Risk assessment report on beef and beef offal imported to Japan from Mexico (Prions/Self-tasking)

(Expert Committee on prions)

Food Safety Commission of Japan (FSCJ)
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2. Mexico

(1) Live Cattle

a. Risk of BSE Invasion

Import of Live Cattle from BSE Risk Countries

Data on imported live cattle to Mexico are shown in Table 12. Figures in the table are taken from the questionnaire response by the Mexican authority and the data of cattle exports from BSE risk countries to Mexico (Source: the World Trade Atlas. Trade statistics published by state governments are also used for some figures). Table 12 shows the number of cattle imported from the BSE risk countries only during the period when weighting factors are set.

According to the questionnaire response, in 1991 Mexico started banning importation of live cattle, beef, cattle products, and cattle byproducts. The numbers of live cattle imported to Mexico from BSE risk countries between 1986 and 2007 included 845 from European countries with moderate contamination (Spain and Switzerland), 512,078 from the US, and 170,342 from Canada.

After the first detection of BSE case in the US and Canada in 2003, Mexico banned importation of live cattle, beef, cattle products and cattle byproducts from these countries. The results of epidemiological studies carried out by the US and Canadian authorities showed that no animal from the BSE infected cohorts in these countries was exported to Mexico. In response, importation of seed oxen was resumed in 2005 under the specific requirements.

Meanwhile, the number of live cattle exported to Mexico by BSE risk countries are reported in the World Trade Atlas. Those numbers include 823 from European countries with moderate contamination (Spain), 1,479,600 from the US and 41,409 from Canada.

Import of MBM from BSE Risk Countries

Data on imported MBM to Mexico are shown in Table 13. The figures in the table are taken from the questionnaire response by the Mexican authority and the data on MBM exports from BSE risk countries to Mexico (Source: the World Trade Atlas. Trade statistics published by state governments are also used for some figures). Table 13 shows the amount of MBM imported from the BSE risk countries only during the period for which weighting factors are set.

According to the questionnaire response, Mexico gradually banned the importation of MBM and beef from countries with BSE cases from 1994. Only non-ruminant-derived MBM is allowed for importation from countries with BSE cases. Importation of ruminant-derived MBM is allowed only when the MBM is manufactured in facilities authorized by SAGARPA（The Ministry of Agriculture, Livestock, Rural Development, Fisheries, and Food） and it complies with NOM-060-ZOO-1999, the Animal Hygienic Regulations Concerning Processing of Animal Scrap Meat and Use of Animal Scrap Meat for Animal Feeds. The import of MBM from BSE risk countries in the period between 1986 and 2007 includes 1,239,215 tons from the US, which accounts for nearly 100% of the total import. In the same period, MBM was also imported from European countries with moderate contamination (7 tons from Spain) and low contamination (66 tons from Denmark). According to the questionnaire response, 80 to 85% of the imported MBM is derived from swine with the rest derived from poultry.

Meanwhile, the trade statistics recorded 18 tons of MBM imported to Mexico from the UK, 135 tons from European counties with moderate contamination (Germany), and 1,244,333 tons from the US.

Import of Animal Oil/Fat from BSE Risk Countries

The questionnaire response from Mexico shows that country has imported several thousands to several hundreds of thousand tons of animal oil/fat annually from the US and Canada since1986. It should be noted, however, that the (importation) requirements for animal hygiene between the US/Canada and Mexico after the BSE occurrence stipulates that "the maximum content level of insoluble impurity in animal oil/fat should not exceed 0.15%."

Assessment of the Use of Imported Live Cattle and MBM for Animal Feed

When the importation of seed oxen from US was resumed in 2005, from 2005 and onwards, importation of live cattle from US were exempted from consideration as risk animals because (1) importation of live cattle must be registered in SINIIGA (National Livestock Identification System), which was introduced to allow traceability when the import of seed oxen from the US was resumed in 2005, and (2) BSE tests are required when an animal dies at the farm or slaughtered.

While the questionnaire response describes that 80 to 85% of the MBM imported is derived from swine and the rest is derived from poultry, it is considered that available evidence is insufficient. The imported MBM, therefore, was not exempted from the risk.

In regard with animal oil/fat, even though a rather large amount of those materials was imported from the US and Canada, the risk to affect the level of invasion risk was evaluated to be low because (1) most of these materials are intended for industrial use, (2) the risk of animal oil/fat is relatively low compared with the live cattle and MBM that are imported in significant amounts in the same period, and (3) the maximum content of insoluble impurity is legally regulated to not exceed at 0.15% after the BSE cases were detected in US.

Table 12. Import of Live Cattle from BSE Risk Countries experienced by Mexico

			1986-1990	1991-1995	1996-2000	2001-2005	2006-2007	Total
			Number of imported cattle	Number of imported cattle	Number of imported cattle	Number of imported cattle	Number of imported cattle	Number of imported cattle
Import data[1]	UK	Questionnaire	0	0	0	0	0	0
		Trade statistics	0	0	0	0	0	0
	Europe[3] (Countries with moderate contamination)	Questionnaire	21	0	824	0	0	845
		Trade statistics	0	0	823	0	0	823
	Europe (Countries with low contamination)	Questionnaire	0	0	0	0	0	0
		Trade statistics	0	0	0	0	0	0
	USA	Questionnaire		99,721	286,002	118,900	7,455	512,078
		Trade statistics		221,257	738,695	505,142	14,506	1,479,600
	Canada	Questionnaire	10,059	74,314	73,638	12,331	0	170,342
		Trade statistics	11,365	24,125	5,206	713	0	41,409
	Others ( )	Questionnaire	0	0	0	0	0	0
		Trade statistics	0	0	0	0	0	0
	Total	**Questionnaire**	**10,080**	**174,035**	**360,464**	**131,231**	**7,455**	**683,265**
		Trade Statistics	**11,365**	**245,382**	**744,724**	**505,855**	**14,506**	**1,521,832**

		1986-1990		1991-1995		1996-2000		2001-2005		2006-2007		Total
		Number of imported cattle	UK Equivalent	Number of imported cattle	UK Equivalent	Number of imported cattle	UK Equivalent	Number of imported cattle	UK Equivalent	Number of imported cattle	UK Equivalent	Number of imported cattle
Number of imported cattle with a potential of being a source of exposure	UK	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
	Europe (Countries with moderate contamination)	21	0.21	0	0.00	824	8.24	0	0.00	0	0.00	845
	Europe (Countries with low contamination)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
	USA			99,721	1.99	286,002	5.72	118,894	2.38	0	0.00	504,617
	Canada	10,059	1.01	74,314	7.43	73,638	7.36	12,331	1.23	0	0.00	170,342
	Others ( )	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
	Total	**10,080**	**1.22**	**174,035**	**9.43**	**360,464**	**21.32**	**131,225**	**3.61**	**0**	**0.00**	**675,804**
		Negligible		**Very low**		**Moderate**		**Negligible**		**Negligible**		

(Reference) Numbers calculated using the figures in the trade statistics.

Trade statistics[2]	Total	**11,365**	**1.14**	**245,382**	**6.84**	**744,724**	**23.52**	**504,852**	**10.15**	**0**	**0.00**	**1,506,323**
		Negligible		**Very low**		**Moderate**		**Low**		**Negligible**		

1: 'Number of cattle imported' and 'Number of imported cattle with a potential of being a source of exposure' cover only the period when weighting factors are set.
2: Live cattle imported from the US from 2005 and onwards were exempted from the risk for both the trade statistics and questionnaire response.
3: In addition to this number, import of 13.6 tons of live cattle from countries with moderate contamination (Germany) is reported in the trade statistics. (When the volume of imported live cattle is indicated only in the weight and not in the number of animals, that volume is not included in the assessment.)

Table 13. Import of MBM from BSE Risk Countries experienced by Mexico

			1986-1990	1991-1995	1996-2000	2001-2005	2006-2007	Total
			Volume of importation (ton)	Volume of importation (ton)	Volume of importation (ton)	Volume of importation (ton)	Volume of importation (ton)	Volume of importation (ton)
Import data[1]	UK	Questionnaire	0	0	0	0	0	0
		Trade statistics	0	0	0	18	0	18
	Europe (Countries with moderate contamination)	Questionnaire	0	0	0	6	1	7
		Trade statistics	0	0	0	135	0	135
	Europe (Countries with low contamination)	Questionnaire	0	0	66	0	0	66
		Trade statistics	0	0	0	0	0	0
	USA	Questionnaire		206,857	481,669	336,328	214,362	1,239,215
		Trade statistics		200,844	428,453	377,216	237,820	1,244,333
	Canada	Questionnaire	0	0	0	0	0	0
		Trade statistics	0	0	0	0	0	0
	Others ( )	Questionnaire	0	0	0	0	0	0
		Trade statistics	0	0	0	0	0	0
	Total	**Questionnaire**	**0**	**206,857**	**481,735**	**336,333**	**214,363**	**1,239,288**
		Trade statistics	**0**	**200,844**	**428,453**	**377,369**	**237,820**	**1,244,486**

		1986-1990		1991-1995		1991-1995		2001-2005		2006-2007		Total
		Volume of importation (ton)	UK equivalent	Volume of importation (ton)	UK equivalent	Volume of importation (ton)	UK equivalent	Volume of importation (ton)	UK equivalent	Volume of importation (ton)	UK equivalent	Volume of importation (ton)
Volume of Imported MBM with a potential of being a source of exposure	UK	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
	Europe (Countries with moderate contamination)	0	0.00	0	0.00	0	0.00	6	0.06	1	0.00	7
	Europe (Countries with low contamination)	0	0.00	0	0.00	66	0.66	0	0.00	0	0.00	66
	USA			206,857	4.14	481,669	9.63	336,328	6.73	214,362	4.29	1,239,215
	Canada	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
	Others ( )	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
	Total	**0**	**0.00**	**206,857**	**4.14**	**481,735**	**10.29**	**336,333**	**6.78**	**214,363**	**4.29**	**1,239,288**
		Negligible		**Negligible**		**Low**		**Very low**		**Negligible**		

(Reference) Numbers calculated using the figures in the trade statistics.

Trade statistics[2]	**Total**	**0**	**0.00**	**200,844**	**4.02**	**428,453**	**8.57**	**377,369**	**9.07**	**237,820**	**4.76**	**1,244,486**
		Negligible		**Negligible**		**Very low**		**Very low**		**Negligible**		

1: 'Volume of MBM imported' and 'Volume of imported MBM that can be a source of exposure' are calculated only for the period when weighting factors are set.

2: We regard all of the MBM as a source of exposure because the exact number is unknown from the trade statistics as to how many of the imported MBM were not a source of exposure.

Assessment for external challenge

External challenge was evaluated based on the questionnaire response by the Mexican government. The level of invasion risk between 1986 and 1990 was 1.22 in UK equivalent for live cattle and regarded 'negligible'. The invasion risk level between 1991 and 1995 was 9.43 and regarded 'very low'; between 1996 and 2000 was 21.32 and regarded 'moderate'; between 2001 and 2005 was 3.61 and regarded 'negligible'; and between 2006 and 2007 was 0 and regarded 'negligible'. (The UK equivalents obtained in evaluation of invasion risk levels using trade statistics were 1.14 for the period between 1986 and 1990 and regarded 'negligible'; 6.84 for the period between 1991 and 1995 and regarded 'very low'; 23.52 for the period between 1996 and 2000 and regarded 'moderate'; 10.l5 for the period between 2001 and 2005 and regarded as 'low'; and 0 for the period between 2006 and 2007 and regarded 'negligible'.)

The external challenge resulting from MBM import was evaluated based on the questionnaire response. The UK equivalents for MBM were 0 and regarded 'negligible' (1986–1990), 4.14 and regarded 'negligible' (1991–1995), 10.29 and regarded 'low' (1996–2000), 6.78 and regarded 'very low' (2001–2005), and 4.29 and regarded 'negligible' (2006–2007). (The external challenge resulting from MBM import was also evaluated using the trade statistics. The UK equivalents were 0 and regarded 'negligible' (1986–1990), 4.02 and regarded 'negligible' (1991–1995), 8.57 and regarded 'very low' (1996–2000), 9.07 and regarded 'very low' (2001–2005), and 4.76 and regarded 'negligible' (2006–2007).)

The overall invasion risk (combination of risks by imported live cattle and MBM) was regarded 'negligible' for the period between 1986 and 1990, 'low' for the period between 1991 and 1995 (the risk of live cattle is 'very low,' and the risk resulting from MBM import is 'negligible'. When these figures are combined, the invasion risk in the UK equivalent is 13.57 and regarded 'low'), and 'moderate' for the period between 1996 and 2000, 'low' for the period between 2001 and 2005 (the risk of live cattle is 'negligible,' and the risk resulting from MBM import is 'very low'. When these figures are combined, the invasion risk in the UK equivalent is 10.39 and regarded 'low'), and 'negligible' for the period between 2006 and 2007 (Table 14). (Even when the values in the questionnaire response did not match the values in the trade statistics, the same level of overall invasion risk was obtained for both sets of the data.)

Table 14. External Challenge experienced by Mexico

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2007
Live cattle	**Negligible**	**Very low**	**Moderate**	**Negligible**	**Negligible**
MBM	**Negligible**	**Negligible**	**Low**	**Very low**	**Negligible**
Overall Level	**Negligible**	**Low**	**Moderate**	**Low**	**Negligible**

b. Domestic Stability (BSE propagation risk of the country)

Feed regulations

In 2000, the Mexican government implemented a ban on the feeding of animal -derived MBM to ruminants.

Mexican farmers feed their cattle mainly with grass, and MBM is not generally used to feed the cattle. Although it is possible that some milking cows in Mexico are fed with MBM before the implementation of the 2000 feed regulations, the questionnaire response by the Mexican government claims that the majority of milking cows are registered and strictly monitored under the brucellosis and TB eradiation campaigns. No BSE case has been recognized in Mexico.

In some farms, cattle are raised with pigs/chicken in a same premise. Therefore, cross contamination of cattle with ruminant-derived materials in the feeds for pig and other animals is possible. It should be noted, however, that in most cases pigs are fed with kitchen waste obtained at the farmer's house.

There is no information available to confirm the compliance level of feeding requirements at the farms.

Regarding the amount of MBM used for different usages, the questionnaire response from the Mexican government describes that about 90% of MBM containing ruminant-derived materials is used for non-ruminant animal feeds, while the remaining 10 % of MBM is disposed of. Of the MBM that does not contain ruminant-derived materials, approximately 13% is used for ruminant feeds, and the rest (approximately 87%) is used for non-ruminant feeds. Following the official regulations in Mexico, all feed containing animal-derived proteins in its content must be registered at the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA). If the feed contains animal-derived MBM, such MBM must be produced in a rendering plant managed by SAGARPA. The Mexican authority takes measures to prevent cross contamination by ensuring the use of appropriate kinds of feeds for appropriate species of animals by maintaining these regulations.

Public monitoring for compliance of feed manufacturing and distribution regulations is conducted by local offices of SAGRPA. A veterinary officer authorized for monitoring or a monitoring group carries out monitoring with visual tests and document examination. The official regulations of Mexico require annual monitoring. According to the monitoring results, no violation was found in the total of 58 cases of monitoring carried out in the period between 2004 and 2007.

Contamination of cattle feeds with animal protein is examined with the polymerase chain reaction (PCR) method. According to the record, no positive case was found in the 86 cases of PCR tests conducted in 2007.

Use of SRM

In 2005, the Office of Agroalimentary, Aquaculture and Food Safety (DGIAAP) of the National Service of Food Agriculture Health, Safety and Quality (SENASICA) published a notice to the TIF(Federal Inspection Type System) facilities (facilities that have passed the federal inspection) that export meat and meat offal to Japan. In this notice, SRM is defined as “brain, skull, eyes, trigeminal ganglia, vertebral column, spinal cord, and dorsal root ganglia of animals aged 30 months or over and tonsils and distal ileum of cattle at all ages.” While SRM is removed at the TIF facilities from the products intended for export to the countries that require removal of SRM including Japan, the definition of SRM does not exist for domestic purposes in Mexico. According to the questionnaire response, in Mexico, where beef products are often used for human consumption and beef has been used in their traditional dishes, SRM is commonly marketed as foodstuff. The parts that are not suitable for human consumption are incinerated. The 2003 survey report by Food and Agriculture Organization (FAO) of the United Nations states, however, “SRM may be used for human consumption in Mexico. It is possible therefore that SRM is used for MBM when SRM is not used for human consumption.”

In general, stocks fallen at the farm are buried at the farm and not transported to rendering facilities.

Stocks fallen at the slaughterhouse, dying cattle, and downer cattle are slaughtered at a separate location from the routine slaughter and incinerated, following the official regulations.

Rendering Conditions

The official regulations of 2001 obligate treatment of tissues at 80°C or higher for 30 minutes as rendering conditions. The regulations also require a maxim water content of 10% for the final product when it is removed from the treatment equipment. The OIE codes (at 133°C for a minimum of 20 minutes at absolute pressure of 3 bar pressure (133/20/3)) were planned only at the time of BSE occurrence, and they are not currently implemented.

The compliance of rendering regulations is ensured mainly by DGIAAP (for TIFs) and DGSA (Animal Health General Directorate) and SAGARPA (for other rendering facilities). To ensure the compliance at the TIFs, monthly inspections are conducted and authorities visit the site for further monitoring when violation is detected. For other rendering facilities, a veterinary officer authorized for monitoring or a monitoring group carries out monitoring with visual tests and document examination.

Measures to Prevent Cross-contamination

According to the 2006 data about feed mills, approximately 54% of the feed mills in Mexico are 'dedicated facilities' (they produced feed for certain livestock) and the other 46% are 'mixed facilities' (they produce feed for both ruminant and non-ruminant animals). The questionnaire response states that animal feed processors prevent cross contamination by setting different manufacturing lines for different species of animals and ensuring quality control and cleaning management however, detailed measures against cross contamination cannot be confirmed. Also, the 2003 survey report by FAO notes that "when the feeding of ruminant-derived feed to ruminants was first banned, cross contamination was not taken into consideration. Since then, cleaning between the manufacturing lots of ruminant feed and non-ruminant feed has been conducted. In any case, separate lines are not set for ruminant and non-ruminant feeds."

According to the 2006 data, the number of official rendering facilities registered in Mexico is 53, including 17 facilities that do not treat ruminant-derived tissues and 36 facilities that are involved in rendering of both ruminant and non-ruminant animals. The facilities that are not involved in rendering of ruminant-derived tissues belong to an enterprise that integrates farms, slaughterhouses, feed mills, and facilities in the whole cycle of animal treatment. Therefore, these facilities treat only one species of animal (either pig or poultry), and there is no possibility for the materials of other animal species to be mixed into the treatment process at these facilities.

Others

Transmissible spongiform encephalopathy (TSE) cases have not been reported in Mexico.

Assessment of Domestic Stability

The domestic stability was assessed based on the questionnaire response by the Mexican government. Our assessment revealed that the risk of exposure/propagation was "moderate" for the period between 1986 and 2000, and "low" for the period between 2001 and 2007 (Table 15, Table 16).

Table 15. Domestic Stability in Mexico

Item	Status
Feeding	2000: Ban on feeding of ruminant-derived MBM to ruminants.
Use of SRM	[SRM] Used for human consumption. The parts not suitable for human consumption are incinerated. [Fallen stock, emergency slaughter, bovines condemned at antemortem] Stock fallen at the farm are incinerated and not used for rendering. Stock fallen at the slaughterhouse, dying stock, and downer cattle are slaughtered at a separate location from routine slaughter before being incinerated.
Rendering conditions	2001: The official regulations of Mexico require treatment at 80°C or higher for 30 minutes.
Measures to prevent cross-contamination	[Feed mills] Management, quality control, and cleaning management are conducted for different manufacturing lines for different animal species to prevent cross contamination (It cannot be confirmed whether line separation and other specific measures against cross contamination are conducted). [Rendering facilities] The facilities that are not involved in rendering of ruminant-derived tissues belong to an enterprise that integrates farms, slaughterhouses, feed mills, and facilities in the whole cycle of animal treatment. Therefore, these facilities treat only one species of animal (either pig or poultry), and there is no possibility for the materials of other animal species to be mixed into the treatment process at these facilities.

Table 16. Assessment of Domestic Stability in Mexico

	Feeding	Use of SRM, Rendering Conditions, Preventive measure against cross-contamination, etc.	Risk of exposure/ propagation
1986–2000	No specific regulations	SRM is usually used for human consumption. Scrap meat, as well as stock fallen at slaughterhouse, dying cattle, and downer cattle are incinerated. Stock fallen at the farm is buried.	Moderate
2001–2007	Ban on feeding of ruminant-derived MBM to ruminants.		Low

c. Verification by surveillance, etc.

Population Structure

The total cattle population in Mexico in 2005 was approximately 30,990,000 with 28,790,000 of beef cattle and 2,200,000 of dairy cows.

Surveillance Outline

In Mexico, a passive surveillance program started in the end of 1996 by the Mexico-United States Commission for the Prevention of Foot and Mouth Disease and Other Exotic Diseases of Animals (CPA).

In 2003, a risk assessment was conducted by the collaborative project between Mexico and FAO, the "Evaluation and Strengthening of the System of Prevention of Bovine Spongiform Encephalitis (BSE) and the System of Feed Quality Control." The results of the assessment lead to further strengthening of active surveillance for downer cattle, emergency slaughter stock, animals died with no identified cause either at the farm or slaughterhouse.

The surveillance conducted for the cattle aged over 30 months are: (1) cattle showing nervous symptoms, (2) cattle that become subject to emergency slaughter at a slaughterhouse, (3) cattle died with no identified cause at the farm, (4) downer cattle, (5) cattle that do not pass the tests, (6) cattle with emaciation or unhealthy cattle, (7) worthless milking cows aged more than seven years (84 months) , and (8) routine slaughter cattle aged from four to seven years .

For sampling and shipping of samples for BSE, the "Manual for Sampling for BSE" is published. As testing methods, histopathological tests were used for diagnostic confirmation until 2002. Since 2002, the immunohistochemical (IHC) tests have been used to follow the OIE diagnostic manual. The Lateral Flow Immuno-chromatographic (LFI) method and the Western Blot method are also used in diagnostic confirmation.

The surveillance was conducted for 1,964 animals between 1997 and 2003. Since the start of active surveillance in 2004, a total of 25,634 animals have been surveyed. No animal has been diagnosed as BSE positive. Whilst the surveillance outcome over the seven years period (2001 to 2007) was assumed enough to meet the standard which "will allow the detection of BSE around a design prevalence of at least one case per 100,000 in the adult cattle population, at a confidence level of 95%" as stipulated by OIE. (Table 17).

Table 17. Surveillance Point Calculation in Mexico

Number of cattle raised (2005): 3,099,000* → 300,000 points are needed in seven years.

Number of animals surveyed					
Year	Routine slaughter	Fallen stock	Casualty slaughter	Clinical suspect	**Total**
2001	296	0	0	9	**305**
2002	433	1	0	16	**450**
2003	458	1	0	6	**465**
2004	1440	9	425	110	**1,984**
2005	2008	98	1307	103	**3,516**
2006	1594	171	1614	52	**3,431**
2007	7933	769	7336	675	**16,713**
Total	14,162	1,049	10,682	971	**26,864**
Surveillance point	(× 0.2) 2,832	(× 0.9) 944	(× 1.6) 17,091	(× 750) 728,250	**749,118** **(Goal achieved)**

Notes:
- Surveillance points were compared with the points needed by the OIE Type A Surveillance.
- Surveillance points were calculated under an assumption that all the animals are aged 4 years or over and less than aged 7 years.
- The cattle population in the questionnaire response by the Mexican government was used for calculation with an assumption that all the animals are aged 24 months or over.

BSE Awareness Program and Mandatory Notification

Mexico has been providing BSE awareness programs since 1994. Mexico-United States Commission for the Prevention of Foot and Mouth Disease and Other Exotic Diseases of Animals (CPA) has distributed officers in each region to deal with emergencies related to exotic animal diseases. CPA also provides regular training programs for the SAGARPA officers. Posters, manuals, and pamphlets are also published for general public and industrial society.

Promotion to encourage notification of BSE suspects was started in 1994. Those who fail to notify a suspected case will be punished based on the regulations. In November 2007, a temporary program to provide incentive for notification of suspected cases of BSE was started.

When an exotic animal disease is detected in Mexico, SAGRPA will compensate for the costs to dispose of the livestock in the affected farms.

(2) Beef and Beef Offal

a. SRM Removal

Methods of SRM Removal, etc.

According to the questionnaire response, facilities that produce items intended for export to the US, South Korea, and Japan are required to remove head, skull, eyes, trigeminal ganglia, vertebral column (including dorsal-root ganglia), and spinal cord of cattle aged 30 months or over , as well as tonsils and distal ileum of cattle at all ages. In addition, the livestock hygienic conditions for the meat intended for export to Japan require removal of head (excluding tongue and cheek meat), spinal cord, distal ileum (within 2 meters from the connecting point to the appendix), vertebral column (structural component such as bone and dorsal-root ganglia) of cattle at all ages. Removal of SRM is confirmed by veterinary officers. The removed SRM is stored in a container specifically used for that purpose.

Splitting is a common practice in slaughter houses. Saws used for splitting are soaked in a unit of sterilizing equipment set at 82.5°C to remove residual tissues. The water in the equipment continuously flows to prevent bacterial propagation that might be encouraged in still water. After the splitting, spinal cord is removed using a specially designated tool. The tool is sterilized between the uses for carcasses. After the spinal cord is removed, the carcasses are washed with high-pressure water that is disinfected with chlorine. Slaughter inspectors check the carcasses for residual spinal cord only at the facilities authorized for export to the US and Japan.

Tonsils are removed after the head inspection and stored in a designated SRM container. Removal of head and tonsils are inspected by a veterinarian officer.

After the organ inspection, 2 meters of small intestine (from the appendix to the distal ileum) is removed and stored in a designated container. Veterinary officers conduct organ inspection and confirm the removal of distal ileum.

Control based on (SSOP) and (HACCP)

Compliance of the Sanitary Standard Operation Procedure (SSOP) and Hazard Analysis Critical Control Point (HACCP) is required for all the facilities that are involved in production of meat items intended for export to Japan (17 slaughterhouses and 12 meat processing facilities). Veterinary officers monitor the compliance and violation.

Additional Requirements, etc. for Export to Japan

According to the questionnaire response from the Mexican government, all of the 29 facilities that are involved in export to Japan are required to comply with SSOP and HACCP. The livestock hygienic conditions prohibit the products to contain head (excluding tongue and cheek meat), spinal cord, distal ileum (2 meters from the joint to appendix), vertebral column (structural component, such as bone and dorsal root ganglia).

b. Slaughtering Processes

Antemortem inspection and BSE testing at the slaughter houses

Separation of cattle suspected with BSE is to be conducted when the cattle are unloaded from the vehicle and while the cattle are held at the slaughterhouse. Emaciation, poor health conditions, overreaction against noise and physical contacts, and other conditions are checked. Suspected cattle are slaughtered at the final step and the tools and equipment used for the slaughter must be disinfected. Cattle showing nervous symptoms, downer cattle, and other concerned cattle must be separated from the slaughter line.

BSE tests are conducted for BSE suspects, emergency slaughter cattle, and a certain number of healthy slaughter cattle aged over 30 months.

Stunning and Pithing

After the ban on pressured air stun gun in 2005, the type of stunning that sends pressured air or gas into the cranial cavity is not used. The method using a hammer is not used in any slaughterhouses in Mexico. At TIFs (the facilities that passed the federal tests) slaughter houses, slaughtering is conducted following the “humane slaughtering for livestock and wild animals” using a (stable) penetrating stunning bolt (livestock gun). Appropriate stunning is monitored by the responsible veterinary officer at the TIF.

Pithing is not practiced in Mexican slaughterhouses.

c. Others

Mechanically Recovered Meat (MRM)

Mechanically recovered meat (MRM) is not produced in Mexico.

Traceability

Mexico launched a voluntary traceability system in 1990. In 2000, an obligatory traceability system was launched with a limited scope for imported cattle. In 2003, the national livestock identification system (SINIIGA) was started, which has been allowing tracing of livestock animals from the birth to death. The major items registered for identification include name of the owner, name of the farm, breed, sex, birth date, movements of livestock animals, and information on death. Registration of animals imported from the US to this system has been obliged since 2005.

As of 2005, SINIIGA allows identification of the age in months for about 14% of cattle among the total cattle reared in Mexico.

Number of Slaughterhouses and Number of Slaughtered Animals

Out of the 47 TIF slaughterhouses and meat processing facilities, 29 are authorized to handle products intended for export to Japan. The number of cattle slaughtered in a year is 1,790,000, according to the 2006 data. Meat inspection is conducted by 29 state inspectors and 222 slaughterhouse inspectors.

d. Assessment of Risk-reducing Measures at Meat Processing Lines

Based on the questionnaire response by the Mexican government, the risk-reducing measures at meat processing lines in Mexico were assessed. The risk-reducing efficacies of the measures were recognized ‘very high’ (Table 18).

Table 18. Summary of Assessment in Mexico

		Measure	Judge
Current Practice of SRM Removal	**Definition of SRM**	SRM is not defined for domestic purposes. 2005: The following items were defined as SRM and notified to TIF facilities that handle items intended for export to Japan (SENASICA) - Cattle aged 30 months or over: Brain, eyes, trigeminal ganglia, vertebral column, spinal cord, and dorsal root ganglia. - Cattle at all ages: Tonsils and distal ileum.	**SRM is removed based on the regulations of the specific country (Methods of practice, etc.: Very good)**
	Removal of SRM	[Meat intended for export to Japan] - Cattle aged 30 months or over: Brain, skull, eyes, trigeminal ganglia, vertebral column, and spinal cord, dorsal root ganglia are removed - Cattle at all ages: Tonsils and distal ileum are removed. In addition, the livestock hygienic conditions prohibit the importation of head (including tonsils), vertebral column, spinal cord, and distal ileum to Japan regardless of the age of the cattle.	
	Methods, etc.	Split saws are washed between each carcass.	
		Carcasses are washed with high-pressure water after removal of spinal cord.	
		Slaughter inspectors check carcasses for spinal cord residues.	
		Export facilities adopt HACCP and SSOP.	
Inspection at slaughter houses Stunning and pithing	**Inspection at slaughterhouse**	- Cattle suspected for BSE at antemortem are removed. - Downer cattle are separated from routine slaughter lines. - Only a certain number of routine slaughter cattle are inspected for surveillance purposes.	**Good**
	Stunning with injection of pressured air or gas into the skull	Not practiced.	
	Pithing	Not practiced.	
MRM		Not produced.	
Additional requirements, etc. for export to Japan		- HACCP and SSOP are mandatory.	
Livestock Hygiene Requirements		[Description about SRM] Head (excluding tongue and cheek meat), spinal cord, distal ileum (within 2 meters from the connecting point to the appendix), vertebral column (structural component such as bone and dorsal-root ganglia) of cattle at all ages should not be contained.	
Administrative guidance on import of beef for human consumption, etc. by notice		Importing companies are instructed to withhold import of SRM for human consumption even from non-affected countries in order to prevent possible confusion in case BSE occurs in that country.	
Assessment of risk-reducing measures		**Efficacy of risk-reducing measures: 'very high'**	

(3) Conclusion

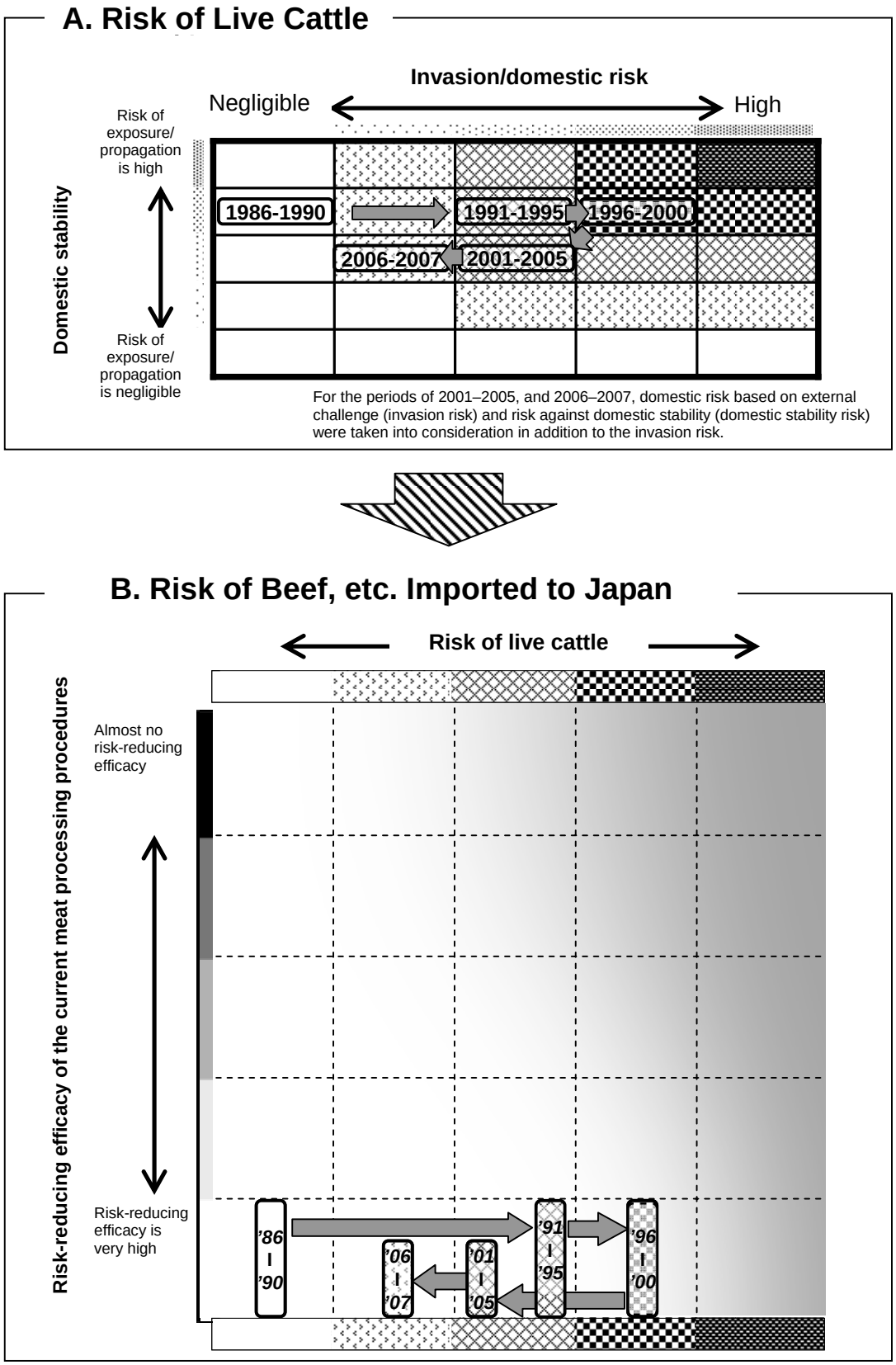
The evaluation of beef and beef-offal imported from Mexico, based on the Mexican government's responses, resulted in our consideration that the external challenge is "negligible" (1986–1990), "low" (1991–1995), 'moderate' (1996–2000), 'low' (2001–2005), and 'negligible' (2006–2007). The risk against domestic (internal) stability was considered that risk of exposure/propagation was "moderate" (1986–2000) and "low" (2001–2007). For the periods of 2001–2005 and 2006–2007, domestic risk based on external challenge (invasion risk) and risk against domestic stability (domestic stability risk) were taken into consideration in addition to the invasion risk.

Based on the results of assessments for external challenge and risk against domestic stability, while the possibility that BSE exposure/propagation have occurred in the past in Mexico cannot be denied, the domestic stability has improved in more recent years, and, therefore, the current risk of BSE exposure/propagation in Mexico is considered to be low.

The surveillance so far has turned out to be with no BSE positive cattle, thus the surveillance outcome over the seven years period (2001 to 2007) was assumed enough to meet the standard which "will allow the detection of BSE around a design prevalence of at least one case per 100,000 in the adult cattle population, at a confidence level of 95%" as stipulated by OIE. Risk-reducing effect during the meat processing steps was assessed as "very high."

Judging from those presented above, the potential risk of BSE exposure/propagation in Mexico is considered low, and the risk-reducing effect during the meat processing steps was assessed as "very high." Therefore, the risk of BSE prion contamination in beef and beef-offal imported from Mexico is considered to be negligible.

<Reference Mexico>



Periods show the birth cohort years (birth years of cattle)