Report on the Review of Costa Rica's Animal Health Statuses

United States Department of Agriculture
Animal and Plant Health Inspection Service
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1 Executive Summary

The United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) considers Costa Rica to be free of foot-and-mouth disease (FMD), Newcastle disease (ND), rinderpest and swine vesicular disease (SVD). APHIS periodically conducts reviews of animal health statuses held by foreign regions in order to determine whether or not conditions in the region support maintenance, suspension, or revocation of these statuses.

In order to evaluate Costa Rica's ability to maintain its animal health statuses, APHIS collected and analyzed information relevant to the factors used to conduct evaluations to establish initial animal health statuses. APHIS' review concluded that the disease agents under review are not present in Costa Rica, the country has adequate infrastructure and controls to exclude importation of these agents into the United States, and maintains adequate programs for detection and control of the disease agents under review in the event that they enter Costa Rica. In addition, Costa Rica has demonstrated a history of prompt reporting of disease events, taking appropriate measures to prevent their export to the United States.

Therefore, APHIS has concluded that the information provided by Costa Rica and other publically-available and technical sources supports the continuation of APHIS-granted animal health statuses for FMD, ND, rinderpest, and SVD, and associated import requirements.

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2 Acronyms

APHIS	Animal and Plant Health Inspection Service
CFR	U.S. Code of Federal Regulations
CVO	Veterinary Operation Certificate (*Certificado Veterinario de Operacion*)
DIPOA	Food Safety of Animal-Origin Products Division (SENASA)
FAD	Customs Clearance Form (*Formulario Aduanero de Desalmacenaje*)
FMD	Foot-and-mouth disease
FRS	Sanitary Requirements Form (*Formulario de Requisitos Sanitarios*)
FSIS	USDA Food Safety and Inspection Service
HI	Hemagglutination inhibition
LADIVES	Regional Reference Laboratory for Vesicular Disease Diagnostics (*Laboratorio de Diagnóstico de Enfermedades Vesiculares*)
LANASEVE	National Veterinary Services Laboratory (*Laboratorio Nacional de Servicios Veterinarios*)
MAG	Ministry of Agriculture and Livestock (*Ministerio de Agricultura y Ganadería*)
MVI	*Médico Veterinario Inspectors*
ND	Newcastle disease
PCR	Polymerase chain reaction
OIE	World Organization for Animal Health
SENASA	National Animal Health Service (*Servicio Nacional de Salud Animal*)
SIREA	Registration System for Agricultural Establishments and Activities (*Sistema de Registro de Establecimientos y Actividades Agropucuarias)*
SIRIGABB	Official System of Identification and Individual Traceability of Bovine and Buffalo (*Sistema Oficial de Identificacion y Rastreabilidad Individual del Ganado Bovino y Bufalino*)
SVD	Swine vesicular disease
USDA	United State Department of Agriculture

3 Background

A status review is an assessment of animal health conditions in a foreign region that currently has one or more animal health statuses recognized by USDA APHIS. These reviews are conducted on a periodic basis in order to determine whether APHIS should maintain recognition of the region's animal health status.

United States regulations stipulate in title 9 of the *Code of Federal Regulations* (9 CFR) section 92.2(g) that regions granted animal health status under the provisions of those regulations may be required to submit additional information pertaining to their animal health status or allow APHIS to conduct additional information collection activities in order for the regions to maintain their APHIS-recognized animal health status [1]. This review process is applicable only for regions that have not reported outbreaks of the disease or pest occurrence in commercial livestock or poultry since APHIS' most recent evaluation or review. This includes regions recognized as free, regions recognized as being low risk, and regions not recognized as disease- or pest-free but from which importation of certain products is allowed under specific conditions to mitigate certain risks. More information on APHIS' animal disease status review program can be found on the APHIS Regionalization web page.

In order to evaluate Costa Rica's ability to maintain its APHIS-granted animal health statuses for foot-and-mouth disease (FMD), virulent Newcastle disease (ND)[1], rinderpest, and swine vesicular disease (SVD), APHIS collected and analyzed information relevant to the factors used to conduct evaluations to establish initial animal health statuses as described in 9 CFR section 92.2. These factors allow APHIS to establish a comprehensive representation of the region's veterinary infrastructure and services, livestock demographics, livestock movement and marketing patterns, surveillance programs, disease control capabilities, veterinary laboratory diagnostic capabilities, and emergency response systems for the specified hazards[2]. APHIS evaluated the information in order to determine that Costa Rica meets the following overarching standards:

- The hazard is not present in the region and/or the commodity under review;
- The hazard is unlikely to infect or contaminate the commodity being exported to the United States because of measures that prevent the introduction of the hazard and/or epidemiological barriers (both natural and manmade) that separate the region from the hazard of concern; and
- If the region has a hazard incursion, the region can rapidly detect the hazard; promptly notify the United States and/or the World Organization for Animal Health (OIE)[3]; and respond to the outbreak sufficiently to prevent introduction of the hazard into the United States through the importation of commodities from the region. Additionally,

[1] Unless otherwise specified, Newcastle disease (ND) refers to reportable strains or velogenic strains (highly virulent) of Newcastle disease (avian paramyxovirus type 1).
[2] A hazard is a biological, chemical, or physical agent in, or a condition of, an animal or animal product with the potential to cause an adverse health event. For the purposes of this report, hazard refers to the causative agent of any of the four diseases under review.
[3] The OIE is a reference organization recognized by the World Trade Organization as the standard-setting body for safe trade in animals and animal products. The OIE collects and disseminates information about the animal health status of its 181 member countries.

APHIS reviewed the region's export protocols to ensure its ability to properly certify exports in accordance with APHIS requirements.

These elements are addressed in the following sections.

The report concludes with a determination regarding maintenance of Costa Rica's animal health statuses. Based on the results of the review, APHIS will determine which of the following actions is appropriate for each status: (1) maintain the current status and import requirements; (2) continue the current recognition but with recommendation to strengthen the import requirements or mitigations; or (3) downgrade the current animal disease status recognition.

At the beginning of this review process, APHIS considered Costa Rica to be free of all of the hazards under review with no additional import measures required.

4 Review

The following sections summarize the information regarding Costa Rica's APHIS-granted animal health statuses and makes a determination whether to maintain the current status(es) or change them as described above. The review is based on documentation provided by Costa Rica and other published and technical sources.

4.1 Status of hazards under review in Costa Rica

4.1.1 History of disease occurrence in domestic livestock

APHIS maintains a list of animal health status of regions on the APHIS website. APHIS officially recognizes Costa Rica as free from FMD, ND, rinderpest and SVD. Of the four diseases under review, Costa Rica has never reported FMD, rinderpest, or SVD. In April 2015, Costa Rica reported an outbreak of ND in backyard poultry to the OIE. There were no reports of ND in commercial poultry. Prior to this event, the last reported incident of ND was in 1990 [2, 3].

The ND outbreak in 2015 involved a backyard premises of domestic chickens (*Gallus gallus*). Appropriate control measures were implemented including quarantine of premises within the control zone, depopulation of all sick or exposed birds (captive Psittacines and poultry species) within the affected zone, movement controls, enhanced surveillance, information campaigns, and cleaning and disinfection of backyard premises. In accordance with the OIE Terrestrial Animal Health Code, Chapter 10.9, Costa Rica declared the event was completely resolved in November 2015 [2, 4]. Through further epidemiological surveillance, Costa Rica declared the entire country to be free of ND in April 2017 [2].

4.1.2 Vaccination

Costa Rica prohibits vaccination for FMD, rinderpest, and SVD. Vaccination against ND (lentogenic strains) in commercial poultry is permitted. Most commercial poultry companies have ND vaccination programs for poultry breeder and layer populations; most do not apply vaccines in meat (broiler) populations. Commercial companies develop and implement their own vaccination plans, using serology to confirm flock immunity. Backyard flocks serve as a sentinel population for ND and are not vaccinated [2, 5].

4.1.3 History of disease occurrence in susceptible wildlife

FMD or SVD has never been reported in susceptible wild species. Similarly, there have been no reported occurrences of ND in wild birds. Rinderpest has never been established in the Americas and never been reported in susceptible wildlife species.

4.1.4 Status of hazards conclusion

APHIS did not find evidence to suggest the presence of any of the hazards under review in Costa Rica. Costa Rica has never reported FMD, rinderpest, or SVD. With the exception of ND, vaccination against these diseases is prohibited or has never been used. In addition, APHIS does not have any available evidence to suggest that these diseases may exist in wildlife populations in Costa Rica.

4.2 Likelihood of hazard entry into Costa Rica

Costa Rica is located in the Central American isthmus with Nicaragua to north, Panama to the south, the Pacific Ocean to the west, and the Caribbean Sea to the east. The relatively narrow land borders to the

north and south and the large bodies of water on either side limit the opportunities for incursions of foreign animal diseases. Nevertheless, the international trade of animal and animal products, both legal and illegal pathways, as well as the movements of humans and wildlife make entry of foreign animal diseases an on-going risk. Thus, APHIS collected information on Costa Rica's veterinary infrastructure, including legal authority for the animal health activities, organizational structure of the veterinary services, import requirements for animal commodities, and international certification protocols to determine the effectiveness of measures to prevent incursions of the hazards under evaluation.

4.2.1 Veterinary infrastructure

Within the federal government, the veterinary infrastructure for animal health programs is headed by the Ministerio de Agricultura y Ganadería (Ministry of Agriculture and Livestock, MAG). Within MAG, the Servicio Nacional de Salud Animal (National Animal Health Service, SENASA) is responsible for the oversight of animal and food health and safety issues and provides the regulatory structure for animal health programs and activities. Legislative Act No. 8495 – MAG (General Law of the National Animal Health Service) authorizes SENASA to order and execute necessary animal health measures. Executive Decree No. 37917 – MAG (Regulation of the Organizational Structure of the National Animal Health Services) designates the divisions and responsibilities of each of the functional units in SENASA among the national, regional and local veterinary authorities. A complete organizational chart can be found on the SENASA website.

At the federal level, the General Director and Deputy Director oversee several national-level divisions including the National Veterinary Services Laboratory (Laboratorio Nacional de Servicios Veterinarios, LANASEVE), Veterinary Drugs Division, Animal Quarantine Division, Food Safety of Animal-Origin Products Division, Animal Feed Division, Animal Reproductive Health Division, Administrative Financial Management and Field Operations. These national divisions are tasked with implementing the decisions and procedures of the national institution to ensure regional and local levels are able to fulfill the national objectives and services of their unit. A brief summary of each division's duties as it pertains to animal health is provided below [2, 6]:

LANASEVE is national veterinary laboratory responsible for providing laboratory support for external stakeholders as well as internal units for purposes pertaining to animal health and veterinary public health, including: verification of quality of veterinary medicines; laboratory testing for the prevention, control and eradication of animal disease of national concern; standardization of laboratory protocols, quality assurances and procedures; determination of food safety residues in support of domestic and export markets; and oversight of regional laboratories.

Veterinary Drugs Division is responsible for registering, controlling, regulating and supervising veterinary drug products and vaccines with consideration to and protection of veterinary public health, animal health, and the environment.

Animal Quarantine Division is responsible for establishing and implementing the regulations for the importation, exportation, and transit of animals, products and by-products, and animal-origin genetic or biotechnology material with respect to animal health. This Division ensures regulations are enforced in accordance to international treaties, conventions and agreement while maintaining appropriate level of protection against the propagation of causative disease agents that pose a threat to veterinary public health or animal health.

Food Safety of Animal-Origin Products Division is responsible for regulating and controlling the health and safety of animal-origin food products throughout the food production chain for the protection of public health. The Division also ensures that the entire food production infrastructure meets both national and country of destination (export market) regulations and standards for food safety.

Animal Feed Division is responsible for registering, controlling, and regulating animal feed with consideration to and protection of veterinary public health, animal health and the environment, and in accordance with the regulatory framework.

Animal Reproductive Health Division is responsible for the oversight and promotion of the reproductive health of national herds through the use of artificial insemination and other reproductive technologies for the genetic improvement and prevention of diseases of all domestic animals, wild, aquatic and any other, with the use of quality genetic material selected, produced, processed, stored and marketed in accordance with the national and international technical standards.

Administrative Financial Management oversees the functions that serve to support the national divisions. This division is responsible for the financial operations as well as the administrative processes including but not limited to human resources, procurement, general services, and financial resources.

Field Operations oversees the planning and coordination of SENASA activities pertaining to animal health and veterinary public health among eight regional offices. In particular, the division is responsible for regulating and implementing the requirements for the *Certificado Veterinario de Operación* (CVO). The regional offices oversee, among other things, administrative and operational procedures at the regional and local level, regional laboratories, and border entry posts.

Other operational units and staffs at the national level with oversight by the General Director of SENASA include the Department of Epidemiology, Department of Information Technology, Officialization and Certification Unit, and Communication, Notification and Equivalency Unit. Advisory bodies under the General Director include Internal Audit, Legal Counsel, Comptroller Services, Planning and Internal Control Unit, Quality Assurance Management Unit, and Cooperation and Protocol Unit.

At the regional level, SENASA has eight regional offices under the supervision of the Field Operations Division. The eight regions include: Chorotega, Huetar Norte, Huetar Atlantica, Central Sur, Pacífico Central, Brunca, Metropolitana, and Central Occidental. Depending on the veterinary services needed in the region, each regional office has dedicated duties pertaining to animal health and veterinary public health with administrative and operational support for regional laboratories, border entry posts, and field services. Personnel at the regional offices coordinate and oversee SENASA's veterinary services at the local level [2, 6].

For the disease under review, SENASA has national programs specific to diseases and/or species of concern, including but not limited to, the National Vesicular Disease Program, National Avian Health Program, National Swine Health Program, and National Small Ruminant Health Program [6].

Legal statutes and regulations provide regulatory authority to SENASA for animal health activities within Costa Rica. Legal authority for specific animal health activities are listed below [2, 5, 6]:

- **Disease notification:** Compulsory reporting to competent veterinary authorities for the diseases under review is mandatory under Legislative Act No. 8495 – MAG; the diseases under review are

nationally reportable per Executive Decree No. 34669 – MAG (List of Animal Diseases of Compulsory Declaration).

- **On-farm inspections, quarantine, and depopulation:** Legislative Act No. 8495 – MAG empowers SENASA and its designees the authority to carry out on-farm inspections as well as apply animal health measures for the protection of veterinary public health or animal health such as quarantines, depopulation of affected, suspect, and contact animals, and confiscation and destruction of products, by-products, and derivatives of animal origin.
- **Movement controls:** Legislative Act No. 8495 – MAG mandates requirements for the commercial movement and transit of animals, products and by-products of animal origin. More specifically, Executive Decree No. 37917 – MAG appoints SENASA's Animal Quarantine Department to establish restrictions on the importation, exportation, and transit of animals, products and by-products at entry and exit points in the country to comply with animal health regulations and prevent the entry and/or spread of diseases and pests.
- **Vaccination:** Legislative Act No. 8495 – MAG gives SENASA the authority to control and regulate veterinary drugs (Vaccines) and feed for the protection of veterinary public health, animal health, and the environment. More specifically, Executive Decree No. 37917 – MAG appoints SENASA's Veterinary Drugs Division the responsibility for registering, controlling, regulating, and supervising veterinary drugs, medicines, and vaccines. Only vaccines licensed and approved the Veterinary Drugs Division are permitted use in Costa Rica. If the use of prohibited vaccines is needed for outbreak response purposes (i.e. FMD outbreak), permission can be granted only by SENASA's Veterinary Drugs Division at the request of the *ad hoc* Emergency Committee. This emergency action must be based on scientific and technical justifications that support the decision to apply vaccination to control the animal health emergency.
- **Surveillance**: Legislative Act No. 8495 – MAG authorizes SENASA to take appropriate measures and actions throughout the country, to fulfill its services, programs and campaigns in order to prevent, control and eradicate animal diseases and pests. More specifically, Executive Decree No. 37917 – MAG appoints the Department of Epidemiology to establish animal health guidelines (National Epidemiological Surveillance Program for Animal Health) for surveillance and disease control in animal populations of economic interest. Additionally, the Regional Directorates oversee regional Animal Health Departments tasked with carrying out visits and audits to commercial establishments, activities pertaining to disease surveillance programs, visits to farms for sampling and verification of epidemiological information, and on-farm disease-free declarations.
- **Animal identification, registration and traceability:** Legislative Act No. 8495 – MAG gives SENASA the authority to establish, regulate and implement the registration of livestock establishments and related agricultural entities as well as the National Traceability Program for animals, products and by-products of animal origin. Executive Decree No. 37917 – MAG appoints Field Operations to coordinate the systems at the regional and local levels, including the *Certificado Veterinario de Operación* (CVO) for premises registration, national registration of cattle brands, and animal identification systems.
- **Emergency response activities**: During animal health emergency events, Legislative Act No. 8495 – MAG gives SENASA sanitary police powers and authorizes SENASA to order and carry out any means necessary to protect animal and veterinary public health. On the recommendation of SENASA, the executive branch may declare mandatory actions to combat animal diseases or

pests that threaten animal and veterinary public health. Additionally, SENASA will enact an *ad hoc* Emergency Commission to act as an advisory body and consultation for the national or regional animal health emergency. Executive Decree No. 37828 – MAG (Regulations to Title IV Emergency Provisions of the General Law of the National Animal Health Service) states that SENASA, through its national programs, will design the emergency plans necessary to respond to animal health emergencies with national or regional scope. Such emergency plans should be periodically updated and disseminated through training programs as well as in emergency drill exercises. In the event of an animal health emergency, such as foot-and-mouth disease, SENASA will proceed in accordance to guidelines by the *ad hoc* Emergency Commission. This includes enforcement of quarantines, establishment of infected and protective areas or zones, control on animal movements, seizure of affected or suspect animals, depopulation, carcass disposal, cleaning and disinfections, and indemnity. The use of (prohibited) vaccines for the control of animal health emergencies must be approved by SENASA's Veterinary Drugs Division. Under Legislative Act No. 8495 – MAG, SENASA may seek additional funding to attend to emergencies. Additionally, for indemnity, producers can create a fund for such purposes and establish a table of indemnification percentages to compensate producers.

4.2.2 Internal movement controls and animal traceability

The movement of livestock within the country of Costa Rica is regulated by a system of movement documentation and animal identification [2, 5]. Commercial livestock and poultry premises as well as agricultural related establishments (e.g., auction houses, slaughterhouses, transport vehicles, pet stores, agro-veterinary stores) must register their premises or business entity with SENASA's Registration System for Agricultural Establishments and Activities (*Sistema de Registro de Establecimientos y Actividades Agropucuarias,* SIREA). Additionally, non-commercial livestock production units that SENASA classifies as having an epidemiological risk to animal health must also register their premises or establishment. This includes backyard poultry (referred to as subsistence poultry farms)[4].

The SIREA system assigns a numerical code that corresponds to the province, canton, and an assigned unique premises identification. Registration in the SIREA system is required in order to obtain a Veterinary Operation Certificate (*Certificado Veterinario de Operacion*, CVO). The CVO contains information about the ownership, premises location, and the species type(s) and number of animals on the premises. The information must be updated once a year with changes in production activities and/or livestock populations.

The CVO is required in order for SENASA to issue a transport guide. The transport guide is mandatory for movement of cattle, swine, horses, and poultry within Costa Rica. Furthermore, the transport guide is mandatory for movement of animals to marketing auctions and slaughterhouses (swine are not permitted into auction establishments). The transport guide indicates the origin of movement, ownership, number of animals in the shipment, individual or group (flock or herd level) identification, and the transport vehicle. For movement within Costa Rica, individual identification is not required for swine, poultry or horses. The use of the transport guide or identification is not required (or regulated) for sheep and goats.

[4] In *Regulation on Poultry Farms No. 31088-S*, subsistence poultry farms are defined as any place, building, premises or facilities and annexes that has, or in which poultry remain, in the amount of less than 100 birds (*picos*).

For cattle, in addition to the transport guide, a SENASA registered and approved on-skin brand is mandatory for movement and commerce. Additionally, cattle and buffalo use an individual identification and traceability system called the Official System of Identification and Individual Traceability of Bovine and Buffalo (*Sistema Oficial de Identificacion y Rastreabilidad Individual del Ganado Bovino y Bufalino*, SIRIGABB). SIRIGABB is currently a voluntary program developed and executed under SENASA. Each animal is given a unique identifying number in the form of an ear tag (visual and electronic). Through the SIRIGABB system, producers report movements, death, and slaughter of each animal to maintain their traceability status. For live cattle or buffalo imported into Costa Rica, individual identification with SIRIGABB is mandatory.

Livestock movements are verified by SENASA at roadside checkpoints as well as in auction markets and upon arrival to the slaughterhouse (ante-mortem inspection process verifies traceability information of each shipment). At these checkpoints or receiving points, the transport guide must accompany the shipment and be made available for review and verification. SENASA also conducts official inspections of primary production establishments (farms and poultry incubators) to verify compliance with national regulations and ensure traceability information can properly link the origin and destination of animals. In cases of failure to comply with movement requirements (e.g., movement of livestock without the transport guide or erroneous information that does not correlate with the shipment), SENASA has the authority to seize shipments, impose civil penalties in the form of monetary fines to the livestock producer, and/or close (temporarily or permanently) the agricultural establishment or premises (i.e., suspend or revoke the CVO).

4.2.3 Importation of animals, animal products, and germplasm

The laws and regulations for the importation of any "domestic, wild, aquatic or other animal, its genetic material, its products, by-products, wastes, dangerous substances, animal feed and veterinary drugs or biotechnological material of animal origin" are stipulated in Legislative Act No. 8495 – MAG, Executive Decree No. 37917 – MAG, Executive Decree No. 31105 – MAG (Reform Regulation for the Evaluation and Approval of Products and/or By-products of Animal Origin Imported by Costa Rica), and Executive Decree No. 21858 – MAG (Regulation for the Evaluation and Approval of Products and/or By-products of Animal Origin Imported by Costa Rica), Executive Decree No. 21534 – MAG (Animal Health Defense Regulation), and Executive Decree No. 14584 – MAG (Animal Health Protection Regulations).

Costa Rica does not import risk commodities from countries or regions that are not free from FMD, ND, rinderpest, or SVD. Only animal products and by-products from countries whose veterinary inspection systems and export establishments (including slaughter facilities) have been determined to be equivalent to Costa Rican standards and have undergone evaluation and approval by MAG may be permitted entry into Costa Rica. Only live animals may be imported from countries that have been evaluated for their general health status and determined free from exotic animal diseases and pests may be imported into Costa Rica. Pre-import inspections and approvals are carried out by SENASA's Animal Quarantine Division. The system of inspection and approval is carried out in accordance to Costa Rica's Animal Health Law (Legislative Act No. 8495), the World Trade Organization Agreement on Sanitary and Phytosanitary Measures, and the guidelines provided by OIE for international trade.

Importers must first register with SENASA's Animal Quarantine Division, indicating specifically the commodity for importation, the country of origin, and the export establishment. As stated above, only animal products and by-products may be imported into Costa Rica from export establishments

(including slaughter facilities) approved by SENASA. To ascertain the animal health status of another country, SENASA conducts an animal health evaluation of the exporting country. SENASA gathers information to assess the competent authority and the export establishments interested in exporting to Costa Rica as well as information regarding the animal health status of the country. In-country audits may be conducted to verify the information provided in response to the questionnaire. If the OIE has not recognized the country with an official disease-free status, a risk assessment is carried out and, if the results are satisfactory, SENASA declares the country as free of the disease and eligible to export commodities to Costa Rica. Once the risk assessment has been completed and the country has been approved to export to Costa Rica, the import protocol and international health certificate is generated for each commodity in alignment to the OIE's Animal Health Terrestrial Code and current Costa Rican legislation with mitigations, if deemed necessary, to inactivate animal diseases or pests of concern.

Importation of animal commodities into Costa Rica are required to have a Customs Clearance Form (*Formulario Aduanero de Desalmacenaje, FAD*) which is submitted by the importer for authorization to import and contains information on the importer, the commodity, the country of origin, and the premises of origin. The Animal Quarantine Division reviews the FAD to verify the commodities are authorized for importation. If in compliance, SENASA issues a Sanitary Requirements Form (*Formulario de Requisitos Sanitarios, FRS*) which states the requirements the importer must comply with including a veterinary health certificate and laboratory results, when applicable. The Sanitary Requirements Form contains the individual import requirements for each commodity from each country. The importation requirements can be found on the SENASA website. See Table 1 for summary information.

Table 1: Commodities and countries eligible to export to Costa Rica

COMMODITY	COUNTRY
AVIAN	
Live poultry	None permitted
Hatching eggs	Canada, Chile, Honduras, Panama, United States
Day-old chicks	
Pet birds (canaries)	Spain
Poultry meat	Chile, United States
BOVINE	
Breeding, cattle	Canada, Mexico, Nicaragua, Panama, United States
Fattening, cattle	Panama
Slaughter, cattle	Nicaragua, Panama
Bovine semen and embryos	Spain, United States
Beef, fresh	Canada, Chile, Mexico, Nicaragua, United States
PORCINE	
Breeding, swine	Canada, United States
Porcine semen and embryos	Spain, United States

Source: [5]

Upon importation, the official veterinarians at the port of entry reviews and verifies the import documentation. At border inspection posts, review of import documentation and physical inspection (of live animals) is carried out for all imports [2, 5]. For animal products and by-products, commodity labeling is matched to import documentation and, if applicable, the commodities are sampled for

laboratory testing. Risk-based sampling of animal product and by-products is performed in accordance to the National Residue Monitoring Plan and other regulations pertaining to food safety and public health. For live animals, the official veterinarian carries out a general physical exam of the animals, verifies the laboratory results and other documentations, and ensures the animals do not show clinical signs of infectious disease and/or ectoparasites. If the import requirements are met, the import is authorized for entry. Any commodities that are not accompanied by the required documentation or, for live animals, show clinical symptoms of disease, are prohibited entry.

Upon entry, Costa Rica requires post-arrival quarantine for poultry (day-old chicks and hatching eggs) cattle, and swine. SENASA does not have federal import quarantine units. However, prior to importation of animals, the importer must identify to SENASA the quarantine facility and the facility must be inspected and approved by SENASA for quarantine purposes before the importation can be authorized. In regards to imported live poultry, cloacal swabs for diagnostic testing (pooled sampling) are collected from the day-old chicks upon their arrival at the Juan Santamaría International Airport. Chicks are immediately sent to the farm where they must remain separated from the general population until the quarantine period is over. A second cloacal swab is collected between the ages of 21-28 days. As soon as the laboratory results confirm negative findings, the quarantine period is lifted. In the case of imported eggs, they are incubated for approximately ten days before carrying out diagnostic testing. Official veterinary inspection and supervision is performed when collecting the samples for laboratory analysis. In regards to imported cattle and swine, animals are inspected at the border and then sent to SENASA-approved facilities for diagnostic testing and monitoring for the presence of brucellosis, tuberculosis, trichomoniasis and campylobacteriosis. All imported cattle and swine undergo individual diagnostic testing during the quarantine period [2, 5].

Commodities seized at border entry points or airports, including items seized from passengers and baggage are either incinerated or autoclaved for sterilization prior to disposal and immediate burial at an approved sanitary landfill. In air and sea ports, the disposal of organic waste of animal origin (including food waste from meals on international flights) from international vessels (ships, airplanes) is regulated by SENASA's Animal Quarantine Division. International sea and air entry ports, under the supervision of SENASA, contract with waste management companies to collect, handle, and dispose of international waste to prevent entry of animal diseases. Waste must be properly bagged and heat-treated (autoclaved at 120°C for 45 minutes and/or incinerated in-situ) prior to disposal in approved landfills. Waste management companies undergo periodic audits from SENASA's Animal Quarantine Division to verify compliance with proper handling and disposal of international waste [5].

4.2.4 Hazard entry conclusions

APHIS concludes that SENASA has an appropriate veterinary infrastructure and legal authority to carry out the animal health activities necessary to maintain the health and safety of Costa Rica's livestock populations and animal products. Costa Rica has an effective system for livestock movement control within the country as well as traceability of animals in transit. If an incursion of disease occurs, the system of movement documentation, premises registration, individual or group identification, and checkpoints would be able to identify vulnerable animals and products and remove them from the U.S. export channels. Furthermore, APHIS concludes that Costa Rica imposes an effective system of import controls for animals and animal products. This system includes an animal health risk assessment to determine the likelihood of hazard entry from the exporting country, approval of export establishments for animal products, import quarantine requirements, and a system of import requirement verification

and inspection. Costa Rica also inspects other imported goods and passengers, and carries out measures to prevent the inadvertent introduction of hazards. These controls form an effective barrier to introduction of the hazards into Costa Rica and, subsequently, into the United States.

4.3 Likelihood of hazard detection, response, and notification

4.3.1 Surveillance

Compulsory reporting to competent veterinary authorities for the diseases under review is mandatory under Legislative Act No. 8495 – MAG; the diseases under review are nationally reportable per Executive Decree No. 34669 – MAG (List of Animal Diseases of Compulsory Declaration). As a member of the OIE, Costa Rica has a history of consistent biannual reporting of hazards and has never reported FMD, rinderpest, or SVD[5] [3]. Costa Rica reported a case of ND in 2015 in backyard poultry. Prior, the last outbreak of ND occurred in 1990. USDA APHIS has recognized Costa Rica as free of ND since 1997 [2].

Due to historic freedom, Costa Rica performs passive surveillance for vesicular diseases. The National Vesicular Disease Program provides training for SENASA's Field Operations staff and producers in the detection of vesicular diseases. When suspected or reported, samples are submitted to LANASEVE and transferred to the regional reference laboratory for vesicular disease diagnostics in Panama (*Laboratorio de Diagnóstico de Enfermedades Vesiculares*, LADIVES). Under this system, from January 2014 to June 2017, 59 cases of Vesicular Stomatitis Virus (New Jersey serotype) were detected. All investigations conducted to date have resulted in negative findings for FMD, rinderpest, and SVD. As discussed in Section 4.2.3 for the importation of livestock, animals are physically inspected at the border for signs of clinical disease and then sent to SENASA-approved facilities for diagnostic testing and monitoring for the presence of brucellosis, tuberculosis, trichomoniasis and campylobacteriosis. All imported cattle and swine undergo individual diagnostic testing during the quarantine period [2, 5].

Active and passive surveillance systems are in place for ND. With oversight by SENASA, through the National Avian Health Program and the Department of Epidemiology, the *Epidemiological Surveillance Protocol on Newcastle disease* lays out the annual strategic surveillance plan. The plan covers the entire territory of Costa Rica in backyard poultry, commercial poultry farms, quarantine posts, live poultry imports (day-old chicks and hatching eggs), and establishments where poultry are housed for zoological or other purposes. Active surveillance for ND is carried out as an on-going program to demonstrate absence of disease in poultry, both commercial and backyard populations. The surveillance plan is reviewed and revised, as needed, on an annual basis.

In commercial poultry farms, a two-stage sampling design is used; sampling is performed twice a year. The number of poultry farms sampled is based on an expected prevalence of 2% with a 95% confidence level and a test sensitivity of 98%. At each farm, 30 birds are sampled, based on an expected prevalence of 10% and a confidence level of 95%. For broilers, 30 sera and cloacal swabs of 30 birds (in pools of 10 birds each) are taken at the process plant level or on the farm at least 96 hours prior to departure (at the end of the production cycle). For breeding poultry and egg-laying poultry farms, cloacal swabs of 30 birds (in pools of 10 birds each) are taken in and submitted for molecular polymerase chain reaction

[5] SVD was de-listed as a disease of concern for international trade by the OIE in 2014.

(PCR) testing. Additional surveillance for ND and avian influenza is performed for export certification of export poultry farms.

In backyard poultry, a risk-based, two-stage sampling design is used; sampling is performed twice a year. The country is divided into a grid system of 5 X 5 kilometers and categorized into high, medium and low risk areas for incursions with exotic avian diseases, namely, ND and avian influenza. High risk areas are selected due to their proximity to national parks, biological reserves, coastal areas and other bodies of water, commercial poultry farms, and entry and exit points for people and goods such as sea ports, airports, and border posts. The number of grids (targeted towards high/medium risk areas) sampled is based on an expected prevalence of 5% with a 95% confidence level and a test sensitivity of 98%. Within each grid, 30 sera and 30 cloacal swabs (in pools with a maximum of 10 birds each) are sampled, based on an expected prevalence of 10% and a confidence level of 95% [2].

For the importation of live birds and fertile (hatching) eggs, surveillance samples to be taken are described above in Section 4.2.3.

Passive surveillance (early warning system) is carried out when mortality events are reported in wild birds as well as abnormal morbidity and mortality in backyard and commercial birds. When there is a suspected case of ND or any other exotic animal disease, a written protocol (*Passive Surveillance Guide*) is followed by the official veterinarian for the epidemiological investigation, including examination of the animals, the placement of temporary quarantine (pending diagnostic results) and procedures to collect samples and submit to LANASEVE. For ND, molecular PCR tests or viral isolation of cloacal swabs are performed when there are positive reactions in the hemagglutination inhibition (HI) serological test.

LANASEVE is the national government reference laboratory for animal health diagnostics, animal disease surveillance diagnostics, and the testing of official verification samples collected from products that are destined for export to the United States. LANASEVE is accredited to ISO 17025:2005 standards. LANASEVE is the official laboratory for the diagnosis of ND. The Laboratorio de Bioseguridad (LSE) within LANASEVE performs HI testing to screen for ND; virus isolation in embryonic eggs with HI as confirmatory testing to positive serological samples; and molecular PCR and Sanger sequencing as confirmatory testing to HI and virus isolation. SENASA may authorize other state or private laboratories to support the diagnosis of ND. In positive cases, and in those cases deemed necessary, the samples for the surveillance of ND may be sent to one of the international OIE reference laboratories for confirmation purposes.

From 2014 – 2017, SENASA investigated 104 suspect cases for avian diseases under their passive surveillance system; one positive case of ND was detected in 2015 in a backyard flock. For the same time period, their active surveillance systems for commercial and backyard poultry met or exceeded their sampling quotas and all diagnostic testing was negative for ND [2].

4.3.2 Animal disease investigation and response

Disease reporting is the responsibility of veterinarians, paraprofessionals, producers, livestock and poultry owners, and the general public in Costa Rica. Animals exhibiting clinical signs suggestive of foreign animal diseases must be reported to SENASA. The regional field operations office (via Regional Director) notifies the official veterinarian in charge of the area to initiate the epidemiological investigation. For suspect cases of exotic animal diseases, the *Passive Surveillance Guide* outlines the

protocol for sample collection and submission, (temporary) quarantine, biosecurity measures, personal protective equipment, and record-keeping. Action must be taken on suspect cases within 48 hours [2].

Once laboratory confirmation of an exotic animal disease has been made by LANASEVE, SENASA is immediately notified. Simultaneously, SENASA provides an immediate notification to the OIE within 24 hours. SENASA declares an animal health emergency and establishes an *ad hoc* Emergency Committee to initiate and enforce emergency response protocols in accordance to the contingency plans. The declaration of a national animal health emergency does allow SENASA the opportunity to secure additional resources (i.e. funding to increase laboratory diagnostic supplies and field personnel) to effectively respond to the outbreak in accordance with contingency plans [5]. For ND, the contingency plan, *Exotic Newcastle Velogenic Disease Emergency Plan*, was developed by SENASA's National Avian Health Program. The Plan describes the emergency response actions, roles and responsibilities, and the timeline for response. The National Avian Health Program has also developed specific protocols for personal biosecurity, enhanced surveillance, quarantine, depopulation, and cleaning and disinfection. Similarly, the contingency plan, *Foot and Mouth Disease Emergency Plan*, was developed by SENASA's National Vesicular Disease Program. Additionally, SENASA has a regional contingency plan for FMD developed in conjunction with the International Regional Organization for Plant and Animal Health (OIRSA)[6] entitled, *Plan De Emergencia Para El Control Y Erradicación De La Fiebre Aftosa En El Area Del OIRSA* (Emergency Plan for the Control and Eradication of FMD in the Area of OIRSA) as well as a contingency plans developed by SENASA for exotic swine diseases, namely, classical swine fever (*Plan de Contingencia para la Atención de un Caso de Peste Porcina Clásica en Costa Rica*) [2, 5, 6].

Public awareness campaigns on exotic animal diseases are distributed via bulletins (flyers), posters at border entry posts, and various media outlets [2]. The public awareness campaigns provide biosecurity recommendations and exotic animal disease information with instructions on reporting suspect cases. SENASA organizes regular meetings with poultry companies, poultry owners, producers, veterinarians and paraprofessionals throughout the country. Simulation exercises for exotic animal diseases are performed; most recently in 2015, an exercise for avian influenza was carried out by SENASA with support of USDA. SENASA provides training to field operations staff (official veterinarians, animal technicians, and other paraprofessionals) in the detection of vesicular diseases and exotic avian diseases. Additionally, veterinarians are instructed to raise awareness among all producers and animal production personnel about reporting suspect diseases cases and abnormal morbidity and mortality to their veterinarian or the local veterinary authority.

In April 2015, an official notification was made to the OIE of an outbreak of ND in backyard poultry along the northern border with Nicaragua. The procedures described above were followed, implementing Emergency Decree No. 39100 - MAG (*Declaration of National Health Emergency and Declaration of Public Order and Social Interest for Prevention, Control and Eradication of Velogenic Newcastle Disease*); Resolution SENASA-DG-R015-2015 (*Declares a State of Minor Health Emergency due to the Presence of Velogenic Newcastle Disease and Declares the Prevention, Control and Eradication of Disease to be Public Order and Social Interest*); and Resolution SENASA-DG-R016-2015 (*Health Quarantine of those*

[6] OIRSA is an institution specializing in the areas of animal health, plant health and quarantine services whose objective is to develop and coordinate programs for the prevention, control and eradication of diseases and pests in its member countries: Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama.

Areas of the Country where Cases of Mortality Caused by Velogenic Newcastle Virus have been Detected or Detected). The contingency plan for ND was enacted; sick and exposed birds were depopulated; enhanced epidemiological surveillance of the surroundings was performed; movement controls were implemented within the control zone; affected farms were cleaned and disinfected; and the control zone remained free of poultry for more than 3 months to ensure eradication of ND virus (ref: sub #1, Annex 13). The epidemiological investigation determined the outbreak was likely due to (illegal) movement of backyard poultry from Nicaragua. The outbreak originated less than 300 meters from the Nicaraguan border; Nicaragua declared a ND outbreak within days of the Costa Rican report to OIE. The ND outbreak event was declared resolved in the OIE follow-up notification in November 2015 [7]. Through further epidemiological surveillance, Costa Rica declared the entire country to be free of ND in April 2017 [2].

4.3.3 Swill feeding

To reduce the risk of introduction and/or spread of animal diseases, Executive Decree No. 37155 – MAG (Farm Swine Regulation) establishes the conditions for swill (garbage) feeding to pigs. In Costa Rica, food waste from agriculture, cafeterias, restaurants, and other similar establishments is permitted provided the food waste undergoes a heat treatment on the farm prior to feeding to pigs. Food waste must be heated to not less than 70°C for at least 30 minutes with continuous stirring; the heated food waste must be fed immediately to the pigs (after reasonable cooling period); not be in a state of putrefaction, and may not be re-mixed with raw food ingredients. Premises must have the appropriate equipment for transport, storage and preparation of such waste products. Food waste from hospitals, medical clinics, asylums, sea ports, and airports is strictly prohibited [5].

However, during a disease outbreak event such as FMD or classical swine fever, all animals and products associated with the outbreak must be destroyed and disposed of under the supervision of SENASA. Food waste that is permitted to be fed to pigs must undergo one of the following inactivation procedures: 1) food waste must be heated at a minimum temperature of 90°C for at least 60 minutes with continuous stirring, or 2) food waste must be heated to a minimum temperature of 121°C at 3 bars (absolute pressure) for at least 10 minutes (sub #2). As stated above, heated food waste must be fed immediately to the pigs (after reasonable cooling period); not be in a state of putrefaction, and may not be re-mixed with raw food ingredients. Premises must have the appropriate equipment for transport, storage and preparation of such waste products. Food waste from hospitals, medical clinics, asylums, sea ports, and airports is strictly prohibited [5].

4.3.4 Reporting history

Compulsory reporting to competent veterinary authorities for the diseases under review is mandatory under Legislative Act No. 8495 – MAG. Disease reporting is the responsibility of veterinarians, paraprofessionals, producers, livestock and poultry owners, and the general public in Costa Rica. Failure to report a disease of mandatory declaration can result in administrative (monetary) sanctions [5].

Costa Rica has been an active member of OIE since 1945. As a member of the OIE, Costa Rica has a history of consistent biannual reporting of hazards [3]. In the case of reportable exotic animal disease events, SENASA provides an immediate notification to the OIE within 24 hours of a laboratory confirmation. Information on the OIE website indicates Costa Rica has promptly reported the animal health status of the country to OIE since at least 1996, the earliest available online reporting information [7].

When positive cases are detected through surveillance systems and confirmed with laboratory testing, LANASEVE notifies the Director of SENASA, the Head of the Department of Epidemiology, the Coordinator of the national program for the species and/or disease, and the Director of Operations and the Regional Director involved to follow up on the case. The results obtained are recorded by the LANSEVE in the official system of epidemiological surveillance in force (SIVE) to be available to interested parties for review and archiving. SENASA establishes an *ad hoc* Emergency Committee to initiate and enforce emergency response protocols. Simultaneously, SENASA provides an immediate notification to the OIE within 24 hours.

To monitor the animal health status of other countries, SENASA uses OIE notifications as well as early warning systems within SENASA's Communication, Notification and Equivalency Unit. This Unit uses both official and non-official information sources and communication channels to gather animal health information to trigger prompt sanitary measures, as needed.

4.3.5 Export controls

Costa Rica is currently eligible to export beef products to the United States. SENASA's Food Safety of Animal-Origin Products Division (DIPOA) is responsible for regulating and controlling public health and food safety concerns of animal origin products for human consumption, including assurances on the export of products of animal origin. Export establishments are under the oversight of SENASA's DIPOA to ensure both the processing facilities and its products meet export standards. Under Executive Decree No. 29588 - MAG (Regulation for Veterinary Inspection and Sanitary Production and Processing of Meats), DIPOA has regulations on sanitary requirements for slaughter and processing facilities for animal productions species, including critical points of inspection (e.g., ante-mortem and post-mortem inspections) performed by the official veterinarians, or *Médico Veterinario Inspectors* (MVIs). DIPOA performs periodic audits of facilities and its personnel to verify compliance with food safety regulations and standard operating procedures.

In May 2017, USDA Food Safety and Inspection Service (FSIS) performed an onsite equivalence verification audit on the four approved export establishments in Costa Rica for beef products as well as laboratory procedures at LANASEVE. The purpose of the audit was to determine whether Costa Rica's food safety system governing raw intact beef products remains equivalent to that of the United States, with the ability to export products that are safe, wholesome, unadulterated, and correctly labeled and packaged. The audit did not find any significant findings that represented an immediate threat to public health and the approved facilities and food safety enforcement systems thereof remain in good standing. FSIS foreign audit reports can be found at the following link: https://www.fsis.usda.gov/wps/portal/fsis/topics/international-affairs/importing-products/eligible-countries-products-foreign-establishments/foreign-audit-reports.

Table 2: Beef exports (in kilograms) from Costa Rica to the United States, 2016-2018

Description of product (HTS code)	2016	2017	2018
Beef cuts, boneless, fresh (0201.30)	1,212,603	1,182,993	1,104,067
Beef cuts, with bone in, frozen (0202.20)	0	1,495	0
Beef meat cuts, boneless, frozen (0202.30)	7,960,966	6,910,010	6,784,422
Tongues, bovine, frozen (0206.21)	14,818	8,488	6,697
Edible offal, bovine, except tongues or livers, frozen (0206.29)	124,135	288,514	674,681

Source: [8]

For export of animal products and by-products to the United States, the export establishment completes the *Export Shipment Summary* which provides a product description of the shipment with an attestation that the shipment meets sanitary conditions and complies with food safety requirements Legislative Act No. 8495 and other binding regulations. In addition, it confirms compliance with the requirements of the importing country. The *Export Shipment Summary* is signed by the MVI. Additionally, the shipment must be accompanied by the *Official Meat Inspection Certificate* which was previously negotiated between Costa Rica and the United State for the export of beef products. The MVI must certify and attest that the meat and/or meat products were derived from livestock which received ante-mortem and post-mortem veterinary inspections at time of slaughter in approved establishments certified for importation into the United States; are not adulterated or misbranded; and have been handled in a sanitary manner in compliance with requirements equivalent to those of the U.S. Federal Meat Inspection Act and its regulations.

For export certification, all MVIs receive on-the-job training on veterinary inspection requirements to supplement their academic qualifications. Non-veterinary food inspectors also receive required training when they first join the inspection task force and additional training as needed to perform their assigned duties in United States-certified establishments. Periodic training for MVIs and other personnel is provided and recorded. Additional training needs can be requested through the EXPE online system. SENASA's Quality Assurance Management Unit establishes annual training priorities based on minimum veterinary competencies as defined by OIE and training needs identified by veterinary officials through the EXPE online system.

4.3.6 Hazard detection, response, and reporting conclusions

Costa Rica has provided supporting documentation to demonstrate that it can rapidly detect the hazards under review, promptly notify the United States and/or the OIE of hazard events, and respond to the outbreak event sufficiently to prevent introduction of the hazards into the United States through the importation of commodities from the region. Information supplied by Costa Rica and resources made publically available by SENASA demonstrate that Costa Rica has implemented and maintained comprehensive surveillance programs capable of detecting the hazards under review. The national

surveillance plans for the diseases of concern appear appropriate given the disease history, disease prevalence, and risk of disease introduction through trade, animal movement, and other means. For ND in particular, the active and passive surveillance systems collectively demonstrate that ND is not present in the country and, as shown in 2015, capable of detecting ND should the disease arise.

Costa Rica appears to have adequate animal disease detection mechanisms, investigation procedures, emergency response measures, and control programs for the diseases under review. The recent ND event in backyard poultry demonstrates that surveillance systems are intact and capable of detecting disease incursions. Furthermore, the response and eradication efforts by veterinary officials were appropriate, timely, and effective. Animal health protocols and veterinary authority for detection and control of exotic animal disease are in place and have been successfully executed. Animal disease events are investigated by a trained veterinarians and paraprofessionals in the field with oversight by SENASA, the competent veterinary authority. Protocols for response to suspected animal disease events are comprehensive and demonstrate SENASA's authority to contain disease spread. Historically, Costa Rica has promptly reported disease occurrence to the OIE.

Finally, the recent FSIS equivalence verification audit to the four approved export establishments in Costa Rica and the information provided demonstrates Costa Rica's capability to properly certify animal and animal products for export to the United State and prevent the export of infected animals or contaminated animal products to the United States.

5 Review conclusions

Based on documentation provided by Costa Rica in its submissions to APHIS, information available on SENASA's websites, and from the OIE and other publicly available information, APHIS concludes that Costa Rica is free of the hazards under review, conducts sufficient import measures to prevent their entry, and, in the event that the hazards did enter, Costa Rica, through SENASA, is capable of detecting the hazards and containing their spread, and will promptly report them to trading partners and the OIE, taking necessary measures to prevent their export to the United States.

6 Recommendations

Based on the favorable conclusions of APHIS' review of Costa Rica's animal health statuses, APHIS has determined that maintenance of the current conferred statuses and import mitigations for FMD, ND, rinderpest, and SVD is appropriate. Recognition of these statuses will be maintained until the next APHIS review or until a change in Costa Rica's animal health status is reported.

7 References

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