



FOOD STANDARDS
Australia New Zealand
Te Mana Kounga Kai – Ahitereiria me Aotearoa

BSE

Food Safety

Assessment

Report

Argentina

Last Update: June 2015

Strategic Science, International and Surveillance Section

Food Standards Australia New Zealand

Executive summary

Food Standards Australia New Zealand (FSANZ) is the regulatory authority responsible for conducting Bovine Spongiform Encephalopathy (BSE) food safety assessments of countries that seek to export beef or beef products to Australia under the Australian Government's policy on BSE food safety announced in 2009¹. FSANZ assesses the information submitted by applicant countries and the supplementary information collected from various sources, and draws an evidenced based conclusion on the BSE food safety status of the applicant countries. Information provided by the applicant countries must address the requirements detailed in the *Australian Questionnaire to Assess BSE Risk*² (Australian Questionnaire). The Australian Questionnaire is based on the *Questionnaire for BSE Risk Status Recognition*³ published by the World Organisation for Animal Health (OIE). Importation of beef and beef products into Australia is only permitted from countries which have been assessed by FSANZ and assigned a favourable BSE risk status of 'Category 1' or 'Category 2'. Countries seeking market access for fresh beef products are subject to an additional assessment of animal quarantine risks conducted by the Australian Government Department of Agriculture.

In 2003, Argentina was assessed by FSANZ under the 2001 Australian Government's BSE food safety policy and assigned a 'Category A' BSE risk status. 'Category A' means that beef and beef products from Argentina are regarded as posing a negligible risk to human health. As a result, heat treated and shelf stable beef products for human consumption sourced from cattle born, reared and slaughtered in Argentina have been permitted for import into Australia.

Argentina is one of the first countries to be assigned a 'Negligible' BSE risk status by the OIE and the European Union. "Negligible" BSE risk status recognised by the OIE or the European Union means, that commodities from the cattle population of the country pose a negligible risk of transmitting the BSE agent.

Argentina submitted an application to FSANZ for categorisation of country BSE food safety risk in June 2011. As reflected in this report, FSANZ has carried out an assessment of legislative measures concerning the prevention and control of BSE in Argentina, and conducted an in-country assessment that verified the effectiveness of the BSE preventative measures implemented in Argentina. Five main control areas were examined in the BSE food safety assessment of Argentina:

- (1) **Import controls** to prevent the release of the BSE agent through imports of animals or animal-derived products.
- (2) **Feed ban controls** to prevent contamination of the animal feed supply with the BSE agent.
- (3) **Food safety controls** to prevent contamination of the human food supply with the BSE agent.
- (4) **Traceability and animal identification systems** to ensure animals and animal-derived products can be effectively identified and recalled if required.
- (5) **Surveillance programs** to ensure that BSE affected animals are identified and removed from the feed and food production systems.

BSE specific import controls introduced by the Government of Argentina since 1990 have successfully prevented the BSE agent from entering Argentina. In the last ten years live bovine animals imported into Argentina for breeding purposes have been restricted to those originating from Uruguay and Paraguay only. Imported bovine by-products as meat and bone meal (MBM) have been restricted to those originating from Uruguay only, and import of fresh beef products has been restricted to those originating from Brazil and Uruguay only. Brazil

and Uruguay were categorised by FSANZ in 2003 as countries with “Category A” BSE status. Recently Brazil was assigned “Category 1” BSE status by FSANZ. Brazil, Paraguay and Uruguay are countries with a ‘Negligible’ BSE status recognised by the OIE. Based on the above, live cattle and beef and beef products imported into Argentina in the last ten years present a negligible level of risk of introducing the BSE agent into the country.

Argentina has had an effective ruminant feed ban in place since 1995. From 2002, proteins of all mammalian species have been prohibited from being fed to ruminants. In 2004, the feed ban was extended to all animal proteins. Argentina’s ruminant feed ban has been effectively implemented through the following measures:

1. In Argentina, manufactured animal feeds including raw ingredients are only sourced from suppliers registered with and authorised to produce or supply animal feed by SENASA (*Servicio Nacional de Sanidad y Calidad Agroalimentaria*, the Argentine National Agriculture and Food Health and Quality Service), and their compliance with the ruminant feed ban is audited by SENASA.
2. In Argentina, ruminant feeds are produced on exclusive production lines that prevent the possible contamination from non-ruminant animal feed.
3. All of Argentina’s slaughtering establishments have comprehensive food safety oversight and audit by Argentina’s official veterinary inspectors to prevent animals suspected of BSE infection from entering the human food or animal feed chain.
4. Movement of ruminant derived MBM within Argentina must be authorised and is monitored by SENASA.
5. The Argentine BSE surveillance program that audits the production of animal feeds and tests animal feeds for contamination of ruminant proteins has been systematically developed and effectively implemented.

All of Argentina’s food businesses are required to have an effective food recall system in place. Product recall and traceability simulations are conducted regularly by all slaughtering establishments as part of standard operating procedure. The labelling information on beef produced in Argentina enables beef products to be traced back to the origin of the slaughtering establishment, the group of cattle from which beef is derived from, and the farm from where the cattle were reared in the event of a food incident investigation.

BSE has been a notifiable disease in Argentina since 1997. The ongoing BSE awareness education program introduced in 1992 by SENASA is comprehensive, and has reached a wide range of primary producers and businesses involved in the production and supply of beef and beef products for human consumption. These include farmers, veterinarians, meat producers, meat transporters, laboratory technicians and the general public.

BSE diagnosis conducted in Argentina conforms to the standards recommended by the OIE. BSE sample collection, diagnosis and information management in Argentina have benefited from the close collaboration between the Argentine National Institute of Agricultural Technology (INTA, *Instituto Nacional de Tecnología Agropecuaria*) which conducts BSE testing and SENASA which manages the sample collection and risk communication in the field.

The SENASA network is one of the key success factors of Argentina’s effective BSE prevention program. The network is comprised of 15 regional centres and 356 local offices spread throughout the country. The proximity of these regional centres and local offices to farms and slaughtering establishments and their role as the competent authority ensure that a disease event such as BSE, if it occurs, will be rapidly identified and effectively managed.

Argentina has developed an effective national cattle identification and traceability system. With a combination of the primary producer's register, the identification of individual cattle, and the movement documentation that controls the movement of animals, the system provides reliability and accuracy in the tracing of animals. The Sigsa (*Sistema Integrado de Gestión de la Salud Animal*, an integrated information management system for animal health) information management system which captures the above mentioned three components essential for animal identification and traceability is compatible with Australia's National Livestock Identification System.

Argentina has an ongoing BSE surveillance program, and is currently conducting the OIE specified Type B surveillance for BSE. Argentina's BSE surveillance points accumulated over the period of seven years from 1999 to 2005 inclusive, and again from 2006 to 2012 inclusive, have well exceeded the OIE specified Type A BSE surveillance point targets.

As a result of a comprehensive assessment of information submitted by Argentina together with supplementary information collected from various sources, and a verification assessment of the effectiveness of the BSE preventative measures implemented in Argentina through an in-country inspection, it is concluded that Argentina has comprehensive and well established controls in place to prevent the introduction into and amplification of the BSE agent within its cattle population. These controls ensure that beef and beef products produced in Argentina are safe for human consumption. This BSE food safety risk assessment recommends the Argentine Republic be assigned **Category 1** status for country BSE food safety risk. **Category 1** status means that there is a minimal likelihood that the BSE agent has or will become established in the national herd of Argentina and enter the human food chain. Beef and beef products derived from animals from Argentina are therefore regarded as posing a minimal risk to human health.

Acronyms

AHVLA	Animal Health and Veterinary Laboratories Agency at Weybridge UK
Banned animal protein	Proteins of animal origin including chicken litter and remains of breeder chicken other than dairy proteins, fish meal, egg meal and feather meal
BSE	bovine spongiform encephalopathy
CICVyA	<i>Centro de Investigación en Ciencias Veterinarias y Agronómicas</i> , Research Centre for Veterinary and Agricultural Sciences
CUIG	<i>clave unica de identificación ganadera</i> , the unique code of livestock identification
DTA	<i>documento de tránsito animal</i> , the animal movement control form (paper version)
DT-e	<i>documento de tránsito electrónico</i> , the animal movement control form (electronic version)
EFSA	The European Food Safety Authority
EC	The European Community
EU	The European Union
FMD	foot and mouth disease
FSANZ	Food Standards Australia New Zealand
GBR	geographical BSE risk
GMP	good manufacturing practices
HACCP	hazard analysis critical control point
IHC	immunohisto-chemistry
INTA	<i>Instituto Nacional de Tecnología Agropecuaria</i> , the Argentine National Institute of Agricultural Technology
ISO	International Organization for Standardisation
MBM	meat and bone meal
MINAGRI	<i>Ministerio de Agricultura, Ganadería y Pesca</i> : the Argentine Ministry of Agriculture, Livestock and Fisheries
MRDEEB	<i>materiales de riesgo de difusión de encefalopatía espongiforme bovina</i> , BSE risk material
OIE	<i>Office International des Epizooties</i> , the world organisation for animal health
QA	Quality Assurance
PTR	<i>permiso de tránsito restringido</i> , restricted transit permit
RENSPA	<i>Registro Nacional Sanitario de Productores Agropecuarios</i> , the Argentine national sanitary registry of agricultural producers

AHVLA	Animal Health and Veterinary Laboratories Agency at Weybridge UK
SENASA	<i>Servicio Nacional de Sanidad y Calidad Agroalimentaria</i> , the Argentine National Agriculture and Food Health and Quality Service
Sigsa	<i>Sistema Integrado de Gestión de la Salud Animal</i> , the integrated information management system for animal health
SOP	standard operating procedures
SRM	specified risk material
TSE	transmissible spongiform encephalopathy

Glossary

Australian Questionnaire refers to the *Australian Questionnaire to Assess BSE Risk* which lists the data requirements for countries wishing to export beef or beef products to Australia and seeking to be assessed for bovine spongiform encephalopathy (BSE) risk.

BSE agent is the infectious mis-folded protein material, or prion, that causes BSE in bovine animals.

Specified risk material (SRM) The Australian BSE food safety policy (Australian Government 2009) defines BSE risk materials as tonsils and distal ileum from bovine animals of any age; and brains, eyes, spinal cord, skull and vertebral column of bovine animals over 30 months of age.

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Introduction

Food Standards Australia New Zealand (FSANZ) is the Australian government agency responsible for the development and maintenance of the *Australia New Zealand Food Standards Code*. Although FSANZ sets a number of joint food standards for both Australia and New Zealand, it is not responsible for setting food safety and primary production processing standards in New Zealand.

On behalf of the Australian Government, FSANZ is responsible for assessing the food safety risk of bovine spongiform encephalopathy (BSE), and assigning a food safety status to countries that seek to export beef or beef products to Australia. FSANZ evaluates BSE food safety risk according to scientifically recognised and internationally accepted practices for the control and prevention of BSE.

Under the Australian Government's BSE food safety policy, introduced in October 2009¹, individual countries submit applications to FSANZ that include comprehensive data relevant to their BSE risk and associated risk management controls, in accordance with requirements set out in the *Australian Questionnaire to Assess BSE Risk*² (the Australian Questionnaire). Data requirements in the Australian Questionnaire are based on the *Questionnaire for BSE Risk Status Recognition*³ published by the World Organisation for Animal Health (OIE). The Australian Questionnaire also seeks information on animal traceability and identification, animal slaughtering and processing systems.

FSANZ assesses the information and data submitted by the applicant country through: (1) a desk assessment of legislative measures concerning controls around the introduction, spread and prevention of BSE; and (2) an in-country assessment to verify the application and enforcement of these measures.

In addition to submitted documentation, legislation and standards underpinning BSE controls are examined as part of the desk assessment. Relevant and publically available documentation issued by other statutory bodies may also be reviewed.

Where applicable, countries that submitted an application for a BSE food safety assessment retain their existing BSE status assigned previously by FSANZ until the BSE food safety assessment is complete or the application withdrawn. Argentina submitted an application to FSANZ for categorisation of country BSE food safety risk in June 2011. An in-country verification visit was undertaken in April 2014 by FSANZ risk assessment personnel in the major cattle and dairy production areas of Argentina.

This report describes the BSE food safety assessment conducted by FSANZ to determine the risk of the BSE agent being present in beef and beef products produced in and exported from Argentina.

Overview of Argentina’s BSE regulatory system

The prevention and surveillance of BSE in Argentina is managed by the Argentine Ministry of Agriculture, Livestock and Fisheries (MINAGRI). Within this Ministry, SENASA (*Servicio Nacional de Sanidad y Calidad Agroalimentaria*), the Argentine National Agriculture and Food Health and Quality Service, develops and enforces the regulatory measures, and the Argentine National Institute of Agricultural Technology (INTA), conducts BSE diagnosis. BSE surveillance in Argentina is coordinated by SENASA. The Ministry’s activities on the prevention and surveillance of BSE are informed by a national Scientific Advisory Committee and a Technical Advisory Committee. Prevention and surveillance of BSE in Argentina receive technical input from the *Inter-American Institute for Cooperation on Agriculture* (IICA) and the *Fundación para la Lucha contra las Enfermedades Neurológicas de la Infancia* (FLENI). The latter organisation hosts Argentina’s reference centre for human transmissible spongiform encephalopathies (TSEs). The relationship between the various organisations involved in the prevention and surveillance of BSE in Argentina is shown in Appendix 1.

As the competent authority, SENASA’s objectives are to: protect, control and certify animal health and welfare, plant health, and quality and safety of foodstuffs; and to respond to national and international demands and requirements in these aspects. The current SENASA organisational structure is shown at Appendix 2. The national headquarters of SENASA are situated in Buenos Aires. SENASA has 15 regional centres and 356 local offices distributed throughout the country. Roles in BSE prevention, control and surveillance carried out by various SENASA branches are shown in Table 1.

Table 1: Roles of various SENASA national directorates in the prevention, control and surveillance of BSE in Argentina

SENASA national directorates	Roles in BSE prevention, control and surveillance
National Directorate of Animal Health	Coordination of the overall BSE prevention, control and surveillance program including those associated with animal identification and traceability
National Directorate of Agri-Food Safety and Quality	Coordination of the control of products of animal origin to prevent specified BSE risk material from entering the food and feed supply chain; and coordination of the inspection of feed manufacturing establishments as part of the ruminant feed ban
National Directorate of Regional Operations	Conduct regional inspection, control, oversight, authorisation, certification, supervision and classification of animals and animal products including by-products and derivatives of animal origin
Directorate General of Laboratories and Technical Supervision	Test feed samples for contamination of ruminant protein or mammalian protein, and coordinate Argentina’s BSE sample collection and the associated data management

Meat recalls in Argentina are managed by SENASA.

BSE History

In February 2014 Argentina had a cattle population of approximately 50.4 million. Among this population, the majority were beef cattle and approximately 7% were dairy cattle. Cattle production in Argentina is predominantly extensive through pasture with around 2% of production via feedlots. In February 2014, 43% of Argentina’s cattle herd was adult cows, with 15% heifers, 13% female calves, and 13% bull calves. The remainder was comprised of bulls, fighting bulls, young male cattle, and oxen. The regional distribution of the cattle population in Argentina is shown at Appendix 3.

BSE has not been reported in Argentina. Previous risk assessments undertaken by FSANZ, the European Commission's Scientific Steering Committee, the European Food Safety Authority (EFSA), and the OIE have all shown the risk of BSE occurring in Argentina's cattle population to be 'negligible'.

Since 2003 the importation of heat-treated and shelf-stable beef products from Argentina to Australia has been permitted by the Australian Government Department of Agriculture subject to import permit and certification requirements.

Potential for release of the BSE agent through imported materials

Meat and bone meal (MBM), greaves and stock feed of ruminant origin, and beef and beef products can be contaminated with and live cattle can be infected by the infectious agent causing BSE, i.e. the BSE prion. The importation into Argentina of proteins derived from ruminants as feed for animals, beef and beef products for human consumption, and live cattle for breeding purposes poses a potential BSE risk to Argentina.

Section 1.1 of the Australian Questionnaire requests information on annual volumes of MBM that have been imported into Argentina during the last eight years. Section 1.2 of the Australian Questionnaire requests information of live cattle that have been imported into Argentina during the last seven years. Evidence of the country of origin of the cattle must be supplied, as well as the BSE risk status of the exporting countries. Section 1.3 of the Australian Questionnaire requests data concerning the origin and annual volumes of beef and beef products that have been imported into Argentina during the last eight years.

This chapter assesses the potential for release of the BSE agent through MBM, greaves, stock feed and pet food, live cattle, and commodities of cattle origin imported into Argentina. It identifies the relevant legislation, certification arrangements, and other control measures that prevent the introduction of the BSE agent through imported goods.

1 Importation of MBM, greaves, stockfeed and pet foods

1.1 Overview

Processed animal protein of ruminant origin is the primary BSE infectivity source through which cattle have been exposed to BSE in the past. Importation of protein derived from ruminants for use as animal feed or as an ingredient of animal feed poses a potential risk of introducing the BSE agent.

1.2 Legislation

The Government of Argentina has issued progressive legislation to prevent the BSE agent from being introduced into the country through imported goods since 1990.

Resolution 429/1990, issued by SENASA in August 1990 banned the importation of live ruminants and products derived from ruminants from the United Kingdom (UK). This was followed by Resolutions 294/1995, 382/1995, 203/1996, 562/1996, 30/1998, 42/2001, 238/2001, 117/2002, 1052/2002, 315/2006, and most recently Resolution 799/2010 which updated the BSE related import restrictions, and the Argentine methodology of BSE risk assessment for imports of live animals, their breeding material, by-products and derivatives. The Argentine BSE risk assessment methodology determines whether live animals, their breeding material, by-products and derivatives can be imported from a particular country. A summary of the contents of the Resolutions referred in the above is provided in Appendix 4 of this report.

Under these resolutions, importation of live ruminants, genetic material, food and feed derived from ruminants or containing ruminant protein from countries that have experienced domestic BSE cases is prohibited. Imports from any country with a BSE risk status different from that of Argentina, if not already prohibited, must be authorised by SENASA. The authorisation process involves a BSE food and feed safety assessment and a verification of information provided by the exporting country (SENASA Resolution 799/2010).

To enable systematic and consistent decision making on requests to import live animals, their breeding material, by-products and derivatives with a potential BSE risk, SENASA has developed a BSE food and feed safety risk assessment methodology based on the latest international approaches to assess the import of live animals, their breeding material, by-products and derivatives regarding BSE. Under the methodology, the BSE risk assessment of a proposed live animal or a commodity containing proteins of ruminant origin from a foreign country is segregated into three parts: the risk of origin, the risk of destination, and the risk of product.

- Risk of origin refers to BSE risk of the country of origin of the live ruminants or the commodity of ruminant origin proposed to be imported into Argentina. The risk of origin is described as *negligible*, or *controlled*, or *undetermined*.
- Risk of destination refers to BSE risk of the end usage of the live ruminants or the commodity of ruminant origin proposed to be imported into Argentina. Examples are: food or feed use of commodities derived from cattle is classified as Risk I; a live animal destined to zoos is classified as Risk II; and nail polish containing gelatin derived from cattle is classified as Risk III under the risk of destination. A full description of the risk of destination can be found in Annex IV of SENASA Resolution 799/2010.
- Risk of product refers to BSE risk of the live ruminants or the commodity of ruminant origin proposed to be imported into Argentina. It classifies live animals susceptible to BSE, their organs, tissues, fluids, products and by-products derived from such animals into two categories (Risk I and Risk II) according to tissue infectivity of BSE. Those classified under Risk I have a higher risk of BSE infectivity than those classified under Risk II. Examples of commodities listed under Risk I include: live animals susceptible to BSE, Specified Risk Materials (SRM) of cattle, MBM and mechanically recovered meat. Examples of commodities listed under Risk II include fresh and processed meats from cattle, blood serum, serum albumin and amino acids derived from ruminants. A full list of commodities classified under Risk I and Risk II can be found in Annex III of the SENASA Resolution 799/2010.

A decision matrix combining the outcomes of the three parts of the risk assessment is then applied to generate a decision on the import request (Table 2).

Table 2: Matrix of decision making with regard to requests to import live animals susceptible to BSE, genetic materials, products, by-products or derivatives of ruminant origin (based on Resolution 799/2010)

Risk of origin		Undetermined			Controlled			Negligible		
		Risk I	Risk II	Risk III	Risk I	Risk II	Risk III	Risk I	Risk II	Risk III
Risk of destination										
Risk of product	I	Prohibited	Prohibited	PIRAV	Prohibited	PIRAV	Authorised	PIRAV	Authorised	Authorised
	II	Prohibited	PIRAV	Authorised	PIRAV	Authorised	Authorised	Authorised	Authorised	Authorised

Prohibited: Import is prohibited.
PIRAV: Import is subject to Prior Import Risk Assessment and Verification by SENASA.
Authorised: Import is allowed and subject to meeting the relevant import requirements. The authorisation process involves verification of information and assurance provided by the exporting country, and the likelihood of deviation from their intended use (SENASA Resolution 816/2002).

The Argentine BSE food and feed safety risk assessment methodology was introduced initially in 1996 through SENASA Resolution 203/1996, which was revised via SENASA Resolution 562/1996, 30/1998, and 117/2002. The methodology described under Resolution 117/2002 was comprehensive. Further refinements to the methodology were made with Resolution 1052/2002 and most recently Resolution 799/2010. These amendments and refinements reflected changes in concepts and definitions adopted from time to time by

relevant international authorities that had conducted risk assessments for the categorisation of country BSE risk status, for example the European Commission's Scientific Steering Committee, EFSA, and the OIE.

SENASA issued a BSE emergency Resolution in February 2001 (Resolution 238/2001) that required compulsory sampling prior to customs clearance of certain imported products from countries with a different BSE risk status from that of Argentina. The samples are analysed at SENASA Central Laboratory to identify the animal species from which the protein is derived. This measure forms part of the Argentine regulatory framework that prevents the BSE agent from entering Argentina through imported goods, such as food, feed, fertilizer and pharmaceuticals.

1.3 Details of imports of MBM, greaves, stockfeed and pet food

Between 2006 and 2013, Argentina imported 9,719 tons of ruminant-derived MBM originated from Uruguay and approximately 74,522 tonnes of animal meals derived from non-ruminant sources from various countries (Table 3).

Table 3: Quantity and country of origin of stockfeed and pet food imported into Argentina between 2006 and 2013

Commodity	Amount (tons)	Country of origin
Poultry meal	56,746	Largely from Brazil and the United States of America (USA) with minor amounts from Denmark
Pet food [#]	7,517	Largely from Brazil, USA, Uruguay, and Austria with minor amounts from France, Germany, Belgium, Switzerland, Italy, China and Korea
Fish meal	8,739	Mainly from Chile with minor amounts from Iceland, Norway, Peru, Ecuador, Uruguay and New Zealand
Swine meal	1,520	Mainly from Denmark with minor amounts from Brazil and Belgium

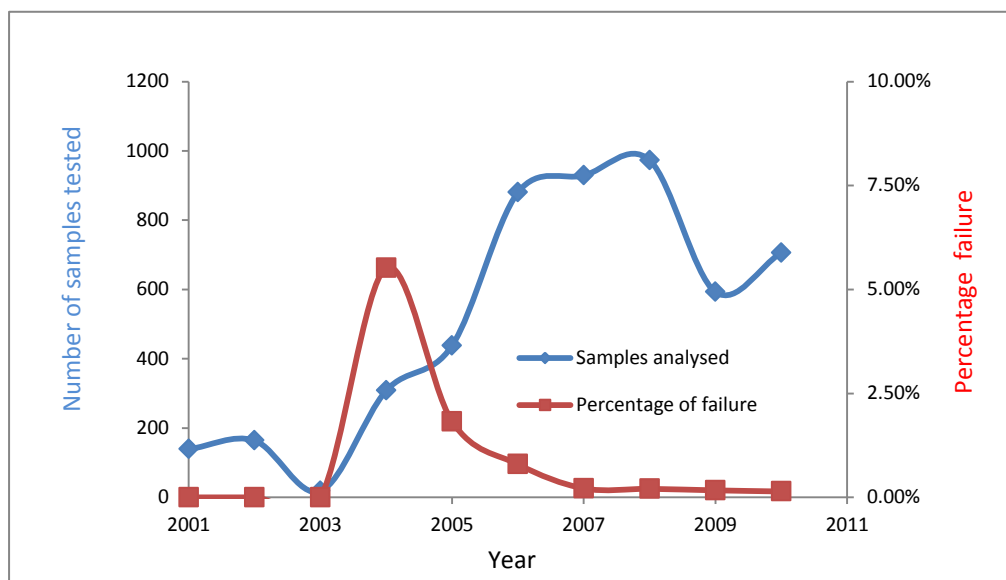
Pet food includes additives and supplements for pet food. Some of the pet food may contain proteins of ruminant origin sourced from Australia or New Zealand.

Pursuant to Resolution 238/2001, food products, feed for cattle, and pet food imported into Argentina since 2001 have been sampled and tested prior to customs clearance and only released once a negative result was obtained. A negative result refers to the absence of animal protein of those species not authorised by SENASA. During the period 2001 and 2010, the compliance rate was above 94% and products with violations were refused importation (Fig. 1).

MBM of ruminant origin and animal meals of non-ruminant origin imported into Argentina as described above have been permitted for use as feed or feed ingredients for non-ruminant animals.

MBM of bovine and/or ovine origin were banned from being used as ruminant feed in Argentina since 1995 by means of SENASA Resolution 252/1995. All ruminant proteins were banned from being used as ruminant feed in Argentina by SENASA Resolution 61/1996. The ban was later extended to prohibit proteins of all mammals being used as ruminant feed by SENASA Resolution 485/2002. In 2004, SENASA Resolution 1389/2004 banned the use of animal proteins, except dairy proteins, fish meal, egg meal and feather meal, for feeding or providing feed supplements to ruminant animals. Chicken litter and breeding chicken remains were banned from being used as animal feed by Resolution 1389/2004.

Figure 1: Imported stockfeed tested positive for the presence of prohibited animal protein (2001-2010)



1.4 Import control

Import controls to prevent the BSE agent from being introduced into Argentina through imported food or feed are managed in two ways: (1) import restrictions; and (2) surveillance of food and feed prior to customs clearance:

- Under SENASA Resolution 117/2002 and Resolution 799/2010, food and animal stockfeed are considered to pose a BSE transmission risk when they originate from countries with a health status different from Argentina, i.e. from countries with a “Controlled” or “Undetermined” BSE risk status.
- Governed by SENASA Resolution 238/2001, surveillance of imported food and feed is conducted before customs clearance, and products are only released after testing negative of protein from banned animal species. This requires sample collection prior to customs clearance of each imported food and feed batch originating from countries with a BSE risk status different from Argentina.

The combined effect of these two measures contributes to effective import controls that prevent the BSE agent from being introduced into Argentina through imported foods and animal feeds.

1.5 Rendering processes used in source country

Argentina’s submission did not describe the rendering process used in Uruguay where 9,719 tons of bovine MBM were imported into Argentina between 2006 and 2013, nor did the submission describe the rendering processes used in Australia and New Zealand where some of the pet food imported into Argentina contained ruminant protein originating from Australia and New Zealand. As these three countries all have a ‘Negligible’ BSE risk status recognised by the OIE, the chance of the above imports introducing the BSE agent into Argentina is negligible.

2 Importation of live bovine animals

2.1 Overview

Importation of live bovines represents a potential BSE risk if imported cattle were sourced from countries where adequate control programs to minimise the risk of BSE exposure have not been put in place. Paraguay and Uruguay are the only countries from which live bovine animals have been imported into Argentina since 2007.

2.2 Legislation

SENASA Resolution 117/2002 and 799/2010 prohibit importation of live cattle from countries with a BSE risk status different from that of Argentina.

SENASA Resolution 471/1995, 104/1998 and 625/2002, require that live cattle imported for breeding purposes must be individually identified, their movement traced and recorded on a national registry of imported breeding animals. At the end of their useful life, live cattle imported for breeding purposes must not be presented for slaughter, but killed and their remains destroyed and buried at the establishment the animal is held.

By means of SENASA Resolution 115/2013, the slaughter of these animals is permitted, but only when they fully comply with the following conditions:

- The bovine animal must be registered
- The animal must have been imported at least seven years ago
- The animal's country of origin must be negligible in BSE risk established by the OIE, and recognised by SENASA
- The slaughter of the animal must be carried out at a SENASA accredited or authorized slaughtering establishment.

2.3 Details of live cattle imports

Between 2007 and 2013, Argentina imported a total of 716 live cattle from Uruguay. In 2010 eleven live cattle were imported from Paraguay. These live cattle were imported for breeding purposes.

To date, no BSE cases have been found in cattle originating from Uruguay or Paraguay. Both Paraguay and Uruguay were recognised by the European Union in 2000 among the first group of countries with *GBR / BSE* risk status. *GBR /* means that the presence of one or more cattle clinically or pre-clinically infected with the BSE agent in a country is highly unlikely. Uruguay and Paraguay were recognised by the OIE as countries with 'Negligible' BSE risk status in 2007 and 2008 respectively. Negligible BSE risk recognised by the OIE means that commodities from the cattle population of the country pose a negligible risk of transmitting the BSE agent. As a result, it is unlikely that live cattle imported from these two countries in the past seven years presented a risk of introducing the BSE agent into Argentina.

2.4 Import control

Importation of live bovines into Argentina is governed by SENASA Resolution 117/2002 and 799/2010 as described under section 2.2 of this report. Importation of live bovines from countries with the same BSE risk status as Argentina is subject to a prior import risk assessment and verification conducted by SENASA if the animals are imported for slaughter

or fattening. If the animals are imported for breeding purposes prior SENASA authorisation is required (Table 2).

Live bovines imported into Argentina for breeding purposes must be individually identified and their movement tracked and recorded on the Sigsa (*Sistema Integrado de Gestión de la Salud Animal*, an integrated information management system for animal health) information management system. Live cattle imported into Argentina are identified with red ear tags. Disposal of imported live cattle is described under section 2.2 of this report, and the Sigsa system is notified of the death of the imported cattle. The Sigsa information management system is administered by SENASA and allows a rapid trace back in case of an infectious disease being found in imported cattle. The system was verified during the in-country inspection to be timely and effective.

3 Importation of beef and beef products

3.1 Overview

Importation of beef and beef products represents a potential BSE food safety risk if they are sourced from countries or regions where adequate control measures to minimise the risk of BSE exposure have not been put in place.

Between 2004 and 2010, Argentina imported 15,711 tonnes of fresh beef and 214 tons of bovine offal from Uruguay and Brazil, and 964 tons of processed bovine meat from Uruguay.

Brazil and Uruguay were categorised by FSANZ in 2003 as countries with a “Category A” BSE status. Recently Brazil was assigned “Category 1” BSE status by FSANZ. Both Brazil and Uruguay are countries with a ‘Negligible’ BSE status recognised by the OIE. As a result, the chance of these imports introducing the BSE agent into Argentina is very small.

3.2 Legislation

SENASA Resolution 117/2002 and 799/2010 prohibit the importation of beef and beef products from countries with an ‘Undetermined’ BSE risk status. Imports of beef or beef products from any country with a ‘Controlled’ BSE risk status must be approved by SENASA where a risk assessment is conducted and information provided by the exporting country is verified.

3.3 Details of importation of beef or beef products

Argentina produces approximately 2.8 million tonnes of beef each year and is the world’s third largest beef exporter (http://en.wikipedia.org/wiki/Argentine_beef, accessed 9 August 2014 and [http://www.minagri.gob.ar/site/ganaderia/bovinos/02- Informacion%20Sectorial/01=Indicadores/ archivos/000003- Indicadores%20bovinos%20anuales%201990-2013.pdf](http://www.minagri.gob.ar/site/ganaderia/bovinos/02-Informacion%20Sectorial/01=Indicadores/archivos/000003-Indicadores%20bovinos%20anuales%201990-2013.pdf), accessed 24 November 2014). The amount of beef imported into Argentina between 2004 and 2013 (Table 4) represents less than 0.1% of the beef produced in Argentina. Only Uruguay and Brazil have exported beef products to Argentina since 2004.

3.4 Import control

Beef and beef products for human consumption are regarded as a high risk under the risk of destination; and fresh or processed beef are regarded Risk II under the risk of product according to the risk assessment methodology described by SENASA Resolution 799/2010. Based on the matrix for import decision (Table 2), importation into Argentina of beef and beef

products from countries with a 'Undetermined' BSE risk status is prohibited; products from countries with 'Negligible' BSE risk status is allowed; and importation from countries with 'Controlled' BSE risk status is subject to a prior import risk assessment conducted by SENASA.

Table 4: Quantity and country of origin of beef and beef products imported into Argentina between 2004 and 2013

Beef or beef product	Amount (tons)	Country of Origin	
		Uruguay	Brazil
Fresh meat	17,352	99.51%	0.49%
Processed meat ^{Note 1}	964	100.00%	0
Fresh bone	934	100.00%	0
Offal	1,985	92.55%	7.45%
Meat extract	67	100.00%	0
Bone broth	52	100.00%	0

Note 1: In 2004, 6 kilograms of process bovine meat originating from Chile and 4 kilograms of process bovine meat originating from Brazil were imported into Argentina.

4 Importation of other products of bovine origin

During the period 2004 to 2013, various amounts of leather, collagen, gelatin, butterfat, and tallow of bovine origin were imported into Argentina from a number of countries. Leather, collagen and gelatin derived from hides and skins, tallow with less than 0.15% insoluble impurities, and milk and milk products of bovine origin are exempt from the BSE control measures regardless of the BSE risk status of the country of origin⁴. It is therefore considered that these imported commodities presented a minimal risk of introducing the BSE agent into Argentina.

Between 2004 and 2013, approximately 800 tons of cartilage of bovine origin was imported into Argentina from Brazil, Costa Rica and Uruguay. No BSE cases have been reported in these countries. Both Uruguay and Brazil hold 'Negligible' BSE risk status assigned by the OIE. For Costa Rica, SENASA had assessed and approved the importation of bovine cartilage. Costa Rica was recognised by the OIE as a country with 'Controlled' BSE risk status in 2013. It is therefore considered that these imports presented a minimal risk of introducing the BSE agent into Argentina.

During the period 2004 to 2013, small quantities of culture media including raw material for culture media containing bovine protein were imported into Argentina from a number of countries. Such imports are permitted by Ruling 01/2004 issued by SENASA's Directorate of Quarantine Standards that requires a clear description of the product being for "in vitro" use on the packaging and labelling, and declaration of country of origin of the animals in case the animal involved is a ruminant species. It is considered that products described in the above presented a minimal BSE risk to Argentina as they are very unlikely to enter the human food or animal feed chains.

5 Summary: potential for release of the BSE agent through imported materials

Argentina has developed a unique methodology to assess the potential risk of the BSE agent being introduced into Argentina through imported products of animal origin. Implementation of this risk assessment methodology has enabled a systematic and consistent decision making with regard to requests for importation of live animals, their breeding material, bovine products and their by-products and derivatives into Argentina. This has played a pivotal role in the prevention of the entry of the BSE agent into Argentina through imported products of

animal origin.

The likelihood of the BSE agent being released into Argentina through imported live bovine animals, feedstuffs and commodities originated from bovine animals in the past is very low because of (1) an effective import control that prohibits the importation of live bovine animals, and restricts the importation of feedstuffs containing animal protein and bovine commodities into Argentina from countries without a “Negligible” BSE status, and (2) a rigorous surveillance system that tests for presence of prohibited proteins in ruminant feed or human food imported into Argentina. The combination of these two control measures and their effective implementation prevented the release of the BSE agent in Argentina through importation of products of animal origin in the last eight years, as reflected by the following summary of relevant import statistics.

In the last eight years,

- 1) A small amount of MBM of bovine origin and a small quantity of processed bovine meats were imported into Argentina from Uruguay only, a country that has been recognised by the OIE with a ‘Negligible’ BSE risk status and by FSANZ in 2003 as a country with “Category A” BSE risk status;
- 2) A limited number of live cattle was imported into Argentina from Uruguay and Paraguay only, both countries have been recognised by the OIE with a “Negligible” BSE risk status;
- 3) A small quantity of fresh beef, equivalent to <0.1% of beef produced in Argentina, was imported into Argentina from Brazil and Uruguay only, both countries have been recognised by the OIE with a “Negligible” BSE risk status and Brazil has been recognised recently by FSANZ as a country with “Category 1” BSE risk status; and
- 4) Imported animal feeds (comprised of pet food, and feed for fish, poultry, and swine) contained no ruminant protein except those originated from Australia or New Zealand and dairy protein.

Exposure control

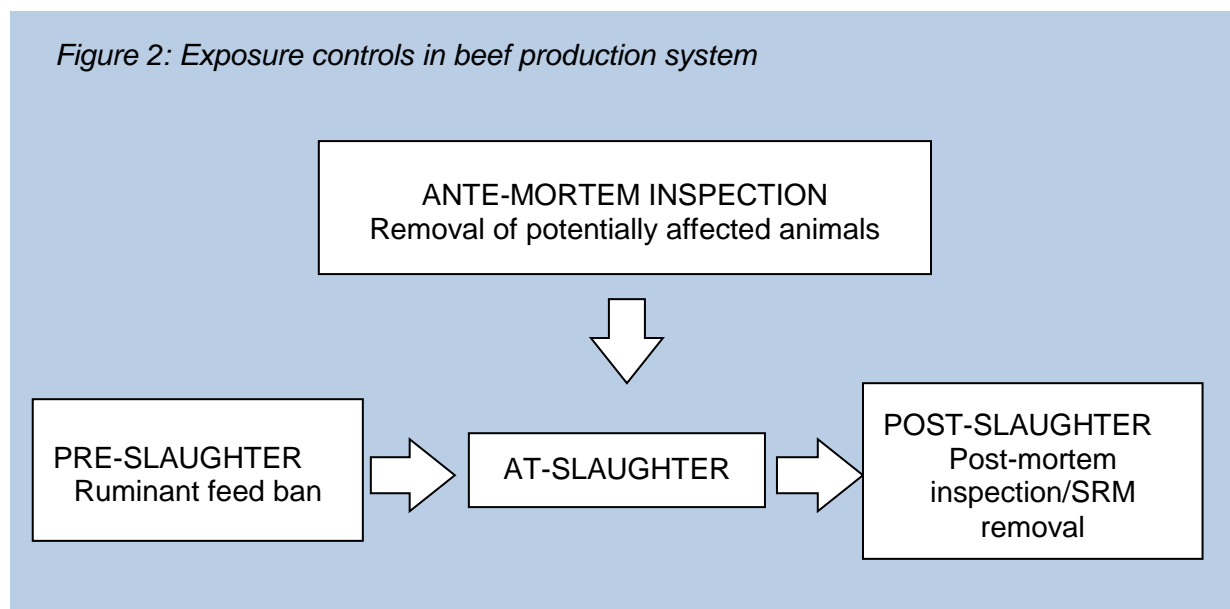
The exposure of cattle to BSE infectivity and amplification within the feed system is controlled by preventing the feeding of ruminant-derived protein to ruminants. Depending on the BSE status of a country (such as whether a case of BSE has occurred and/or risk factors for BSE exist), prevention is achieved through effective implementation of appropriate regulatory measures in three key areas across the beef production system:

- **Pre-slaughter** controls which prevent the feeding of ruminant protein to ruminants
- **At slaughter** controls which cover animal inspection procedures to ensure potentially affected animals are removed from the animal feed and human food production systems
- **Post-slaughter** controls which ensure that potentially infected tissues are removed and do not enter the animal feed and human food production systems.

Scientific evidence^{5,6,7,8} published since the BSE epidemic in the United Kingdom has established that the ruminant feed ban is a critical control measure to prevent the recycling and amplification of the BSE agent in cattle herds. The ruminant feed ban is comprised of: (1) the prohibition of ruminant protein being fed to ruminants; and (2) the elimination of cross-contamination of animal feeds that may bring ruminant protein into cattle feed. Measures to prevent non-ambulatory (downer) cattle from entering the human food and animal feed supply chain form part of the overall control to protect food and feed safety from exposure to the BSE agent. For countries where BSE has occurred or risk factors for BSE exist, controls should be extended to exclude potentially infectious tissue, i.e. SRM, from contaminating human food products and animal feed.

Controls throughout the beef production chain to prevent the exposure of human food and animal feed to the BSE agent are summarised in Figure 2.

Figure 2: Exposure controls in beef production system



This Chapter describes the control measures that are in place in Argentina that prevent the contamination and recycling of the BSE agent in cattle feed as well as assuring that food for human consumption is free of the BSE agent.

6 Pre-slaughter controls: ruminant feed ban

6.1 Overview

The Australian Questionnaire requires countries to demonstrate that an appropriate ruminant feed ban has been effectively implemented. More specifically, evidence is required to support that ruminant-derived MBM has not been fed to cattle for the last eight years.

6.2 Legislation

6.2.1 Ruminant feed ban

MBM of bovine and ovine origin has been banned from being fed to ruminants in Argentina since 1995 by SENASA Resolution 252/1995. This ban was expanded to include proteins of any ruminants in 1996 by SENASA Resolution 611/1996. SENASA Resolution 485/2002 further expanded the ruminant feed ban to all mammalian proteins. SAGPyA (Secretaría de Agricultura Ganadería Pesca y Alimentos, Secretary of Agriculture, Animal Husbandry, Fisheries and Food) Resolution 1389/2004 prohibited the use of proteins of animal origin, except dairy proteins, fish meal, egg meal and feather meal, as feed or feed supplements for ruminants. It further prohibited the use of chicken litter and remains of breeder chickens from being used as or in animal feed including those supplied to ruminants. The above is collectively described as banned animal protein in the remaining part of this report.

Resolution 341/2003 issued by SENASA mandated the licensing and registration with SENASA of individuals, entities and/or establishments manufacturing, fractioning, depositing, distributing, importing or exporting products destined for animal feed. SENASA Resolution 449/2004 established surveillance requirements for establishments manufacturing or handling animal feed to prevent the BSE agent from being recycled and charged SENASA's National Directorate of Agri-Food Safety and Quality with the responsibility of supervising BSE surveillance activities in these establishments.

SENASA Resolution 10/2004 established the focus of the Argentine *National Program for the Prevention and Surveillance of Transmissible Spongiform Encephalopathy (TSE) in Animals*, being the feed system and the manufacture of feed for ruminants.

A summary of the above mentioned Resolutions can be found in Appendix 4 of this report.

6.2.2 Use of ruminant material for non-ruminant animal feed

There is no specific Argentine legislation that restricts ruminant protein from being used as feed for non-ruminant animals. In practice, ruminant protein is used as an ingredient of feeds prepared for horse, pig, poultry and rabbits in Argentina.

6.2.3 Labelling of animal feed

SENASA Resolution 485/2002, and SAGPyA Resolution 1389/2004 prescribe that bags or containers of mammalian proteins that are marketed as animal feed or an ingredient of animal feed must be labelled prominently with "*feeding cattle, sheep, goats or other ruminants is prohibited*".

6.2.4 Controls on the manufacture of animal feed

SENASA Resolution 458/1995 requires establishments processing animal products to provide SENASA with appropriate statistical data on the production, transportation and trade of animal products.

SAGPyA Resolution 1389/2004 prescribes that animal feed and ingredients of animal feed must be sourced from SENASA approved suppliers. This resolution establishes that from January 2007 ruminant feed must be produced on exclusive production lines. This Resolution also prescribes feed testing requirements for feed manufacturers and charges SENASA with the responsibility of surveillance, monitoring, and enforcement of the requirements set out in the Resolution, including the authorisation of the operation of feed mills producing animal feed in Argentina.

6.3 Production and use of bovine materials in animal feedstuffs

There were 720 ruminant feed manufacturing mills operating in Argentina in 2013. Among them, 571 operated on a single production line and produced ruminant feed only, 118 had two production lines with one line dedicated to the production of ruminant feed, and the remaining 31 had more than two production lines with one line dedicated to the production of ruminant feed.

The in-country verification inspection to Argentina conducted by FSANZ observed the operation of a feed mill with two production lines. MBM of ruminant origin was housed in a designated storage facility well separated from the silos where other raw ingredients were stored. The two production lines were well separated as evidenced by:

- One-way walking passage (from ruminant feed manufacturing site to non-ruminant feed manufacturing site only but not in the reverse direction);
- Dedicated workforce on ruminant feed production line (shown by their different colour-coded protective clothing); and
- Dedicated facilities for the manufacture of ruminant feed except storage silos and transport pipes for common ingredients. The common ingredients consisted of plant derived materials, minerals and vitamins only.

Ruminant feed produced at this establishment containing no banned animal protein was labelled with the head image of cattle, indicating that the feed is to be fed to cattle only. Non-ruminant feed produced at the same establishment was labelled with head images of pigs, chickens, horses and rabbits, indicating that the feed is to be fed to these animals only. In addition to the ingredient list, the label on non-ruminant feeds clearly described that "*prohibido su uso en animales vacunos, ovions, caprinos u otros ruminates*" (i.e. feeding cattle, sheep, goats or other ruminants is prohibited).

Production of ruminant feeds on dedicated production lines minimises potential cross contamination between ruminant feed and non-ruminant feed. Information provided on animal feed bags and the feed labels as described in the above are sufficiently clear to help ensure that feed containing banned animal proteins will not be fed to ruminants.

6.4 Analysis of feed samples

Analysis of feed samples for contamination of banned animal protein plays a role in monitoring the effectiveness of the ruminant feed ban. The Argentine surveillance for banned animal protein in ruminant feed is governed by a national sampling schedule established by SENASA annually with samples taken nationwide between March and November each year under SENASA supervision. Establishments producing feed for animals, supplying or storing animal feed or ingredients of animal feed, trading feed for ruminants at the provincial level, and livestock establishments (feed-lots, cattle fattening farms, and animal farms), are sampled randomly under this sampling schedule. Samples are also collected from feeds not destined to ruminants. Samples are collected in critical points across the feed supply system

such as troughs, storage mills and transport vehicles. High risk establishments, classified as cattle farms producing their own feed, having a high number of milking animals, and those establishments that have tested positive in previous sampling rounds, are sampled more frequently. The frequency of sampling for ruminant feed in dairy farms is approximately 7% under the sampling schedule. For example, 180 out of a total of 2,500 dairy farms in the province of Buenos Aires are sampled each year as part of the ruminant feed surveillance program.

Feed samples collected under the sampling schedule are analysed by SENASA's Central Laboratory Service. Presence of ruminant material is tested by microscopic examination in accordance with the method described by the European Commission (EC) Regulation No 152/2009⁹. When necessary, an enzyme linked immunosorbent assay (ELISA) method (ELISA TEK or BOKITS) is applied to aid the identification of animal species from which the banned animal protein is derived (Table 5). A total nitrogen analysis may also be undertaken (Kjeldahl method).

Table 5: Analytical methods used by SENASA's Central Laboratory Service to detect presence of mammalian proteins in feed

Test	Sensitivity	Specificity
Microscopy	0.01 % (expressed as MBM)	Difference between land and aquatic species
ELISA TEK or BOKITS	1% (expressed as MBM)	Difference between animal species
Kjeldahl	0.17% (expressed as total protein)	No (all types of proteins)

The SENASA Central Laboratory Service is the only diagnostic facility that performs testing to determine if ruminant proteins are present in animal feed. This laboratory is ISO17025/2005 accredited by Argentina's Accreditation Organization (*Organismo Argentino de Acreditación, OAA*) and participates in inter-laboratory proficiency testing (<https://www.federalregister.gov/articles/2005/08/23/05-16689/add-argentina-to-the-list-of-regions-considered-free-of-exotic-newcastle-disease>, accessed 8 August 2014).

Surveillance of ruminant feed samples to monitor compliance with the ruminant feed ban in Argentina as described above is considered highly effective because of (1) a well-designed annual national sampling schedule, (2) sample collections are supervised by SENASA, and (3) analysis of collected feed samples is conducted by SENASA's Central Laboratory Service.

6.5 Evaluation of the ruminant feed ban

Argentina has implemented a combination of control measures to ensure the ruminant feed ban is effective. This combination of control measures is comprised of: licensing arrangements for businesses involved in producing meat for human consumption; permit controls on the transportation of ruminant derived MBM; surveillance of ruminant feed on farm and in feed mills for possible contamination with banned animal protein; and SENASA inspection of feed mills, cattle farms and rendering establishments to monitor and enforce the ruminant feed ban.

6.5.1 Licensing arrangement

All Argentine establishments/entities and individuals manufacturing, fractioning, storing, distributing, importing or exporting products destined for animal feed are licensed and registered with SENASA (SENASA Resolution 341/03). The licensing and registration information is captured by the Sigsa information management system which monitors and controls the movement of animals and animal feed throughout Argentina. This licensing and registration arrangement places the primary production of animals and processing of meat for human consumption in Argentina under a nationally consistent food and feed safety

management system and enables rapid government-led interventions in case of a food safety emergency such as a BSE event.

6.5.2 *Permit of transportation*

In Argentina the transportation of MBM of ruminant origin produced domestically or imported must be accompanied by a restricted transit permit (*permiso de tránsito restringido*, abbreviated as PTR) authorised by SENASA. The PTR system is governed by Chapter XXVII of the President's Decree 4238/68, *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin* and SENASA Circular Letter 3528/2003. For example, a feed mill receiving a shipment of ruminant MBM must subsequently send the PTR accompanying the shipment back to the rendering plant or the establishment from which the MBM is sourced. SENASA is then notified of the completion of the movement of the ruminant MBM batch. A shipment must be refused if the associated PTR is not submitted at the time of delivery.

The PTR, described also as a Health Certificate, is used to monitor and control the movement of any batches of ruminant MBM within Argentina and enables batches of ruminant MBM to be traced to the origin of production when required.

6.5.3 *Re-authorisation of operation and inspection of feed mills*

Information collected during the in-country verification inspection to Argentina indicates that in the case of an infringement at a feed mill, e.g. a feed sample tests positive to banned animal protein, SENASA will only re-authorise the operation of the feed mill producing ruminant feed if feed samples that are subsequently taken from the production line test negative five times consecutively. Feed mills after the re-authorisation to operate are surveyed randomly including unannounced verification visits by SENASA which occur five to six times a year.

Table 6 is a summary of inspections carried out by SENASA on feed mills producing feed for ruminants between 2003 and 2013. The proportion of samples tested positive of prohibited animal protein fell from approximately 29% of the feed mills where samples were taken in 2004 to less than 1% in 2011, 2012, and 2013. When prohibited animal protein is found as a result of feed sampling, the concerned feed mill enters into a phase of surveillance. The batch that tests positive is seized, as well as all feed batches present in the establishment and those still being manufactured. The positive batch is destroyed or directed to other non-BSE susceptible animal species. The latter may only occur with prior approval by SENASA. The seized batches are analysed and only those tested negative are released for trade. The raw materials are also tested and if positive, are traced back to the supplier.

Establishments with a good compliance history are rewarded with fewer inspections according to SENASA Resolution 341/03.

6.5.4 *Surveillance of cattle farms producing own feeds*

As described in the section on *Overview of Argentina's BSE regulatory system*, the majority of cattle in Argentina are beef cattle with approximately 7% of the cattle population in Argentina as dairy cattle. Beef cattle production in Argentina is predominantly extensive grazing with around 2% of the production via feedlots. The production and mixing of feed using silage on farm is a common practice for dairy farms and cattle feedlots in Argentina and has been identified by SENASA as a high risk activity. Feeds produced on farm traditionally include silage combined with corn, maize, soy or wheat that are either produced on the farm or sourced from SENASA approved suppliers. The final feed and ingredients used to produce feed on farm are sampled under the ruminant feed surveillance program. If

a batch of feed tests positive, the ingredients are tested, and the surveillance traces materials back to the supplier. SENASA will only re-authorise the production and mixing of feed on farm by the business if subsequent feed samples taken from the farm test negative five times consecutively.

For efficiency, feed ingredients are not tested unless the final feed has been tested positive of banned animal protein. If a feed ingredient tests positive, the surveillance system traces the ingredient to the supplying establishment where an inspection is conducted and further samples are taken for analysis.

Table 6: Inspection of feed mills producing feed for ruminants (2003-2013)

Year	No. of feed mills	No. of feed mills inspected	No. of visual inspections	No. of feed mills with infractions	No. of feed mills with samples taken	No. of feed mills - sample tested positive
2003	69	69	69	17	69	17
2004	76	76	76	22	76	22
2005	271	271	271	19	271	19
2006	310	310	925	186	246	19
2007	394	394	557	108	336	4
2008	447	367	385	17	367	4
2009	472	247	309	7	213	4
2010	516	395	519	6	371	5
2011	609	472	804	2	459	2
2012	662	454	979	3	454	3
2013	720	550	1013	5	653	5

6.5.5 Inspection of rendering plants

Supervision of rendering operations plays an important role in ensuring an effective ruminant feed ban. In Argentina, this supervision is focused on the receipt of raw material by the rendering plants and the dispatching of ruminant derived MBM from the rendering plants. SENASA Circular Letter 3528/2003 prescribes that: (1) raw material received from slaughtering establishments must be accompanied with a Health Certificate (PTR) issued by SENASA official staff at the origin of the supply; (2) the PTR must be counter-signed by a SENASA officer at the rendering plant and returned to the origin of supply; and (3) movement of ruminant derived MBM must be accompanied with a Health Certificate (PTR) issued by SENASA officials at the rendering plant.

In 2010, there were 88 rendering plants in Argentina processing ruminant waste or waste of mixed species including ruminants. There were 34 rendering plants processing waste of non-ruminant animals only. SENASA has carried out inspections of rendering plants since 2006. Infractions identified have been confined to rendering plants that processed ruminant waste only. The infractions concerned plant operation procedures, product registration, and compliance with labelling requirements. Establishments that had infractions were issued with guidelines for compliance with the ruminant feed ban by SENASA. Corrective actions issued by SENASA include the destruction of relevant batches of the animal feed produced. In a few circumstances, plant closures were authorised by SENASA. Establishments with infractions were revisited by SENASA to ensure that corrective actions were effectively implemented.

7 Ante-mortem slaughter controls

Ante-mortem inspection removes potentially diseased animals from the slaughtering lines that produce meat for human consumption.

There are two types of slaughtering establishments in Argentina. One is licensed at the national level and the other is licensed at municipal level. All slaughtering establishments operating in Argentina, whether licensed at national or municipal level, carry out ante and post-mortem inspection. Every nationally licenced slaughtering establishment has a permanent SENASA veterinary office on site that is staffed by SENASA employed government veterinarians.

Meat destined for the export market can only be processed in slaughtering establishments licensed at the national level. In 2010, these establishments processed 92% of the 11.3 million cattle slaughtered in Argentina. Approximately 86% of the production output from these establishments went to the domestic market and the remaining outputs were exported. In the same year, approximately 3% of the 11.3 million cattle were slaughtered in rural plants, and the remaining in local slaughterhouses. The operation of the rural plants and local slaughtering establishments is supervised by municipal authorities in accordance with the requirements set up in Decree 4238/1968 *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin*.

The assessment of BSE exposure control described in the following sections applies to slaughtering establishments licenced at the national level in Argentina.

7.1 Overview

Older cattle that are non-ambulatory (downer cattle, fallen stock) and/or showing signs of neurological disease consistent with case definition of BSE present the highest risk of potential infection with the BSE agent. Such animals should be targeted and prevented from entering the animal feed and human food chains during ante-mortem inspections.

7.2 Legislation

The President's Decree 4238/1968, *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin* and the amended rules establish the guidelines for registration, approval and inspection of establishments that produce products of animal origin to ensure the hygiene and safety of meat and meat products, and any product of animal origin. The Decree prescribes the operational requirements, sanitary requirements, and construction requirements for establishments where food production animals are slaughtered. It prescribes ante-mortem inspection procedures and obligations to ensure compliance by the establishments. The Decree charges SENASA with the responsibility to authorise the operation of such establishments including the approval of products produced.

Chapter X of the President's Decree 4238/1968 and the amended rules prescribe ante-mortem inspection procedures for slaughtering establishments including but not limited to:

- Cattle cannot be slaughtered without authorisation given by a Veterinary Inspector;
- Ante-mortem examination is compulsory for all cattle prior to being slaughtered;
- A Veterinary Inspector must be present when cattle arrive for slaughter;
- The Veterinary Inspector is responsible for inspection of the animal and the verification of the accuracy of the information accompanying the cattle;
- A minimum rest time must be provided to cattle after their arrival at the slaughtering

establishment;

- The procedures for the inspection of cattle in yards;
- The prohibition on live cattle from leaving the slaughter establishment;
- The procedures to handle cattle with clinical signs of disease;
- Clinically affected cattle must be necropsied in a separate emergency room;
- Animals slaughtered in emergency rooms are designated as not suitable for human consumption except for cases of fractures or for cases the Veterinary Inspector deems suitable;
- All animals that die or fall during transportation or prior to slaughtering must be reported to the Veterinary Inspector;
- Fallen cattle regardless of age are immediately sacrificed in a separate necropsy or emergency room as instructed by the Veterinary Inspector.

Chapter XXXI of the President's Decree 4238/1968 and the amended rules prescribe good manufacturing practices (GMP) and standard operating procedures (SOP) that must be complied with by business establishments where animals are slaughtered and foodstuffs are processed, divided and/or stored.

7.3 Ante-mortem procedures

In Argentina, upon arrival to the slaughtering establishment, veterinary inspection personnel (SENASA veterinarians) inspect and record the official documentation, individual cattle identification (ear tags) and age information for all cattle. Slaughtering establishments will refuse to accept a shipment of cattle if the shipment is not accompanied by the official animal movement document which can be either a DTA (*Documento de Tránsito Animal*) or DT-e (*Documento de Tránsito Electrónico*). The DTA is a paper version of the official animal movement document and the DT-e is an electronic version of the same document. SENASA Resolution 848/1998 and Ex-SAGPyA Resolution 356/2008 govern the DTA and DT-e requirements and processes. The DTA or DT-e (Fig. 3) is issued by SENASA local office personnel located at the origin of the animal movement. The animal movement cycle is closed when the DTA or DT-e is submitted to the SENASA local office located at the destination of the animal movement. The DTA/DT-e is processed through the Sigsa system. Owners of animals can either request the SENASA regional office to generate the DTA or DT-e documentation, or can self-process the document via the Internet upon assessment by a SENASA veterinarian and after being granted permission by SENASA.

As a result of a rapid take up of the electronic documentation system, the DTA forms became redundant in late 2014.

According to Decree 4238/1968, cattle must be rested in the slaughtering establishment for a minimum of six hours before slaughter, and the maximum period of rest time cannot exceed 72 hours. Dependent on the travel distance, the veterinary inspection personnel can recommend a reduction or extension of the rest time.

Inspection of cattle in yards of the slaughtering establishments is carried out in two steps. In the first step, cattle are examined in a group inside the yard. In the second step, cattle are made to walk alongside the yards in order to detect any clinical signs. The veterinary inspector records the results of the ante-mortem inspection on the troop card (also described as yard card) and notes any special precautions for slaughter and any recommendations for follow up at post-mortem inspection.

The FSANZ in-country inspection team found that the two slaughtering establishments visited during the inspection had good compliance with the ante-mortem procedures, and the relevant records of ante-mortem inspections kept at the establishments were adequate.

Figure 3: An example of the DT-e document

7.4 Slaughtering methods

In Argentina, the slaughter of animals is authorised by SENASA veterinary inspectors. The authorisation is granted upon the satisfactory outcome of an examination and verification of the accuracy of the troop number, the DT-e or DTA number, and the number of animals under the troop. A troop, formed at slaughtering establishments, refers to a group of cattle that are to be slaughtered under the same movement document that has been certified by SENASA.

In Argentina, stunning procedures are governed by those described in the *Prevention and Surveillance of Transmissible Spongiform Encephalopathies in Argentina*, (<http://www.aulavirtual.senasa.gov.ar/cursos/multimedia/eeb/html/inicio/ini.htm>, accessed 02 August 2014). It recommends stunning with a non-perforating captive bolt. The President's Decree 4238/1968, *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin* and the amended rules are the legal basis of this recommendation.

The in-country verification inspection team found good compliance with the above slaughtering methods in the two slaughtering establishments visited. The inspection team also noted a high level of supervision of quality control at the two establishments throughout the slaughtering process that ensured compliance with quality and safety regulations and standard operating procedures.

7.5 Handling of BSE suspect cases

Decree 4238/1968 prescribes that clinically affected cattle including animals displaying neurological signs compatible with BSE must be immediately sacrificed in the necropsy rooms and the body sent to the digester. In the event of a BSE suspect case, both the brain tissues and the spinal cord of the BSE suspected animal are sampled and sent to the national TSE reference laboratory for testing.

Every slaughtering establishment licenced at the national level has a dedicated necropsy room and a digester dedicated to the handling of animals found dead or displaying clinical signs suggestive of BSE. The dedicated digester is used to sterilise the necropsied animal materials. Sterilisation here refers to the rendering of the carcass or tissue to ensure freedom from any disease according to Chapter III of the President's Decree 4238/1968, *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin*. SENASA Circular Letter 3456/2001 prescribes the design requirement and processing conditions of using a digester or a thermal processing system with boiling water, to sterilise SRM and other potentially infectious material.

SENASA Circular Letter 3528/2003 - *management, treatment and disposal of BSE risk material and of protein concentrates for animal feeding* prescribes that the liquid generated as a result of the above thermal process must be disposed to the effluent treatment system, and the solids generated must be disposed of through burial, or incineration or another destruction method. In disposing the solids, some of the slaughtering establishments engage third party services specialised in handling and disposal of SRM which transport the solids to their own premises and further sterilise it before final disposal. The transportation must be accompanied with a Health Certificate (PTR) issued by SENASA. Disposal of the solids by either the slaughtering establishment or a specialised third party service must be accompanied with a Health Certification (PTR) issued by SENASA.

The in-country verification inspection team observed that the necropsy rooms were operated by SENASA official veterinarians at the two slaughtering establishments visited, and the digesters at the two establishments were shown to be operating at 125°C, greater than 2.5 bars for a period of approximately three hours.

7.6 Compliance with regulations

Good compliance with regulations concerning ante-mortem inspection and post-mortem inspection by Argentine slaughtering establishments is assured by: (1) that all animal slaughtering establishments in Argentina are registered with SENASA under the Sigsa system; and (2) that SENASA official veterinarians stationed at the slaughtering establishments monitor operations, conduct ante-mortem inspections, and certify meat produced as suitable for human consumption.

Removal and disposal of SRM at Argentine slaughtering establishments are verified throughout the slaughtering process by SENASA veterinary personnel stationed at slaughtering establishments. The SENASA veterinary team stationed at slaughtering establishment is generally comprised of a head veterinarian and a number of veterinarian officers. In addition to the supervision of daily operations, the SENASA veterinary team conducts monthly audits of the general quality assurance (QA) system and procedure of the slaughtering establishment, and prepares monthly audit reports. For national consistency, the operation of SENASA veterinary teams stationed at slaughtering establishments is supervised by a central SENASA audit team which audits the operation of SENASA veterinary teams stationed at various Argentine slaughtering establishments throughout the year on a random basis.

SENASA's oversight on the compliance with regulations on ante-mortem inspection by slaughtering establishments is complemented by the QA systems established by slaughtering establishments. It is noted that QA systems of Argentine slaughtering establishments are usually prepared with the assistance of independent QA specialists. The QA systems include the component of GMP, HACCP systems, and the sanitation standard operation procedures. It is noted that internal audit of established QA systems of Argentine slaughtering establishments is usually conducted once a year, and the audit is usually led by

the quality assurance manager of the establishment.

As required by Decree 4238/1968, Argentine slaughtering establishments must conduct ongoing internal training for their staff on operating procedures, and refresher courses when procedures are revised. Argentine slaughtering establishments must provide training to new operators, and ongoing training for existing operators at least once a year on GMP and HACCP systems.

QA records are generally kept for two years by slaughtering establishments.

Simulation exercises for product tracing are conducted regularly and at least once a year by Argentine slaughtering establishments. The product tracing allows the concerned beef product at retail to be traced back to the slaughtering troop number.

The FSANZ in-country verification inspection team observed general compliance with the regulations and requirements described under section 7.2, 7.3, 7.4 and 7.5 above at the two slaughtering establishments visited.

8 Post-slaughter controls: post-mortem inspection, SRM removal, and rendering procedures

8.1 Overview

Post-slaughtering controls are necessary to ensure products from diseased animals and tissues potentially containing BSE infective material do not enter the human food or animal feed supply chains.

8.2 Legislation

8.2.1 Post-mortem inspection

Chapter XI of the President's Decree 4238/1968, *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin* and amended rules prescribe requirements for post-mortem inspection in Argentina:

- Immediately after being slaughtered, organs and tissues of slaughtered cattle must be subject to a complete macroscopic examination, and if necessary a microscopic and/or bacteriological examination;
- Post-mortem inspection must be carried out by veterinary officers;
- Evisceration shall be carried out within 30 minutes of cattle being slaughtered.

The Decree specifies methods to be used in post-mortem inspection (macroscopic visual examination, palpation), and organs and tissues that are subject to the post-mortem examination. The Decree also prescribes the destinations (human consumption, manufactured meat, preserved meat, pharmaceutical use) of the carcasses and tissues under various circumstances, for example, carcasses and carcass parts not suitable for human consumption must be sterilised in a digester and disposed accordingly.

SENASA Circular Letter 3528/2003 prescribes that every slaughtering establishment producing beef for human consumption must have a manual of procedures that describe all the necessary steps involved in managing and treating SRM generated from the slaughtering process, and must ensure that SRM is not directed to a rendering plant producing protein concentrates.

8.2.2 *Definition of specified risk material*

SENASA Circular Letter 3528/2003 defines specified risk material (SRM) for BSE. It prescribes SRM for BSE to be the tissues of the central nervous system which includes brain, cerebellum and spinal cord of any cattle slaughtered for human consumption. Parts of the body which contain such tissues and due to technological or commercial reasons have not been separated are also included as part of the SRM.

8.2.3 *Rendering requirements*

SENASA Resolution 337/2003 prohibits the inclusion of any material from the central nervous system (brains, cerebellum, and spinal cord) of ruminants in a rendering process. It requires SENASA to create a national registry of establishments processing animal waste of mammalian and poultry origin, and to conduct surveillance of such rendering facilities. This Resolution requires rendering establishments to create a registry that records raw material entering the rendering process, and to keep such records for a minimum of two years.

8.3 **Post-mortem procedures**

During the in-country verification inspection visit, the following post-mortem procedures were observed as being supervised and monitored by SENASA veterinary personnel in two slaughtering establishments inspected:

- Carcass identification;
- Cattle stunning and bleeding;
- Verification of cattle age by examination of teeth;
- Hoof and hide removal;
- Removal of head;
- Evisceration;
- Inspection of organs and tissues on the slaughtering platform;
- Disposal of inedible parts of carcass;
- Carcass splitting;
- Monitoring temperature reduction of carcasses;
- Removal and disposal of spinal cord;
- Removal and disposal of brains;
- Recording post-mortem inspection data; and
- Certification of carcasses being fit-for-human-consumption.

The spinal cord is removed after the carcass is split and disposed of as SRM. Other SRM material, i.e. brain and cerebrum are removed in the offal processing room (See section 10.2).

8.4 **Rendering processes**

A rendering plant attached to a slaughtering establishment was inspected during the in-country verification inspection. The rendering facility received all of its raw material from the adjacent slaughterhouse. It operated an automated cooking system remotely controlled. Rendering parameters were set at 133°C and 3 bars for 20 minutes. It was demonstrated that once the temperature or pressure drops below the specified parameter, the cooking time returns to zero. This ensures that every rendering batch is processed to the specified rendering parameters.

Records of rendering parameters for every batch processed at the establishment were electronic and kept for a minimum period of 12 months. After that, the records were backed-

up yearly on the computer system for at least seven years.

Tallow produced at the rendering plant attained the OIE specification of <0.05% protein in the residual solid, and was supplied for industrial applications only.

MBM pellets produced at the establishment were bulk-packed in 500kg polypropylene bags. The surface of the bags were clearly labelled, according to SENASA Resolution 1389/2004, with lot number, manufacture date, and "For Animal feed only and feeding cattle, sheep, goats or other ruminants is prohibited".

While 133°C and 3 bars for 20 minutes are standard operational parameters of Argentine rendering establishments exporting protein concentrations, other Argentine rendering establishments operate a wet cooking system at atmospheric pressure. The combination of 133°C and 3 bars for 20 minutes has not been mandated in Argentina because BSE SRM is prohibited from being rendered in Argentina.

8.5 Compliance with regulations

As described in section 7.6 of this report, SENASA official veterinarians stationed at the slaughtering establishments conduct post-mortem inspections in addition to the regular audits conducted by slaughtering establishments to verify their compliance with regulations and requirements applicable to the operation of a slaughtering establishment in Argentina.

Handling and disposal of SRM is verified daily and inspected by SENASA resident veterinarians.

All rendering establishments in Argentina are required to have a QA system that encompasses GMP and HACCP with written standard operating procedures (SOP). The QA system is audited at least once a year by the QA team of the rendering establishment. SENASA veterinarians residing in the establishment or from SENASA regional office conduct monthly audits of the QA system of rendering establishments, and prepare monthly audit reports. Every bag of ruminant MBM sold from rendering establishments in Argentina must be accompanied with a Health Certificate (PTR) issued by SENASA according to SENASA Circular Letter 3528/2003. If the MBM is resold, a new Health Certificate (PTR) issued by SENASA must be obtained. The end user must notify SENASA after receiving the MBM product through the return of the PTR. This requirement ensures that the movement loop of the ruminant restricted material is closed. The FSANZ in-country verification inspection team observed general compliance with these requirements at the rendering establishment visited.

9 Summary: exposure control

The risk of introducing into and amplifying the BSE agent in cattle herds within Argentina is effectively prevented through:

- An effective ruminant feed ban that has been in existence since 1995 and was expanded in 2002 to prohibit all mammalian proteins being fed to ruminants;
- Ruminant feed is produced on exclusive production lines;
- Raw ingredients of animal feed and manufactured animal feed can only be sourced from suppliers registered with and authorised by SENASA which enables product tracing, follow-up investigation, and rapid risk mitigation in case a batch of ruminant feed is found to be contaminated with banned animal protein; and
- Monitoring and enforcement of the ruminant feed ban are under a comprehensive

feed surveillance system designed and conducted by SENASA.

The Argentinean Government's robust requirements on and supervision of animal slaughtering establishments ensure that potentially BSE infected animals are prevented from entering the human food and animal feed supply chains. The effectiveness of this is achieved through the following measures:

- A dedicated SENASA veterinarian team oversees the operations in each of the nationally licensed slaughtering establishments;
- SENASA veterinarians conduct ante-mortem and post-mortem inspections in all the nationally licensed slaughtering establishments;
- Existence of clear and specific requirements for the handling of clinically suspect animals and their carcasses; and
- Ongoing supervision and regular audits of QA systems of all the nationally licensed slaughtering establishments by SENASA veterinarian team.

SENASA authorisation and control on the movement of ruminant MBM produced through the restricted movement permit (PTR) system provides additional assurances to the ruminant feed ban and allows monitoring and tracing of consignments of MBM throughout Argentina.

BSE food safety controls

The Australian Questionnaire requires countries to have in place effective controls during the slaughtering process so that food for human consumption is prevented from becoming contaminated with materials that may be BSE-infected. It also requires a country to demonstrate the existence of effective and timely systems to accurately identify, trace and recall meat and meat products in the event of a food safety incident associated with BSE. The following chapters (chapter 10 to 13) address these requirements in Argentina.

10 Beef production systems

10.1 Legislation

The President's Decree 4238/1968, *Regulation for Inspection on Products, By-products and Derivatives of Animal Origin* and the amended rules provide SENASA with the responsibility for approving the operation of all processing establishments producing meat and meat products for human consumption and the regulatory control for food safety at such establishments. The Decree prescribes regulatory requirements on the construction of the establishments including: laboratory; workforce; ante and post-mortem inspections; production of salted meats and processed meats; use of preservatives and additives in meat processing; grease production; packing and labelling of meat products; transportation of animal, meat and meat products; sanitary documentation; GMP and standard sanitary operational procedures (SSOP); and penalties in case of non-compliance. Based on the Decree, SENASA have issued a number of resolutions and circulars to further elaborate specific aspects of the regulatory controls. For example, based on paragraph 31.1.7 of Chapter XXI of the Decree, Circular Letter No. 3832/2008 issued by SENASA requires every establishment regulated under Decree 4238/1968 to have a procedural manual for recall of products in case of emergency.

Chapter I of the Decree states that beef produced in Argentina should be fit for human consumption.

Chapter XXXI of the Decree states that all producers of beef should set up procedures that guarantee beef and beef products produced do not pose a risk to human health.

10.2 Removal and destruction of SRM

In Argentina, brain, cerebellum and spinal cord of cattle are removed and disposed of as BSE SRM regardless of the age of the animal at the time of slaughter. These tissues are commonly referred to as MRDEEB (*materiales de riesgo de difusión de encefalopatía espongiiforme bovina*). MRDEEB are sprayed with 2% crystal violet at all slaughtering establishments to highlight their identity and that they have been denatured.

The spinal cord is removed with a knife and a metal device with a blunt end after splitting of the carcass. Intact and undamaged brains are removed in the offal processing room and processed for human consumption for the domestic market only. Damaged or discoloured brains together with cerebellum are removed together with the connective tissues and disposed of as SRM. Materials disposed as SRM are not rendered. They are either sterilised in a digester at 125°C at over 2.5 bars for approximately 3 hours or incinerated. The remains from the digester if not incinerated or buried by the establishment, are then handled by a third party and taken to the third party's premises for further sterilisation and disposal through burial or incineration. Disposal of the ash and the solids after sterilisation must be certified by SENASA and the transportation is controlled by a PTR.

11 Traceability systems for beef and beef products

In Argentina, SENASA regulates the traceability requirements for beef and beef products in the case of a disease event.

11.1 Legislation

SENASA Circular Letter 3832/2008 requires all beef production establishments to have a recall procedural manual and to conduct regular recall training exercises and simulations.

11.2 Details of the traceability systems

In Argentina, traceability of beef and beef products is managed by the Sigsa system and the animal movement control documentation, i.e. the DTA or DT-e documentation. Information required in the tracing of beef and beef products can be generated from:

- The registry of animal producers and operators (*Registro Nacional Sanitario de Productores Agropecuarios*, abbreviated as RENSPA);
- The animal identification (ear tag); and
- The documentation that controls the movement of animals, i.e. the DTA and DT-e documentation. The DTA or DT-e contains information of individual animals involved in the movement including the ear-tag number and the farm origin of the cattle.

Traceability at the slaughterhouse starts with the DTA or the DT-e documentation. SENASA veterinarians at the slaughtering establishment verify the accuracy of the data stated in these documents that accompany the cattle herd to the premise. Provided that the data is accurate, the herd is divided into batches (troop). The troop number is entered onto a card (barnyard card) and stored in a metal cup fixed on the barnyard where the animals under the troop number are held. After ante-mortem inspection, a slaughter list containing information of the troop number, the herd number (CUIG, see section 16.3), individual animal's ear-tag number (see section 16.3), the corresponding DTA or DT-e number, and the number of animals to be slaughtered under the slaughter list (Slaughter Form) is generated. This list is signed by the SENASA veterinarian who authorises the slaughtering process.

The animals are numbered sequentially when entering the slaughtering line and this slaughter number is applied with a stamp onto each side of the carcass and also onto each side of the beef package. This slaughter number is shown in the Slaughter Form alongside the individual animal's ear tag number. The troop number identifying the specific Slaughter Form is printed on the label of the beef cut.

The label of beef cut also contains the information of slaughter date, production date, and best before date (usually 4 months after production date), and contact phone number of the slaughtering establishment as applicable.

In case of a recall, for products destined to the European Union, the beef cut can be traced back to the individual animal from which the beef is derived according to the slaughter number printed on each side of the beef carcass and beef package, and from a combination of the slaughter date and the troop number printed on the label of the beef cut. From the Slaughter Form, one can identify the individual animal's ear-tag number, and trace the beef cut back to the farm of the origin. For products destined to other markets including the domestic markets, the traceability goes to the group of animals slaughtered under the same Slaughter Form identified by the troop number. For the latter, traceability can go to individual animal depending on the extent of the quality control of the establishments involved.

All slaughtering establishments in Argentina are required to have a traceability manual as part of the QA system which is reviewed yearly. Traceability simulations are conducted regularly at all slaughtering establishments. In one of the slaughtering establishments visited by the FSANZ in-country verification inspection team, traceability simulations were conducted monthly.

12 Food recall systems

In Argentina, SENASA is responsible for the recall of beef and beef products in case of a food incident investigation involving beef or beef products.

12.1 Legislation

All beef production establishments are required to have a recall procedural manual and conduct recall simulations according to SENASA Circular Letter 3832/2008.

The *Argentina Food Recall Protocol* requires all Argentinean food businesses to have a food incident reporting mechanism, and establish methods for food recall in the event of a food incident that requires the recall of products.

12.2 Food recall process

The *Argentina Food Recall Protocol* establishes the need for a food recall when a food incident is identified and a risk assessment establishes a food safety threat. Once a decision to recall a product is made, the responsible business prepares a food recall strategy. Based on the strategy, consumers, businesses and the national and provincial health authorities are notified of the recall. This is followed by monitoring of the food recall process until the recall is complete.

This food recall process is applicable to all food produced, imported, processed, transported, stored and sold in Argentina.

13 Summary: BSE food safety controls

In Argentina, SENASA is responsible for BSE food safety control including recall of beef and beef products when necessary.

All food businesses in Argentina including slaughtering establishments are required to have a food recall system in place. Traceability and recall simulations conducted regularly at slaughtering establishments, provide the basis for effective beef recall and traceback in case of a food incident investigation involving beef.

Information placed on the labels of beef and beef products produced in Argentina enables food incident investigations, when required, to trace the product back to the individual farm and/or individual cattle.

BSE Control Programs and Technical Infrastructure

Chapters 14 and 15 of this report assess the system around BSE notification, the investigation of any clinical suspects, diagnosis of BSE, and BSE awareness programs in Argentina.

Chapter 16 assesses Argentina's cattle identification and traceability system which underpins the investigation of any BSE case should it occur.

14 BSE Education and Awareness

SENASA Resolution No. 901/2002 establishes the *National program for the prevention and surveillance of transmissible spongiform encephalopathy in animals*. A key component of the program is to educate the general public, veterinary professionals and farmers about signs of BSE and their reporting obligation.

Argentina's BSE education and awareness program started in 1992 at the *Research Centre for Veterinary and Agricultural Sciences (CICVyA)*. Till December 2010, a total of 7,695 people across the country had participated in specific BSE awareness education activities ranging from lectures, conferences, symposiums, seminars, workshops and training courses. The contents of the education and awareness programs covered:

- BSE background;
- Clinical signs of BSE in cattle;
- Economic consequences of a BSE outbreak;
- Import control measures on BSE introduced by the Argentinean Government;
- The ruminant feed ban; and
- BSE surveillance and notification.

Attendees to the training and awareness programs have included Government and private veterinarians, related professionals such as laboratory technicians, primary producers (farmers and stockfeed producers), meat industry personnel, transport industry personnel, and students.

To educate the general public, prominent BSE awareness interviews have been broadcasted on radios and TV shows throughout the country, and prominent press releases have been published in national newspapers and relevant technical magazines.

BSE awareness educational materials have been incorporated into university degree courses in the field of human health, animal health, and food and feed production. BSE awareness educational materials recorded on CDs have been widely distributed.

15 Disease notification and diagnoses

15.1 Overview

This Chapter examines the procedures of notification and diagnoses of animals that are suspected of BSE and tested under the TSE surveillance and monitoring program in Argentina.

15.2 Legislation

Compulsory notification: Argentina's Animal Health Law 3959/1900 declares that each owner or person who is responsible for the care or assistance of animals suffering from an infectious disease or suspected of having such a disease, must notify the local health authority immediately.

SENASA Resolution 172/1997 declares BSE as a notifiable disease, and describes the details of sampling, sample handling and preservation of sampled tissues. SENASA Resolution 10/2003 declares compulsory notification of BSE.

SENASA Resolution 422/2003 declares that Argentina will comply with international obligations to notify animal diseases including BSE to the OIE if it occurs in Argentina.

Penalties: Failing to observe notification of an infectious disease, such as BSE, can result in penalties ranging from fines to imprisonment depending on the seriousness of the infringement according to Argentina's Animal Health Law 3959/1900. More severe penalties can be imposed on:

- Owners or managers and officials or individuals who disobey orders of the competent authorities, or do not report animals infected with contagious diseases; and
- Personnel transporting live animals not cooperating with animal health authorities in an investigation of a contagious animal disease or failing to take appropriate measures to prevent the contagious disease from being transmitted to other animals.

SENASA Resolution 10/2003 declares the following penalties applicable to the infringements related to BSE notification:

- Private or public warning;
- Fines of up to one million Argentine Pesos (AR\$ 1,000,000);
- Suspension of up to one (1) year or cancelation of the registry in the respective registries;
- Temporary or final closure of establishments and
- Seizure of products, by-products and/or elements related to the infringement.

The listed penalties may be applied separately or jointly, in view of the severity of the infringement and the records of the responsible person.

Compensation: Argentina's Animal Health Law 3959/1900 declares that owners of animals, objects and buildings that are destroyed under the Animal Health Law shall be entitled to claim compensation in cash equal to the value of animals, objects or buildings at the time the measure was executed.

15.3 Identification and handling BSE suspects

According to SENASA Resolution 10/2003, cattle with clinical signs compatible with BSE as defined by SENASA publication of *Procedure for notification and registration of a neurological case compatible with BSE*

(http://www.aulavirtual.senasa.gov.ar/cursos/multimedia/eeb/html/u02/doc/Instructivo_CNCE_EB.pdf, accessed 3 August 2014) or the BSE case definition published on SENASA website (<http://www.senasa.gov.ar/contenido.php?to=n&in=878&io=4542>, accessed 03 August 2014), if detected, must be reported to an official SENASA veterinarian or a veterinarian accredited by SENASA.

The procedure for reporting a suspected BSE case as described in the *Procedure for notification and registration of a neurological case compatible with BSE*, involves:

- The person who is aware of the suspected case of BSE must report it to the local SENASA Office to formalise the notification process;
- The epidemiological assessment of the suspected case of BSE must take into account the number, age, and category of the affected animals. If the concerned animal is dead, brain samples should be taken according to the normal procedure together with the animal's identification. If the animal is still alive, it is then necessary to continue the observation until its death or destruction after which a brain sample is taken. In both circumstances, the investigating veterinarian must complete the BSE Notification Form.
- The official Notification Form (the F2 Form) must be completed which contains the following information (date of visit to the establishment, RENSPA number, CUIG number, individual identification of the animal, number of the F2 Form, symptoms, presumptive diagnosis, and epidemiological data): and filed at a SENASA local office; and
- SENASA General Field Coordinators register the notification with a new code under "suspected BSE" in the Sigsa system.

The case sample is then dispatched to the National TSE Reference Laboratory at INTA for analysis.

Data provided by SENASA indicate that a majority of cattle showing neurological signs compatible with BSE in the period of 2006 to 2010 were reported at the farm level. Detection at slaughtering establishments had reduced significantly over the period. This indicates that identification of BSE suspects is occurring early in the beef supply chain and provides assurances that the BSE awareness program and disease notification are working effectively.

15.4 Diagnostic tests

Argentina's laboratory conducting BSE diagnosis is the INTA Castelar Laboratory. INTA is the Argentine National Institute of Agricultural Technology that reports to MINAGRI, and works closely with SENASA on TSE case investigations. Within INTA, the Research Centre for Veterinary and Agronomic Sciences (CICVyA) hosts Argentina's National TSE Reference Laboratory which is also OIE's regional TSE Reference Laboratory. INTA is the only OIE TSE Reference Laboratory in South America.

BSE diagnosis at INTA is shared by the laboratories within the Institute of Pathology and Virology at INTA, depending on the type of the test performed. The scope of INTA's TSE program involves the following three aspects:

- Examination of brain samples for TSE;
- TSE notification; and
- Training of TSE diagnosis for INTA staff and other professionals involved in TSE diagnosis in regional countries.

As the OIE's TSE Reference Laboratory, INTA performs:

- TSE diagnosis for BSE and scrapie;
- Inter-laboratory proficiency testing both with the OIE and with the regional laboratories (every two years);
- TSE diagnosis training for OIE member countries; and
- Storage and distribution of TSE samples to other national laboratories.

In Argentina, samples of central nervous system for TSE diagnosis originating from SENASA, Universities, other Laboratories, official and private Veterinarians are received by SENASA Central Laboratory where they are identified with a bar code and registered on the database for TSE surveillance. The samples and the associated bar codes are then submitted to INTA for TSE diagnosis. Results of the INTA diagnosis are sent to the SENASA Central Laboratory and copied to the establishments where the sample was collected. The investigation of a TSE sample closes when the result is returned to the point of sample collection. Test results are kept for a minimum of seven years by INTA in accordance with the OIE requirement.

In Argentina, samples for TSE testing are taken from animals displaying neurological signs consistent with a possible TSE, as well as animals resulting from casualty slaughter, fallen stock, and routine slaughter. Samples are divided such that testing can be done by both Western Blot and immunohistochemical analysis.

Methods employed for BSE diagnosis at INTA include histopathological studies (using Haematoxylin and Eosin and employing the immunohistochemical (IHC) technique), and biochemical studies (Western Blots). The histopathological studies are consistent with the OIE recommended procedure¹⁰, and the biochemical studies are in accordance with the procedure used by the Animal Health and Veterinary Laboratories Agency (AHVLA) in Weybridge, United Kingdom. INTA utilises rapid tests for initial BSE screening tests, previously according to the Prionics and Enfer protocols, and in the past 10 years using the Prionics-Check Western procedure. A combination of the IHC technique and biochemical studies is used for confirmatory testing.

The reporting of a TSE result from INTA takes approximately one month from the time that the sample is received.

Approximately 2,500 samples per year have been tested for TSEs since 1992 at INTA with the majority of the samples coming from cattle. In 2013, 3,285 samples were tested for TSE.

In 2010, SENASA Central Laboratory developed its own capacity for TSE diagnosis and started collaborating with INTA on TSE diagnosis.

15.5 Laboratory assurances and auditing

Professionals at INTA who are specialised in TSE diagnosis have received trainings in TSE diagnostic laboratories around the world including those in Canada, the United Kingdom and

Switzerland. INTA has hosted two international workshops on TSE diagnosis, one in 2007 and the other in 2010. INTA also receives support from international experts in the field of TSE diagnosis. For example, Switzerland assisted INTA in the establishment of the Western Blot diagnostic procedure in 2007.

As OIE's regional TSE Reference Laboratory, INTA coordinates inter-laboratory proficiency testing both with the OIE and across other regional laboratories.

INTA has been accredited as a TSE diagnostic laboratory by the OAA.

The above indicates that there are effective systems for the diagnosis of BSE in Argentina should it occur.

16 Cattle identification and traceability

16.1 Overview

Cattle traceability systems should enable effective and efficient identification, tracing and recall of beef and beef products from all BSE affected animals in the event that a BSE outbreak has occurred. The system should be able to identify and trace beef and beef products from the point of retail sale to the point of manufacturing and where applicable to the point of slaughter. The system should integrate with cattle identification and traceability measures such that the origin of contaminated beef or beef products can be traced back to any animals of interest when required. The system should ensure effective and timely identification, tracing and removal of beef and beef products from markets and the distribution chain. Cattle identification and traceability in Argentina are described in the following sections.

16.2 Legislation

As described in Section 7.3, DTA and DT-e are animal movement control form which is an integral part of the cattle traceability system in Argentina. SENASA Resolutions No. 848/1998 and Ex-SAGPyA Resolution 356/2008 govern the DTA and the DT-e requirement and process.

Argentina's individual cattle identification system was created initially in 2003 by SENASA Resolution 15/2003 for cattle destined to the European Union. It was expanded in 2006 via SENASA Resolution 103/2006 that requires individual identification of all cattle born from 2006 onwards.

The Sigsa system, a unique Argentine information management system enabling slaughtered animals to be traced back to the farm where the animal was reared, is governed by the Ex-SAGPyA Resolution No. 417/1997, and the amended rules.

16.3 Current identification systems for cattle

In Argentina, SENASA is responsible for animal identification and traceability. The main purpose of the animal identification and traceability system in Argentina is to enable rapid and effective control of infectious animal diseases.

Argentina's animal identification and traceability system is comprised of the Sigsa system and the system of animal movement control documentation, i.e. the DTA or DT-e documentation. The system combines information generated from:

- (1) The registry of animal producers and operators - every primary producer producing animals for human consumption in Argentina is registered with a unique RENSPA number. RENSPA is an abbreviation of *Registro Nacional Sanitario de Productores Agropecuarios* and in English refers to the Argentine national sanitary registry of agricultural producers.
- (2) The individual animal identification system that identifies all cattle born in Argentina since 2006; and
- (3) The documentation that controls the movement of animals (DTA and DT-e) from one primary producer to another or to a slaughtering establishment.

Information generated from these three areas is captured by the Sigsa system.

Prior to the movement of cattle from one premise to another, the primary producer applies to the SENASA local office to generate a DTA or DT-e which captures individual animal identification numbers of all the animals intended to be moved and links these to the primary producer's RENSPA number. The animal movement is closed when the DTA or DT-e is submitted to the SENASA local office located at the destination of the animal movement by the receiver of the animals.

The DTA/DT-e is processed through the Sigsa system. Primary producers can process requests through the Sigsa system via the Internet to obtain the DTA/DT-e documentation.

The DT-e is usually issued with a variable validity with an average of 1-2 days and maximum duration of seven days.

In order to use the DTA or DT-e documentation system for the purpose of animal movement, the primary producer must satisfy the following criteria:

- The producer must be registered with SENASA;
- The producer must have sufficient animal stock to satisfy the movement numbers;
- The premise and animals must comply with health requirements so that the animals can be transported; and
- The producer must not have an outstanding debt within the system.

The RENSPA system within Sigsa is a national register of farming establishments that produce either animal or plant commodities. Every farming establishment in Argentina is registered under the RENSPA system. The Sigsa system allocates each farming establishment with a unique RENSPA number.

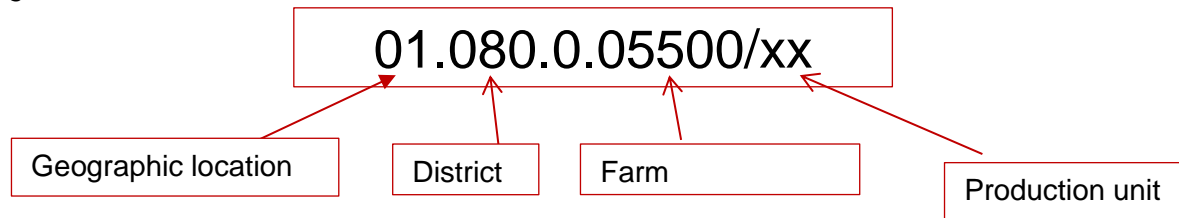
The RENSPA number is comprised of eleven digits with an extension for another two digits, for example, 01.080.0.00500/xx (Fig. 4). The first two digits, i.e. 01, refer to a geographic location within Argentina where the primary producer or the slaughtering establishment is located. For example the province of Buenos Aires is assigned 01 for its geographic location. The next three digits refer to the district in a geographic location where the primary producer or the slaughtering establishment is located. For example, 080 refers to the district of Carmen de Areco in the province of Buenos Aires. The next digit, i.e. 0, is used as a separation between the geographic location and the farm or the slaughtering establishment, and could indicate if there is a subdivision of the locality. The five digits after this separation refer to a farming establishment. For example the digit of 00500 refers to a specific dairy farm in the district of Carmen de Areco in the province of Buenos Aires. The extension, i.e. /xx, is reserved for individual production units within the establishment in case a farming establishment is comprised of multiple production units owned by one or more primary

producers.

In registering with Sigsa, the producer provides personal data, the conditions of the farming operation, farming activity, and the quantity of animal stock where applicable.

The RENSPA number enables SENASA to locate and geographically visualise a farm and any animal movements to and from the farm rapidly and accurately. This assists the prevention and control of infectious diseases at the primary production stage.

Figure 4: RENSPA Code



Previously, visualisation of an outbreak of an animal disease takes a team of SENASA professionals working for approximately one week to generate. With the Sigsa system, the visualisation is generated in a few minutes.

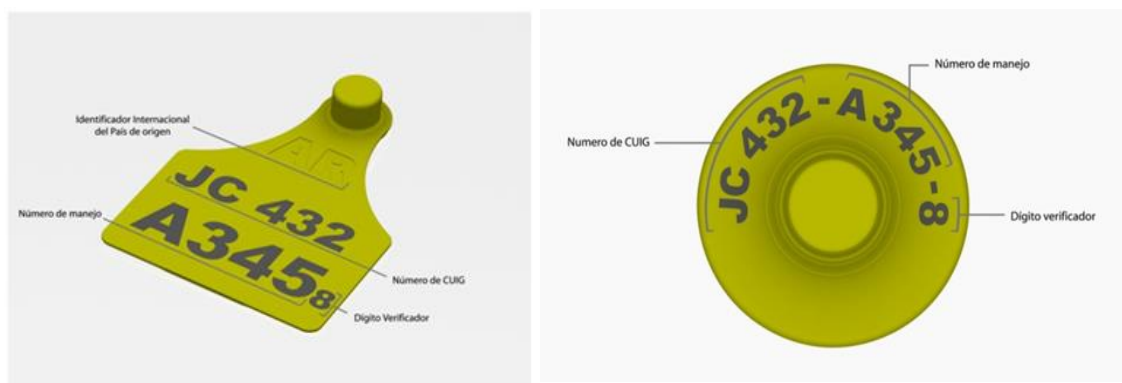
For animal identification, the Sigsa system generates an abbreviated number from the RENSPA number. This abbreviated number is referred to as CUIG (*clave unica de identificación ganadera*, a unique code of livestock identification). The CUIG is comprised of two alphabetical characters and three numerical digits. For example, BQ 293 is abbreviated from RENSPA number 01.019.0.00952/01. The CUIG number and the corresponding RENSPA number are linked because the CUIG number is generated from the RENSPA number.

The CUIG number forms part of the code on the ear tag of an animal. In the following ear tag (Fig. 5), JC 432 is the CUIG number which identifies the farm that the animal comes from. The next four digits, A345, refer to a specific animal on the farm, called the management number. For example, JC 432 A345 refers to cow X in farm JC 432, and JC 432 B346 refers to cow Y in the same farm. The last digit, 8, shown in Fig. 5 is a verification digit which verifies if the CUIG and the management number have been matched correctly.

Information at the back of the ear tag includes the RENSPA number, the code of the manufacturer of the ear tag, and the date of manufacture of the ear tag (not shown in Fig. 5).

Cattle in Argentina carry two ear tags (Fig. 6). A button-button ear tag (the round shaped ear tag shown in Fig. 5) is attached to the right ear of the animal and a flag-shaped ear tag (shown in Fig. 5) is attached to the left ear of the animal. In addition, all adult cattle in Argentina must be iron branded.

Figure 5: Ear tag code



The ear tags are applied upon weaning or before the first movement of the animal, whichever occurs first.

Yellow ear tags indicate an area where vaccination against foot-and-mouth disease (FMD) has taken place, and green ear tags mark an area without FMD vaccination. If the initial ear tag is lost, the replacement ear tag is light blue in colour which indicates a re-identification. Red ear tags are applied to imported animals. The code on the re-identification ear tag starts with a letter R which is followed by an 8 digit number.

Figure 6: Cattle in Argentina with ear tags and tattoo



The Sigsa system is online that connects with various SENASA departments and is centrally housed at the SENASA central office in Buenos Aires. The system allows access of relevant parties involved in animal health management including primary producers, authorised veterinarians, cold storage establishments and others. Users of the Sigsa system must be registered with SENASA and the Sigsa system validates information of the users with their registrations.

16.4 Evaluation and inspection

All cattle farms in Argentina are regularly audited by SENASA veterinarians or SENASA accredited veterinarians. The audit covers all aspects of the farming operation including registration of births and deaths, feed inputs, use of veterinary products, animal ID, and data management.

During the in-country inspection visit to Argentina, the compliance with the requirements on individual animal identification at a dairy farm and the requirement of DT-e for animal movements at two slaughtering establishments was verified to be adequate.

The Sigsa system was comprehensively demonstrated to us during the in-country inspection and the results were satisfactory.

17 Summary: BSE control programs and technical infrastructure

BSE has been listed as a notifiable disease in Argentina since 1997. The compulsory nature of the notification together with good awareness of the need to report animals with signs of infectious diseases ensure animals suspected of BSE are reported to the Argentinean authorities in a timely manner.

Official and accredited private veterinarians, farmers, cattle handlers and professionals involved in animal production and animal health care in Argentina have been educated to recognise the clinical signs associated with BSE through comprehensive and ongoing training and awareness programs.

BSE diagnostic methods applied by INTA conform to the OIE recommended methodologies. Sample collection and handling procedures developed by SENASA are adequate and comprehensive.

A key factor to an effective BSE control program in Argentina is the structure of the competent authority - SENASA. SENASA has fifteen regional centres and 356 local offices located throughout of the country. Their proximity to animal farms and slaughtering establishments and their central linkages to SENASA head office ensure sound coordination and management of a disease event such as BSE should it occur.

Argentina's cattle identification and traceability system is comprehensive. The capture of primary producer's registration (RENSPA number), the individual cattle identification (CUIG number + a specific code for an individual animal), and the documentation (DTA and DT-e) controlling the movement of animals in a single online database provides reliability and accuracy in animal tracing and enables a rapid response in case of a BSE event.

Argentina does not have a national contingency plan specific to BSE (<http://www.oie.int/en/animal-health-in-the-world/the-world-animal-health-information-system/national-disease-contingency-plans/>, accessed 20 August 2014). However, comprehensive investigation procedures in case of a BSE event exist in Argentina, and enable a rapid and effective response to a BSE emergency should it occur. The actions to be followed in case of a suspect case of BSE are prescribed by SENASA Resolution 10/2003.

BSE Surveillance

Section 3 of the Australian Questionnaire requires countries to provide evidence of the number of BSE-related samples collected for each cattle subpopulation, with data stratified by year and age group. Such data are then used to derive BSE surveillance point calculations based on the OIE recommendations⁴. The extent and quality of surveillance for BSE within the cattle population of a country, combined with other systems for BSE control, help to determine the BSE risk status of the country. Chapters 18-20 of this report assess Argentina's BSE surveillance activities and historical BSE surveillance data.

18 Argentina's BSE surveillance program

SENASA Resolution 234/1996 describes the implementation of a national epidemiological surveillance system for animal diseases and lists BSE as one of the diseases under surveillance.

SENASA Resolution No. 901/2002 establishes the *National program for the prevention and surveillance of transmissible spongiform encephalopathy (TSE) in animals*. One of the key components of the program is BSE surveillance. Both active and passive surveillance are conducted under the program and the surveillance takes into consideration of internationally recognised guidelines on different sub-populations at risk and conforms to the OIE recommendations⁴.

Resolution 901/2002 designates INTA as the national Reference TSE laboratory, and SENASA Central Laboratory as the national laboratory for analysis of mammalian proteins in feed samples. SENASA coordinates national BSE surveillance activities.

Other than routine slaughter, the following categories of animals must be sampled under the national TSE surveillance program in Argentina:

1. *Clinical suspects also referred as behaviour or signs compatible to BSE*: bovines affected by a disease resistant to all treatments and which manifests progressive changes in behaviour (excitement, aggression) as well as those presenting neurological signs without showing signs of infectious disease (lack of coordination, claudication, convulsions, paresis, paralysis, prostration).
2. *Fallen/emergency slaughter*: they do not walk, remain recumbent or are unable to stand up or walk without help (in the field) and those submitted for emergency slaughter (which suffered from an accident, with decay, etc.) in slaughterhouses.
3. *Found dead*: found dead in the establishment, during transport or in the slaughterhouse. It also includes those slaughtered in the rural establishment due to different causes as detailed in items 1 and 2.

From 2003, BSE surveillance in Argentina has shifted away from routine slaughter and focused on fallen stock, casualty slaughter and clinical suspects (Table 7).

19 Argentina's BSE surveillance points data

The sentinel population for BSE surveillance is composed mainly of adult cows between three and seven years of age, the population group in which the main number of BSE clinical cases is historically represented¹¹. SENASA data indicate that in February 2014, adult cows accounted for 43% of Argentina's cattle population. This correlates to approximately 22 million adult cows.

Argentina's total BSE surveillance points for the seven year period 1999 to 2005 was 412,351 and for the period 2006 to 2012 was 583,967 (Table 7). These surveillance points are sufficient to satisfy the Type A BSE surveillance targets defined by the OIE⁴. As shown in Table 7, the highest proportion of the surveillance points were generated from tests conducted on clinical suspects, followed by casualty slaughter and fallen stock.

Table 7: BSE surveillance points for the periods 1999-2005, 2006-2012 and 2013

Year	Routine slaughter	Fallen stock	Casualty slaughter	Clinical suspect	Total
1999	130	0	79	37,175	37,384
2000	129	0	133	57,640	57,902
2001	499	0	102	52,120	52,721
2002	431	40	468	40,250	41,189
2003	8	96	639	68,865	69,608
2004	7	326	1,736	73,045	75,114
2005	0	225	1,103	77,105	78,433
1999-2005 Total					412,351
2006	1	137	1,105	145,020	146,263
2007	1	217	969	115,035	116,222
2008	1	303	2,278	92,225	94,807
2009	1	501	1,812	82,750	85,064
2010	0	337	1,358	50,330	52,025
2011	0	273	1,194	54,125	55,592
2012	0	262	1,572	32,160	33,994
2006-2012 Total					583,967
2013	0	469	2675	30,960	34,104

20 Summary: BSE surveillance

Argentina has an ongoing BSE surveillance program, and is currently conducting OIE Type B surveillance. Between 1999 and 2005 Argentina conducted OIE Type A BSE surveillance with a total of 412,351 BSE surveillance points accumulated. Between 2006 and 2012, Argentina accumulated 583,967 BSE surveillance points. The highest proportion of the surveillance points were generated from tests conducted on clinical suspects, followed by casualty slaughter and fallen stock.

For a country with an adult cattle population greater than 1 million, the BSE Type A surveillance points specified by the OIE is 300,000 (accumulated over a period of seven years), and the BSE type B surveillance points is 150,000. BSE surveillance conducted in Argentina has satisfied and exceeded both OIE targets.

Conclusions and BSE risk categorisation

BSE specific import controls introduced by the Government of Argentina since 1990 have successfully prevented the BSE agent from entering Argentina. In the last ten years live bovine animals imported into Argentina for breeding purposes have been restricted to those originating from Uruguay and Paraguay only. Imported bovine by-products as MBM have been restricted to those originating from Uruguay only, and import of fresh beef products has been restricted to those originating from Brazil and Uruguay only. Brazil and Uruguay were categorised by FSANZ in 2003 as countries with “Category A” BSE status. Recently Brazil was assigned “Category 1” BSE status by FSANZ. Brazil, Paraguay and Uruguay are countries with a ‘Negligible’ BSE status recognised by the OIE. Based on the above, it is concluded that live cattle and beef and beef products imported into Argentina in the last 10 years presented a negligible risk of introducing the BSE agent into the country.

Argentina has had an effective ruminant feed ban in place since 1995. From 2002, proteins of all mammalian species have been prohibited from being fed to ruminants. The ruminant feed ban was extended to all animal proteins in 2004. Argentina’s ruminant feed ban has been effectively implemented through the following measures:

1. Manufactured animal feeds including raw ingredients are only sourced from suppliers registered with and authorised to produce or supply animal feed by SENASA and their compliance with the ruminant feed ban is audited by SENASA;
2. Ruminant feeds are produced on exclusive production lines that prevent the possible contamination from non-ruminant animal feeds;
3. All of Argentina’s slaughtering establishments have comprehensive food safety oversight and audit by Argentina’s official veterinary inspectors to prevent animals suspected of BSE infection from entering the human food or animal feed chains;
4. SRMs are destroyed by incineration or burial and are not rendered in Argentina;
5. Movement of ruminant derived MBM within Argentina is authorised and monitored by SENASA; and
6. A BSE surveillance program that surveys for the contamination of cattle feed by prohibited animal proteins has been systematically designed and effectively implemented.

All Argentine food businesses have a food recall system in place. Product recall and traceability simulations are conducted regularly as part of the standard operating procedures by slaughtering establishments. The labelling information on fresh beef produced in Argentina enables the beef to be traced back to the origin of the slaughtering establishment, the group of cattle from which the beef is derived from, and the farm from where the cattle is raised in an event of a food incident investigation.

BSE has been a notifiable disease in Argentina since 1997. The ongoing BSE awareness education program introduced in 1992 is comprehensive, and has reached a wide range of primary producers and businesses involved in the production and supply of beef for human consumption including farmers, veterinarians, meat producers, meat transporters, laboratory technicians and the general public.

BSE diagnosis conducted in Argentina conforms to the standards recommended by the OIE. BSE sample collection, diagnosis and information management in Argentina have benefited from the collaboration between INTA which conducts BSE testing and SENASA which manages the sample collection and communication of information to field personnel. INTA

has a well-developed capacity for BSE diagnosis and hosts the OIE TSE reference laboratory in South America.

The SENASA network is a key success factor of Argentina's effective BSE prevention program. The network is comprised of fifteen regional centres and 356 local offices spread throughout the country. The proximity of these regional centres and local offices to farms and slaughtering establishments and their role as the competent authority ensure that a disease event such as BSE, if it occurs, will be rapidly identified and effectively managed.

Argentina has developed an effective national cattle identification and traceability system. The unique combination of a primary producer's register, the identification of individual cattle, and the documentation controlling the movement of animals, provides reliability and accuracy to the tracing of animals. The Sigsa information management system which captures the above mentioned three components essential for animal identification and traceability is compatible with Australia's National Livestock Identification System.

Argentina has an ongoing BSE surveillance program, and is currently conducting the OIE specified Type B surveillance for BSE. Argentina's BSE surveillance points accumulated over the period of seven years between 1999 and 2005 and again between 2006 and 2012, have well exceeded the OIE specified Type A BSE surveillance points target.

Argentina has comprehensive and well established controls to prevent the introduction into and amplification of the BSE agent within its cattle population. This ensures that beef and beef products produced in Argentina are safe for human consumption. This BSE food safety risk assessment recommends the Argentine Republic be assigned **Category 1** status for country BSE food safety risk. **Category 1** means that there is a minimal likelihood that the BSE agent has or will become established in the national herd of Argentina and enter the human food chain. Beef and beef products derived from animals born, reared and slaughtered in Argentina are therefore regarded as posing a minimal risk to human health.

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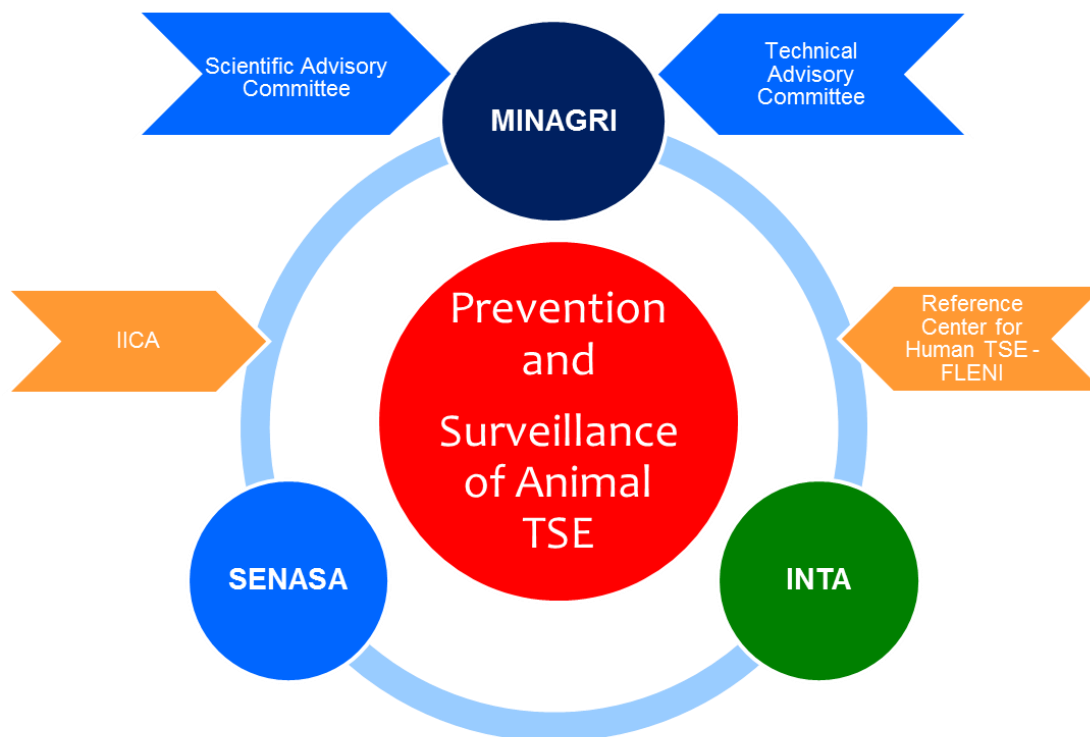
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Appendices

Appendix 1:

The Argentine Government Administrative Arrangement on the Prevention and Surveillance of BSE

Figure A1: Argentine Government and technical organisations involved in managing the prevention and surveillance of BSE in Argentina



MINAGRI (*Ministerio de Agricultura, Ganadería y Pesca*): the Argentine Ministry of Agriculture, Livestock and Fisheries

SENASA (*Servicio Nacional de Sanidad y Calidad Agroalimentaria*): The Argentine National Agriculture and Food Health and Quality Service

INTA (*Instituto Nacional de Tecnología Agropecuaria*): The Argentine National Institute of Agricultural Technology

IICA: The Inter-American Institute for Cooperation on Agriculture

FLENI (*Fundación para la Lucha contra las Enfermedades Neurológicas de la Infancia*): the Argentine Foundation to Fight Neurological Diseases of Children

Organisational Structure of SENASA (*Servicio Nacional de Sanidad y Calidad Agroalimentaria*, the Argentine National Agriculture and Food Health and Quality Service)

Figure A2a: Organisational Structure of SENASA

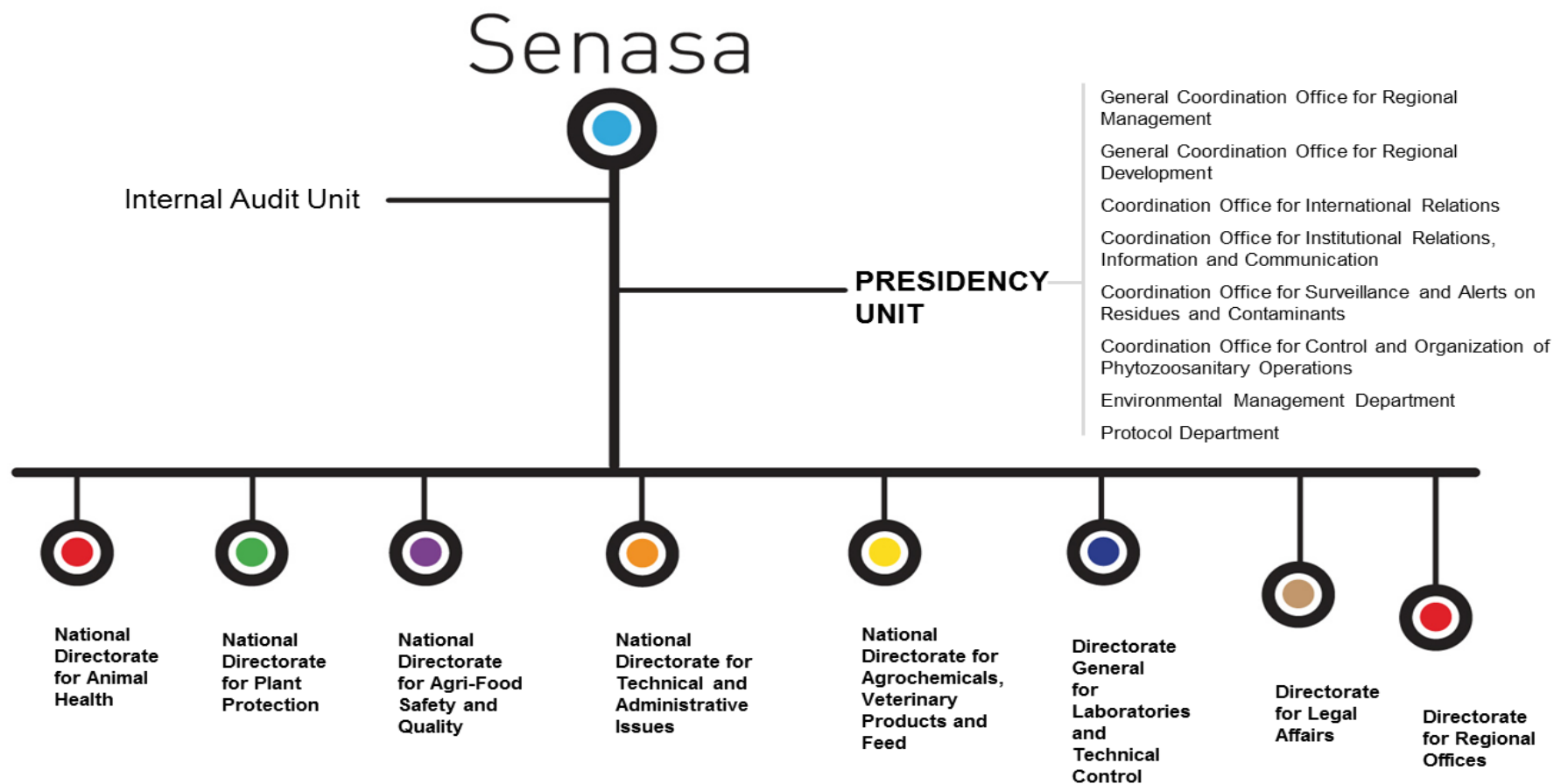


Table A2: Functions and responsibilities of SENASA national directorates

National Directorate for Animal Health	National Directorate for Plant Protection	National Directorate for Agri-Food Health and Quality	National Directorate for Technical and Administrative Issues	National Directorate for Agrochemicals, Veterinary Products and Feed	Directorate General for Laboratories and Technical Control	Directorate for Legal Affairs	Directorate for Regional Officers
<p><u>Directorate for:</u></p> <p>Quarantine standards; Animal health programs; Management control and special programs; Epidemiology and risk analysis</p>	<p><u>Directorate for:</u></p> <p>Phytosanitary certification; Plant quarantine; Plant health; Surveillance and monitoring</p>	<p><u>Directorate for:</u></p> <p>Animal product health; Fishery and aquaculture products health; Agri-food quality; Hygiene and safety of products of plant origin and feed; International movement of goods and animals</p>	<p><u>Directorate for:</u></p> <p>Administrative and financial services; Human services and organisation; Information technology</p>	<p><u>Directorate for:</u></p> <p>Veterinary products and feed; Agrochemicals and biologics</p>	<p><u>Directorate for:</u></p> <p>Animal laboratory Plant laboratory</p>	<p><u>Specific Coordination Office for:</u></p> <p>Tax Issues; Disputes; Expert's Opinions; and Infringements</p>	<p><u>Specific Coordination Office for:</u></p> <p>Animal Health; Plant Protection; Agri-Food Safety and Quality; Technical and Administrative Issues</p>
<p><u>General Coordination Office for:</u></p> <p>Technical implementation</p>	<p><u>General Coordination Office for:</u></p> <p>Organisation and planning; Management control</p>	<p><u>General Coordination Office for:</u></p> <p>Regulation and technical organisation; Management</p>	<p><u>General Coordination Office for:</u></p> <p>Technical and administrative management; Reception, receiving desk, dispatch, archive and information to the public</p>	<p><u>National Coordination Office for:</u></p> <p>Approval of foodstuffs</p>	<p><u>General Coordination Office for:</u></p> <p>Operational management control and laboratory standards</p>		

Figure A2b: Distribution of SENASA 14 Regional Offices



Cattle distribution in Argentina

At the end of February 2014, the cattle herd of Argentina was 50,408,058. The majority of cattle were distributed in the eastern-central regions of Argentina (Fig. A3). Distribution of cattle herds and cattle establishments in Argentina in 2013 is shown in Table A3.

Figure A3: Distribution of cattle stocks in Argentina in March 2013

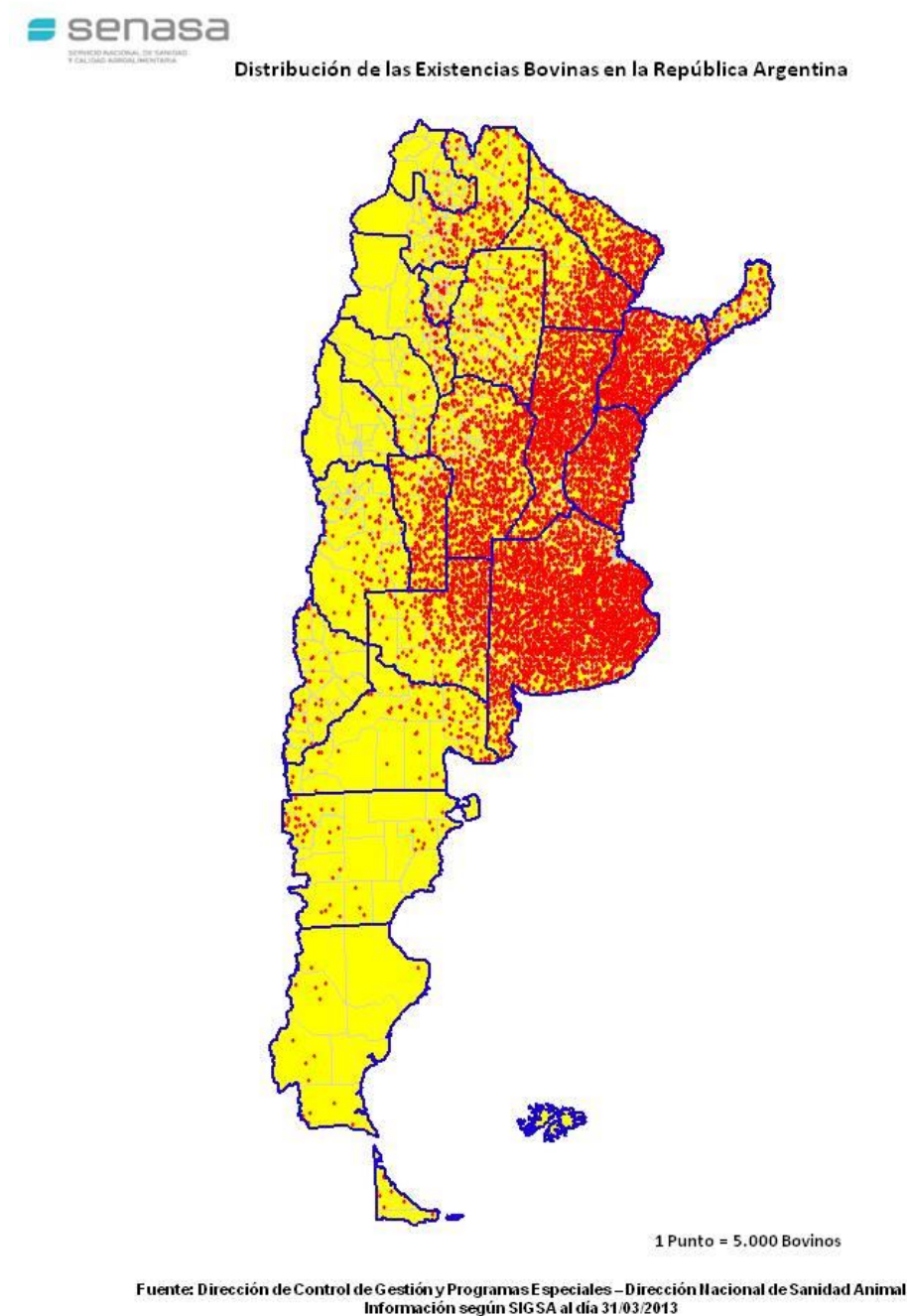


Table A3: Distribution of cattle and cattle establishments in Argentina (2013)

Province	Population	Density (heads/km ²)	Cattle establishments
BUENOS AIRES	19,360,348	63	45,988
CATAMARCA	238,326	3	787
CHACO	2,778,377	31	12,259
CHUBUT	234,309	1	2,351
CIUDAD AUTONOMA DE BUENOS AIRES	14		1
CORDOBA	4,817,601	31	19,550
CORRIENTES	5,505,500	67	14,201
ENTRE RIOS	4,469,794	60	22,629
FORMOSA	1,839,276	27	7,198
JUJUY	99,043	2	728
LA PAMPA	2,984,814	21	7,730
LA RIOJA	141,592	2	327
MENDOZA	431,808	3	1,872
MISIONES	437,429	16	5,556
NEUQUEN	186,336	2	1,450
RIO NEGRO	479,897	2	3,154
SALTA	1,083,211	8	2,926
SAN JUAN	23,889	0	155
SAN LUIS	1,627,296	22	5,573
SANTA CRUZ	85,468	0	343
SANTA FE	6,916,691	55	20,991
SANTIAGO DEL ESTERO	1,396,540	11	4,670
TIERRA DEL FUEGO, ANTARTIDA E ISLAS DEL ATLANTICO	41,325	1	56
TUCUMAN	130,249	6	917
The Whole Country	55,309,133	20	181,412

Appendix 4:

Key BSE controls Legislated by the Argentine Government

Code of legislation	Summary of the legislation	Notes
	Resolutions that banned the importation of live ruminants and products of ruminant origin from BSE affected countries	
EX-SAGPyA Resolution 429/1990	This was the first Resolution issued by the Government of Argentina to prevent the entry of the BSE agent into Argentina. It temporarily prohibited the importation of live ruminants and products derived from ruminants (bovine, ovine and caprine animals) including ruminant derived genetic materials from the United Kingdom.	Limited by Resolution 117/2002.
SENASA Resolution 382/1995	This Resolution imposed restriction on import of live animal, genetic material, by-products and other products derived from ruminants that may pose a BSE risk. It described 4 categories of country BSE risk, being countries with BSE outbreaks, high BSE risk countries, low BSE risk countries and countries free of BSE. Import of live animals, genetic material, meat and meat products derived from ruminants were banned from countries with BSE outbreaks, and restricted from high BSE risk and low risk countries.	Abolished by Resolution 117/2002.
SENASA Resolution 294/1995	This Resolution modified two entries of Resolution 382/1995. One referred to the definition of a BSE free country and the other required all importers to provide to the Argentine authority, SENASA, a country BSE risk assessment in relation to the products to be imported. The assessment must be endorsed by the competent authority of the export nation.	Abolished by Resolution 117/2002
SENASA Resolution 203/1996	This resolution described the basis of Resolution 382/1995. Annex I of this resolution described four categories of country BSE risk and corresponding measures on import of goods of ruminant origin. Annex II classified body parts derived from ruminants into high risk, medium risk and low risk, referred as product risk. Annex III described a matrix for decision making in relation to an import request. The matrix combined the assessment outcome of the country's BSE risk status and product risk.	Abolished by Resolution 117/2002.
SENASA Resolution 42/2001	This resolution temporarily prohibited importation of food containing meat, giblets, viscera, by-products or derivatives of ruminant origin except hide derived gelatines, melted fat, milk and dairy products from all BSE positive countries known at the time including UK, Ireland, Germany, Belgium, Denmark, Spain, France, Netherlands, Liechtenstein, Luxemburg, Portugal, Switzerland, Austria, Finland, Italy, Poland, Czech Republic. The prohibition applied also to Russia, Lithuania and Oman.	Abolished by Resolution 117/2002.
SENASA Resolution 117/2002	This resolution described and adopted a methodology for assessing BSE risk of imported live animals, genetic material, food and feed and any other products derived from ruminants or containing ruminant protein. The Resolution described also animals susceptible to BSE (cattle, bison, sheep, gemsbok, nyala, kudu, Oryx, eland, cats and mustelids).	Based on Resolution 203/1996, and amended by Resolution 799/2010.
SENASA Resolution 799/2010	This Resolution revised the methodology of risk analysis for decision making with relation to importation of live animals, their reproductive material, products, by-products and derivatives of animal origin or commodities containing them. The Resolution described also animals susceptible to BSE (cattle, bison, sheep, gemsbok, nyala, kudu, Oryx, eland, cats and mustelids). In relation to the revision of Resolution 238/2001, this Resolution stated that live animals and products derived from animals for human, animal, pharmaceutical or fertiliser use, if come from a country or region that does not have a negligible BSE risk status, prior to their release into Argentina, will be subject to sampling and analysis to ensure it contains no protein of ruminant origin, unless the origin of animal protein is declared and/or the goods have been authorised by SENASA to enter Argentina.	This is the latest update of risk assessment methodology applied to country BSE risk assessment. It amended Resolution 117/2002.
	Resolutions aimed to prevent the BSE agent from entry into Argentina through imported goods	
SENASA Resolution 630/1994	This Resolution established import requirements for products, by-products and derivatives of animal origin to which the importers must comply with.	Replaced by Resolution 1508/2000 and 670/2000, and abolished

Code of legislation	Summary of the legislation	Notes
		by Resolution 816/2002
SENASA Resolution 1508/2000	This Resolution, evolved from Resolution 630/1994, established the health requirements to be included in international health certificate issued for the importation of products of animal origin. The Resolution included two templates of international health certificates. Article 1 of this resolution refers to those products intended to be imported into Argentina as 'samples'.	Article 1 of this Resolution was replaced by Article 6 of Resolution 117/2002
SENASA Resolution 238/2001	This was a BSE emergency Resolution that described the sampling of certain imported products destined for human or animal use or as fertilisers prior to customs clearance. The samples taken are analysed to identify the animal species from which the protein is derived. The purpose was to identify commodities containing proteins of ruminant origin and restrict them from being imported into Argentina from a country or region where its BSE risk status differs from that of Argentina. It established that surveillance samples will be taken from food imported for human consumption (except fishery products), feed imported for animals, fertilizer and pharmaceuticals imported from any country without a negligible BSE risk status.	Amended by Resolution 799/2010.
SENASA Resolution 816/2002	This resolution described the standards and requirements involved in auditing establishments of the export country where animal or plant or their products are exported to Argentina, and the associated authorisation SOPs. It plays a role in ensuring animal products; live animals and genetic material for animal production are not contaminated by the BSE agent.	
SENASA DCA Ruling 01/2004	This Ruling issued by SENASA's Directorate of Quarantine Standards described SENASA's criteria applied to the evaluation of culture media imported into Argentina for "in vitro" application. It specified that the imported culture medium must be for "in vitro" use only and is prohibited from being used in humans or animals either through ingestion or administration. In relation to ingredients in the culture medium originated from animals, the opinion specified that the import application must declare: country of origin where the animals were reared and slaughtered, the animal species, relevant matters associated with slaughtering process, and processing conditions used to obtain the ingredients. For animal species, the opinion specifically referred to animal species susceptible to transmissible spongiform encephalopathy and the resistance of prions to most of the conventional inactivation processes. It specified that the processing conditions applied to obtain ingredients from ruminant species should rely on the inactivation of prion as the criteria to achieve acceptable level of safety.	
MINAGRI Resolution 315/2006	Issued by the Minister of Agriculture, Fisheries and Food, this Resolution adopted the OIE recommendations on commodities that shouldn't be subject to BSE related restrictions.	It removed bovine ovaries and embryos from Annex III of Resolution 117/2002.
	Resolution established a national registry of imported reproducing animals for BSE purpose	
SENASA Resolution 471/1995	This Resolution created a National Registry of Imported Reproducing Animals (for BSE purpose) of any country of origin. It prohibited the submission to slaughter of reproducing animals imported from the European Union.	Amended by Resolution 625/2002.
SENASA Resolution 104/1998	This Resolution made it compulsory to label imported bovine animals (for breeding or fattening purpose) and specified the labelling requirements. It obliged owners to report the movement of imported animal to SENASA.	
SENASA Resolution 625/2002	This Resolution specified countries from which live animals can be imported for fattening and then for export to the European Community. It described that all live animals imported for breeding purpose must be individually labelled, and at the end of useful life, must be destroyed at the breeding or holding premises and cannot be presented for slaughter.	It amended Resolution 471/1995.
	Resolutions that described the categorisation of country BSE risk status and a methodology applied to the determination of whether a live animal or a product of animal origin can be imported into Argentina for BSE risk	
SENASA Resolution 382/1995	See the entry above.	See the entry above.
SENASA	See the entry above.	See the entry

Code of legislation	Summary of the legislation	Notes
Resolution <u>203/1996</u>		above.
SENASA Resolution <u>562/1996</u>	This resolution made an amendment to Resolution 203/1996 where the categorisation of country BSE risk status of “unknown” was changed to “no record of cases”, and the decision matrix box was amended.	Abolished by Resolution 117/2002
MINAGRI Resolution <u>30/1998</u>	This resolution amended Resolution 203/1996 and resolution 562/1996. It revised the list of high, medium and low risk materials derived from ruminants which replaced Annex II of Resolution 203/1996.	Limited by Resolution 117/2002
SENASA Resolution <u>117/2002</u>	This resolution described and adopted a methodology for assessing BSE risk of imported live animals, genetic material, food and feed and any other products derived from ruminants or containing ruminant protein. The methodology is detailed in four Annexes to the Resolution. Annex I described risk assessment methodology which segregated BSE risk factors as factors of origin (Risk I, II, III), factors of the merchandise (Risk I and II) and factors of the destination (Risk I, II and III). A matrix for decision making on an import request was described at the end of Annex I. Annex II described geographic risk categorization of BSE risk of the exporting country. Annex III described risk category of products to be imported into Argentina (Risk I and II). Annex IV described risk category of the end use of the products to be imported into Argentina (Risk I, II and III). The Resolution described also animals susceptible to BSE (cattle, bison, sheep, gemsbok, nyala, kudu, Oryx, eland, cats and mustelids). Annex I to IV of the current version of Resolution 117/2002 have been replaced by those under Resolution 799/2010.	Based on Resolution 203/1996, and amended by Resolution 799/2010.
SENASA Resolution <u>1052/2002</u>	This resolution amended Article 8 and 9 of Resolution 117/2002 (aimed at making the country BSE risk categorization process transparent), and redefined the 4 categories of country BSE risk status (Level I, II, III and IV). Level I - very remote probability of existence of subclinical cases of BSE; Level II - probability of existence of clinical or subclinical cases of BSE is remote but not to discard; Level III – cases of BSE have been sporadically recorded and the number is less than 10 per 1,000,000 of cattle or there is high probability of occurrence of that number of cases; and Level IV – cases of BSE have frequently recorded and the number is more than 10 per 1,000,000 of cattle or there is high probability of producing these many cases.	Abolished by Resolution 799/2010.
SENASA Resolution <u>799/2010</u>	This Resolution revised the methodology of risk analysis for decision making with relation to importation of live animals, their reproductive material, products, by-products and derivatives of animal origin or commodities containing them. The methodology is specifically described in four Annexes to the Resolution. Annex I describes risk assessment methodology which segregated BSE risk factors as: factors of origin (Risk I, II, III), factors of the merchandise (Risk I and II), and factors of the destination (Risk I, II and III). At the end of Annex I, a decision matrix combining the above three classes of risk factors was described. Annex II described geographic risk categorization of the exporting country (being negligible, controlled or undetermined status as defined by the OIE in the Terrestrial Animal Health Code). Annex III described risk category of merchandise (Risk I and II). Annex IV described risk category of destination, i.e. the end use of the imported products (Risk I, II and III). The Resolution described also animals susceptible to BSE (cattle, bison, sheep, gemsbok, nyala, kudu, Oryx, eland, cats and mustelids). In relation to the revision of Resolution 238/2001, this Resolution stated that live animals and products derived from animals for human, animal, pharmaceutical or fertiliser use, if come from a country or region that does not have a negligible BSE risk status, prior to their release into Argentina, will be subject to sampling and analysis to ensure it contains no protein of ruminant origin, unless the origin of animal protein is declared and/or the goods have been authorised by SENASA to enter Argentina.	This is the latest update of risk assessment methodology applied to country BSE risk assessment. It amended Resolution 117/2002.
	Resolutions that approved the Argentine TSE prevention and surveillance program	
SENASA Resolution <u>901/2002</u>	This Resolution described the national program of TSE prevention and surveillance. It approved the <i>National Program of Prevention and Surveillance of Transmissible Spongiform Encephalopathies</i> . It described the objectives, framework, and strategies under the program; defined ways to educate the general public about BSE; formalised the relevant BSE registries at SENASA; and designated the INTA Castelar as the national TSE reference laboratory under the program.	It abolished Resolution No. 1208/1999.

Code of legislation	Summary of the legislation	Notes
	Resolution that banned ruminant protein and processed animal protein from being fed to ruminants	
SENASA Resolution 252/1995	This was the first ruminant protein feed ban legislation of Argentina. It prohibited the use of MBM of bovine and/or ovine origin to be fed to ruminants in Argentina, effective from 17 September 1995.	Abolished by Resolution 611/1996
SENASA Resolution 611/1996	This Resolution prohibited protein of ruminant origin (including bone meals, meat meals, MBM, digest milled bone, organs mills and any other product containing them) to be fed to ruminants either as feed or feed supplement.	Repealed by Resolution 485/2002.
SENASA Resolution 485/2002	This Resolution prohibited the use of mammal proteins, either as a sole ingredient or a mixture with other ingredients, as ruminant feed or a supplement to ruminant feed. It mandated the labelling requirement for mammalian protein destined for production of non-ruminant animals. It specified SENASA conducted inspection and intensive sampling in case of violations to the prohibition.	Abolished by Resolution 1389/2004
SENASA Resolution 337/2003	This Resolution establishes mandatory registration of and surveillance in establishments processing animal waste of mammal and poultry origin under the <i>National Program of Prevention and Surveillance of the TSEs</i> . It made obligatory that processing conditions applied to treat animal waste must ensure the products produced are free of the BSE agent, and specified the labelling requirement which prohibits proteins derived from mammalian and poultry species from being fed to ruminant species.	
SENASA Resolution 341/2003	This Resolution mandated that individuals, entities and/or establishment manufacturing, fractioning, depositing, distributing, importing or exporting products destined for animal production, must register with SENASA, and their operations must be licensed by SENASA.	
SENASA Resolution 10/2004	To prevent the recycling of the BSE agent in Argentine cattle herds, this Resolution empowered SENASA to regulate businesses that manufacture feed for ruminants.	
MINAGRI Resolution 1389/2004	This Resolution prohibited the use of proteins of animal origin, except those containing dairy proteins, fish meals, egg meals and feather meals, as feed or supplement to feed for ruminants. It further prohibited the use of chicken litter and remains of breeding chicken to be used as or in animal feed.	
SENASA Resolution 449/2004	SENASA Resolution 449/2004 created the national coordination unit for BSE surveillance of animal feed production/holding establishments, under the Directorate for Plant Surveillance within SENASA.	
Ex-SAGPyA Resolution 356/2008	This Resolution prescribes that the movements (including transit movement) of goods of animal origin in Argentine Republic shall be controlled via DTA and/or DT-e documentation system and managed through Sigsa - the integrated information management system for animal health.	
	Decrees and resolutions prescribed procedures of inspection of establishments producing products of animal origin including by-products and derivatives	
The President's Decree 4238/1968 and its amendments	Decree 4238/1968 and its amendments established the guidelines for the inspection of establishments producing products (as human food or animal feed) of animal origin including by-products and derivatives for the purpose of ensuring the hygiene and safety of manufactured meat, meat products, and any product of animal origin. The Decree prescribes the sanitary requirements and construction requirements of establishments where food production animals are slaughtered. The Decree charges SENASA with the responsibility to authorise the operation of such establishments, and to approve the release of products produced.	
SENASA Resolution 458/1995	This SENASA Resolution obliged the establishments processing animal products to provide SENASA with appropriate statistical data on the production, transportation and trade of animal products.	It amended Decree 4238/1968.
	Resolutions that created individual cattle identification	
SENASA Resolution 15/2003	This Resolution created a system of individual cattle identification for cattle for slaughter destined to the European Union countries.	
Ex-SAGPyA Resolution 103/2006	This Resolution created the national identification system for cattle. All calves born from 2006 were required to be individually identified under the national system, effective from 1 September 2007.	
	Resolutions and Circulars that prescribed management, treatment and disposal of BSE risk material	

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SENASA Resolution <u>337/2003</u>	This Resolution prohibited the central nervous system (brains, cerebellum, and spinal cord) of ruminants to be present in any rendering process. It created a national registry of establishments processing animal waste of mammal and poultry origin, and authorised SENASA to conduct surveillance to prevent the BSE agent from entering the rendering process.	
SENASA Circular Letter <u>3528/2003</u>	The circular prescribed the national standards regarding the treatment of slaughter waste for the production of protein meals and tallow. It prescribed the management, treatment and disposal processes applicable to BSE risk materials.	
	Decrees and Resolutions that required immediate notification of a suspected BSE	
Decree 3959/1900	The Argentine Animal Health Law 3959/1900 declared that each owner or person responsible for the care or assistance of animals suffering from an infectious disease or suspected of having such a disease, must notify the local health authority immediately.	
SENASA Resolution <u>172/1997</u>	SENASA Resolution 172/1997 declared BSE as a notifiable disease, and described the process involved in sampling, sample handling and sample preservation.	Repealed by SENASA Resolution 10/2003
SENASA Resolution 10/2003	SENASA Resolution 10/2003 incorporated Bovine Spongiform Encephalopathy into the group of notifiable infectious diseases mentioned in Argentine Animal Health Law 3959/1900.	
SENASA Resolution <u>422/2003</u>	SENASA Resolution 422/2003 declared that Argentina will proceed with its international obligations to notify the OIE animal diseases including BSE if it occurs in Argentina.	
	Resolutions that described a nationwide BSE awareness education program	
SENASA Resolution <u>901/2002</u>	This Resolution described the national program of TSE prevention and surveillance. It approved the <i>National Program of Prevention and Surveillance of Transmissible Spongiform Encephalopathies</i> . Dissemination of BSE information to the general public was identified as one of the key objectives of the program.	It abolished Resolution No. 1208/1999.
	Resolutions that described the Argentine BSE surveillance program	
SENASA Resolution <u>234/1996</u>	This Resolution described a national epidemiological surveillance system for animal diseases and listed BSE as one of the diseases under surveillance.	
SENASA Resolution <u>901/2002</u>	This Resolution described the national program of TSE prevention and surveillance. It approved the <i>National Program of Prevention and Surveillance of Transmissible Spongiform Encephalopathies</i> . Epidemiological surveillance of BSE was identified as one of the key objectives under the program.	It abolished Resolution No. 1208/1999.
	Resolution that permits imported cattle for breeding purpose to be slaughtered	
SENASA Resolution 115/2013	Resolution 115/2013 established that breeding cattle imported into Argentina can be slaughtered provided the animal meets the following criteria being I) the cattle must be registered; II) the cattle must have been imported to Argentina 7 years or more than 1 year ago; III) At the time of slaughter, the BSE risk of the country of the origin of the cattle is negligible established by the OIE and recognized by SENASA; and the slaughter must be performed on plants authorised or approved by SENASA.	