Australian Government
Department of Agriculture, Fisheries and Forestry

Fresh (chilled or frozen) beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States

Addendum to the Fresh (chilled or frozen) beef and beef products from Japan, the Netherlands, New Zealand, the United States and Vanuatu – final review

Animal Biosecurity Branch | Biosecurity Animal Division

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Acknowledgement of Country

We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.

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Australia's review of biosecurity conditions for the importation of fresh (chilled or frozen) beef and beef products from Japan, the Netherlands, New Zealand, the United States and Vanuatu was published in August 2017. The Beef Review 2017 considered market access for fresh beef and beef products for human consumption from Japan, the Netherlands, New Zealand, the United States and Vanuatu, referred to as applicant countries.

Beef and beef products were defined in the Beef Review 2017 as meat, bone and offal from domesticated American bison (*Bison bison*), buffalo (*Bubalus bubalis*—water buffalo or domestic Asian water buffalo), or cattle (*Bos taurus* and *Bos indicus*), for import as fresh (chilled or frozen) beef and beef products for human consumption. Offal was considered the heart, oesophagus, organs of the abdominal cavity (other than reproductive organs), the muscular tissues of the head, tissues of the diaphragm, the tail, and tendons.

One of the recommendations of the Beef Review 2017 was that imported beef and beef products be sourced from bovines that have been continuously resident in the applicant country since birth.

The United States has since updated its original request for access to include beef sourced from bovines legally imported into the United States from Mexico and Canada. The Australian Government Department of Agriculture, Fisheries and Forestry (the department) advised that this reflected a change of scope from the Beef Review 2017 and required further science-based assessment.

This addendum to the Beef Review 2017 therefore considers the diseases relevant to fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported into the United States. It assesses whether the biosecurity risk for fresh beef and beef products exported to Australia, when derived from bovines born and raised in Mexico or Canada, and legally imported into the United States from Mexico or Canada, meets Australia's appropriate level of protection (ALOP).

The Australian Government's BSE food safety policy 2009 (bovine spongiform encephalopathy) requires that all countries exporting or seeking to export beef or beef products to Australia have a food safety risk assessment undertaken by Food Standards Australia New Zealand (FSANZ). The FSANZ risk assessment includes a desk assessment and an in-country verification assessment. It examines the effectiveness of BSE-related controls throughout the beef production chain in the applicant country including animal feeding practices, transportation, animal identification and traceability, slaughtering, and food safety and food recall systems. Both Canada and Mexico have been assessed by FSANZ as having a Category 1 status. Category 1 status means there are comprehensive and well-established controls to prevent both the introduction and amplification of the BSE agent in a country's cattle population, and contamination of the human food supply with the BSE agent.

The United States Department of Agriculture (USDA) has recently published updated import protocols for bovines from Canada (feeder and breeder bovines and bovines for immediate slaughter) and Mexico (feeder and breeder bovines only). The United States has imported an

average of 706,806 bovines from Canada each year between 2019 and 2023, mostly for immediate slaughter, with smaller numbers of feeders and breeders. For the same period (2019-2023) the United States has imported an average of 1,222,868 bovines from Mexico each year, mostly as feeder cattle, with smaller numbers of bovines imported as breeders. The USDA has advised that there are currently no imports of cattle from Mexico for immediate slaughter and that no establishments are approved to slaughter these cattle. The USDA will advise Australia if a protocol for the importation of immediate slaughter Mexican cattle is published, and this pathway opened. If this eventuates, the department will consider the biosecurity risks for immediate slaughter Mexican cattle.

This addendum's findings support expanding the scope of the Beef Review 2017 to permit entry of fresh beef and beef products from bovines legally imported from Canada and Mexico into the United States. The current USDA protocols for the import of bovines from Canada and Mexico apply rigorous control measures which will address Australia's biosecurity concerns for beef sourced from bovines born and raised Canada or Mexico and legally imported into the United States. It is therefore recommended that the requirements of the Beef Review 2017 be amended to allow the importation of fresh beef and beef products from the United States derived from:

- Immediate slaughter, feeder and breeder bovines born and raised in Canada and legally imported into the United States, subject to all other relevant requirements of the Beef Review 2017, including having passed ante- and post-mortem inspection under official veterinary supervision.
- Feeder and breeder bovines born and raised in Mexico and legally imported into the United States, subject to all other relevant requirements of the Beef Review 2017, including having passed ante- and post-mortem inspection under official veterinary supervision.

1. Introduction

A review of biosecurity import conditions for the importation of fresh (chilled or frozen) beef and beef products from Japan, the Netherlands, New Zealand, the United States and Vanuatu was published in August 2017, and will be referred to in this addendum as Beef Review 2017. These countries are referred to in this document to as applicant countries. The Beef Review 2017 determined imports of fresh beef and beef products could meet Australia's appropriate level of protection (ALOP) from biosecurity risk with appropriate controls. Australia's ALOP is defined in the Biosecurity Act 2015 as 'a high level of sanitary and phytosanitary protection aimed at reducing biosecurity risks to a very low level, but not to zero'.

Following publication of the Beef Review 2017, the Australian Government Department of Agriculture, Fisheries and Forestry (the department) conducted an in-country verification visit to the United States from 19 July to 6 August 2019. The Beef Review 2017 and the in-country verification required that the meat be sourced from bovines that have been continuously resident in the applicant country (in this case the United States) since birth.

The in-country verification visit included a visit to the United States-Canada border. The purpose of that site visit was to review the ability of the USDA to effectively ensure the identity of cattle entering into the United States in addition to their health status and treatments prior to entry. United States-Mexican cattle entry procedures were not verified nor seen by Australian officials during that visit, as it was not necessary to verify further official controls over imported cattle given the scope of the assessment.

The 2019 verification visit recommended that the export of fresh (chilled and frozen) beef and beef products from the United States to Australia be permitted subject to the finalisation of bilateral health certificate negotiations and full compliance with import conditions.

By January 2020, the United States had successfully completed Australia's assessment process for access to the Australian market for fresh beef and beef products to the point where Australia was seeking the United States agreement on a veterinary health certificate. Agreement on a bilateral veterinary certificate would enable the trade for fresh beef and beef products from cattle that had been continuously resident in the United States since birth.

As USDA subsequently clarified its original request for access was to include beef sourced from bovines born and raised in Mexico and Canada that were legally imported into the United States, the relevant import conditions and associated export health certificates were not finalised, and this addendum to the Beef Review 2017 was initiated.

In February 2025, the department published the Final report: Fresh (chilled or frozen) beef and beef products from Canada, as an addendum to the Fresh (chilled or frozen) beef and beef products from Japan, the Netherlands, New Zealand, the United States and Vanuatu. That report, referred to here as the Canada Beef Addendum 2025, considered the biosecurity risks associated with the importation of fresh beef and beef products directly from Canada.

1.1. Imports of bovines from Canada into the United States

Between 2019 and 2023, the United States imported an average of 706,806 bovines per year from Canada under the extant (now replaced) USDA Animal and Plant Health Inspection Service (USDA-APHIS) protocol for the import of live cattle or bison from Canada to the United States (USDA 2024a). Most of these animals were imported for immediate slaughter. For example, in 2023, 74% of bovines imported from Canada were for immediate slaughter, 24% were feeders, and 2% were breeders (Table 1) (USDA 2024b).

By way of comparison, for the (United States) fiscal years 2018-2022, an average of 33.4 million bovines (domestic and imported) were slaughtered each year (Statista n.d). As indicated above, the average number of bovines imported from Canada each year for fiscal years 2019-2023 was 706,806. This represents approximately 2.1% of the number of bovines slaughtered annually in the United States.

Table 1 Number of bovines imported from Canada into the United States

Category	2019[a]	2020[a]	2021[a]	2022[a]	2023[a]
Immediate slaughter	520,757	528,419	484,467	538,401	540,470
Feeder	191,800	134,029	152,499	205,529	179,260
Breeder	10,251	10,581	9,811	13,456	14,302
Total	**722,808**	**673,029**	**646,777**	**757,386**	**734,032**

a Fiscal year 1 October to 30 September
Source: USDA-APHIS

USDA-APHIS protocol for Canadian bovines: the importation of bovines from Canada into the United States is now facilitated through the USDA-APHIS strategy and policy protocol for the importation of cattle or bison from Canada to the United States (Canada protocol 2024) [USDA 2024c]. This protocol was updated in December 2024, replacing the extant protocol with the same name. The Canada protocol 2024 includes general requirements (part 1), identification (part 2), certification (part 3), tuberculosis (TB) testing (part 4), immediate slaughter (part 5), port of entry inspection (part 6), and additional guidelines (part 7).

Under the Canada protocol 2024, an import permit is not required at designated border stations (excluding Alaska and Hawaii) for animals that were born in Canada on or after March 1, 1999 (determined by USDA-APHIS to be the date of the effective enforcement of a ruminant-to-ruminant feed ban in the region of export), and that have been in no other region; or were born in the United States or were legally imported into Canada from a region recognised by the USDA as a region not restricted due to bovine spongiform encephalopathy (BSE) and under no movement restrictions within Canada or the United States for at least 60 days prior to importation.

All animals imported from Canada (including those for immediate slaughter) must be individually identified with an official RFID (radio frequency identification) ear tag of the country of origin, traceable to the animal's birth. The official ear tag must provide unique identification for the individual animal and either use the country code as a prefix or have a mark unique to official ear tags of the country of origin. The official ear tags must have one of the following numbering systems: National Uniform Ear-tagging System; the animal identification number, composed of the 3-digit

country code and a 12- digit number unique to the animal; or the premises-based number system. All bovines (not including those for immediate slaughter) must be branded with the “CAN” brand or tattoo before arrival at the port of entry.

Under the Canada protocol 2024, an official health certificate must be issued by a veterinarian designated by the Canadian Food Inspection Agency (CFIA) and must be endorsed by a veterinarian employed by the CFIA attesting to the certifications and tests required in this protocol. The health certificate will include that each animal has met USDA-APHIS requirements in respect of identification, provenance and health status. Attestations will include that all animals have been inspected and found to be free from any evidence of communicable disease, and, as far as can be determined, have not been exposed to any such disease during the preceding 60 days, and that Canada is free of foot-and-mouth disease (FMD), rinderpest, surra, and contagious bovine pleuropneumonia. The protocol includes a range of specific attestations for bovine TB, noting that requirements differ for animals for immediate slaughter. These requirements are discussed in Section 5 of this addendum.

The Canada protocol 2024 includes additional and specific instruction for bovines imported for immediate slaughter. Such animals must be inspected and moved directly from the port of entry to the USDA-APHIS approved slaughtering establishment in conveyances that are sealed with seals of the United States Government at the port of entry. The route of travel from the port of entry to the approved slaughtering establishment must be listed on the health certificate. The seals may be broken only at the USDA-APHIS approved slaughtering establishment by an authorised USDA representative. The animals must be accompanied from the port of entry to the USDA-APHIS approved slaughtering establishment by USDA APHIS Veterinary Services (USDA-APHIS-VS) Form 17-30, VS Form 17-33, and the official Canadian health certificate.

At the United States border, USDA-APHIS port personnel will verify the completeness and accuracy of export documentation and compliance with import requirements. The USDA-APHIS port Veterinary Medical Officer will visually examine the animals to verify health status and to confirm that forms of identification correlate with export documents. Note that pre-clearance of feeder and breeder bison is required, owing to limitations at the ports of entry.

1.2. Imports of bovines from Mexico into the United States

Between 2019-2023, the United States imported on average 1,222,868 head of bovines from Mexico each year. In 2023 there were 1,149,840 steers and spayed heifers imported as feeder cattle under the extant (now replaced) USDA-APHIS protocol for the import of steers and spayed heifers cattle and bison (feeders) from Mexico; and 1,850 breeder cattle were imported under the extant (now replaced) protocol for the import of sexually intact (breeder) bovines from Mexico into the United States (USDA 2022a, 2022b). USDA has advised that no Mexican cattle have been imported into the United States for immediate slaughter, and that currently there are no United States establishments approved for the immediate slaughter of cattle imported from Mexico.

As mentioned in Section 1.1, an average of 33.4 million cattle (domestic and imported) were slaughtered each year in the United States for years 2018-2022. As the average number of cattle imported from Mexico (for all purposes) each year for fiscal years 2019-2023 was 1,222,868, this represents approximately 3.7% of the number of cattle slaughtered annually in the United States.

Currently, steers and spayed heifers represent approximately 99% of the bovines imported into the United States from Mexico each year (Table 2) (Mackenzie & Lopez 2019).

The feeder and breeder bovines undergo rigorous quarantine procedures prior to and on entry into the United States. On release they become part of the United States' national herd without further restrictions, except those that may be applied by the commercial entities importing the animals.

Table 2 Number of bovines imported from Mexico into the United States

Category	2019[a]	2020[a]	2021[a]	2022[a]	2023[a]
Steers	1,026,361	1,114,452	897,886	719,940	872,960
Spayed heifers	314,423	345,815	319,081	166,941	276,880
Roping steers	12,947	10,427	11,150	10,785	11,835
Breeding	240	88	198	82	1,850
Direct slaughter	0	0	0	0	0
Total	**1,353,971**	**1,470,782**	**1,228,315**	**897,748**	**1,163,525**

a Fiscal year 1 October to 30 September
Source: USDA-APHIS

Prior to 2009, Mexico imported cattle from the United States, Canada, Australia, New Zealand and Central America (SENASICA 2019). In 2019, Mexico signed an MOU with Guatemala which could facilitate bilateral trade in cattle (Martínez et al. 2021). In recent years, imports of cattle have occurred from a number of countries including United States, Guatemala, Belize, Canada and Nicaragua for the purpose of breeding and slaughter. United States 9 CFR 93.436 underpins controls to ensure that bovines are not imported into the United States from undetermined BSE risk countries as defined by 9 CFR 92.1.

Mexico's closest central American countries (Guatemala, Belize, El Salvador and Honduras) are not classified by USDA-APHIS as having either negligible risk or controlled risk for BSE, have no WOAH official BSE status and therefore would be considered undetermined BSE risk countries by the USDA. Similarly, Food Standards Australia New Zealand (FSANZ) has not assessed these countries for BSE food safety risk.

1.2.1 USDA-APHIS feeder and breeder protocols for Mexican cattle

Most bovines imported into the United States from Mexico are desexed and imported as feeders under the (recently updated) USDA-APHIS protocol for the import of steers and spayed heifers cattle and bison (feeders) from Mexico to the United States (Mexico feeder protocol 2025) [USDA 2025a]. The relatively small number of breeder cattle imported from Mexico to the United States follow the (recently updated) USDA-APHIS protocol for the importation of sexually intact bovines from Mexico to the United States (Mexico breeder protocol 2025) [USDA 2025b]. Both protocols were updated in January 2025, replacing extant protocols with similar scopes and purposes. The structure of the two protocols (feeder and breeder bovines) is the same and includes general requirements (part 1), definitions (part 2), identification (part 3), certification (part 4), documentation (part 5) and border testing (part 6). USDA-APHIS have advised Australia that the United States is not currently engaged in imports of immediate slaughter cattle from Mexico and before trade could commence USDA-APHIS

would need to first update and re-post a protocol. USDA has agreed to notify Australia should a new protocol be established.

Under the two USDA-APHIS protocols, an import permit is not required at designated border stations for animals of either classification that were born and raised in Mexico or the United States and originate from an export-eligible region in Mexico. All animals must be individually identified with permanent or semi-permanent tamperproof official ear tags approved by the Ministry of Agriculture and Rural Development (SADER/AGRICULTURA) with tag numbers recorded in appropriate export documentation such that each animal can be traced back to the farm where it was born and/or raised if required. In addition, each animal must have a blue metal tag indicating the Mexican state of origin. Each desexed animal must also be bear a distinct, permanent, and legible “M” brand applied on the right hip with a freeze brand, hot iron, or other method approved by USDA-APHIS. Entire (breeding) animals are to be similarly branded, but on the upper right front shoulder. Under the two USDA-APHIS protocols, an official health certificate must be issued by an official veterinarian authorised by SADER/AGRICULTURA and will include attestation that each animal has met USDA-APHIS requirements in respect of identification, provenance and health status. Attestations will include that all animals have been kept in an export eligible region of Mexico during the 60 days immediately preceding the date of the shipment to the United States and that, during this time, Mexico has been entirely free of FMD, contagious pleuropneumonia, and surra. Attestation must also be given that all animals have been inspected by a veterinarian authorised by SADER/AGRICULTURA within the 30 days prior to export and found free of any evidence of communicable/notifiable diseases and that, as far as can be determined, they have not been exposed to any such disease during the preceding 60 days.

The two USDA-APHIS protocols include a range of specific attestations for bovine TB and for brucellosis, noting that requirements for these diseases differ between feeder and breeder cattle. These requirements are discussed in Section 5 of this addendum. The two protocols also include requirements for screw worm fly and cattle ticks, as well as attestation that imported animals are not Holsteins or Holstein crossbreeds, and that all animals were born on or after November 30, 2007, which is the date determined by USDA-APHIS to be the effective date of a ruminant-to-ruminant feed ban in Mexico.

At the United States border, USDA-APHIS port personnel will verify the completeness and accuracy of export documentation and compliance with import requirements. The USDA-APHIS port Veterinary Medical Officer will visually examine the cattle to verify health status and to confirm that forms of identification correlate with export documents. Animals missing the blue metal ear tag and/or the SINIIGA ear tag will be refused entry. Animals whose ID is not accurately reflected in the export documentation will be refused entry. USDA-APHIS will record the details of any animal that has been refused entry.

1.3. Food safety considerations

To assist with the Beef Review 2017, FSANZ considered the food safety risks associated with the import of fresh beef and beef products. For this purpose, FSANZ developed risk statements for the following foodborne hazards: Shiga toxin-producing E. coli (STEC), Salmonella spp. (including DT104) and Campylobacter spp. FSANZ provided advice to the department that imports of fresh beef and

beef products are considered to present a potentially medium to high public health risk for STEC and Salmonella spp. To manage this risk, exporting countries will need to demonstrate competent authority oversight of the beef exporting establishments, ensuring these facilities are operating through-chain Hazard Analysis Critical Control Point (HACCP) based food safety programs to control the risks associated with STEC and *Salmonella* spp. Consignments of beef being exported will need to be certified by the competent authority and at-border verification testing will be applied. Further information regarding testing and inspection at the Australian border can be found at Raw beef and beef products.

The USDA has been advised that currently there is no maximum residue limit for beta-agonists, except for ractopamine which gained FSANZ approval as a permitted residue in 2022. A maximum residue limit is the highest amount of an agricultural or veterinary chemical residue that is legally allowed in a food product sold in Australia whether it is produced domestically or imported.

1.4. BSE status for Canada and Mexico

The Australian Government's BSE food safety policy 2009 requires that all countries exporting or seeking to export beef or beef products to Australia have a food safety risk assessment undertaken by FSANZ.

The FSANZ risk assessment includes a desk assessment and an in-country verification assessment. It examines the effectiveness of BSE-related controls throughout the beef production chain in the applicant country including animal feeding practices, transportation, animal identification and traceability, slaughtering, and food safety and food recall systems.

Both Canada and Mexico have been assessed by FSANZ as having a Category 1 status. Category 1 status means there are comprehensive and well-established controls to prevent both the introduction and amplification of the BSE agent in a country's cattle population, and contamination of the human food supply with the BSE agent.

Countries categorised as either Category 1 or 2 are eligible (under Australia’s imported food control laws) to export beef and beef products to Australia subject to the relevant certification requirements, and subject to biosecurity requirements.

2. Purpose and scope

The purpose of this addendum is to assess whether the biosecurity risks for fresh beef and beef products exported to Australia from bovines born and raised in Mexico or Canada and legally imported into the United States is not greater than those for fresh beef and beef products derived from bovines born and raised in the United States.

This addendum evaluates USDA controls applicable to the legally imported animals, as these are integral to determining any additional animal biosecurity risk to Australia from this request to expand the scope.

3. Method

This addendum has been developed as a supplement to the Beef Review 2017 and should be read in conjunction with the Beef Review 2017. Unless otherwise stated, the definitions and methods used in this addendum are consistent with those of the Beef Review 2017.

3.1. Hazard identification

Hazards were identified in the Beef Review 2017 using the hazard identification process described in the WOAH Terrestrial Animal Health Code (the WOAH Code) (Article 2.1.2). Hazard identification is a classification step undertaken to identify the pathogenic or disease agents which could potentially produce adverse consequences associated with the importation of beef and beef products (WOAH 2023d).

In the hazard identification described in the Beef Review 2017, the department identified bovine diseases primarily affecting animal health and referred to the then Department of Health, and to FSANZ, any additional disease agents that may primarily affect human health. The Director of Human Biosecurity can implement biosecurity measures to manage the risks to human life or health associated with the importation of beef and beef products.

In accordance with the WOAH Code, a disease agent was considered a hazard potentially present in fresh beef and beef products if it was assessed to cause:

- A disease or infection of cattle (*Bos taurus* and *Bos indicus*) or buffalo (*Bubalus bubalis*) or domesticated American bison (*Bison bison*) and
- A WOAH-listed disease, an emerging disease, or a disease or infection capable of producing adverse animal biosecurity consequences in Australia.

3.1.1. Identification of additional hazards relevant for Canada or Mexico

The hazard identification for the Beef Review 2017 considered all WOAH-listed diseases and disease agents of bovines, as well as any emerging bovine diseases, or those with adverse consequences to Australia present in the applicant countries (Japan, the Netherlands, New Zealand, the United States and Vanuatu).

A disease in the hazard list was not considered further in the Beef Review 2017 if it was exotic to the applicant countries. In undertaking this additional review of fresh beef and beef products in relation to bovines born and raised in Canada and Mexico and legally imported into the United States, it was necessary to identify bovine disease agents:

- Present in Canada or Mexico that were not considered in the hazard identification of the Beef Review 2017
- Present in Canada or Mexico that are exotic to the United States
- Identified in the Beef Review 2017 that are present in Canada or Mexico
- Identified in the Beef Review 2017 that are not present in Canda or Mexico.

3.2. Risk assessment

Disease agents retained following the hazard identification stage were subjected to scientific review to determine whether the likelihood of entry from fresh beef or beef products derived from cattle born and raised in Canada or Mexico and legally imported and slaughtered in the United States, are equivalent to those from cattle born and raised in other applicant countries, including the United States.

Risk assessment is the evaluation of the likelihood and the biological and economic consequences of entry, establishment and spread of a hazard within the territory of an importing country. As described in Chapter 2.1 of the WOAH Code, it consists of an entry assessment, exposure assessment, consequence assessment and risk estimation for each hazard.

The unrestricted risk estimate is defined as the level of risk that would be present if there were no safeguards in excess of standard practices. The department adopted the following standards as the benchmark for assessment of the unrestricted risk estimate (relevant Australian standards):

- AS 4696:2023 Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (Standards Australia 2023).
- Bovine spongiform encephalopathy (BSE): requirements for the importation of beef and beef products for human consumption – effective 1 March 2010 (FSANZ 2010).
- Imported Food Control Act 1992 which requires imported food to comply with the Food Standards Code and not pose a risk to human health.

3.2.1. Risk assessment framework

For each disease agent identified as requiring risk assessment, the evaluation of risk associated with the importation of fresh beef and beef products includes:

- The likelihood of the disease agent entering Australia via imported beef and beef products (entry assessment)
- The likelihood of susceptible animals being exposed to and infected with the disease agent via imported beef and beef products (exposure assessment)
- The likelihood of significant outbreaks occurring due to exposure (part of the consequence assessment)
- The potential impacts of any significant outbreaks (part of the consequence assessment).

For the purposes of the Beef Review 2017 and this addendum, the likelihood of entry, establishment and spread and consequence (impact) for each disease agent are considered equivalent to the terms referenced in the Biosecurity Act 2015.

3.2.2. Entry assessment

Entry assessment describes the biological pathways necessary for importation to introduce disease agents into the importing country and estimating the probability of that process occurring. It considers biological factors of the pathogen and the species of origin; country factors including

prevalence of infection and animal health systems in the country of export; and commodity factors such as the quantity to be imported, testing, treatment and/or processing.

The minimum requirement for the entry assessment was equivalency with the relevant Australian standards (the Australian Meat Standard, the Australian BSE food safety requirements and the Imported Food Control Act 1992) for sourcing of domesticated bison, buffalo or cattle, the production of beef and beef products for human consumption and their storage and transportation (DAWR 2017; FSANZ 2023).

This addendum considered any potential increase in the likelihood of entry of each disease agent associated with imports of fresh beef and beef products from the United States derived from bovines born and raised in Canada or Mexico, legally imported and slaughtered in the United States, compared with the likelihood of entry associated with fresh beef and beef products derived from bovines born and raised in the United States.

Where this likelihood of entry was considered equivalent, or lower, a conclusion was made that the overall risk was consistent with the findings of the Beef Review 2017. This is because the likelihood of establishment and spread and the consequences of each disease agent would not be affected by the source of the animals.

3.2.3. Exposure assessment

A description of the approaches used for exposure assessment can be found in Section 3.2 of the Beef Review 2017.

3.2.4. Estimation of the likelihood of entry and exposure

The likelihood of entry and exposure was estimated by combining the likelihood of entry and the corresponding likelihood of exposure using the matrix shown in Figure 1.

3.2.5. Consequence assessment

The consequence assessment describes the relationship between exposures to the identified hazard and the consequences of those exposures. It assesses the likelihood of establishment and/or spread of the hazard and the potential impacts/effects of the disease (that is, the outbreak scenario).

A description of the approaches used for consequence assessment can be found in Section 3.4 of the Beef Review 2017.

Figure 1 Matrix for combining qualitative likelihoods

Likelihood of entry \ Likelihood of exposure	*Negligible*	*Extremely low*	*Very low*	*Low*	*Moderate*	*High*
High	Negligible	Extremely low	Very low	Low	Moderate	High
Moderate	Negligible	Extremely low	Very low	Low	Low	Moderate
Low	Negligible	Extremely low	Very low	Very low	Low	Low
Very low	Negligible	Extremely low	Extremely low	Very low	Very low	Very low
Extremely low	Negligible	Negligible	Extremely low	Extremely low	Extremely low	Extremely low
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

Likelihood of exposure

3.2.6. Risk estimation

The overall likelihood of entry and exposure was combined with the likely consequences using Figure 2 to produce the risk estimate.

Figure 2 Risk estimation matrix

Likelihood of entry and exposure \ Likely consequences of establishment and/or spread	*Negligible*	*Very low*	*Low*	*Moderate*	*High*	*Extreme*
High	Negligible risk	Very low risk	Low risk	Moderate risk	High risk	Extreme risk
Moderate	Negligible risk	Very low risk	Low risk	Moderate risk	High risk	Extreme risk
Low	Negligible risk	Negligible risk	Very low risk	Low risk	Moderate risk	High risk
Very low	Negligible risk	Negligible risk	Negligible risk	Very low risk	Low risk	Moderate risk
Extremely low	Negligible risk	Negligible risk	Negligible risk	Negligible risk	Very low risk	Low risk
Negligible	Negligible risk	Negligible risk	Negligible risk	Negligible risk	Negligible risk	Very low risk

Likely consequences of establishment and/or spread

4. Hazard identification

4.1. Disease agents present in Canada or Mexico but not considered in the Beef Review 2017

The hazard identification of the Beef Review 2017 considered all WOAH-listed diseases of bovines, as well as any emerging bovine diseases, or those with adverse consequences to Australia. Diseases currently known to affect bovines in Canada and Mexico were reviewed, including ProMED posts since 2010. No relevant bovine diseases were identified that were not considered in the Beef Review 2017. The possibility of parasites, transmissible via beef, present in Canada and Mexico was also explored. No intermediate stages of parasites (e.g. cysts in muscle) were identified as of biosecurity concern that were not previously considered in the Beef Review 2017 (ISID 2024; Martínez et al. 2021; Rodríguez-Vivas et al. 2017).

4.2. Disease agents present in Canada or Mexico that are exotic to the United States

The Beef Review 2017 concluded that *Brucella melitensis* is not present in the United States and Australia's animal biosecurity measures would include certification of country freedom from brucellosis caused by *B. melitensis*. Canada has never reported a case of *B. melitensis*; however, the WOAH World Animal Health Information System (WAHIS) lists *B. melitensis* as present in limited zones in domestic animals in Mexico.

Brucella melitensis was therefore retained for further assessment. Consistent with the WOAH Code and the Beef Review 2017, this has been considered together with the risks of other causes of brucellosis (*B. abortus and B. suis*) (Section 5.3).

No additional bovine disease agents were found that are present in Canada or Mexico that are exotic to the United States.

4.3. Disease agents identified in the Beef Review 2017 that are present in Canada or Mexico

Hazards in the Beef Review 2017 that are also present in Canada or Mexico include:

- Anthrax
- Aujeszky's disease (pseudorabies)
- Brucellosis (*B. abortus, B. suis*)
- Bovine tb (*Mycobacterium bovis* and *M. caprae*)
- Bovine viral diarrhoea
- Bovine cysticercosis (*Cysticercus bovis*)
- Echinococcosis

- Paratuberculosis (*Mycobacterium avium* subsp. *Paratuberculosis*)
- *Salmonella enterica* serotype *typhimurium* DT104
- Vesicular stomatitis.

These diseases were retained for further assessment.

4.4. Disease agents identified in the Beef Review 2017 that are not present in Canda or Mexico

Considering officially reported animal health status of Canada and Mexico, the following diseases were therefore not required to be assessed further in this addendum:

- Contagious bovine pleuropneumonia
- Crimean-Congo haemorrhagic fever
- FMD
- Haemorrhagic septicaemia
- Lumpy skin disease
- Surra
- Rift valley fever
- Theileriosis
- Trypanosomiasis
- Wesselsbron disease.

5. Risk assessment

5.1. Anthrax

Technical information on anthrax can be found in Section 4.1 of the Beef Review 2017.

The Beef Review 2017 found that anthrax occurs sporadically in the United States and is subject to surveillance and official control programs. The most recent available WAHIS report on the status of anthrax in Mexico (from July to December 2021) indicates that infection was absent in that country over this period. The last reported outbreak was in 2010 (WOAH 2024). A 2019 study was unable to detect any evidence of anthrax in western Mexico (Valle-Reyes et al. 2019). The most recently accessible WAHIS report for Canada (July to December 2023) lists anthrax as suspected in limited zones, with the last reported outbreak in 2014 (WOAH 2024). The incidence of anthrax in Canada and Mexico is comparable to that of the United States.

5.1.1. Conclusion

The likelihood of entry of *Bacillus anthracis* in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, the animal biosecurity risk of anthrax is therefore considered **negligible** and achieves Australia's ALOP.

Additional risk management for anthrax is therefore not required for the importation of fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.2. Aujeszky's disease (pseudorabies)

Technical information on Aujeszky's disease can be found in Section 4.2 of the Beef Review 2017.

This disease is caused by Suid herpesvirus 1 (SHV-1). It is primarily a disease of pigs but can infect cattle and other species. According to the Beef Review 2017, Aujeszky's disease occurs in the United States but is limited to feral and/or non-commercial production swine. WAHIS indicates that Aujeszky's disease has never been reported in Canada. WAHIS contains records of outbreaks of Aujeszky's disease in Mexico (in 2015) and more recently in 2019. A stamping out campaign appears to have eliminated the disease with no further cases reported since December 2019, although Mexico has not yet claimed freedom (WOAH 2024). Although Mexico has not claimed freedom from Aujeszky's disease, the Beef Review 2017 concluded that risk management in relation to Aujeszky's disease (SHV-1) is not applicable to imports of beef and beef products from the applicant countries, including countries where SHV-1 is present.

The WOAH Code does not recommend any risk management measures for SHV-1 for international trade in meat and meat products. The Beef Review 2017 concluded that the risk of SHV-1 associated with importation of beef and beef products from the applicant countries is considered negligible and achieves Australia's ALOP.

5.2.1. Conclusion

The likelihood of entry of SHV-1 in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025 (not assessed), the animal biosecurity risk of Aujeszky's disease is therefore considered **negligible** and achieves Australia's ALOP.

Additional risk management for Aujeszky's disease is therefore not required for the importation of fresh beef and beef products bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.3. Brucellosis (*B. abortus, B. melitensis* and *B. suis*)

Brucellosis, an infectious disease characterised by abortion, infertility, decreased milk production and/or lameness, is caused by bacteria of the *Brucella* genus. The genus consists of small, gram-negative, aerobic, intracellular-reproducing coccobacilli and comprises a group of closely related bacteria (Cem Gul & Erdem 2015). Its classification into species is based mainly on the difference in host preference and pathogenicity. Three of six species that infect terrestrial animals can infect cattle, bison and/or buffalo; these are *Brucella abortus*, *B. melitensis* and *B. suis*. *B. abortus* preferentially infects cattle, *B. melitensis* goats and sheep and *B. suis* pigs (Adams 2002).

Bovine brucellosis caused by *B. abortus*, caprine and ovine brucellosis caused by *B. melitensis* and porcine brucellosis caused by *B. suis* are OIE-listed diseases (WOAH 2023a). They generally occur worldwide, although control and eradication, especially of *B. abortus*, has been achieved in several countries. There is less progress with control and eradication of *B. melitensis* and *B. suis*, although several countries are free from disease and have no history of infection (WOAH 2024).

The three forms of brucellosis are nationally notifiable in Australia (DAFF 2019). Australia has been free of bovine brucellosis, caused by *B. abortus*, since 1989. This was a result of a national eradication campaign (BTEC – the Brucellosis and Tuberculosis Eradication Campaign), which began in 1970. Australia is also free from brucellosis caused by *B. melitensis* (never reported) but not from *B. suis*, which is endemic in feral pigs in Queensland and found in the feral pig population of northern NSW (NSW DPI 2023) and in South Australia (PIRSA 2024). Spillover of *B. suis* to domestic pigs (Seddon & Albiston 1965), cattle (Cook & Noble 1984) and horses (Cook & Kingston 1988) has occurred. Vaccination, often an effective and practical method of controlling *B. abortus* in cattle, is not permitted in Australia.

Brucellosis is a zoonotic disease of worldwide public health concern. It is a multisystem disease characterised by undulant fever, arthralgia and fatigue in over 75% of cases (Cem Gul & Erdem 2015). Dairy products, especially those from unpasteurised milk, are a common source of human cases (Mailles et al. 2012). Occupational exposure among livestock handlers (Godfroid et al. 2005; Seleem, Boyle & Sriranganathan 2010) and zoonotic transmission of *B. suis* through recreational and occupational exposure to infected feral pigs in Australia has been reported (Irwin et al. 2010). *Brucella* spp. are most commonly isolated from the udder, the supramammary lymph nodes and the genitalia although it can also be isolated from samples throughout the carcase, particularly the lymph

nodes (Sadler 1960). It is noted that reproductive organs and udders are excluded under the scope of the Beef Review 2017; and that there has been no report confirming brucellosis in animals because of exposure to meat and meat products.

Most cases of human brucellosis arise from drinking unpasteurised milk and milk products (Gwida et al. 2010) or from handling infected animals and animal parts such as placenta. However, brucellosis has been confirmed in people who had consumed improperly cooked meat and meat products, including liver (Chan, Baxter & Wenman 1989).

Technical information on brucellosis can be found in Section 4.3 of the Beef Review 2017.

5.3.1. Occurrence and control in the United States

Brucella abortus is present in the United States. Brucellosis is notifiable in the United States and there is an eradication and surveillance plan (USDA 2003). Abattoir surveillance has identified that bovine brucellosis affects less than 0.001% of all domestic program herds. *Brucella suis* is endemic in feral pigs in the United States with reported spill-over into some bovine herds occurring in Texas and the southeastern United States (Ewalt et al. 1997). *Brucella melitensis* has rarely occurred in the United States and was last reported to the WOAH in 1999 (WOAH 2024). *Brucella melitensis* is listed on the United States National List of Reportable Animal Diseases (NLRAD) (USDA 2023c). The United States reports that *B. melitensis* is absent from the United States (last reported to WAHIS in January-June 2022 reporting period).

Brucellosis due to *B. abortus* has become a 'geographic disease' in the United States, maintained in wildlife reservoirs within the Greater Yellowstone Area (GYA). The GYA includes parts of Idaho (ID), Montana (MT) and Wyoming (WY). Each of these states has an annual memorandum of understanding (MOU) with the USDA, which describes their brucellosis management plan. The MOUs help to ensure that infected or potentially exposed animals do not leave the Designated Surveillance Areas and enter the national herd. States that appropriately manage their brucellosis management plans (BMPs) maintain their free status. The USDA also requires that the states have their BMP reviewed every 3 years.

The USDA reports success with the collaborative program since it commenced in 1954. There have been no infected dairy herds in the United States since 1988 and no affected herds outside the GYA since 2011. All 50 states are considered to be free of B. abortus in accordance with the definition of freedom in the WOAH code (WOAH 2023b).

Data is available indicating the number of brucellosis affected herds detected annually from United States fiscal year 2000-2023. A total of 216 herds were detected from 2000 to the present ranging from 1 to 14 affected herds per year.

Over the past 10 (United States) fiscal years there have been between 0-7 newly affected herds each year, all within the GYA states (MT, WY and ID). The USDA reports that it is not seeing significant numbers of infected herds in the GYA itself due to management controls and testing requirements that each of the three GYA states have in place for their Designated Surveillance Areas.

Brucellosis surveillance is carried out at National Surveillance Plants. In 2019 the number of National Slaughter Surveillance Plants was reduced from 13 plants to 4, concentrating on plants with large

GYA state catchment. Of the 4 plants within the National Slaughter Surveillance Plan, 2 are outside of the 3 GYA states, but are the plants that have the catchment for the desired surveillance stream. Focusing efforts on these 4 plants results in a more targeted surveillance than previously, while collecting a more representative sample for the program. Despite the reduction in the number of slaughter plants sampling, the surveillance target is met (and exceeded) which allows detection of the disease at a 1:100,000 prevalence with 95% confidence interval each (United States) fiscal year (exceeding WOAH requirements).

USDA have collected 224,064 brucellosis slaughter surveillance samples in the first quarter of (United states) fiscal year 2024, therefore expecting to meet their National Surveillance Target of 350,000 per (United States) fiscal year. The current WOAH standards to qualify for brucellosis disease-free status require that a country's rate of brucellosis infection does not exceed 0.2% of their cattle herds – USDA surveillance can detect brucellosis at a 0.001% prevalence level. 799,388 samples were collected in (United States) fiscal year 2023.

The Beef Review 2017 concluded that the likelihood of entry of *B. abortus* and *B. suis* with the importation of beef and beef products derived from bovines born and raised in the United States that passed ante- and post-mortem inspection was considered negligible, and therefore met Australia's ALOP. The Beef Review 2017 concluded that *B. melitensis* is not present in the United States and Australia's animal biosecurity measures would include certification of country freedom from brucellosis caused by *B. melitensis*.

5.3.2. Occurrence and control in Canada

Brucellosis (caused by *B. abortus, B. melitensis* or *B. suis*) is a reportable disease under the Health of Animals Act 1990 in Canada and all cases must be reported to the CFIA. More information on reportable diseases in Canada can be found in Appendix A of the Canada Beef Addendum 2025.

Canada reports that *B. abortus* and *B. suis* are absent from domestic animals and that *B. melitensis* is not present in Canada. *Brucella abortus* is suspected but not confirmed in wildlife and *B. suis* infection is present in wildlife limited zones (WOAH 2023b). Sporadic cases of *B. suis* have been detected in wildlife including caribou and muskoxen in the far north of the country such as the Western Canadian Archipelago (Tomaselli et al. 2019). These areas are distant from cattle-production regions in Canada.

The balance of this assessment was therefore focussed on bovine brucellosis associated with *B. abortus* and *B. suis*.

Canada initiated an eradication program for bovine brucellosis in livestock in the 1940s, and self-declared freedom from the disease in 1985. Isolated cases of bovine brucellosis in livestock were subsequently identified, and the last case was reported a Saskatchewan cattle herd in 1989.

Vaccination of cattle for brucellosis is not permitted in Canada. To be considered officially free of brucellosis under the criteria established by WOAH, a country cannot practise vaccination for the disease (CFIA 2016). Further information surveillance for brucellosis in wildlife and domestic animals in Canada can be found in Section 4.5 of the Canada Beef Addendum 2025.

The USDA-APHIS Canada beef protocol 2024 (Section 1.1) requires that bovines imported into the Unted States for reasons other than immediate slaughter, must be from a brucellosis-free province or territory, or from a brucellosis-free herd. The Canada Beef Addendum 2025 concluded that the likelihood of entry of *B. abortus* or *B. suis* with the importation of beef and beef products from Canada was considered negligible and achieves Australia's ALOP.

5.3.3. Occurrence and control in Mexico

Mexico has a national campaign to manage brucellosis (SAGAR Norma Oficial Mexicana NOM-041-ZOO-1995, 1996) (SENASICA 1996). Mexico reports to the WAHIS that *B. suis* has been absent from domestic and wild animal populations since 2015. USDA has recently recognised that the state of Sonora has a Level I status for brucellosis. However, *B. abortus* is present in domestic animals in other zones as per the most recent report to the WAHIS (January-June 2023).

Recently (January-June 2023) available data from the WAHIS for Mexico lists *B. melitensis* as present in limited zones in domestic animals. Brucellosis control in Mexico is based on 1995 rules for the National Control of Brucellosis in Animals (SENASICA 1996). The SENASICA website reports the zoosanitary status of Mexico with respect to brucellosis, as of 2023, 77 municipalities (out of 2,475) are reported as free.

United States brucellosis requirements for bovines imported from Mexico: The United States classifies regions of Mexico according to the assessed prevalence of *B. abortus*. The legislative basis for evaluating and classifying brucellosis statuses of foreign regions (including Mexico) is in 9 CFR 93.440. Regions must initially meet the USDA's program criteria to be classified and then the prevalence of brucellosis determines the final classification (Table 3).

Regionalization Evaluation Services (RES) evaluations to classify foreign regions for bovine TB (M. bovis) and brucellosis (Brucella abortus) in bovine animals follow the procedures and criteria outlined in 9 CFR, parts 93.438 and 93.441, respectively. Regions which USDA-APHIS has not evaluated for brucellosis are classified at the highest risk level for that disease (Level III). Regions seeking to export sexually intact cattle to the United States may wish to request an USDA-APHIS evaluation for brucellosis classification as Level I or II, which are associated with reduced import testing for that disease.

Regions seeking USDA-APHIS evaluation and classification brucellosis must define the region under consideration, specify the prevalence of the disease among bovine herds in the region, and demonstrate the following:

1) Effective veterinary control and oversight within the region
2) Brucellosis is a notifiable disease within the region
3) The region has a program for brucellosis that includes, at a minimum:
   - Epidemiological investigations following the discovery of any animal or affected herd that has non-negative test results
   - Management of affected herds in a manner designed to eradicate the disease from those herds and documentation regarding this management

- Regulatory controls on the movement of livestock into, within, and from the region that correspond to the risk of dissemination of the disease associated with such movement
- Access to, oversight of, and quality control of diagnostic testing for the disease
- Surveillance that is equivalent to or exceeds federal standards for brucellosis surveillance within the united states; and
- If the region vaccinates for brucellosis, it is in a manner that has been approved by APHIS.

The RES processes for conducting brucellosis evaluations are further described in the USDA-APHIS Brucellosis Evaluation Procedures.

Table 3 USDA-APHIS Brucellosis classifications for foreign regions

State or zone classification	Prevalence in bovine herds
Level I	<0.001% over at least the previous 2 years
Level II	≥0.001% and <0.01% over at least the previous 2 years
Level III	≥0.01% or not evaluated

Source: USDA-APHIS

The state of Sonora is the only region in Mexico recognised by the United States as Level I for brucellosis. All the other Mexican states are Level III. The United States also recognises the brucellosis status of individual herds. USDA-APHIS teams evaluating the Mexican control program examine data on laboratory sample submissions and results, quarantine herd lists, and case files to determine whether brucellosis program personnel follow the classification criteria.

The testing requirements for bovines imported from Mexico into the United States vary according to the status of the region, the herd of origin, and the classification of bovines (Table 4).

Table 4 Bovine brucellosis requirements by USDA-APHIS brucellosis classifications for foreign regions

USDA region brucellosis classification	Steers / spayed heifers (feeders)	Sexually intact cattle (breeders)
Level I	no brucellosis testing required	no brucellosis testing required
Level II Accredited herd	no brucellosis testing required	no test but must have accredited herd certificate
Level II Non-accredited herd	no brucellosis testing required	whole herd test 30-90 days prior to export and individual test at port of entry
Level III Accredited herd	no brucellosis testing required	must have accredited herd certificate and individual test at port of entry
Level III Non-accredited herd	no brucellosis testing required	2 whole herd tests 9-15 months apart with second whole herd test conducted 30-90 days prior to export and individual test at the port of entry

Source: USDA-APHIS

USDA-APHIS has separate protocols for the importation of feeder and breeder bovines, with language specifically addressing the risk of introducing brucellosis. There is not currently a protocol for the importation of Mexican bovines for immediate slaughter.

Under the Mexico feeder protocol 2025, brucellosis testing is not required for steers, spayed heifers, or any cattle or bison less than 6 months of age as per regulation 9 CFR 93.442(c). There are no other requirements for brucellosis in the Mexico feeder protocol 2025. Under the Mexico breeder protocol, however, and as set out in the accompanying Model Health Certificate, the animals for export must originate from a herd in which all cattle (except calves under 6 months of age and steers or spayed heifers) were tested for brucellosis or originate from an accredited herd for brucellosis in accordance with the pertinent Level status requirements outlined in 9 CFR 93.442. Sexually intact cattle from regions classified by USDA-APHIS as having Level I status for brucellosis are exempt from pre-export brucellosis testing. For any sexually intact bovines that are from an accredited herd for brucellosis, the herd was certified as an accredited herd for at least one year prior to the date of exportation to the United States.

5.3.4. Conclusion

The likelihood of entry of *B. abortus, B. melitensis* or *B. suis* in beef and beef products bovines born and raised in Canada and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the Canada Beef Addendum 2025, the animal biosecurity risk of brucellosis (*B. abortus or B. suis*) is considered **negligible** and achieves Australia's ALOP.

The likelihood of entry of *B. abortus, B. melitensis* or *B. suis* in beef and beef products derived from bovines born and raised in Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). This has considered the information above, including the official control program in Mexico and the United States' import controls. Therefore, the animal biosecurity risk of brucellosis (*B. abortus, B. melitensis* or *B. suis*) is considered negligible and achieves Australia's ALOP.

Additional risk management for brucellosis (*B. abortus, B. melitensis* or *B. suis*) is therefore not required for the importation of fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.4. Bovine tuberculosis (*Mycobacterium bovis*)

Bovine TB is primarily caused by *Mycobacterium bovis*. As detailed in the Beef Review 2017, *M. caprae* has also been identified as a cause of bovine TB. *Mycobacterium caprae* is isolated to continental Europe and has not been reported in Mexico or Canada. It has therefore been excluded from this analysis as a hazard.

The outcome of the Beef Review 2017 was that the likelihood of entry of bovine TB with imports of beef and beef products from the United States is considered 'not significant', in part due to "the existing low prevalence and surveillance or eradication controls in applicant countries reduce the likelihood of infected animals and animal product being presented for human consumption". However, the Beef Review 2017 proposed that health certification would require that ante- and post-mortem inspection under veterinary supervision be undertaken because bovine TB is exotic to Australia.

Once in the United States, cattle imports for slaughter are subject to ante- and post-mortem inspection by USDA qualified meat inspectors at abattoirs under the control of the veterinary authority. This enables detection of bovine TB lesions during ante- and post-mortem inspection and appropriate disposition of affected carcases.

Direct contact with infected animals is the main route of infection, while animal to human transmission of *M. bovis* via unpasteurised milk is of public health importance. The most common sites for lesions are lymph nodes associated with lungs and in the thoracic cavity; however, lesions can be found in most organs and lymph nodes of the body. Less frequently, granulomas can be found in the liver, hepatic lymph nodes and mesenteric lymph nodes.

For bovine TB, typical post-mortem inspection procedures require palpation and/or incision of lymph nodes and organs commonly affected with tuberculous lesions with the complete or partial condemnation of affected carcases.

Oral transmission of bovine TB is possible via the consumption of mycobacteria in contaminated feed, tissues or milk, and the Beef Review 2017 noted there is epidemiological and experimental evidence of oral transmission of *M. bovis* in adult cattle. Transmission of bovine TB via carcase and carcase parts is due to the presence of tuberculous lesions; however, infectious tubercles rarely occur in meat tissue itself.

Further technical information on bovine TB can be found in Section 4.4 of the Beef Review 2017.

5.4.1. Occurrence and control in the United States

Mycobacterium bovis is present in the United States and is a notifiable disease. Based on USDA data, the Beef Review 2017 reported that the national herd prevalence of bovine TB is currently less than 0.001%. States recognised as Accredited Free states have not recorded a case of bovine TB in the previous 5 years or have appropriate plans in place to prevent further spread from any identified cases. All abattoirs approved for export, including any that may in the future apply for approval to export meat derived from cattle imported from Mexico for direct slaughter, participate in a federal slaughter establishment TB surveillance program that is maintained collaboratively by USDA-APHIS and USDA Food Safety Inspection Service (USDA-FSIS). In United States fiscal year 2023, approximately 121 federally inspected slaughter establishments submitted 5,601 granulomas for TB testing. Through these efforts, four bovine TB positive animals were detected. Tracebacks were conducted and test-and-remove protocols were implemented. Further information including definitions of USDA bovine TB programs, classifications and surveillance is available on via the USDA website (USDA 2023b) and in 9 CFR-77.

The USDA-APHIS cattle health surveillance system uses whole genome sequencing (WGS) of *M. bovis* bacterial DNA to assess relatedness among TB bacterial strains. WGS has shown that there is not a reservoir of *M. bovis* that continuously reinfects cattle herds nationwide each year. Previously seen isolates of *M. bovis* are almost never found again in the United States. Bovine TB strains found in Mexican origin feeder bovines at slaughter have not been found in United States cattle (USDA-APHIS pers comm February 2024).

5.4.2. United States classification system for foreign regions

USDA has a categorisation system (Table 5) for the TB status of foreign regions (Level I to Level V regions) that is described in 9 CFR § 93.437. This system considers the prevalence of bovine TB in domestic bovine herds.

Table 5 USDA bovine TB classifications for foreign regions

State or zone classification	Prevalence in bovine herds
Level I	<0.001% over at least the previous 2 years
Level II	≥0.001% and <0.01% over at least the previous 2 years
Level III	≥0.01% and <0.1% over the previous year
Level IV	≥0.1% and <0.5% over the previous year
Level V	≥0.5% or not evaluated

Source: USDA-APHIS

5.4.3. TB controls for the import of bovines from Canada to the United States

Canada reports bovine TB as present in limited zones in domestic animals and suspected in limited zones for wild animals. Bovine TB is a reportable disease in Canada and has been subject to a mandatory national eradication program since 1923. Based on the WOAH Chapter 8.11 on bovine TB, where the prevalence of bovine TB has fallen to exceedingly low levels, the CFIA uses an abattoir surveillance system as a key control point to identify bovine TB in slaughtered animals. As of August 2023, livestock herds last confirmed with bovine TB were 4 cases in a single herd in British Columbia in November 2018; 6 cases in a single herd in Alberta and Saskatchewan in September 2016; and a single case in Saskatchewan in September 2022 (CFIA 2023a; WOAH 2024).

Under the USDA-APHIS Canada protocol 2024, bovines not imported for direct slaughter must have continuously resided in a TB accredited free, or modified accredited advanced, province or United States state. No further testing is required for these bovines. In addition, testing is not required for bovines from the province of Manitoba. USDA-APHIS has classified Canada as a Level I country for bovine TB (USDA 2021) which means that immediate slaughter bovines would have the equivalent favourable bovine TB status as feeders and breeders.

5.4.4. TB controls for the import of bovines from Mexico to the United States

Mexico and the United States have bilateral engagement on the eradication of bovine TB and brucellosis. A Binational Committee was established under the United States Animal Health Association to promote collaboration, coordination, and resolution of cattle health and trade issues at all levels, particularly related to bovine TB, brucellosis and cattle tick (USDA 2021).

Mexico's Bovine Tuberculosis National Program classifies geographic territories into either eradication zones (with a regional bovine TB prevalence of <0.5%) or control zones (with a regional bovine TB prevalence of >0.5%). Currently 86% of the country is recognised as an eradication zone, and eradication zones produce beef cattle predominantly. The control zones, where the prevalence is higher, contain primarily dairy cattle (Ortiz et al. 2021).

Separate to USDA-APHIS requirements (below), Mexico requires all bovines test negative for bovine TB between 30 to 180 days prior to export. Once in the United States, such imports are subject to ante- and post-mortem inspection by USDA qualified meat inspectors at abattoirs under the control of the veterinary authority, enabling detection of bovine TB lesions during ante- and post-mortem inspection and appropriate disposition of affected carcases. If required, proof of TB accredited-free herd status must be provided to the port veterinarian.

All United States abattoirs approved for export participate in a federal slaughter establishment TB surveillance program that is maintained collaboratively by USDA-APHIS and USDA-FSIS. In the United States fiscal year 2023, approximately 121 federally inspected slaughter establishments submitted 5,601 granulomas for TB testing. Through these efforts, 4 bovine TB positive animals were detected. Tracebacks were conducted and test-and-remove protocols were implemented. Further information including definitions of USDA bovine TB programs, classifications and surveillance is available on via the USDA website (USDA 2023b) and in 9 CFR-77.

TB testing requirements for bovines imported into the United States from Mexico are consistent with the generic requirements set out in federal legislation 9 CFR 93.439 (Importation of ruminants from certain regions of the world; tuberculosis). These requirements are based on the TB classification system (Levels I to V) described here in Section 5.4.2. USADA-APHIS publishes a synopsis of Mexican regions classified by APHIS for bovine tuberculosis, and this can be used in conjunction with federal legislation 9 CFR 93.439 to determine the testing requirements for a particular consignment. The federal legislation itself permits the importation of ruminants that comply with the testing requirements for each Level of TB status, with the qualifier that the animals are imported for 'purposes other than immediate slaughter'. There are no legislated testing-based requirements for immediate-slaughter cattle. Given that there is also no current USDA-APHIS protocol for immediate slaughter Mexican cattle, this pathway was not assessed (Section 5.4).

Protocol for the import of steers and spayed heifers cattle and bison (feeders) from Mexico to the United States - January 2025

This protocol references 9 CFR 93.439, with some additional requirements in respect of Level V regions. Specifically, these include that animals from a herd of origin located in a Level V region or that have otherwise resided in a Level V region, including animals from certified-free herds, are not eligible for export to the United States for any purpose other than immediate slaughter. In addition to this, any shipments that pass through a Level V TB region to reach the port of embarkation must be sealed with official SADER/AGRICULTURA seals and remain sealed throughout the entire time the shipment is moving through the Level V region. Other instruction within this protocol, in respect of TB, is focussed on definitions and specifications for accreditation of herds, whole heard testing, herd of origin, and certification requirements in respect of compliance with 9 CFR 93.439.

Protocol for the Import of Sexually Intact (Breeder) Bovines from Mexico into the United States – January 2025

This protocol also references 9 CFR 93.439, with additional citation of USDA-APHIS-VS Bulletin 2023.1 (Bovine Tuberculosis Testing Requirements for Cattle Imported to the United States from Mexico). This bulletin sets out the TB requirements for cattle imported from various regions within Mexico that USDA-APHIS has not classified with respect to TB status. The Mexico breeder protocol 2025

includes some additional notes in respect of TB test requirements, including that: (a) for bovines that are from an accredited herd for TB, the herd was certified as an accredited herd for at least one year prior to the date of exportation to the United States; (b) for bovines that require one or more whole-herd test (WHT) for TB, the most recent WHT was conducted no less than 60 days and no more than 1 year (12 months) prior to the date of export, with negative results; (c) the animals for export have never tested non-negative for TB, and any test cohort animals (i.e., animals tested as part of the same herd or lot) that were non-negative have received negative confirmatory testing; and (d) that all TB testing for export purposes was performed by a veterinarian authorized and listed by SADER/AGRICULTURA to conduct export testing, published on the SENASICA website and updated quarterly. The Mexico breeder protocol 2025 also provides some qualification of specifications for USDA-APHIS testing at the port of entry, noting that this requirement applies to all Mexican breeder cattle.

5.4.5. Conclusion

Consistent with the Beef Review 2017 and the Canada Beef Addendum 2025, the likelihood of entry of bovine TB (*M. bovis*) for fresh beef and beef products exported from the United States and obtained from bovines imported legally from Canada or Mexico was considered **negligible** and achieves Australia's ALOP. However, as in the Beef Review 2017, proposed health certification will include a requirement that ante and post-mortem inspection under veterinary supervision is undertaken.

This conclusion has been made on the basis that:

- There is a very low prevalence of bovine TB in Canada.
- The bovine TB surveillance controls in Mexico, the testing of all bovines by Mexican authorities prior to export (not verified by USDA-APHIS at the border), and the additional controls applied by USDA-APHIS, including restricting access to lower prevalence states or zones, reduces the likelihood of infected feeder and breeder animals entering the United States and being presented for slaughter.
- *Mycobacterium bovis* has rarely been detected in muscle tissue, even in generalised infection.
- The most common sites of TB lesions (i.e. lungs and associated lymph nodes) are not eligible for export to Australia.
- Beef and beef products from cattle slaughtered in the United States, including that derived from Mexican and Canadian cattle, is produced under processes equivalent to the Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption including ante- and post-mortem inspection; and ensures that meat is wholesome, does not contain macroscopic granulomas and is fit for human consumption.
- Veterinary supervision of qualified meat inspectors at abattoirs under the control of the veterinary authority enables detection of bovine TB lesions at ante- and post-mortem for all beef and beef products and appropriate disposition of affected carcases.

5.5. Bovine viral diarrhoea

BVD is a WOAH-listed disease and is endemic world-wide. BVD virus (BVDV) is classified into two antigenically and phylogenetically distinct genotypes, BVDV-1 and BVDV-2 (Ridpath, Bolin & Dubovi 1994), which are now considered separate species (Walker et al. 2022). BVDV-2 sub-genotypes have not been reported in Australia (Kirkland & MacKintosh 2006) and infection with BVDV-2 is a nationally notifiable animal disease (DAFF 2019). BVDV-1 (a and b sub-genotypes) and BVDV-2 (sub-genotype a) are predominantly detected in bovines from the United States and Canada. There is evidence that four sub-genotypes (BVDV-1a, 1b, 1c, and 2a) are circulating in animal populations in Mexico (Gomez-Romero et al. 2021).

The Beef Review 2017 noted that there is no scientific evidence showing experimental or natural oral transmission of BVDV to bovines via consumption of carcase and carcase parts. Technical information on bovine viral diarrhoea (BVD) can be found in Section 4.5.2 of the Beef Review 2017.

5.5.1. Conclusion

The likelihood of entry of BVDV in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, risk of bovine viral diarrhoea is therefore considered **negligible** and achieves Australia's ALOP.

Additional risk management for bovine viral diarrhoea is therefore not required for the importation of fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.6. Bovine cysticercosis (*Cysticercus bovis*)

Technical information on bovine cysticercosis (*Cysticercus bovis*) can be found in Section 4.6 of the Beef Review 2017.

Bovine cysticercosis is infection with the metacestode of *Taenia saginata*, commonly known as beef tapeworm. Bovines are the intermediate hosts in the transmission of this parasite. Bovine cysticercosis is detected occasionally in Australia, where it is a nationally notifiable animal disease.

According to the Beef Review 2017, a 1997 study found that the prevalence of bovine cysticercosis in the United States is very low, ranging from 0.0003 in central United States to 0.0697 in western United States. The Beef Review 2017 also reported that prevalence was around 2% in the 1980s, decreasing to 0.3% in cattle in 2011 with suspected *C. bovis* lesions found in 0.002% of slaughtered veal calves.

Bovine cysticercosis is found sporadically in Canada. The CFIA investigates all positive cases and premises determined to be the source of infection are immediately placed under CFIA control. The CFIA oversights cleaning and disinfection, removal of contaminated feed and the movement of the bovines to a federally inspected abattoir for slaughter and disposal or treatment of infected carcases (CFIA 2015).

A prevalence of 0.21% of bovine cysticercosis was established using routine post-mortem inspection of 52,322 feedlot cattle slaughtered in Baja California, México but sourced from 18 states (Cueto González et al. 2015). This is higher than the prevalence in the United States.

Outbreaks of bovine cysticercosis in Canada are only sporadic and the prevalence is likely to be very low, like the situation in Australia. The prevalence of bovine cysticercosis in Mexico is similar to the Netherlands which was assessed in the Beef Review 2017 as negligible risk.

The outcome of the Beef Review 2017 was that there is no direct animal biosecurity risk associated with the importation of bovine cysticercosis contaminated beef and beef parts and therefore an animal biosecurity risk assessment was not required. The Beef Review 2017 found that risk management measures may be warranted to meet human health and food safety requirements if food safety risk assessment determines that applicant countries' disease prevalence and meat inspection programs do not meet Australian food standards. The department also referred the hazards for bovine cysticercosis to the (then) Australian Government Department of Health and FSANZ which advised there are no additional human biosecurity or food safety risks associated with the disease.

5.6.1. Conclusion

The likelihood of entry of bovine cysticercosis in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, the animal biosecurity risk of bovine cysticercosis is therefore considered **negligible** and achieves Australia's ALOP.

Additional risk management for bovine cysticercosis is therefore not required for the importation of fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.7. Echinococcosis

Technical information on echinococcosis can be found in Section 4.7 of the Beef Review 2017.

Echinococcosis is a zoonotic disease caused by several species of the genus *Echinococcus*, cestode parasites in the family Taeniidae. Disease in bovines is caused predominantly by three species: *E. granulosus sensu stricto, E. ortleppi* and *E. multilocularis*.

Echinococcus granulosus sensu stricto has an almost worldwide distribution including Australia. *Echinococcus multilocularis* rarely infects cattle, sheep and pigs and when exposure occurs the cysts may not be viable (WOAH 2023c). *Echinococcus multilocularis* is not present in Australia or Mexico but is present in Canada (WOAH 2024). There are several reports of *E. multilocularis* in Canadian wild animals e.g. wolves, foxes, cats, but no reports found of infection in bovines. It may have been introduced into Canada with domestic dogs or red foxes, followed by establishment in wildlife (Thompson 2020). *Echinococcus ortleppi* is not known to be present in the United States or Canadian cattle. In Mexico, *E. granulosus sensu stricto* has been reported in a rural pig and a human patient's surgically removed cyst was confirmed as *E. ortleppi* infection. However, there is no evidence that

infections are being maintained in Mexico, because only isolated cases have been documented (Flisser et al. 2015).

Post-mortem inspection of the carcase is an effective way of detecting echinococcosis. The WOAH Terrestrial Animal Health Code does not recommend any risk management measures for *Echinococcus* spp. for international trade in meat. However, the WOAH Terrestrial Animal Health Code recommends post-mortem inspection in abattoirs, and either disposal or inactivation of metacestodes in offal as part of any risk management measures for Echinococcosis in meat products (WOAH 2023c).

The Beef Review 2017 noted that inspection of the carcase is an effective way of detecting echinococcosis and reduces risks of it being in imported fresh beef and beef products. It concluded that the importation of beef and beef products the United States is unlikely to introduce *Echinococcus* spp. into Australia, and that the risk from *Echinococcus* spp. associated with importation of beef and beef products from the United States is negligible achieves Australia's ALOP with respect to animal biosecurity risks.

5.7.1 Conclusion

The likelihood of entry of *Echinococcosis* spp. in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, the animal biosecurity risk of *Echinococcosis* spp. is therefore considered **negligible** and achieves Australia's ALOP.

Additional risk management for *Echinococcosis* spp. is therefore not required for the importation of fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.8. Paratuberculosis (*Mycobacterium avium* subsp. *paratuberculosis*)

Technical information on *Mycobacterium avium* subsp. *paratuberculosis* (*M. paratuberculosis*) can be found in Section 4.8 of the Beef Review 2017.

M. paratuberculosis is a bacterium which causes paratuberculosis, or Johne's disease (JD), a chronic enteritis and wasting disease of ruminants with a worldwide distribution (Buergelt, S & A 2004). Most animals become infected by ingestion of contaminated colostrum, milk or faecal material from infected dams or from grazing contaminated pastures, soil, water or feed (RW 1996). Studies have shown that beef can be contaminated with *M. paratuberculosis* via the dissemination of the organism in infected tissues and that tissue distribution may be poorly correlated with clinical signs. The surface of carcases can also be contaminated by M. paratuberculosis in faeces present on the hides of animals at slaughter (Eltholth et al. 2009).

Johne's disease is present in Australia and national control and management programs are in place. JD is endemic in the dairy industry in southeastern Australia. Johne's disease has rarely been

detected in northern and western beef cattle. JD is also uncommon in beef herds in southeastern (AHA 2021).

As detailed in the Beef Review 2017, *M. paratuberculosis* occurs in ruminants in the United States with reports of 68.1% of dairy operations infected; a prevalence of *M. paratuberculosis* infection in beef cattle varying between 3-5% and over 40% of herds studied infected. At slaughtering plants in Canada and the United States, *M. paratuberculosis* was detected on 54 to 80% of cull dairy and beef cow hides and 1 to 6% of feedlot cattle.

The WOAH Terrestrial Animal Health Code does not recommend any risk management measures for paratuberculosis for international trade in meat and meat products. Australia does not impose any domestic management measures for paratuberculosis on the domestic trade in meat and meat products.

There is evidence that *M. paratuberculosis* can be transmitted via the beef carcase or carcase parts after ante- and post-mortem inspection.

The prevalence of *M. paratuberculosis* in bovines in Canada and Mexico is not significantly greater than that in the United States. WAHIS lists *M. paratuberculosis* as present in Canada and Mexico (WOAH 2024). Based on a survey of cattle at slaughter, a prevalence of paratuberculosis was estimated in culled dairy cattle in Eastern Canada and Maine of 16.1% (McKenna et al. 2004). In a study of dairy cattle in New Brunswick, Nova Scotia, and Prince Edward Island, 2.6% (1.8% to 3.9%) of cows were positive for *M. paratuberculosis* and 16.7% of herds had at least 2 positive cows (VanLeeuwen et al. 2001). A more recent study reported estimates of 66% for farms in Western Canada, 54% in Ontario, 24% in Québec, and 47% in Atlantic Canada infected with paratuberculosis (Corbett et al. 2018) . An overall prevalence of M. paratuberculosis in Mexican cattle was estimated to be 5% (Feliciano et al. 2015).

The Beef Review 2017 found that the risk from *M. paratuberculosis* infection associated with the importation of beef and beef products from the United States is considered negligible and therefore achieves Australia's ALOP with respect to animal biosecurity risks.

5.8.1. Conclusion

The likelihood of entry of *M. paratuberculosis* in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, the animal biosecurity risk of paratuberculosis is therefore considered **negligible** and achieves Australia's ALOP.

Additional risk management for paratuberculosis is therefore not required for the importation of fresh beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States.

5.9. *Salmonella enterica* serotype *Typhimurium* DT104

Salmonella enterica causes clinical and subclinical enteric infections in both livestock and humans and is a leading cause of food-borne illness in the United States (USDA 2014b). In the early 1990s, a distinct multi-drug-resistant strain of *S. enterica* serotype *Typhimurium* became prominent as a pathogen of both livestock and humans in the United States and western Europe (Foley, Lynne & Nayak 2008). The new strain, known as definitive type 104 R-ACSSuT and commonly called *S. enterica* serotype *Typhimurium* DT104 (or *S. typhimurium* DT104), is now present in many countries including the United States.

There are few reports of *S. typhimurium* DT104 in Mexican livestock although a survey of *Salmonella* spp. in pigs slaughtered at Mexican abattoirs found 2 (2.28%) of the 87 strains detected were DT104 (Rojas et al. 2011). Another study of salmonella in cattle and poultry showed most serovar *Typhimurium* isolates (8 of 10) exhibited a penta-resistant phenotype similar to that reported for the *S. typhimurium* DT104 strain (Delgado-Suárez et al. 2021). *Salmonella typhimurium* DT104 has also been reported in Canada (Leekitcharoenphon et al. 2016).

Infection with *S. typhimurium* DT104 has not been reported in Australian livestock or products derived from Australian livestock (Barlow & Gobius 2008). The Beef Review 2017 concluded that, as there is scientific evidence that *S. typhimurium* DT104 is present in cattle in the United States and that because it can be transmitted via beef and beef products, a risk assessment was required.

Further technical information on *S. typhimurium* DT104 can be found in Section 4.9 of the Beef Review 2017.

In the Beef Review 2017, the entry assessment component of the risk assessment for *S. typhimurium* DT104 concluded that a proportion of beef and beef products imported from the United States could be contaminated with DT104. Based on the proportion of product imported from the United States that is likely to be contaminated with viable DT104, and the estimated volume of trade, the likelihood of entry of DT104 with beef and beef product derived from the United States where *S. typhimurium* DT104 is present is **high**.

Salmonella typhimurium DT104 is also present in livestock in Mexico. Although the prevalence in bovines is unknown, it will be assumed that it is significant and equivalent to the United States. This review therefore concludes that the likelihood of entry of *S. typhimurium* DT104 with beef and beef product derived from bovines legally imported into the United States from Mexico or Canada and slaughtered in the United States is also **high**.

Following importation, the likelihoods of exposure, establishment and spread and the consequence (impact) of an outbreak remain the same as assessed in the Beef Review 2017. Therefore, the risk (likelihood and consequence) of beef and beef products from bovines imported from Mexico or Canada is equivalent to the risk from beef and beef products from bovines born and raised in the United States (i.e. **negligible**). Therefore, the importation of beef and beef product from bovines from Canada and Mexico that are legally imported into the United States is considered to achieve Australia's ALOP in relation to animal biosecurity issues relating *S. typhimurium* DT104.

5.9.1. Conclusion

The animal biosecurity risk of *S. typhimurium* DT104 in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported and slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). This is consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, and achieves Australia's ALOP.

As proposed for bovines born, raised and slaughtered in the United States (in the Beef Review 2017) and bovines born raised and slaughtered in Canada (in the Canada Beef Addendum 2025), Australia will require that listed establishments in the United States operate Hazard Analysis Critical Control Point Quality Assurance plans (HACCP-based QA plans), and have their satisfactory operation verified via a bacteriological testing program equivalent to that undertaken in Australia, in accordance with relevant Australian standards.

Verification that HACCP-based QA plans in the United States are operating as required to provide the necessary assurances will occur through assurance and verification activities undertaken by the department.

5.10. Vesicular stomatitis

Vesicular stomatitis is an insect-transmitted viral disease that primarily affects horses, bovines, and pigs. There are two serologically distinct serotypes of the vesiculovirus, Indiana (IND) and New Jersey (NJ) serotypes (Reis Júnior et al. 2009; WOAH 2013). Vesicular stomatitis does not occur in Australia and is a notifiable disease (DAFF 2019).

Vesicular stomatitis is zoonotic and can cause an influenza-like illness in humans following direct contact with infected livestock (Letchworth, Rodriguez & Del Cbarrera 1999; Reis Júnior et al. 2009). It is generally assumed that animals acquire infection either through the bite of an infected competent insect vector, exposure to a clinically affected host (McCluskey & Mumford 2000; Smith et al. 2012), or possible infection following ingestion of immature stages of grasshoppers infected with the virus (Drolet, Stuart & Derner 2009).

There is little data available on oral transmission of vesicular stomatitis virus and there are no known studies that assess transmissibility in meat. Feeding pigs infected epithelial tissues has led to clinical signs but this may have been due to these tissues contacting abraded skin (Patterson, Jenney & Holbrook 1955). Prior to the removal of vesicular stomatitis from the WOAH Code, WOAH did not recommend any risk management measures for vesicular stomatitis virus for international trade in meat and meat products.

Subclinical infection is short-lived (about one week), and a carrier state does not occur (McCluskey & Mumford 2000). Ante- and post-mortem controls in the United States substantially reduce the potential for an infected carcase to pass inspection.

Further technical information on vesicular stomatitis can be found in Section 4.10 of the Beef Review 2017.

Vesicular stomatitis is currently limited to the American continents. The NJ and IND-1 serotypes are endemic in livestock in areas of southern Mexico, Central and much of South America. Sporadic activity of NJ and IND-1 serotypes has been reported in northern Mexico and the western United States (Reis Júnior et al. 2009).

Vesicular stomatitis is a reportable disease in the United States, Canada and Mexico. Outbreaks occur every few years in the United States with the last outbreak reported in 2020 (USDA 2020).

Vesicular stomatitis was last diagnosed in Canada in 1949 and Canada is free from infection (CFIA 2023c). Vesicular stomatitis is endemic in southern Mexico, where there is annual circulation of the virus between livestock and insect vectors (USDA 2020).

The Beef Review 2017 found that the likelihood of entry of vesicular stomatitis with imports of beef and beef products that have passed ante- and post-mortem inspection is considered not significant based on the following:

- Subclinical infection is short-lived (about one week), and a carrier state does not occur
- There is no evidence that meat tissue harbours virus particles
- United states' law requires notification of any cases of vs and quarantining of affected properties until resolution of disease
- Ante-and post-mortem controls in the United States substantially reduce the potential for an infected carcase to pass inspection.

These findings are also applicable for the import of beef and beef products derived from bovines sourced from Mexico.

5.10.1. Conclusion

The likelihood of entry of vesicular stomatitis virus in beef and beef products derived from bovines born and raised in Canada or Mexico and legally imported slaughtered in the United States is considered equivalent to that of bovines born and raised in the United States (i.e. **negligible**). Consistent with the findings of the Beef Review 2017, and the Canada Beef Addendum 2025, the animal biosecurity risk of vesicular stomatitis is therefore considered **negligible** and achieves Australia's ALOP.

6. Risk management

6.1. Compliance or equivalence with Australian standards

Consistent with the Beef Review 2017, compliance with relevant Australian standards (described in Sections 3.2), or an equivalence determination as appropriate, will be required.

FSANZ undertakes assessments of countries to ensure compliance with Australian BSE food safety requirements and advises the department of the BSE risk management measures required before beef and beef products can be imported. FSANZ also monitors assessed countries for any change in BSE status that may impact on a favourable BSE categorisation that was issued after finalising a BSE Food Safety Risk Assessment Report for that country. Both Canada and Mexico have been assessed by FSANZ as having a Category 1 status. Category 1 status means there are comprehensive and well-established controls to prevent both the introduction and amplification of the BSE agent in a country's cattle population, and contamination of the human food supply with the BSE agent.

An applicant country's ability to meet the Australian Meat Standard and the Imported Food Control Act 1992 is determined by the department through an equivalence, assurance and verification process before fresh beef and beef products can be imported.

6.2. Proposed risk management measures

6.2.1. Animal residency status

The Beef Review 2017 found that fresh beef and beef products must be sourced from bovines that have been continuously resident in the United States since birth. This addendum proposes revising this requirement. It finds that the requirements of the Beef Review 2017 should be amended to allow the importation of beef and/or beef product from the United States derived from:

- Immediate slaughter, feeder and breeder bovines born and raised in Canada and legally imported into the United States, subject to all other relevant requirements of the Beef Review 2017, including having passed ante- and post-mortem inspection under official veterinary supervision.
- Feeder and breeder bovines born and raised in Mexico and legally imported into the United States, subject to all other relevant requirements of the Beef Review 2017, including having passed ante- and post-mortem inspection under official veterinary supervision.

Fresh beef and beef products derived from bovines born and raised in Canada or Mexico, legally imported and slaughtered in the United States will require certification that they were born and have only resided in the United States, Canada and/or Mexico.

6.2.2. Recognition of country freedom

Consistent with the Beef Review 2017, certification of country freedom is considered sufficient, reasonable and practical to address following diseases and disease agents:

- Contagious bovine pleuropneumonia

- Crimean-Congo haemorrhagic fever
- FMD
- Haemorrhagic septicaemia
- Lumpy skin disease
- Rift valley fever
- Surra
- Theileriosis (T*heileria annulata* and *T. parva*)
- Trypanosomiasis (tsetse transmitted)
- Wesselsbron disease.

As noted in the Final report: Risk of lumpy skin disease via fresh (chilled or frozen) bovine skeletal muscle meat from applicant countries, certification of country freedom from lumpy skin disease is not required when the beef meat is derived exclusively from bovine skeletal muscle and contains no lymphatic or other tissues. In this context, skeletal muscle includes any attached rind, fat, connective tissue, nerve, blood and blood vessels.

6.2.3. Other risk management measures

This addendum concludes that the risk management measures proposed in the Beef Review 2017 are adequate to address the following diseases in relation to beef and beef products sourced from bovines born and raised in Canada or Mexico and legally imported into and slaughtered in the United States:

- Anthrax
- Aujeszky's disease
- Brucellosis (*B. abortus, B. melitensis* and *B. suis*)
- Bovine TB
- Bovine viral diarrhoea
- Bovine cysticercosis
- Echinococcosis
- Paratuberculosis
- Infection due to *S. typhimurium* DT104
- Vesicular stomatitis.

Australia will require that listed establishments in the applicant countries operate HACCP-based QA plans, and have their operation verified via a bacteriological testing program equivalent to that undertaken in Australia and in accordance with relevant Australian standards.

This risk management also addresses food safety concerns associated with STEC and *Salmonella* spp. The advice from FSANZ is that imports of fresh beef and beef products are considered to present a

potential medium to high risk to public health for STEC and *Salmonella* spp., as outlined in the Beef Review 2017.

As required in the Beef Review 2017, the United States will need to demonstrate competent authority oversight of the beef exporting establishments ensuring these facilities are operating through-chain HACCP based food safety programs which control the risks associated with STEC and *Salmonella* spp. Consignments of beef will require certification by the competent authority and a border verification testing regime will be applied. Verification that HACCP-based QA plans in the applicant country are operating as required to provide the necessary assurances will occur through an audit process (i.e. competent authority assessment). Any additional food safety controls required to address food safety risks identified in these assessments will be advised by the relevant area within this department when available.

6.3. Meeting Australia's food standards

Imported food for human consumption must satisfy Australia's food standards. Australian law requires that all food, including imported food such as beef and beef products, meets the standards set out in the Food Standards Code. FSANZ is responsible for developing and maintaining the Food Standards Code, including Standard 1.4.2, maximum residue limits, available on the Legislation website. The standards apply to all food in Australia, irrespective of whether it is grown domestically or imported.

6.4. Verification and compliance with biosecurity measures

A template health certificate has been developed by the department and has been accepted by the United States.

The department undertakes competent authority assessments of countries that apply to export fresh beef and beef products to Australia. These assessments determine whether that country's official animal health, export control, and supervision systems are of sufficient scope and applied at an adequate intensity to ensure Australia's biosecurity and food safety requirements will be reliably met. An assessment has been undertaken for the United States.

Verification activities may be implemented at the border to provide Australia with ongoing assurances that trade in beef and beef products achieves Australia's ALOP. Verification may include on-arrival testing at a rate considered appropriate by the department for any of the pathogenic agents listed in Section 5.1.5 of the Beef Review 2017.

The department may, at any time deemed necessary, request information or seek to visit areas in exporting countries that produce beef and beef products for export to Australia. The information requested and visits will be for the purposes of verifying the implementation of agreed import conditions and sanitary systems. These verification visits and audits may be undertaken in-person or remotely.

The department can review the import policy at any time.

7. Conclusion and next steps

This addendum's findings support expanding the scope of the Beef Review 2017 to permit entry of fresh beef and beef products from bovines legally imported from Canada and Mexico into the United States. The current USDA protocols for the import of bovines from Canada and Mexico apply rigorous control measures which will address Australia's biosecurity concerns with beef sourced from bovines born and raised Canada or Mexico and legally imported into the United States. It is therefore recommended that the requirements of the Beef Review 2017 be amended to allow the importation of fresh beef and beef products from the United States derived from:

- Immediate slaughter, feeder and breeder bovines born and raised in Canada and legally imported into the United States, subject to all other relevant requirements of the Beef Review 2017, including having passed ante- and post-mortem inspection under official veterinary supervision.
- Feeder and breeder bovines born and raised in Mexico and legally imported into the United States, subject to all other relevant requirements of the Beef Review 2017, including having passed ante- and post-mortem inspection under official veterinary supervision.

This addendum was released in draft form for 60 days public consultation to give stakeholders the opportunity to provide technical comment. Stakeholder submissions were considered when finalising the addendum.

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