ove Office of Evaluation and Oversight

Review of the Bank's Support to Agriculture, 2002-2014:
Evidence from Key Thematic Areas

Comparative Project Evaluation of Agriculture Health and Food Safety

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ANNEX III: REVIEW OF THE BANK'S SUPPORT TO AGRICULTURE, 2002-2014: EVIDENCE FROM KEY THEMATIC AREAS

COMPARATIVE PROJECT EVALUATION OF AGRICULTURAL HEALTH AND FOOD SAFETY

Office of Evaluation and Oversight (OVE)

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This document was prepared by Romina Ordoñez (translated from the original version in Spanish).

ABBREVIATIONS AND ACRONYMS

CCLIP	Conditional Credit Line for Investment Projects
DGPSA	Agricultural Health and Protection Directorate (Nicaragua)
DVE	Performance, Vision, and Strategy
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot-and-Mouth-Disease
IICA	Inter-American Institute for Cooperation on Agriculture
OIE	World Organisation for Animal Health
OVE	Office of Evaluation and Oversight
PAMA	Mercosur Program of Action Against Foot-and-Mouth Disease
PRODESA	Agricultural Health Development Program (Peru)
PSA	Agricultural Services Program
PVS	Performance of Veterinary Services
SENASA	National Agricultural Health Service (Peru)
SENASA	National Agricultural Health Service (Argentina)
SENASAG	Agricultural Health and Food Safety Service (Bolivia)

I. INTRODUCTION

1.1 **Weaknesses in national agricultural health and food safety services cause great economic losses to the countries in the region.** It is estimated that Central America, for example, loses approximately US$1 billion per year as a result of livestock diseases and weaknesses in processing systems for meat and dairy products. If exotic diseases (such as foot-and-mouth disease [FMD] and avian influenza) were to enter the sub-region, annual losses could rise by a further US$1.4 billion (Red Interactiva de Agricultura [Interactive Agriculture Network], 2012). In the Southern Cone, the FMD crisis in 2001-2003 caused substantial losses: costs in Uruguay were estimated at US$700 million (or 10% of the country's exports), and Argentina lost US$1 billion in exports (OVE, 2009; Programa de Servicios Agricolas Provinciales [Argentine Provincial Agricultural Services Program], 2007).[1] In the area of plant health, fruit fly in Peru caused damages in excess of 30% of the production of fruits and vegetables susceptible to these pests (Servicio Nacional de Sanidad Agraria del Perú [Peruvian National Agricultural Health Service], 2009). In Central America, where almost 2 million people depend on coffee for their main source of income, an epidemic of coffee rust (a fungus that can devastate certain varieties of the plant) caused estimated losses of 20% of production, or approximately US$600 million, in 2012 and 2013 (International Food Policy Research Institute, 2015). In Peru, coffee rust affected approximately half of coffee plantations in the 2013 to 2014 period, leading to production losses of more than 20% and contributing to a decline of almost 50% in coffee exports.

1.2 **Weaknesses in agricultural health and food safety services also limit regional exports of agricultural products to markets that are more demanding in terms of sanitary and phytosanitary measures (typically developed countries that pay higher prices).** The region's economies have undergone a major process of trade opening over the last two decades. This has had the benefit of reducing the tariff barriers imposed by food-importing countries, but has also exposed them to increasing numbers of nontariff barriers, such as sanitary and phytosanitary measures. Growth in world trade in agricultural products has led to a tightening of agricultural health and food safety regulations in developed countries. This is a result of these countries' intent to protect their populations from consuming contaminated imported foods and their agricultural production from pests and diseases. For example, the increased use of agrochemicals and veterinary drugs has heightened world concerns surrounding residues from these inputs that remain in products destined for human consumption. Accordingly, the developed nations have tightened their standards governing agricultural input residues in food (Asfaw et al., 2009). The tightening and proliferation of sanitary and phytosanitary measures is also due to hidden protectionist motives (Caswell and Bach, 2007; World Bank, 2005; Iacovone, 2005).

1.3 **Encouraged by the multiple trade agreements signed over the last decade, countries in the region have had to strengthen—and in some cases, almost**

[1] The reappearance of FMD in Argentina in 2003 and 2006, and reinfections in Brazil (2006) and Bolivia (2007), highlighted weaknesses in national animal health surveillance systems.

create from scratch—bodies responsible for agricultural health and food safety services, with a view to gaining access to the benefits of exporting agricultural products to developed nations. These services perform critical functions, including the coordination of actions to eradicate pests and diseases prohibited by importing countries, and certification of the quality of foods for export and import (in terms of their safety and freedom from pests and diseases). Limitations in the agricultural health and food safety services performing these functions often translate into the rejection of shipments of agricultural products at the borders of importing countries, representing a high cost to producers and exporters in the country of origin and for the reputation of the national agricultural health agency. Annex A (A.1) presents an analysis of trends in regional exports of agricultural products that were rejected by the United States. Although trends in the number of rejections are naturally influenced by the total level of agrifood exports from the region—which have grown substantially over the period—the data highlights the substantial number of shipments that have been rejected, as well as the high share of fruits, vegetables, cereals, and fish in the total number of rejected shipments. They also show that the most frequent reasons for rejection are the presence of bacteria, a failure to comply with satisfactory hygiene standards, and the presence of pesticide residues in excess of permitted levels.

1.4 **The IDB recognized the timeliness and importance of supporting this subsector, and dedicated itself to addressing weaknesses in the institutions responsible for agricultural health and food safety services in several countries in the region.** The objective of this note is precisely to analyze the support that the IDB provided to the agricultural health and food safety subsector through its loan portfolio over the last 12 years.[2] A sample of projects approved in five countries in the region was selected for this purpose. These were individually evaluated and then compared to each other with a view to characterizing and evaluating the type of support that the Bank provided to the subsector. This note discusses the elements that comprise the comparative evaluation of the selected agricultural health and food safety projects.

1.5 **The note is structured as follows.** The second chapter analyzes the importance of agricultural health and food safety services, and the market failures that justify State intervention. The third chapter briefly describes the Bank's portfolio in the subsector for the period covered by the evaluation. The fourth chapter presents the results of the comparative evaluation. First, the methodology used is explained, and then the main characteristics of the projects selected for comparative evaluation are described. Finally, conclusions of the following aspects are reported: characterization of the model of intervention; alignment of the evaluated portfolio with Bank strategies in the agricultural sector; quality of the diagnostic assessment carried out; relevance, degree of evaluability, effectiveness, and efficiency of the projects; and sustainability of outcomes. The last section develops the main conclusions of this note and provides suggestions.

[2] This note is an input for the "Review of Bank Support to Agriculture in Latin America and the Caribbean, 2002-2014: Evidence from Key Thematic Areas (RE-467-1)", carried out by OVE from 2014 to 2015.

II. IMPORTANCE OF AGRICULTURAL HEALTH AND FOOD SAFETY SERVICES AND THE ROLE OF THE STATE

2.1 **The importance of agricultural health and food safety services to the region is usually closely linked to international trade.** Nonetheless, the role that these services need to perform is much broader, as the countries of the region and the institutions responsible for agricultural health and food safety are themselves beginning to recognize. This section provides a detailed analysis of the benefits generated by different types of services provided by the public agencies responsible for agricultural health and food safety, with a view to assessing the importance of their role for the region's economies and for protecting the health of the population. It also provides an analysis of market failures that justify State intervention in this subsector, thus facilitating identification of those functions that should be performed by the public sector and the role that should be expected of the private sector. This, in turn, facilitates the characterization—in the sections below—of the type of support that the Bank has provided to the subsector in the countries selected for this evaluation.

2.2 **The overarching objectives of public agricultural health agencies are to protect agricultural assets from health risks and the population's health from consumption of contaminated foods.**[3] Both generic functions have the characteristics of public goods, given that their benefits are non-excludable and non-rival. Added to other market failures in the area of agricultural production—such as the existence of production externalities, information asymmetries, and coordination failures—this justifies State intervention in the subsector. However, the protection of agricultural assets from pests and diseases has two principal motivations: (i) productivity increases stemming from a reduction in production losses and, occasionally, from the reduced use of agricultural inputs; and (ii) external trade facilitation, through compliance with agricultural health and food safety standards that allow access to external markets. In this sense, there are benefits that clearly constitute private goods. It is therefore useful to analyze each of the main services provided by the agricultural health bodies, as some of them (having the characteristics of private or mixed goods) warrant financial contributions from beneficiary producers, or service delivery by the private sector with public sector supervision.

2.3 **Simply put, services provided by the agricultural health agencies can be separated into those that allow agricultural health levels to be maintained (commonly known as permanent services) and those that help to increase that level, for example through the eradication of pests or diseases.** Examples of permanent services are activities such as epidemiological surveillance; quarantine; the issuance of export and import permits; food safety inspection; registration and control of agricultural inputs; and laboratory analyses in support of surveillance and quarantine activities and the maintenance of achieved agricultural health standards. These services are largely public goods,

[3] In most of the countries, the function of protecting food safety is usually shared between agricultural health bodies and ministries of health. The first are generally responsible for primary agricultural products that are either unprocessed or minimally processed (e.g. meat products prepared on refrigerated premises). Ministries of health are usually the regulatory and supervisory authorities for the rest of the chain, from processing to the point of sale, including transportation and packaging.

as their provision generates benefits that are non-rival (e.g. an additional producer does not reduce the benefit to other producers of a functioning sanitary and phytosanitary surveillance system) and non-excludable (e.g. once a quarantine checkpoint has been established in a certain region it is impossible to channel benefits to only some producers in the region and not others). In the case of import and export certification, public intervention resolves a problem of asymmetric information between local producers and purchasers in external markets. Nonetheless, it is standard practice to charge fees to producers for many of these services, as in certain cases the beneficiaries of some of these permanent services are mostly producers in particular regions of a country (e.g. quarantine activities to avoid the re-infestation of areas under phytosanitary control).

2.4 **State actions in the area of food safety also resolve problems of information asymmetries—in this case between producers and consumers.** Actions in the area of regulation of agricultural inputs are justified by the existence of information asymmetries between the producers of inputs and the agricultural producers that purchase them, as well as between producers and consumers of agricultural products. In addition, activities to register and control agricultural inputs are justified by the presence of externalities. The excessive use of inputs or the use of prohibited or adulterated inputs can lead to environmental damage and/or damage to human health without the responsible party having to internalize this additional cost. This is a result of the difficulty of relating the incorrect use of inputs to the consequences thereof, and even of measuring the cost of damages to the environment or health. One of the benefits of traceability in agricultural production (a service for which health entities are also responsible) is that in the event of pests, diseases, or food unsuitable for human health, the system can trace the origin and transit points of the agricultural product in question, and thus detect the cause of the problem. In this way, traceability systems resolve problems of information asymmetries and negative externalities in production. However, the traceability of agricultural products is increasingly demanded in international food import markets. Given that traceability is an instrument not yet present in all countries, the most demanding markets pay a premium for traceable food, or in some cases even demand it as a condition for import. The possibility of having traceable production also represents a private benefit for producers, in the form of higher sales prices. Given these characteristics, traceability systems can be considered mixed goods. One possible arrangement for providing this service is the creation and operation by the public sector of a traceability system, with fees for beneficiary stakeholders (e.g. for the purchase of tracking tags for livestock). The implementation of traceability systems is an example of a service that can raise the level of agricultural health achieved in a country.

2.5 **Another example of actions that help to boost agricultural health levels are the campaigns carried out by agricultural health agencies to control and eradicate pests and diseases.** Successful campaigns and possible certification by the relevant international organizations can yield multiple benefits, such as (a) lower production losses from pests/diseases, leading to higher gross production values and economic benefits; (b) lower private pest/disease treatment costs (e.g. lower cost of pesticides and labor for their application), which, together with

lower losses, imply greater productivity;[4] (c) a reduction in damages to the environment and beneficial fauna stemming from the reduced use of agrochemicals; (d) access to a greater number of export markets, thanks to the lifting of sanitary and phytosanitary restrictions, which can lead to greater profitability on the back of higher prices in external markets; (e) the trickle-down impact on small and medium-sized producers, who have a greater incentive to implement higher production standards in order to sell their output to exporters, who can penetrate new markets; (f) positive externalities for producers close to areas involved in campaigns, through a lower probability of pest infestation; (g) improved reputation of the country's agricultural products in external markets, and also improved the reputation of its agricultural health agency owing to its demonstrated ability to eradicate pests/diseases, which facilitates negotiations by the agency to open new markets; (h) improved health of the population owing to the consumption of safe food (e.g. containing lower agrochemical residues or from disease-free animals) and less direct exposure to agrochemicals (in the case of producers that apply them and communities close to areas of production).

2.6 **Within the long list of benefits yielded by control and eradication campaigns, some are private benefits (excludable and rival) and others are social benefits that cannot be privately appropriated due to the existence of externalities.** This means that campaigns have the characteristics of mixed goods. An example of the existence of externalities is that pest-control actions implemented by a producer also benefit neighboring producers, through both a reduction in the prevalence of pests in their parcels and the chance to learn about eradication technology from the experience of the proactive producer ("learning spillovers"). Successful eradication campaigns also facilitate the certification of areas that are free or have a low prevalence of pests and diseases, thus benefiting all producers in the area (irrespective of their participation). These externalities dissuade producers from implementing campaigns due to the impossibility of appropriating all of the benefits that they generate. This justifies State intervention, as the State can compel participation in a particular campaign and coordinate and supervise stakeholder participation, thus resolving coordination failures that are created by the existence of externalities and usually lead to undersupply of a service (suboptimal equilibrium). At the same time, the existence of benefits that can be privately appropriated (greater quantity and quality of production) justifies the imposition of charges by the State for inputs and services provided to producers (vaccines, application services, agrochemicals, biological pest control, etc.), as well as producers' contribution of labor to the campaigns. This does not eliminate the possibility that subsidies will be required to support the costs of small producers unable to finance the inputs necessary for campaigns, in order to ensure their participation and achieve control or eradication objectives.

2.7 **In some countries, such as Peru and Argentina, agricultural health agencies provide an additional type of service to agricultural producers, involving the promotion of integrated pest management (IPM) techniques.**

[4] A reduction in treatment costs for pests and diseases (in the form of agrochemicals and vaccines) often occurs once the process of pest/disease control or eradication is at an advanced stage. In the early stages, these costs may increase.

IPM is based on the use of control methods that seek to reduce or even eliminate the use of agrochemicals in production processes, encouraged by evidence showing the adverse effects that excess amounts of these chemical products may have upon crop yields, the health of farmers and consumers, and the environment (Zegarra et al., 2008).[5] The promotion of these methods is a type of agricultural extension service aimed at correcting negative externalities for the environment and human health resulting from the excessive use of agrochemicals. At the same time, initial intervention by the State is justified by the high initial costs that adoption of these methods can entail (including learning costs), together with the impossibility of appropriating all of the benefits generated. The State can resolve coordination problems and subsidize initial costs to achieve benefits that would not otherwise materialize.

2.8 **Table 1 presents a classification of the most common services provided by agricultural health bodies, according to the market failures that characterize them.** This classification is not definitive, but attempts to highlight a number of salient characteristics that influence and justify the supply of these services. For example, the implementation of a system of export certification may be considered a public good, even though certifications are a private good. The creation of a quarantine checkpoint that protects a pest-free area from re-infestation may be considered a club good, given that the benefit is excludable (it benefits producers in that area) and non-rival. Implementation of a traceability system is classified as a mixed good: public, in that it facilitates food safety control and epidemiological surveillance activities, and private, in that certification of a traceable product can have private benefits for producers who succeed in exporting to external markets that demand such certification. Similarly, the table is not intended to be exhaustive, as the full range of services provided by the agricultural health agencies is much broader. For example, laboratories provide a long list of services, some of which can be considered private goods, as they involve specific analyses that may be demanded in external markets to authorize importation of a product.

Table 1: Services provided by agricultural health agencies and the market failures involved

Services	Private good	Market failures				
		Public good	Mixed good	Asymmetric information	Externalities	Coordination failures
Surveillance		√				
Quarantine		√				
Laboratories: support for surveillance and quarantine		√				
Certification of imports and exports	√			√		
Control of food safety		√		√		
Regulation and inspection of agricultural inputs		√		√	√	
Traceability			√	√	√	
Control and eradication campaigns			√		√	√
Integrated pest management (IPM)			√		√	√

Source: Author's analysis

[5] IPM is a strategy that combines a variety of complementary methods—physical, mechanical, chemical, biological, genetic, legal, and cultural—to control pests. It includes, for example, the removal of diseased plants; manual weeding; phytosanitary pruning; the use of trap crops or traps using light, color, molasses, or pheromones; heavy irrigation; plant washing; fallow periods; and the use of biological control mechanisms.

2.9 **The justification of public sector involvement does not eliminate the possibility of using public-private partnerships, with private operators responsible for providing services under the supervision of public agencies.** For example, in a number of countries (such as Brazil and Argentina), campaigns to control FMD have relied heavily on private veterinary and livestock producers' organizations (Dubois and Moura, 2004; Rich and Narrod, 2010). Also in the area of laboratory services, certain functions can be delegated by the public reference laboratory to accredited private laboratories, which can charge fees for analyses required by producers (to comply with export requirements, for example).

III. IDB PORTFOLIO IN THE SUBSECTOR

3.1 **From 2002 to 2014, the IDB approved 17 investment loans aimed at strengthening agricultural health and food safety systems in the region, for a total value of about US$358 million.** Ten of these loans are projects specifically aimed at strengthening agricultural health and food safety agencies (US$231.3 million), and the other seven are more general projects containing agricultural health and food safety components to strengthen different agricultural services (US$126.5 million).[6] These loans account for approximately 10% of the total portfolio classified as "agriculture". This represents an increase in the subsector's share of the agriculture portfolio compared with the 1961-1998 period, when it accounted for around 3%.

IV. COMPARATIVE EVALUATION

A. Methodology

4.1 **Given the large size of the IDB's portfolio in the agricultural health and food safety subsector over the last decade, OVE decided to carry out an in-depth analysis of a sample of projects approved in the 2002-2013 period that disbursed at least 50% of funds and had similar key characteristics (components, objectives, beneficiaries), so as to facilitate their comparison (OVE, 2014).** On this basis, six projects were selected from the following countries: Argentina (1), Bolivia (1), Nicaragua (1), Peru (2), and Uruguay (1). In all of these cases, there had been previous projects in the sector, and the analysis therefore also looked at the legacy of these prior interventions (in terms of lessons learned and outcomes achieved), to provide background to the Bank's actions. The in-depth analysis, however, focused on projects approved during the evaluation period. In the following sections, IDB abbreviations for country names (AR/BO/NI/PE/UR) are used to refer to the respective projects evaluated where the intention is to indicate that they exemplify a particular statement.

[6] This amount was calculated as the sum of components aimed exclusively at supporting the agricultural health sector under the seven projects that included components supporting various agricultural services.

4.2 **Project evaluations are based on interviews in the selected countries and in Bank headquarters, as well as the study of Bank documents concerning the operations, and the analysis of data and other documents related to the subsector.** Visits were made to the countries in the months of September to December 2014. Based on an analysis of all of the information gathered, project notes were prepared as the main input into this comparative evaluation.[7] The following evaluation criteria were used: alignment with Bank strategies in the agricultural sector; quality of the diagnostic assessment; relevance and evaluability of the design; efficiency and effectiveness of the executed projects; and sustainability of outcomes. The predominant model of intervention in the subsector over the last decade is also described.

B. Projects evaluated: main characteristics

4.3 **The following projects were evaluated**:

- **AR-L1032** Food and Agriculture Health and Quality Management Program (US$100 million, 2008-2015 expected). This project—part of a US$300 million Conditional Credit Line for Investment Projects (CCLIP)—supported institutional modernization of the Servicio Nacional de Sanidad Agraria del Perú [Peruvian National Agricultural Health Service] (SENASA). It emphasized the decentralization of functions, strengthening of SENASA's permanent services in the three main units (animal health, plant health, and food safety), and support for agricultural pest eradication campaigns (fruit fly and codling moth), as well as regional agricultural health integration. Prior to this operation, the Bank had supported the subsector through two operations in the country—the Agricultural Services Project (PROMSA, AR0214, 1991-2008, US$41 million) and the Provincial Agricultural Services Program (PROSAP, AR0061, 1995-2011, US$125 million).

- **BO-L1037** Agricultural Health and Food Safety Program (US$10 million, 2008-2014). This project was aimed at strengthening institutional management and permanent services of the Servicio Nacional de Sanidad Agropecuaria e Inocuidad Alimentaria [National Agricultural Health and Food Safety Service] (SENASAG) in the three main units (animal health, plant health, and food safety). The Bank had previously supported the subsector in Bolivia through the Agricultural Services Program (PSA, BO0176, 2000-2009, US$30.2 million, of which US$12.3 million were for agricultural health).

- **NI0182** Improvement of Plant, Animal, and Forest Health Services (US$7.3 million, 2003-2011). The project aimed to strengthen the institutional management of the agencies responsible for agricultural health and food safety in the country—mainly the Dirección General de Protección y Sanidad Agropecuaria [Agricultural Health and Protection Directorate] (DGPSA)—and to support the DGPSA's permanent services in the three principal areas (animal health, plant health, and food safety). Prior to this operation, the Bank had

[7] The author of this document was responsible for preparing the notes for the projects in Argentina (AR-L1032), Bolivia (BO-L1037), Peru (PE-L1007 and PE-L1023), and Uruguay (UR-L1016). OVE lead economist Jonathan Rose was responsible for preparing the note for the Nicaragua project (NI0182).

supported the sector in Nicaragua through the Agricultural Services Improvement Program (FOSEMAG, NI0022, 1993-2001, US$16 million).

- **PE-L1007** Fruit Fly Control and Eradication Project in Coastal Areas of Peru (US$15 million, 2005-2009). The project provided support for SENASA's campaign to eradicate fruit fly. The sector had previously received Bank support through the Agricultural Health Development Program (PRODESA, PE0143, 1997-2006, US$45.6 million).

- **PE-L1023** Individual Loan for the Agricultural Health and Agrifood Safety Development Program (US$25 million, 2008-2014). The projects sought to strengthen SENASA's permanent services in the three main units (animal health, plant health, and food safety), to support animal disease eradication campaigns (foot-and-mouth and porcine diseases), and to continue support for the campaign to eradicate fruit fly in coastal areas of Peru.

- **UR-L1016** Program to Support Agricultural Public Management (PAGPA, 2009-2015 expected, US$10.5 million). This project was aimed at strengthening institutional management of the ministry to which the agricultural health services are attached, as well as strengthening the permanent services of the responsible ministerial departments in the three main areas (animal health, plant health, and food safety). Prior to this program, the Bank had worked in the sector through the Agricultural Services Program (PSA, UR0116, 1998-2007, US$32.4 million) and through the reallocation of funds under the Program to Support the Productivity and Development of New Livestock Products (UR0141, 2005-2011, US$14 million, of which US$2 million were channeled to agricultural health).

4.4 **Table 2 summarizes the main characteristics of the projects evaluated in this note.**

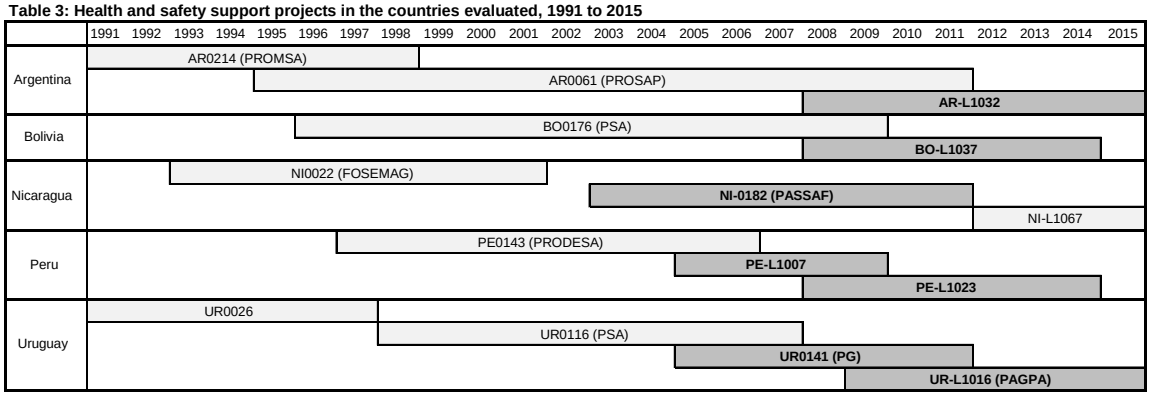
Table 2: Projects Evaluated in this Note

#	Project	Amount in USD	Period
AR-L1032	Food and Agriculture Health and Quality Management Program	100 million	2008-2015
BO-L1037	Agricultural Health and Food Safety Program	10 million	2008-2014
NI0182	Improvement of Plant, Animal, and Forest Health Services	7.3 million	2003-2011
PE-L1007	Fruit Fly Control and Eradication Project in Coastal Areas of Peru	15 million	2005-2009
PE-L1023	Individual Loan for the Agricultural Health and Agrifood Safety Development Program	25 million	2008-2014
UR-L1016	Program to Support Agricultural Public Management	10.5 million	2009-2015

Source: Bank documents

4.5 **Table 3 shows the Bank's work in the subsector in the countries covered by this report.** The darker shaded areas relate to the projects included in this evaluation, and the light gray areas to prior projects in the subsector.

Table 3: Health and safety support projects in the countries evaluated, 1991 to 2015



Source: Author's calculations based on project approval and completion dates. The projects shaded dark gray are the ones evaluated in this report.

C. Analysis of the model of intervention

4.6 **The main objective of Bank projects in the agricultural health subsector centers on an increase in agricultural sector competitiveness, while a number of the most recent projects add the objective of improving the health and food security of the population.** In most cases, the explicit or implicit objective of the projects is to support an increase in the competitiveness of the agricultural sector (AR/BO/UR/PE/NI); in most cases, this is explicitly linked to an increase in exports (NI/PE/UR). In the past, the Bank's agricultural health projects have had similar objectives (OVE, 2009). A number of the more recent projects evaluated also include the objective of supporting the population's health (BO/PE) and food security (BO/UR). This is related to two factors. First, the importance that the area of food safety (including regulation of agricultural inputs) has acquired in the Bank's agricultural health projects, as a consequence of the higher safety standards demanded by mainly developed food-importing countries. Second, the use of the concept of food security has expanded over the last decade, with the dimension of food safety gaining in importance (added to food availability and access).

4.7 **The Bank shifted from a model of intervention based on agricultural services programs that included the agricultural health subsector within a range of other agricultural services, to one providing support through projects aimed exclusively at the agricultural health subsector.** In the majority of the countries evaluated, there was a change in the type of projects approved in the sector (AR/BO/NI/UR). In the 1990s, the Bank approved several broad agricultural services programs that supported both the agricultural health services and other sector services (such as the development and transfer of agricultural technologies, generation and dissemination of agricultural data, etc.), with the objective of improving agricultural sector competitiveness.[8] From the mid-2000s onwards, a trend towards approving specific agricultural health

[8] The Strategy for Agricultural Development in Latin America and the Caribbean (GN-2069-1), approved by the Bank in 2000, indicated that the agricultural services modernization programs of the 1990s—which included technological innovation and agricultural health components—were characteristic of that period. This was not because of the topics in themselves (which the Bank had financed in the past) but because of the instruments added, such as competitive funds and the outsourcing of services.

programs can be seen in the same countries.[9] In general, agricultural services programs suffered from many execution difficulties and low effectiveness. At the same time, the shift in the model of intervention was probably influenced by the increasing importance of agricultural health and food safety issues, related to the increase in world trade in agricultural products and the health and safety standards demanded by the main food-importing developed countries. By avoiding the relegation of agricultural health issues under more complex projects supporting several types of services, this change in the model of intervention may lead to improved results in the agricultural health area. Nonetheless, the challenges faced by the region in enhancing agricultural sector competitiveness include several types of limitations (in addition to agricultural health), and there is therefore a risk that the impact on competitiveness will be reduced by a failure to support other services that are also weak. This trade-off was highlighted by the World Bank in the middle of the last decade, when it described a similar shift in the model of intervention experienced in agricultural health services programs financed by the World Bank (2005). Over the last decade, the IDB opted in some cases to approve several independent projects in a single country to support different types of agricultural services. This avoided the execution problems seen in larger agricultural services programs and also tackled several limitations to sector competitiveness (AR/PE).

4.8 **In some countries, the Bank opted to use Conditional Credit Lines for Investment Projects (CCLIPs) in the subsector.** In two of the countries evaluated (AR and PE), the agricultural health projects approved were part of CCLIPs, which allow the Bank to support the successive phases of longer-term programs through a series of loans, simplifying the approval process for each individual phase. An advantage of this instrument in the design phase is that it requires the Bank to agree with the country on a strategic action plan covering a time period of at least 15 years. This requires planning, investment prioritization, and projections of resource requirements. Given that both countries are still in the first phase of their respective CCLIPs, no conclusions can be reached regarding the advantages of using this instrument.

4.9 **Bank support has been directed simultaneously to the three main institutional areas of the agricultural health agencies, and it has been less focused on control and eradication campaigns than in the past.** The projects evaluated have provided simultaneous support for the three major institutional areas of the agricultural health agencies: animal health, plant health, and food safety. The sole exception is project PE-L1007, which has focused on a pest eradication campaign. The projects have been designed with a component to support cross-cutting institutional management (human resources management, information systems, etc.) and additional components focused on the permanent services provided by the animal health, plant health, and food safety units of the agricultural health agencies. The standard permanent services are the functions of epidemiological surveillance and risk analysis; quarantine control; laboratories;

[9] An exception to this trend is the case of Nicaragua. In the 1990s, the Bank approved an agricultural services project (NI0022) that was followed by a project exclusively for agricultural health (NI0182, approved 2003). The latter is one of the projects evaluated in this note. In 2012, the Bank subsequently approved project NI-L1067, which returned to the previous format, with a component to support agricultural health and another one to strengthen the agricultural technological innovation system.

control and registration of inputs; and the issuance of export and import certificates. The only project that did not include a component to support cross-cutting institutional management was PE-L1023, possibly because Peru's SENASA already offered solid cross-cutting services that did not require any special support. In addition to support for institutional management and permanent services, a number of projects have included support for specific campaigns to control and eradicate pests and diseases in the plant and animal areas (AR/NI/PE). This contrasts with the projects approved in the 1990s, all of which supported plant and animal health campaigns (AR/BO/NI/PE/UR). Table 4 summarizes the main areas and activities covered by the evaluated projects.

Table 4. The Main Areas and Activities of Projects Selected for Comparative Evaluation

	Institutional strengthening	Animal health	Plant health	Food safety	Campaigns	Traceability
AR-L1032	X	X	X	X	X	X
BO-L1037	X	X	X	X		X
NI-0182	X	X	X	X	X	X
PE-L1007					X	
PE-L1023	X	X	X	X	X	X
UR-L1016	X	X	X	X		X

Source: Project documents

4.10 **Bank projects have provided strong support for the provision of public goods in the sector.** The components of projects to support the strengthening of institutional management have generally focused on pure public goods, including activities such as the development of regulations; design of fee schedules; implementation of information systems; development of organizational, management, and communication strategies; provision and training of human resources; and construction and equipment of local offices. In the case of components to strengthen permanent services, these have focused support on activities such as the improvement of epidemiological surveillance; construction and equipment of laboratories and quarantine checkpoints; development of emergency plans for tackling health crises; development of registration and control systems for agrochemicals and veterinary drugs; development of food safety inspection systems; and strengthening of certification processes for exports and imports. As explained above, most of these goods and services can also be considered public goods.

4.11 **The Bank also provided support for mixed goods, such as implementation of animal traceability systems and campaigns for the control and eradication of pests and diseases.** An innovative aspect that appears in all of the countries evaluated is the support that projects have provided for the implementation of animal (mostly cattle) traceability systems, which can be classified as mixed goods.[10] This responded mainly to commercial motivations—supporting compliance with the increasingly strict standards demanded in import markets for meat products (such as the European Union and a number of Asian markets). Implementation of these traceability systems also facilitates activities

[10] Traceability is the ability to identify animals or their products throughout the entire chain of production, marketing, and processing, back to the point of origin, with the aim of carrying out epidemiological research or taking corrective action to benefit consumers (Servicio Agrícola and Ganadero [Chilean Agriculture and Livestock Service], Official Veterinary Bulletin, 2005).

related to the control and eradication of animal diseases. For its part, plant and animal health campaigns were supported in three countries: Peru, Argentina, and Nicaragua. In Peru, the Bank supported projects to combat fruit fly in coastal areas, and campaigns to eradicate FMD and porcine diseases. In Argentina, support was provided through programs to control fruit fly and codling moth. In Nicaragua, the IDB project supported control and eradication campaigns for brucellosis, bovine tuberculosis, and avian diseases (Newcastle, salmonellosis). It should be noted that in some countries (AR/BO), support was provided for the fight against FMD through support for permanent animal surveillance and quarantine services and the development of emergency plans. The projects that preceded those evaluated in this report did give direct support to campaigns to control FMD (AR/PO/PE/UR), mainly due to the health crises created by the virus in the first half of the 2000s.

4.12 **In some cases, support was provided through the projects for private goods.** As part of the support for campaigns to control pests and diseases, and for implementing cattle traceability systems, some Bank projects financed the supply of private goods such as vaccines, pesticides, and ear tags for the identification of cattle (AR/PE/NI). Although the data regarding the type of beneficiary is insufficient, anecdotal evidence suggests that in some cases subsidies were provided to producers with more limited resources and less incentive to adhere to the demands of campaigns or traceability systems.

4.13 **In general, Bank assistance to the subsector has placed a high priority on the needs of the export sector.** In terms of activities under the projects evaluated, priority is placed on those functions of the health agencies that are related to the export of agricultural products: cattle traceability; control and eradication of pests prohibited by importing countries; export certification processes; certification of organic products; and laboratory services necessary to ensure the safety of agrifoods for export. In general, there are few cases of support for campaigns to ameliorate the agricultural health issues experienced exclusively by small-scale producers who lack the ability to access external markets (with the exception of scabies in camelids under the Agricultural Health Development Program in Peru, and a number of actions to support programs for the control of brucellosis, bovine tuberculosis, and avian diseases). This has been of benefit to the agricultural health agencies themselves, as the support of major productive sectors (exporters, in most cases) has been key to their reputational and financial growth processes. These sectors have pressed for priority to be given to agricultural health and food safety activities through access to greater public funding.

4.14 **The Bank has supported the strengthening of interaction with the private sector, which is key for sustainability of the results achieved.** All of the projects evaluated included elements to strengthen interaction with the private sector. For example, support was provided for the development of fee schedules for services provided by the agricultural health agencies; the development of systems for registering and accrediting professionals and organizations (with a view to outsourcing agricultural health functions); design of information, communication, and dissemination strategies aimed at fostering the participation of beneficiaries and other stakeholders in agricultural health campaigns (thus ensuring implementation of the actions for which they are responsible and

contributions of labor and other resources from them); and the participation of users in forums for discussion and project design. These elements represent a significant contribution to the success of health actions undertaken by the public sector. They are also usually critical for the sustainability of results, given the importance of partners who are convinced of the need to continue supporting required actions beyond project completion, and who are prepared to contribute financially to maintain them.

D. Alignment with Bank strategies in the agricultural sector

4.15 **This section analyzes the alignment of the projects evaluated with strategies approved by the Bank in the sector.** The Agricultural Sector Operational Policy (OP-721) and the Rural Development Operational Policy (OP-752) were approved by the Bank in 1982 and 1984, respectively. Subsequently, in 2000, the Bank approved the Strategy for Agricultural Development in Latin America and the Caribbean (document GN-2069-1), which set out the priorities for Bank action in the agricultural sector and suggested a review of the previous policies (OP-721 and OP-752) on the grounds that they were outdated. More recently, in July 2013, the Bank approved the Sector Framework Document on Agriculture and Natural Resources Management (document GN-2709-2), which superseded all previous policies and strategies in the sector. Although they remained in force, sector policies OP-721 and OP-752 were outdated and did not represent a true framework for action over the last decade (OVE, 2004). As a result, the following sections analyze alignment of the evaluated health subsector portfolio with the guidelines set out in strategy document GN-2069-1 and in the Sector Framework document. While the Sector Framework officially covers only the last year and a half of the evaluation period, the document served to consolidate the guidelines that the Environment, Rural Development, and Disaster Risk Management Division had already been following for several years, according to Management. For this reason, it is included in this section of the analysis.

4.16 **Both strategy documents (GN-2069-1 and GN-2709-2) underline the important role of the health subsector for development of the agricultural sector.** The Strategy for Agricultural Development in Latin America and the Caribbean (document GN-2069-1) indicated in 2000 that the health subsector was considered a priority because of its "social and economic implications and its strategic importance for export promotion." The 2013 Sector Framework states that the majority of agricultural public spending should be used for the provision of public goods—among which agricultural health is mentioned—as these offer higher returns and broader coverage than spending used for the provision of private goods. At the same time, the Sector Framework mentions underinvestment in pest and disease eradication as an issue that contributes to the productivity gap seen among LAC subregions (in addition to inadequate investment in rural research and infrastructure).

4.17 **The portfolio evaluated in the subsector is aligned with the guidelines laid out in the Strategy for Agricultural Development in Latin America and the Caribbean (document GN-2069-1), approved in 2000.** Strategy GN-2069-1 highlighted "the need for a certain level of public intervention, especially in financing (in association with the private sector) and regulation of key activities",

among which it mentioned agricultural health. The document also suggests that the Bank should concentrate its investments in the health subsector in the areas of quarantine control; strengthening inspection in agricultural product processing; pest and disease eradication (in terms of coordinating private sector actions); and institutional reorganization, unifying services for animal and plant health into a single agency with greater operational decentralization and coordination with users. These areas of activity are present in all of the projects evaluated, although some are emphasized more in certain projects than in others.

4.18 **The subsector guidelines developed in the Sector Framework Document on Agriculture and Natural Resources Management (GN-2709-2, approved in 2013) share a similar spirit to those in strategy GN-2069-1, but contain new elements.** The Sector Framework highlights a series of lessons learned from the Bank's work in the subsector: (a) the importance of promoting collective active arrangements among farmers, supporting their participation in health actions; (b) the importance for the sustainability of health campaigns of including producers and their organizations in decision-making processes, and of establishing a policy of sharing costs with beneficiaries; and (c) the need to have a legal framework for agricultural health with clearly-defined powers to implement corrective measures that are harmonized with international standards.[11] Based on these lessons learned, the Bank proposed to prioritize the modernization of national agricultural health and food safety systems "to promote schemes of collective action and cost-sharing among farmers, as well as regulations with a regional vision, ensuring uniformity of quality standards between domestic and external markets." While the concept of shared costs and user participation is present in both the Strategy and the Sector Framework, the latter incorporates new elements such as the promotion of collective action schemes, the homogenization of quality standards, and a regional vision for regulation.

4.19 **Most of the health subsector guidelines contained in the Sector Framework are reflected in activities that been included in the projects evaluated.** Although producer organizations have not been promoted under the projects evaluated, there is constant reference to the importance of their participation in campaigns. In one case (AR), the project acknowledged that involvement of these organizations was crucially important for the success of the FMD eradication campaign. At the same time, although most projects that supported campaigns mention the importance of encouraging beneficiary participation, they do not explicitly mention cost-sharing objectives. The projects evaluated also included activities to support the legal framework where necessary (NI/BO). In terms of harmonization with international standards, the Bank has used evaluations prepared by leading international bodies such as the World Organization for Animal Health (OIE) and the Inter-American Institute for Cooperation on Agriculture (IICA) as an input to its projects. These evaluations analyze, among other things, the strengths and weaknesses of health agencies in complying with international standards. In conclusion, it can be said that most of these guidelines have influenced the design of Bank projects in the sector.

[11] An additional lesson learned that is left off the list is that the "technical autonomy of the executive agency is crucial due to the nature of the threats dealt with by agricultural health services," as this falls outside the scope of Bank projects.

4.20 **The area of food safety is mentioned by both documents, but these do not include guidelines for work in the area.** The two strategy documents mention the importance of the area of food safety. Strategy GN-2069-1 states that the Bank can promote the adoption of food safety practices in order to ensure market competitiveness and protect the health of the population. The sector framework also mentions the area of food safety, but it does not establish any lessons learned or specific guidelines for work in the area. This may be related to the fact that the topic is a relatively recent one within the Bank's work and has not, as of yet, shown any very concrete results.

E. Diagnostic assessments

4.21 **The Bank's diagnostic assessment of the subsector entered into depth in relation to some aspects, but others lacked sufficient economic analysis.** At the regional level, the Bank did not develop a diagnostic analysis of the status of agricultural health and food safety services in the region or its subregions.[12] At the project level, institutional capacity assessments for the institutions responsible for the sector were robust and covered most of the main topics; however, they left out a number of elements that are important for the accurate analysis of some activities and for the sustainability of some of the outcomes planned. Diagnostic assessments were weak in relation to campaigns for the control and eradication of pests and diseases, as they lacked economic analyses justifying support and the choice of beneficiary sectors. The latter was undoubtedly affected by the scarcity of economic data that exists in this area.

4.22 **The Bank did not undertake a regional diagnostic study of the status of agricultural health and food safety services.** The Bank has not undertaken an in-depth study of the salient characteristics, weaknesses, and strengths of agricultural health and food safety systems in the region or its subregions. This is a weakness given the importance of regional issues, as there are advantages to coordinating policies and campaigns at the regional level (failures in one country to combat pests or diseases can affect neighboring countries and commercial partners) and to making use of infrastructure on a regional or subregional basis.[13] Furthermore, a study of this kind would facilitate the identification of opportunities for support in certain countries, as well as discovering salient issues in the countries where the Bank is working that could enhance the effectiveness of support. It could also facilitate the design of technical assistance schemes that

[12] An exception is the study "Indicadores de Gestión de Sanidad Animal e Inocuidad Alimentaria en Centroamérica y República Dominicana [Animal Health and Food Safety Management Indicators in Central America and the Dominican Republic]," which was an output of IDB regional technical cooperation operation RG-T1753. The objective of this operation was to improve the management of agricultural health institutions in subregional countries and facilitate regional harmonization. It proposed to develop institutional indicators in the area of animal health, as well as indicators to measure the efficiency and impact of agricultural health measures on development of the agricultural sector. However, these indicators were not developed.

[13] The report "Indicadores de Gestión de Sanidad Animal e Inocuidad de Productos Pecuarios en Centroamérica y la República Dominicana [Animal Health and Food Safety Management Indicators for Animal Products in Central America and the Dominican Republic]" underlines the fact that coordinated actions among the countries would support more efficient investment prioritization and facilitate the identification of joint actions to support a regional harmonization strategy (Red Interactiva de Agricultura, 2012).

would allow the strengths of the strongest agricultural health services in the region to be tapped by the weaker ones.

4.23 **At the level of each country, the justification for involvement in the sector lacked an analysis of the concrete limitations to international trade created by weaknesses in the institutional framework for agricultural health and food safety.** Bearing in mind that in almost all countries the objective of the projects was to improve access to external markets, it is unclear that the projects carried out analyses of export rejections experienced by the countries and the grounds for them, or of the concrete hurdles to penetrating new markets. For example, the data on rejections—disaggregated by target market, type of product, and the reason for rejection—provides information that is very useful for planning which areas of the agricultural health services to strengthen. Annex A (A.2) presents trends for 2002-2012 in rejections of agricultural exports to the United States, the European Union, and Australia, for the five countries evaluated. It can be seen from the table, for example, that the presence of mycotoxins is one of the main causes of the rejections suffered by some countries (AR/BO/NI), yet despite this, Bank projects have not analyzed the issue. Project DR-1048 (2011), which supports the institutional framework for agricultural health in the Dominican Republic, is an exception in that provides a detailed analysis of export rejections and the reasons for them.

4.24 **Institutional assessments in the projects evaluated were robust, covering most of the important issues.** In all of the projects evaluated, design was supported by reports from specialized consultants, who described the status of agricultural health services in detail and (in some cases) suggested possible activities for financing. The design of some projects also benefited from workshops held with the technical staff belonging to the institutions (AR/BO/UR). At the same time, the IICA's *Desempeño, Visión y Estrategia* [Performance, Vision, and Strategy] (DVE) evaluation tools were used in a number of service areas in the countries evaluated to support diagnostic assessment of the respective areas to be strengthened (AR/PO/UR/PE).[14] In one case, use of the OIE's Performance of Veterinary Services (PVS) tool for evaluating the capacity of veterinary services also contributed to the institutional assessment (UR).[15]

4.25 **However, institutional assessments in the evaluated projects lack a number of analytical elements.** In several cases, an in-depth analysis of systems for collecting service fees is absent (BO/NI/UR). In some cases, no analysis can be found of the expected financing for the laboratories to be supported. Such analysis is key for sustainability, particularly once Bank support has been exhausted (AR/NI). At the same time, in some projects that mention the benefits

[14] The DVE instrument developed by the IICA helps national agricultural health and food safety services measure performance levels and identify priority areas for improvement. The DVE was developed for four sectors: national veterinary services; national plant protection organizations; national food safety services; and to measure countries' capacity to implement regulations in the areas of sanitary and phytosanitary measures. It is based on the self-evaluation of around 50 critical skills, carried out through surveys and workshops by the employees and technical staff of national agricultural health and food safety services, as well as private stakeholders that interact with the agricultural health agencies.

[15] The PVS tool for national veterinary services is almost identical to the DVE for veterinary services in terms of the critical skills evaluated, but it differs in the way that it is implemented. The PVS is implemented in a similar manner to an external evaluation carried out by OIE-accredited experts.

of coordinating improved actions in the animal and plant units of the agricultural health agencies, no analysis is provided of the efficiency gains that would warrant support for these actions (AR/UR). Finally, in the case of the Bolivia project, analysis was absent regarding the government's vision of the benefits that it expected from the agricultural health services, and the ways in which this might affect opportunities for strengthening SENASAG. That vision was undoubtedly different to the one prevailing in other countries in which the Bank had intervened in the region, in that it focused less on export opportunities.

4.26 **In the case of campaigns, these were not generally supported by any economic analysis to justify support and validate the choice of some products over others.** Given the benefits offered by control and eradication campaigns—not only their public goods components, but also their private ones—the decision to support campaigns should have strong justification. In general, no analysis was found in the projects reviewed of the market failures that they were attempting to address. Nor, in the majority of cases, were any estimates provided of the economic damages inflicted by the main pests and diseases affecting various products and animals in different geographical areas, with a view to justifying the priority placed on the campaigns that the Bank decided to support. This was the case in Argentina and Nicaragua, and, to an extent, in Peru. In the case of Peru, where various estimates have been made of the economic damages caused by fruit fly to coastal vegetable and fruit production, it would have been useful if these costs had been compared to those caused by other pests and diseases (such as in the case of coffee, for example, which is the country's main export product and is also susceptible to pests that can lead to substantial economic losses). At the same time, in all cases analysis was lacking of the characteristics of the main beneficiaries (size, weaknesses in terms of controlling pests/diseases, etc.) and of the economic benefits to the countries of the campaigns (through tax collection, for example) that would help to justify the Bank's support.

F. Relevance

4.27 **The Bank has been a relevant stakeholder in the subsector in the countries analyzed in this evaluation.** In all of the countries analyzed, the Bank has been providing support to the agricultural health and food safety subsector for many years—in some cases, for decades. The timing of projects has overlapped in each country, meaning that Bank support has been a constant throughout virtually all of the last two decades. Analysis of the selected Bank portfolio in the subsector reveals the intent to develop lessons learned from project execution. These lessons are then applied in subsequent projects. The outputs of completed projects also contribute to the diagnostic assessments included in subsequent projects. This work is recognized by the technical staff of the governments, who value the Bank's efforts and recognize it as a relevant participant in support to the subsector.

4.28 **Bank intervention was relevant to the objective of improving agricultural sector competitiveness.** The combination of three elements confirms the general relevance of Bank action in the subsector in the countries evaluated (albeit to a lesser extent in Bolivia). First, the Bank decided to use agricultural health and food safety operations to support the countries' agricultural sectors,

which have experienced rapid growth over the last decade in terms of both output and exports. Second, the demands of international agricultural import markets in terms of agricultural health and food safety standards have become even more stringent, and also more varied with the introduction of new target markets. Finally, in all of the cases evaluated the Bank focused on government institutions that needed to be strengthened in order to perform their functions of preserving agricultural health and ensuring the safety of agrifood products.

4.29 **In addition, a number of the projects analyzed included issues that were relevant to the specific needs of some countries.** In two of the countries analyzed, support for operational decentralization of agricultural health agency functions (through the strengthening of local and regional offices) supported compliance with domestic laws and regulations promoting the decentralization of agricultural policies (AR/UR). Accordingly, the support was relevant for policy compliance in countries that already had an internal consensus. Another area targeted by some of the projects was the strengthening of emergency preparation. Given past agricultural health crises (particularly the case of FMD in the Southern Cone), activities that the projects included to develop emergency plans for the areas of plant and animal health and food safety were of great relevance (AR/BO/NI/PE). Further, in two cases Bank projects provided significant support for plant health units in the institutions amid rapid growth in agricultural production in those countries. The units had previously been relegated to a secondary role compared with animal health (AR/UR).

4.30 **In some cases, the dispersion of project efforts across a large number of small activities detracted from the relevance of the operations.** There was a certain lack of prioritization of the main, more effective activities with less execution problems. This led to the design of projects including long lists of small activities that complicated project execution and reduced the relevance of support (AR/BO/NI/UR). In some cases, the difficulty of prioritizing and focusing support could be explained by the absence of a national strategy for the agricultural sector and agricultural health subsector that would provide a framework for project activities. In one case (UR), the inclusion of activities to strengthen institutional management of the sector ministry, in addition to support for the various units responsible for agricultural health functions, also led to a certain dispersion of efforts, less relevance, and execution difficulties.

4.31 **In the case of the project in Bolivia, the fact that the government did not view agricultural health and food safety as priority issues for the country detracted from the relevance of the project.** Although increased competitiveness of the agricultural sector was a government objective, as set out in the National Development Plan for 2006-2011, the conclusion may be reached (based on interviews in the country and analysis of the development plan itself) that it was not clear the government was convinced that support for SENASAG was a priority to this end (National Development Plan, 2007). Further evidence of this was the failure to achieve institutionalization of SENASAG, as explained in the section on sustainability below. At the same time, the weak planning capacity

of the subsector institutions also affected the relevance of the project, as it lacked a strategy or sector action plan to which it could adhere.[16]

4.32 **Bank financing has accounted for a significant share of budgets in the institutions responsible for agricultural health and food safety, and it has far exceeded funding from other donors.** An additional approach to analyzing project relevance is to estimate the share of agricultural health agency budgets accounted for by Bank financing. Table 5 shows the amount of IDB project disbursements as a share of total budgetary resources executed by agricultural health and food safety agencies for each year of project execution. The estimates shown are only for Argentina, Bolivia, and Peru, as it was impossible to obtain this data for Nicaragua and Uruguay. In the case of Bolivia and Peru, IDB resources have accounted for a substantial share of budget execution by the SENASAs (averaging 22% and 12%, respectively). The share is smaller in Argentina, at 5%, but remains significant. At the same time, IDB financing has clearly been higher than that of other international donors over the period, as reflected in Table 6. In the case of Peru, IDB funding has basically accounted for all of the external credit obtained by SENASA. In Argentina, SENASA also received a significant amount of funding from the World Bank in 2009 and 2010; however, over the last four years, IDB resources have accounted for almost 100% of financing. In Bolivia, despite support from multiple donors—particularly the Mercosur Program of Action Against Foot-and-Mouth Disease (PAMA) and, to a lesser extent, the European Union, Brazil, the United States, and the Food and Agriculture Organization—Bank funds accounted for 74% of total external financing received in the 2010-2013 period, slightly below the share in Argentina.

TABLE 5: Importance of IDB financing in the budgets of agricultural health agencies

Annual Averages	IDB disbursements/Agency budget execution							
	2007	2008	2009	2010	2011	2012	2013	**Average**
Argentina			5%	5%	2%	7%	5%	**5%**
Bolivia				17%	21%	14%	34%	**22%**
Peru	18%	18%	3%	17%	11%	8%	9%	**12%**
Nicaragua								N/A
Uruguay								N/A

Source: Author's calculation based on data from SENASA Argentina, SENASA Peru, and SENASAG Bolivia.

TABLE 6: Share of IDB resources of total external financing

Annual Averages	IDB financing/Total external financing for agencies (including grants)								
	2007	2008	2009	2010	2011	2012	2013	2014	**Average**
Argentina			39%	40%	87%	97%	98%	100%	**77%**
Bolivia				80%	84%	55%	78%		**74%**
Peru	99%	99%	98%	100%	99%	98%	98%		**99%**
Nicaragua									N/A
Uruguay									N/A

Source: Author's calculation based on data from SENASA Argentina, SENASA Peru, and SENASAG Bolivia.

16 The national agricultural health and food safety policy was approved at the end of 2010 by the Ministry for Rural Development and Land, after more than two years of discussion. Nonetheless, stakeholders interviewed maintain that the policy was never implemented.

G. Evaluability

4.33 **With the exception of the projects in Peru, the evaluability of the projects is low.** The indicators used are highly aggregate in nature, such as an increase in agricultural exports or sector GDP. Trends in these variables cannot be directly linked to project outcomes, given the multiple factors that influence them and the relatively small value of the projects (BO/NI/UR).[17] Indicators related to the concrete outcomes of the projects—such as agricultural export rejections or the penetration of new target markets—are not included. In addition, the DVE evaluation tool was used in several cases to measure trends in the institutional capacity of agricultural health agencies (AR/BO/UR). Although this instrument is very useful for the design phase of projects, it is not considered suitable for project evaluation, as it is mainly a self-evaluation tool that, furthermore, is not employed frequently enough in the different units of the institutions to measure project baselines or outcomes upon completion.

4.34 **In contrast, the projects in Peru are highly evaluable.** Both projects present a series of outcome indicators that are highly relevant for program evaluation: for example, production losses avoided, control costs avoided; new international markets opened to agricultural products, rejections of agricultural exports certified by SENASA, etc. Most of these indicators have also been monitored over time. In addition, several impact evaluations have been carried out for the fruit fly control and eradication programs that have received strong support under the Bank projects (Salazar et al., 2014; Grupo de Análisis para el Desarrollo [Development Analysis Group], 2010; Zegarra et al., 2008). Impact evaluations were also carried out for programs to control scabies in camelids and to promote the adoption of biological control. These were supported under PRODESA, which was the forerunner to the two Bank projects in Peru that are covered in this evaluation (Zegarra et al., 2008).[18] All of these evaluations have made an important contribution to the subsector, which is characterized by a major lack of rigorous outcome and impact studies. Ex-post cost-effectiveness evaluations remain to be done for the campaigns; these could provide useful information for analyzing the efficiency of support and for comparing outcomes according to the areas and projects supported.

4.35 **Several significant project objectives and contributions remain unevaluated.** Though all of the projects mentioned the importance of working with the private sector, as well as the contribution of resources by the latter, the projects reviewed provide no information regarding the share of costs incurred by the private sector within the total cost of campaigns and other programs. Furthermore, while all of the projects have supported infrastructure for the agricultural health agencies (laboratories and quarantine checkpoints, for

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17 As Table 5 shows, IDB loan funds on average accounted for 22% of the total budget executed by Bolivia's SENASAG. Although this is a significant percentage, it demonstrates that indicators such as sector GDP cannot be attributed directly to Bank action in this area.

18 Within the framework of the Bank's support for the agricultural health subsector in Argentina, an outcome evaluation was carried out of the codling moth control program that attempted to measure the commercial impact and the impact on producers' incomes (Fundación Barrera Zoofitosanitaria Patagónica [Patagonian Sanitary and Phytosanitary Barrier Foundation, 2010). Although the evaluation was of the "before and after" type, it represents one more attempt to measure the results of past eradication campaigns.

example), no indicators are included to show trends in returns on these works. The evaluation of outcomes in the area of food safety and the regulation of agricultural inputs is also weak.[19]

H. Effectiveness and efficiency

4.36 **Bank support contributed to the modernization of agricultural health agencies' infrastructure and to the success of their pest and disease control campaigns.** Bank projects were effective in modernizing agricultural health and food safety services, particularly in the area of infrastructure improvements. However, there is a lack of data regarding outcomes that can be attributed to Bank support in the area of institutional capacity improvement. The projects were successful in supporting disease and pest control eradication campaigns, which were not the main thrust of the projects (with the exception of Peru, which received strong support for its campaigns to control fruit fly). Support under projects for the implementation of cattle traceability systems has not yet generated measurable impacts.

4.37 **Depending on the country concerned, results have been mixed in the area of institutional modernization of the agencies responsible for agricultural health and food safety.** Bank projects helped to gradually modernize various aspects of the agricultural health services through improvements in infrastructure, with significant support for laboratories and local offices (AR/BO/NI/UR). In general, however, outputs achieved were less than planned, and there is very little information on outcomes that would allow achievements to be evaluated. For example, with the exception of the last project in Peru, there are no data to show trends in the efficiency of service delivery at the central and local levels (in terms of times and costs to users) resulting from support for infrastructure and service decentralization.[20] At the same time, the dispersion of projects across a large number of small activities hindered execution and the attainment of outcomes. Only in the case of Peru can it be said that the Bank supported a significant and sustained process of institutional modernization; this was part of a long-term action plan and a national strategy of support for the productive sector, with a major impact on the country's economy. In contrast, the case in which outcomes have been most limited is Bolivia, given that the planned institutionalization of SENASAG was not achieved. The agency remains an investment project and 90% of its staff are employed under temporary contracts that are highly insecure.

4.38 **In the area of food safety, results have been limited under all of the projects analyzed.** In several cases, projects supported the laboratories responsible for food and chemical residue control (AR/BO/NI), as well as the management of

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19 One exception is the Nicaragua project, for which the completion report shows evidence of having reduced morbidity rates in individuals from the ingestion of unsafe food. Another exception is the last project in Peru, which included an indicator relating to shipments of food exports rejected due to the presence of contaminants, as well as the percentage of contaminants present in 25 foods marketed domestically.

20 The Nicaragua project presents certain information along these lines. According to the final evaluation for the project, the central laboratory of the Nicaraguan agricultural health agencies (which was supported under the project) experienced an increase of 30% in its capacity to carry out analyses (MC2Group, 2011).

food safety units through activities to strengthen agricultural input inspections. Many of the outputs planned under the projects were not achieved. In some cases, this reflected the fact that funds planned for the area were redirected to other project components (AR/NI/UR). At the same time, no real survey has been carried out of the outcomes achieved in this area. The few outcomes that have been achieved seem more related to compliance with food safety standards for export products than with food for domestic consumption.[21] There is evidence that high levels of (sometimes adulterated) agrochemicals are being used in many countries in the region, and that these are also frequently being used in an inappropriate manner. Despite this, the projects reviewed do not contain any outcome indicators relating to activities to support registration and inspection of agricultural inputs, and therefore there is no evidence of outcomes in this area. The limited nature of the results achieved in the area of food safety demonstrates the lack of priority that has been placed on the issue by agricultural health agencies in the region. Finally, support for organic production has been scant, and there is no information regarding outcomes in this area either.

4.39 **In the area of campaigns for the control and eradication of pests and diseases, the campaign to combat fruit fly in Peru is most noteworthy due to its clear impacts, which have been measured in successive evaluations.** The fruit fly control campaigns in coastal areas of Peru have yielded positive results that have contributed to an exponential increase in the country's fruit and vegetable exports (generating significant benefits for large agricultural exporting firms on the Coast) and job creation in the areas that have benefited most. Similarly, a series of impact evaluations have shown significant positive impacts upon several variables, such as agricultural incomes, the share of production sold, the share of land dedicated to fruit production, value of production per hectare, yields for a number of permanent crops, and sale and rental values for land parcels (Salazar et al., 2014; Grupo de Análisis para el Desarrollo [Development Analysis Group], 2010; Zegarra et al., 2008). These results suggest access to improved sales prices and greater quality in the products of farmers that have benefited from the intervention. Bank projects provided resources for the purchase of inputs and labor, the construction of checkpoints, and the development of campaign dissemination activities and emergency plans. Despite existing evidence regarding the impact of the campaigns, the results of the impact evaluations do not provide any information about the efficiency of the interventions.

4.40 **With respect to the other cases of support for campaigns, projects have attained some of their targets and have had positive outcomes, but there is little evidence regarding their impacts.** Although the project in Argentina has not yet been completed, preliminary data are available regarding the outcomes of campaigns to control codling moth and fruit fly. These cover the reduction in pest-related damages in the products targeted, and reductions in the cost of agrochemical use stemming from more extensive use of the organic control methods promoted under the project. In the case of Nicaragua, the country was declared free of several avian diseases and the prevalence of brucellosis and bovine tuberculosis was reduced. In terms of FMD eradication in the Southern

[21] Project PE-L1023 presents data covering rejections due to the presence of contaminants in food exports.

Cone, Bank projects supported the attainment of OIE certification for those countries and regions free of the disease (with and without vaccination), as well as maintenance of the achieved status (AR/BO/PE/UR).[22] This was achieved through support for vaccine purchases, the construction of required infrastructure, and strengthening of the management of permanent services in the area of animal health.

4.41 **In terms of support for the development of traceability systems, there are no concrete impacts as of yet.** The Bank provided support for the creation of animal traceability systems under all of the projects reviewed, particularly in relation to cattle. The products obtained were limited in most cases, as only pilot programs were implemented—either nationwide (BO/NI) or in specific regions (AR/PE). In the case of Uruguay, Bank support helped the country to become the only one in the world in which all cattle can be individually traced. Nonetheless, there are still no concrete outcomes from implementation of these systems—not even in the case of Uruguay, where it is hoped that the status achieved will allow the country to penetrate more demanding markets for meat in the near future and thus benefit from higher prices. Despite this, there is anecdotal evidence of the benefits of implementing traceability systems, in terms of being able to deal more effectively with animal health risks.[23]

4.42 **The Peruvian government's long-term vision and SENASA's partnership with the private agricultural export sector help to explain the success of Bank support for the subsector in Peru.** Two basic factors explain the success of the Bank's work in this sector in Peru. First, the government had a clear long-term vision of the need and importance of strengthening the country's agricultural health services, which were extremely weak when the Bank decided to begin supporting the subsector in the mid-1990s. This political will to support the subsector was reflected in both the amount of funding dedicated to it over time by the government, and the strategic government plans within which agricultural health policy was framed. Based on shared objectives, SENASA was also able to create a strong alliance with the private agricultural export sector, and this gave it important backing at a time when there were political pressures to deviate from stated objectives.

I. Sustainability

4.43 **In all of the countries, there is a risk that some of the achievements of the evaluated projects will not be sustainable once Bank support comes to an end.** There are several areas in which sustainability is at greater risk, particularly investment in laboratory infrastructure and in agricultural health programs such as eradication campaigns and the implementation of traceability systems.

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22 Argentina and Uruguay were declared FMD-free with vaccination in 2003, after overcoming the crisis that led to the reappearance of FMD hotspots in 2001 to 2002. Peru was recognized by the OIE as an FMD-free country with and without vaccination in different areas of the country. In May 2014 Bolivia achieved FMD-free status with vaccination.

23 In Nicaragua in 2014, for example, veterinary drug residues (ivermectin) in excess of permitted levels were detected in certain categories of meat products. This could have led to a loss of access to the United States market, which is the main export market for Nicaraguan beef. However, the traceability system implemented allowed the authorities to identify which producers were misusing the drug, and thus correct the problem more rapidly.

Several factors contribute to uncertainty regarding the sustainability of results, including a lack of studies covering demand and financing arrangements for services; the weakness of agricultural health agencies' fee systems; and the failure to time investments appropriately. A World Bank study analyzing agricultural health and food safety projects financed by development agencies in the early part of the 2000s indicates that the greatest challenges to the sustainability of support for institutional strengthening are high staff turnover, a lack of budget resources, and inadequate arrangements for cost recovery in service delivery (World Bank, 2005) These same risk factors are present in some of the projects supported by the Bank (BO/NI).

4.44 **In most of the cases evaluated, the sustainability of investments in laboratories cannot be taken for granted (AR/BO/NI/UR).** Support for official laboratory infrastructure has not been accompanied by sustainability studies including analysis of the demand for their services and possible arrangements for financing. Such studies could be useful for the design of mechanisms to help maintain quality service delivery by the laboratories, which will require funding for equipment, inputs, and ongoing training of qualified human resources. This is very important, as hanging in the balance are not only substantial investments of resources, but also the provision of certain public goods for which official laboratories are responsible. For example, in many cases, maintenance of the sanitary and phytosanitary statuses attained by the countries requires specific analyses that the laboratories must provide as part of national pest and disease control campaigns.[24]

4.45 **Several factors jeopardize the sustainability of the successful provision of services with mixed goods characteristics (campaigns, traceability).** In some cases, there is a risk that the achievements of programs undertaken by the agricultural health agencies will not be maintained over time, due to the weak collection of fees from the private sector for the private goods involved. The lack of approval and enforcement of service fee schedules (BO/NI), as well as a lack of private sector willingness to participate and pay, endangers the ability of the agricultural health agencies to carry out these programs. For example, the successful development of Nicaragua's cattle traceability system depends on being able to define and formalize co-financing of the system with the private sector. In other cases, the inappropriate timing of investments can weaken results in the area of control and eradication campaigns. In the case of Peru, the campaign to eradicate fruit fly in certain areas reached an advanced stage without the required quarantine checkpoints being in place to protect these areas from pest incursions from infested areas. This may lead to setbacks in the program to eradicate the pest.

4.46 **One issue that should be kept in mind is the way in which decentralization of functions to subnational levels of government (as supported under some projects) might affect the sustainability of project achievements.** In some cases, Bank projects supported the operational decentralization of agricultural

[24] In addition to providing services with public goods characteristics, official laboratories also offer services that can be considered private goods, for which they charge fees to national and international users. This means that financing of the laboratories depends both on the national budget and on private sector resources.

health services through investments in the infrastructure of agricultural health agencies' regional and local offices (AR/UR). This deepening of the decentralization process will influence future discussions surrounding the allocation of budgetary resources and self-generated revenue among different levels of government, and it may affect the financing required by agricultural health programs already underway. This will need to be analyzed on a case-by-case basis. In Bolivia, the greater decentralization to which the country aspires may improve the results of certain campaigns in the stronger departments, in terms of resources and implementation capacities. In the case of Peru, SENASA's principal and most successful campaign—to combat fruit fly—has been managed at the central level of the institution, and has received very little support from regional and local governments.

4.47 **In the case of Bolivia, the failure to achieve institutionalization of SENASAG jeopardizes all of the achievements of the project.** Despite 15 years of Bank support to the subsector in Bolivia, SENASAG remains an investment project in the national budget. Likewise, Bank support has not succeeded in ensuring that most of SENASAG's staff have permanent contracts and are appointed based on competitive selection processes. This lack of solidly institutionalized agricultural health services affects the results achieved and the continuity of activities already underway. The weak institutional framework is also reflected in a lack of political will to design and implement a national medium-term agricultural health strategy that would provide a framework for individual projects and campaigns. This has led, for example, to a situation in which pest and disease control programs are launched but then lack sufficient funds and have to be discontinued. This is a clear example of inefficiency in the use of resources.

V. CONCLUSIONS AND SUGGESTIONS

A. Conclusions

5.1 **In all of the countries evaluated, the Bank has provided strong support to the subsector.** In the cases of Argentina and Uruguay, which have long-established agricultural health services and are highly experienced in the area, the Bank has been supporting the subsector for decades. In the case of Peru, Bolivia, and Nicaragua, the Bank has provided uninterrupted support for their agricultural health services since they were created in the 1990s. However, the motivations for this support—and the results thereof—have been very different.

5.2 **In all of the cases evaluated, with the exception of Bolivia, the incentive for the countries to strengthen the subsector has arisen out of an interest in supporting agricultural exports—either existing ones or those being developed.** In some countries, government support for the subsector has gone hand-in-hand with the need to maintain export markets for traditional export products. Such are the cases of Argentina, Uruguay, and Nicaragua, in which meat products have always been highly significant for the economy in general and for strong economic interests linked to the beef sector in particular. In the case of Peru, the government's vision and decision to support an agricultural

export model based on nontraditional products, and to strengthen the public agricultural services necessary to penetrate new markets for new products, led the government to emphasize SENASA's role and provide it with resources. Support for SENASA among agricultural export interests in the country's coastal areas increased steadily. The case of Bolivia is different because support for SENASAG did not result from a desire to strengthen the country's agricultural exports. In interviews conducted in the country, a number of groups that were engaged in agricultural production and were anxious to begin exporting highlighted the lack of effective agricultural health services and improved communications with SENASAG. They explained that—given the lack of prioritization of the subsector on the part of the central government—they had opted to work more closely with departmental governments.

5.3 **Bank-designed programs of support were relevant to the objective of improving agricultural sector competitiveness, but they were weak in terms of prioritizing activities accordingly.** The relevance of support for the subsector increased over the last decade as international agricultural health and food safety standards proliferated and became stricter. A lack of prioritization in the main activities to be supported in order to achieve objectives led to the design of projects that were spread across a large number of small activities. These experienced difficulties in execution, resulting in a loss of project relevance. In some countries, project delays were so great that the decision was taken in the latter stages of their execution periods to redirect funds towards major infrastructure projects, as these would absorb resources more rapidly and thus help to accelerate disbursements (AR/NI/UR). One of the possible reasons for this weak prioritization is the lack of a more comprehensive diagnostic assessment that would provide detailed analysis of the specific limitations to agricultural exports and include an economic analysis justifying the choice of beneficiary sectors or chains under the projects.

5.4 **As this sector is relatively unattractive in political terms, the support of powerful groups benefiting from agricultural health services has been key for financial sustainability of the agricultural health agencies and for success of the projects.** The results of working in the agricultural health and food safety subsector in a country are not immediate: it requires many years of work towards creating technical capacities, building reputation and credibility with trade partners and lead international institutions, certifying the low prevalence or eradication of pests and diseases, etc. In turn, the outcomes that are influenced by this work—such as increases in exports, access to new markets, greater livestock productivity—are affected by many variables, and it is therefore difficult to attribute specific achievements to the agricultural health subsector. This means that investing in agricultural health and food safety is often not the most attractive option for governments, given that the resources required compete with other uses that yield more direct, short-term benefits that are more profitable in political terms. Consequently, agricultural health entities are favored by the existence of influential interest groups that benefit from their services (generally agricultural exporters) and lobby for support to be maintained, in addition to being prepared to make their own contributions. This fact appears to have been crucial for the results of Bank projects.

5.5 **The existence of political will to provide support to the subsector, together with backing for the agricultural health agencies from agricultural export groups, has been critical for project results.** In Peru, which can be considered the most successful case, the political will existed to create a strong agricultural health agency, with a clear mandate under a strategy for the agricultural sector, and the public funding necessary to fulfill that mandate. The implicit partnership between Peru's SENASA and the agricultural export sectors—the main beneficiaries of its pest control campaigns—allowed the agency to protect itself more effectively against volatility in political support. The Bank appears to have recognized the strengths of this model and decided to provide it with strong support over the space of two decades. At the other extreme, the case of Bolivia demonstrates that a lack of conviction regarding the need for an effective agricultural health agency, together with a lack of pressure on the central government from agricultural interest groups in favor of greater funding for the sector, has meant that Bank support has only yielded a few disconnected outputs, without any real impact on service management. In the cases of Argentina and Uruguay, stronger, experienced agricultural health services have traditionally enjoyed the support of powerful interest groups, and this has ensured the maintenance of a certain level of stability in government support for the subsector. The projects in Argentina and Uruguay have supported a marked improvement in terms of the modernization of infrastructure for agricultural health and food safety services. This is important for the provision of higher-quality services, which are increasingly demanded by counterparts in the developed countries that import agricultural products.

5.6 **Bank support contributed to modernization of the infrastructure for agricultural health services, the success of a number of pest and disease control campaigns, the initial introduction of traceability systems in the region, and the first steps towards ensuring food safety in accordance with current requirements.** Bank projects were effective in their support for institutional modernization of the agricultural health and food safety services, particularly in the area of infrastructure improvements. This support was more effective in some countries than in others. However, there is a lack of data regarding outcomes that can be attributed to support in the area of institutional capacity improvement under Bank projects. The projects were relatively successful in their support for campaigns to control and eradicate pests and diseases, which were not generally the main thrust of the projects. The case of Peru stands apart, because the campaigns to control fruit fly were the most significant part of the Bank's programs (in terms of funding) and because of the clear impacts of these campaigns, which have been measured in successive evaluations. Support under Bank projects for the implementation of cattle traceability systems has not yet created measurable impacts, but this should change once countries are able to gain access to markets with higher prices, in which they can guarantee traceability of the foods concerned. In the area of food safety, outputs have generally been less than planned, and there is very little information on outcomes that would allow achievements to be evaluated.

B. Suggestions

5.7 **Diagnostic assessments.** Carry out a diagnostic assessment of agricultural health services in the region. It would be useful to have an estimate of public

spending on agricultural health and food safety in each country relative to various indicators (such as rural public spending, gross value of agricultural production, cultivated land area, livestock populations, etc.). Estimates would also be useful in the case of each country for private sector contributions through fees and charges for agricultural health services, relative to various indicators (such as total public spending on agricultural health, gross value of agricultural production, etc.). These types of indicators could support preparation of a diagnostic assessment of sector financing (which is key for sustainability) and allow for some interesting comparisons—above all where indicators measuring the efficiency of agricultural health agencies are involved. It may also be useful to calculate the proportion of regional and national agricultural exports that are rejected by importing countries, together with an analysis of the products and the reasons for their rejection. A comprehensive diagnostic assessment of the sector in the region could be a useful input for planning relevant operations. It would also be useful to support the preparation of studies to quantify the importance of agricultural health and food safety systems, as well as the economic damages inflicted by pests and diseases on different products and in different geographical areas of a country, with a view to prioritizing project activities.

5.8 **Support for the subsector should focus on those countries in which governments place priority on its importance.** Working in the agricultural health and food safety subsector involves biological issues that—in addition to requiring significant knowledge and technical experience—have specific time horizons and demand a strict synchronization of actions. Accordingly, work in the subsector is complex, and errors in execution can lead to the rapid reversal of gains made over years of work, resulting in enormous financial losses. The decision to support the subsector therefore needs to be accompanied, as in few other sectors, by solid political will if desired objectives are to be achieved. This means that to become involved in the subsector without the solid conviction and support of the government may be excessively risky and lead to very poor, or nonexistent, results. Government support should be reflected not only in the temporary support of interim public employees, but also in policies, strategies, and plans focused on the agricultural sector in general and on the agricultural health subsector in particular. These should be supported by a broad consensus and provide a framework for the Bank's specific work programs in the subsector.

5.9 **Private sector participation.** Ongoing priority should be given to working alongside the private sector in future projects and to seeking creative ways of implementing actions with improved results in this area—for example, by making use of new information and communication technologies. The Bank should also examine the idea of promoting the creation of governing boards for agricultural health agencies, with private sector participation (as was the case in Peru for a number of years).

5.10 **Laboratories.** In providing support for laboratory infrastructure, include assistance for the design and implementation of schemes to support their financial sustainability.

5.11 **Food safety.** In future projects provide greater support for the objective of ensuring safe food for domestic consumption. Strengthen food safety units in the agricultural health agencies, which are generally weaker than the animal and

plant health units, and were created more recently. Bank support in this area may offer significant value added for the countries, providing access to experts, reviews of the experiences of advanced countries in this area, and lessons learned from the experiences of a number of countries in their efforts to improve services, etc.

5.12 **Evaluability.** Seek indicators that are more directly related to activities supported under the projects, avoiding overly ambitious, aggregate indicators such as trends in agricultural GDP or exports, which depend on many other variables in addition to the quality of agricultural health services. Use outcome indicators that are more easily attributed to the projects, such as export rejections on the grounds of plant and animal health issues or contaminants that affect food safety. These should always be expressed in relative, and not absolute, terms (for example, rejections as a percentage of export certificates issued by the agricultural health agency). Also include indicators related to the local benefits generated by projects. For example, in the area of pesticide control and registration, include indicators such as the level of pesticide and veterinary drug residues in foods for local consumption, and health indicators for individuals affected by the use of agricultural inputs. Ex-post cost-benefit evaluations would also be useful for intervention strategies in pest and disease eradication campaigns in different areas of a country, or for different pests/diseases. Knowing which areas or products to prioritize would assist in planning future campaigns. Estimates of the impact of the interventions alone are insufficient to support well-informed decisions. The evaluability of institutional strengthening activities in the agricultural health agencies should also be strengthened. For example, data should be generated to show trends in the efficiency of service delivery at the central and local levels (in terms of times and costs to users, for example) with a view to enabling measurement of the outcomes of support for institutional management and service decentralization.

5.13 **Outcomes.** In the future, select data that allows the benefits of campaigns to be measured by the producer size. It is important to analyze the share of support that has been channeled to large producers/exporters. The analysis should include an estimate of the trickle-down effect on small producers of an increase in the quantity and quality of production by large producers in the same area after benefiting from the campaigns. In the case of Peru, anecdotal evidence suggests that large-scale producers, faced with the need to increase production in order to fulfill contracts with overseas buyers, have encouraged productivity improvements of small producers in the area by providing them with training and a commitment to purchase their production subject to certain quality standards.

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ANNEX A

A.1 Rechazos de exportaciones de LAC a EEUU

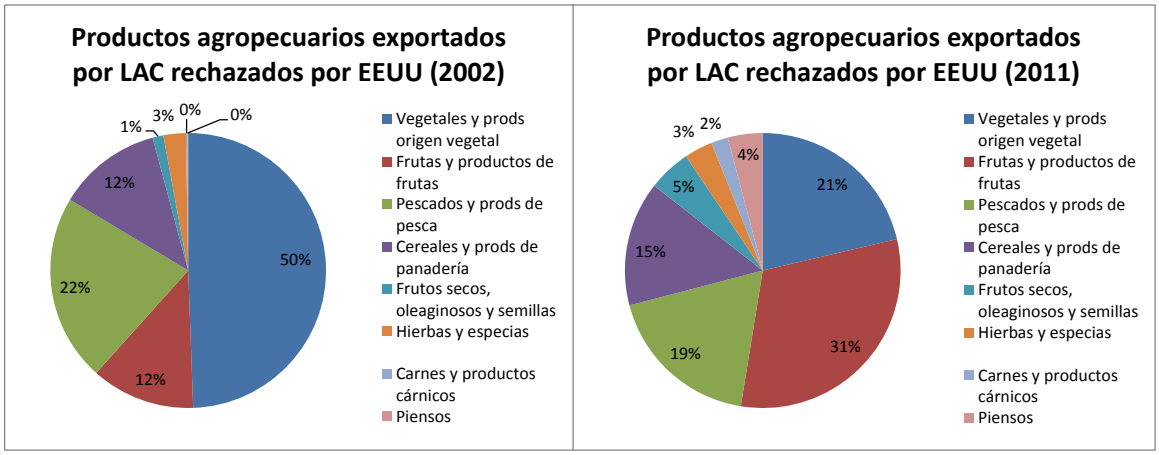
Evolución de embarques de todo LAC rechazados por EEUU en la frontera, por año y por producto

Evolución de embarques de todo LAC rechazados por EEUU en la frontera, por año y por producto

Producto	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		Var % 02-11
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
Vegetales y prods origen vegetal	940	49%	855	43%	1288	52%	1326	55%	1283	53%	1006	53%	442	27%	412	28%	564	31%	531	21%	-44%
Frutas y productos de frutas	232	12%	290	15%	396	16%	332	14%	389	16%	320	17%	269	16%	216	15%	236	13%	777	31%	235%
Pescados y prods de pesca	418	22%	442	22%	395	16%	338	14%	324	13%	218	12%	150	9%	329	22%	290	16%	457	18%	9%
Cereales y prods de panadería	233	12%	189	10%	133	5%	157	7%	213	9%	135	7%	199	12%	181	12%	324	18%	365	15%	57%
Frutos secos, oleaginosos y semillas	24	1%	64	3%	84	3%	101	4%	136	6%	79	4%	89	5%	145	10%	176	10%	125	5%	421%
Hierbas y especias	50	3%	39	2%	85	3%	77	3%	53	2%	113	6%	477	29%	85	6%	114	6%	83	3%	66%
Carnes y productos cárnicos	3	0%	82	4%	71	3%	52	2%	15	1%	11	1%	21	1%	28	2%	54	3%	49	2%	15%
Piensos	2	0%	16	1%	13	1%	31	1%	8	0%	10	1%	15	1%	86	6%	71	4%	102	4%	1033%
Total	**1902**		**1977**		**2465**		**2414**		**2421**		**1892**		**1662**		**1482**		**1829**		**2489**		**31%**

Elaboración propia a partir de indicadores de INTrade BID. Se presentan rechazos de productos agropecuarios de origen primario o de bajo nivel de procesamiento, bajo regulación de organismos de sanidad e inocuidad.

Comparación de participación de productos exportados por países latinoamericanos y rechazados por EEUU en 2002 y 2011

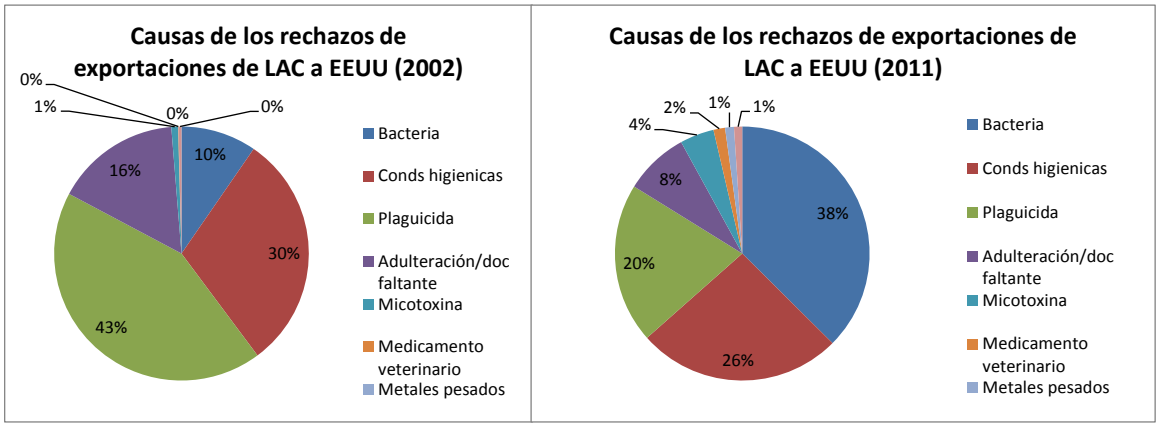


Evolución de embarques de todo LAC rechazados por EEUU en la frontera, por año y por motivo del incumplimiento

Causas	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		Var % 02-11
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
Bacteria	180	10%	508	23%	326	12%	298	12%	271	10%	170	8%	628	37%	228	14%	358	21%	865	37%	381%
Conds higienicas	567	30%	691	31%	949	36%	1033	41%	913	35%	569	28%	490	29%	712	43%	632	37%	600	26%	6%
Plaguicida	806	43%	588	26%	840	32%	803	32%	1119	43%	977	48%	257	15%	281	17%	387	22%	471	20%	-42%
Adulteración/doc faltante	299	16%	333	15%	402	15%	305	12%	202	8%	215	11%	233	14%	260	16%	132	8%	189	8%	-37%
Micotoxina	16	1%	67	3%	70	3%	81	3%	91	3%	57	3%	74	4%	121	7%	152	9%	100	4%	525%
Medicamento veterinario	1	0%	42	2%	19	1%	5	0%	5	0%	26	1%	4	0%	5	0%	18	1%	34	1%	58%
Metales pesados	0	0%	11	0%	2	0%	5	0%	8	0%	8	0%	9	1%	46	3%	31	2%	26	1%	373%
Otros contaminantes	7	0%	13	1%	8	0%	9	0%	12	0%	22	1%	7	0%	21	1%	15	1%	24	1%	243%
Total	**1876**		**2253**		**2616**		**2539**		**2621**		**2044**		**1702**		**1674**		**1725**		**2309**		**23%**

Elaboración propia a partir de indicadores de INTrade BID. Se presentan los tipos de incumplimiento de medidas sanitarias y fitosanitarias que recaen mayoritariamente bajo responsabilidad de organismos de sanidad e inocuidad.

Comparación de la participación de las causas de rechazos de exportaciones de LAC a EEUU en 2002 y 2011



A.2 Rechazos de exportaciones de los países evaluados en este informe a EEUU, UE y Australia

Rechazos de embarques de exportaciones agropecuarias a EEUU, UE y Australia, por año y por causa del rechazo

Rechazos de embarques de exportaciones agropecuarias a EEUU, UE y Australia, por año y por causa del rechazo

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	**Total**
Argentina	**32**	**34**	**40**	**53**	**26**	**42**	**101**	**122**	**69**	**34**	**553**
Micotoxina	24	27	22	43	17	27	73	101	36	13	**383**
Bacteria	4	2	10	5	4	6	7	3	4	9	**54**
Higiene	1	3	3	4	1	4	11	5	14	8	**54**
Otros	3	2	5	1	4	5	10	13	15	4	**62**
Bolivia	**2**		**2**			**1**	**3**	**6**			**14**
Micotoxina	2		2			1	2	3			**10**
Higiene	0		0			0	1	1			**2**
Otros	0		0			0	0	2			**2**
Nicaragua	**1**	**9**	**1**		**8**	**7**	**2**	**5**	**2**	**3**	**38**
Micotoxina	1	9	1		8	7	2	4	1	2	**35**
Higiene	0	0	0		0	0	0	1	1	1	**3**
Peru	**1**	**3**	**2**		**8**	**3**	**16**	**13**	**18**	**12**	**76**
Bacteria	1	0	0		4	1	8	7	3	1	**25**
Higiene	0	1	0		0	0	3	4	10	6	**24**
Micotoxina	0	0	0		3	0	3	2	4	2	**14**
Otros	0	2	2		1	2	2	0	1	3	**13**
Uruguay	**6**	**2**	**1**	**3**	**3**	**1**	**3**	**4**	**10**	**6**	**39**
Bacteria	4	1	0	1	0	0	2	1	1	3	**13**
Higiene	1	0	0	1	0	1	0	2	5	3	**13**
Metal pesado	0	0	0	0	3	0	0	1	4	0	**8**
Otros	1	1	1	1	0	0	1	0	0	0	**5**

Elaboración propia a partir de base de datos provista por el sector Integración y Comercio del BID (INTrade BID). Incluye rechazos de productos agroalimentarios bajo regulacion de organismos de sanidad e inocuidad y por causas relacionadas con el campo de acción de dichos organismos (excluye causas como embalaje, etiquetado o aditivos).