy (PVS) tool for national plant protection organizations. San José, Costa Rica.
- IICA. 2012. Performance, vision and strategy (PVS) for national food safety control systems and services. San José, Costa Rica.
- IICA. 2008. Performance, vision and strategy (PVS) for national veterinary services. San José, Costa Rica.
- IICA. 1979. Establecimiento de los programas de sanidad animal y de sanidad vegetal. San Jose, Costa Rica. Document IICA/RAJD/Res.94(18/79)
- OECD/FAO (2018), OECD-FAO Agricultural Outlook 2018-2027, OECD Publishing, Paris/Food and Agriculture. Organization of the United Nations, Rome. [https://doi.org/10.1787/agr\\_outlook-2018-en](https://doi.org/10.1787/agr_outlook-2018-en)
- Rushton, J. and M. Bruce, C. Bellet, P. Torgerson, A. Shaw, T. Marsh, D. Pigott, M. Stone, J. Pinto, S. Mesenhowski, and P. Wood. 2018. Initiation of Global Burden of Animal Diseases Programme. The Lancet. 392: 538-540. 10.1016/S0140-6736(18)31472-7.
- Savary, S. and L. Willocquet, S.J. Pethybridge, P. Ensker, N. McRoberts, and A. Nelson. 2019. The global burden of pathogens and pests on major food crops. Nature Ecology & Evolution. 3: 430-439.
- UN General Assembly, Transforming our world: The 2030 Agenda for Sustainable Development, 21 October 2015, A/RES/70/1
- World Health Organization (WHO). 2015. WHO estimates of the global burden of foodborne diseases: Foodborne disease burden epidemiology reference group 2007-2015. Geneva, Switzerland.
- World Trade Organization (WTO). 2019. Agreement on the Application of Sanitary and Phytosanitary Measures - text of the agreement. [online] Available at: [https://www.wto.org/english/tratop\\_e/sps\\_e/spsagr\\_e.htm](https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm).
- World Trade Organization (WTO). 2019. Agreement on Technical Barriers to Trade - text of the agreement. [online] Available at: [https://www.wto.org/english/docs\\_e/legal\\_e/17-tbt\\_e.htm](https://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm).
- World Trade Organization (WTO). 2019. Trade Facilitation - text of the agreement. [online] Available at: [https://www.wto.org/english/tratop\\_e/tradfa\\_e/tradfa\\_e.htm](https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm)









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