

FINAL REPORT ON

THE UPDATED ASSESSMENT OF

THE GEOGRAPHICAL BSE-RISK

(GBR) OF

NEW ZEALAND - 2002

7 November 2002

NOTE TO THE READER

Independent experts have produced this report, applying an innovative methodology by a complex process to data that were supplied by the responsible country authorities. Both, the methodology and the process, are described in detail in the final opinion of the SSC on "the Geographical Risk of Bovine Spongiform Encephalopathy (GBR)", 6 July 2000 and its update of 11 January 2002. These opinions are available at the following Internet address:

<http://europa.eu.int/comm/food/fs/sc/ssc/outcome_en.html>

This report, and the opinion of the SSC based on it, is now serving as the risk assessment required by the TSE-Regulation EU/999/2001 for the categorisation of countries with regard to their BSE-status. The final BSE-status categorisation depends also on other conditions as stipulated in annex II to that TSE-Regulation.

1. DATA

- The available information was sufficient to carry out the qualitative assessment of the GBR.

Sources of data

- Country dossier (CD) consisting of information provided from the country's authorities in 1998/1999/2000 & 2002.

Other sources:

- EUROSTAT data on export of "live bovine animals" and on "flour, meal and pellets of meat or offal, unfit for human consumption; greaves" (customs code 230110), covering the period 1980 to 2001.
- UK-export data (UK) on "live bovine animals" (1980-1996) and on "Mammalian Flours, Meals and Pellets", 1988-1996. As it was illegal to export mammalian meat meal, bone meal and MBM from UK since 27/03/1996, exports indicated after that date should only have included non-mammalian MBM.
- Export data from Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Romania, Slovenia and Switzerland.

2. EXTERNAL CHALLENGES

2.1 Import of cattle from BSE-Risk¹ countries

According to the CD, thirteen cattle were imported from Great Britain in the period 1982 to 1987. These were 9 bulls and 4 Belgian blue heifers:

- ◆ Six of these bulls originated from herds in Great Britain where BSE had been detected, in 4 herds one case, in one herd there were 2 cases and in one herd there were 11 cases. Only one of these bulls was born in an affected birth cohort but when he was slaughtered at 6 years of age because of infertility, he had no clinical signs of BSE. One of the bulls was imported in 1984 and almost immediately exported to Australia in 1984.
- ◆ One of the heifers died as cow during a severe snowstorm.
- ◆ The other 11 cattle were slaughtered at an age of 1 year (1 animal), 4 (1), 6 (2), 7 (1), 8 (1), 9(2), 11 (1) and 13 years (1). One cow was still alive until 1999, when it was sent to slaughter and "found to be normal". It is not clear whether it was tested for BSE or not.
- ◆ Farms with surviving UK-animals were visited annually (after 1996 twice yearly) and the animals were subject to annual clinical inspections by MAF-veterinary officers. None of these animals showed clinical signs of BSE and histological examinations of their brains were not carried out.
- ◆ Animal waste from these imported animals was usually rendered.
- Import of live cattle from UK was suspended in December 1988.

¹ BSE-Risk countries are all countries already assessed as GBR III or IV or with at least one confirmed domestic BSE case.

According to Eurostat and UK export data, 274 live cattle were exported from UK to New Zealand (see table 1).

- 202 live cattle were according to the UK export statistics exported to NZ in 1981. They were registered as bull calves below 200 kg. The UK could not confirm this export, because data before 1988 were recently destroyed. NZ explained that all consignment of live animals had to be inspected prior to export by the resident Veterinary Counsellor of NZ. The responsible Veterinary Counsellor of NZ in the UK in 1981 was asked and confirmed that he did not inspect such a consignment. In addition, the NZ authorities checked their files and could not identify this import. Therefore, it is assumed that this entry in the UK export statistics was an error.
- 54 cattle were included in the UK export statistics (provided by the UK in 1999) as having been exported to NZ in 1992. However, they were not any more included in the updated export statistics made available by the UK in 2001. The NZ authorities also verified their import data and confirmed that no such import took place. It would anyway have been illegal because of the ban of UK-live-cattle imports of 1988. It is concluded that apparently also this entry in the UK export statistics was an error.

According to Eurostat data, 91 live cattle were exported from other BSE-risk countries to NZ, 68 from Ireland in 1987 and 23 from Germany in 1995.

- The 23 cattle that according to Eurostat were exported from Germany to NZ in 1995 were registered as “live bovine animals (excluding pure-bred for breeding)”. This import is not shown in the import statistics provided by NZ.
- The 68 cattle that according to Eurostat were exported from the Republic of Ireland to NZ in 1987 are not indicated in the import statistics of NZ.

In their latest comment the NZ authorities stated that they never had Import Health Standards for cattle from these countries. Unofficial imports are unlikely as New Zealand is more than 15,000 kilometres away from Europe.

2.2 Import of MBM² or MBM-containing feedstuffs from BSE-Risk countries

According to Eurostat data, 6 tons of MBM have been exported from the UK to New Zealand in 1987 and nothing from other BSE-risk countries. These were not included in the country's own import data. Upon request the New Zealand authorities submitted additional information on this consignment. They stated that there would have been no economic incentive for MBM imports from Europe and that they carried out a manual search of import statistics for 1987 and could not find any record of MBM imports from the UK in 1987. This amount is not taken into consideration because it seems quite unlikely that this import took place.

² For the purpose of the GBR assessment the abbreviation “MBM” refers to rendering products, in particular the commodities Meat and Bone Meal as such; Meat Meal; Bone Meal; and Greaves. With regard to imports it refers to the customs code 230110 “flours, meals and pellets, made from meat or offal, not fit for human consumption; greaves”.

| COUNTRY: NEW ZEALAND | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|-------|-----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|-------|
| Country | data | GBR | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 0 | 1 | Total |
| Germany | CD | III | | | | | | | | | | | | | | | | | | | | | | | 0 |
| | other | III | | | | | | | | | | | | | | | | 23 | | | | | | | 23 |
| Ireland | CD | III | | | | | | | | | | | | | | | | | | | | | | | 0 |
| | other | III | | | | | | | | 68 | | | | | | | | | | | | | | | 68 |
| UK | CD | IV | | | 1 | 1 | 7 | | | 4 | | | | | | | | | | | | | | | 13 |
| | other | IV | 7 | 202 | 2 | 1 | 2 | | | 6 | | | | | 54 | | | | | | | | | | 274 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | | |
| non UK | CD | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | other | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 91 |
| UK | CD | | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| | other | | 7 | 202 | 2 | 1 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 274 |

Table 1: Live cattle imports into New Zealand (CD) and corresponding exports from BSE risk countries. Sources for export data: Eurostat and UK export statistics and, where available, export statistics from other BSE risk countries. Note: Only imports in Risk periods are taken into account. Risk periods are defined according to the SSC opinion of January 2002.

| COUNTRY: NEW ZEALAND | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|-------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|-------|
| Country | data | GBR | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 0 | 1 | Total |
| UK | CD | IV | | | | | | | | | | | | | | | | | | | | | | | 0 |
| | other | IV | | | | | | | | 6 | | | | | | | | | | | | | | | 6 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | | |
| non UK | CD | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | other | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | CD | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | other | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |

Table 2: MBM imports into New Zealand (CD) and corresponding exports from BSE risk countries. Sources for export data: Eurostat and UK export statistics and, where available, export statistics from other BSE risk countries. Note: Only imports in Risk periods are taken into account. Risk periods are defined according to the SSC opinion of January 2002.

2.3 Overall assessment of the external challenge

The level of the external challenge that has to be met by the BSE/cattle system is estimated according to the guidance given by the SSC in its final opinion on the GBR of July 2000 (as updated in January 2002).

- Live cattle imports:

Eurostat data indicate that in total the country imported 365 live cattle from BSE risk countries, of which 274 came from the UK. However, the country provided convincing arguments from which it is concluded that only 13 cattle (CD), which were confirmed by the country were imported. Together these imports represent a negligible external challenge. This assessment takes into account the different aspects discussed above that allow to assume that certain imported cattle did not enter the domestic BSE/cattle system, i.e. were not rendered into feed.

- MBM imports:

Eurostat data indicate that the country imported 6 tons MBM from the UK (Eurostat) and nothing from other BSE risk countries. However, it is concluded that it is highly unlikely that this import took place. Therefore the external challenge resulting from MBM imports is negligible. This assessment takes into account the different aspects discussed above that allow to assume that the imported MBM did not enter the domestic BSE/cattle system.

| External Challenge experienced by <u>NEW ZEALAND</u> | | | | |
|---|----------------------|---|--------------------|----------------|
| <i>External challenge</i> | | <i>Reason for this external challenge</i> | | |
| Period | Overall Level | Cattle imports | MBM imports | Comment |
| 1980 - 2001 | Negligible | Negligible | Negligible | |

Table 3: External Challenge resulting from live cattle and/or MBM imports from the UK and other BSE-Risk countries. The Challenge level is determined according to the SSC-opinion on the GBR of July 2000 (as updated in January 2002).

On the basis of the available information, the overall assessment of the external challenge is as given in the table above.

3. STABILITY

3.1 Overall appreciation of the ability to avoid recycling of BSE infectivity, should it enter processing

Feeding

- The annual domestic production of MBM has been approximately 246,000 tons.

Use of MBM in cattle feed (before and after feed ban)

- In 1996, 72% of the domestic MBM production was exported.
- Animal protein has been to a small fraction fed to fattening cattle and very infrequently to dairy calves and cows.
- According to the CD, of all commercial feed produced in New Zealand, only approximately 12% was ever fed to ruminants and, according to the country experts, only a small fraction of this intentionally contained MBM.

Feed bans

- The New Zealand authorities stated that they have banned the importation of MBM for feeding to livestock for many decades. However, it is not clear when this ban was implemented or how it was controlled.
- A voluntary, industry agreed ban on the feeding of ruminant-derived MBM to ruminants was instigated in May 1996 and has continued.
- There are no official figures on the degree of compliance with the voluntary ban, but the country experts were confident that the feedstuffs industry had willingly complied with it.
- An official ban on the feeding of ruminant-derived MBM to ruminants came into effect in January 2000.

Potential for cross-contamination and measures taken against

- As cattle rations are manufactured in feed mills also producing monogastric rations there is a potential for cross-contamination of ruminant feed with ruminant MBM during production, storage, transport and on-farm.
- MBM has been and is still used in pig and poultry rations. This indicates a certain potential for cross-contamination of cattle feed with MBM-containing pig or poultry feed during production, storage, transport and on-farm.
- Information about the potential level of cross-contamination was not available.
- A realistic worst case assumption is that cross-contamination of cattle feed with animal (ruminant) protein exists.

Measures undertaken to control cross-contamination

- In May 1996 a voluntary industry agreement banned the feeding of ruminant-derived MBM to ruminants.
- Since the official ruminant to ruminant feed ban of January 2000, the producers of feed intended for ruminants have to operate a ruminant protein control programme to manage the risk of cross-contamination and product mislabelling.

Control of Feed bans and cross-contamination

- Since June 2001, ruminant feed samples and some samples from feed for other species (poultry, horses) are taken in feed mills. Also feed materials (mainly animal proteins) are sampled. These samples will be analysed for the presence of ruminant proteins using a PCR method. No prior notice is given for the sampling. From June 2001 until August 2002, 412 samples (more than 50 of them were targeted samples) have been taken. No results are available so far.
- The strategy of the feed sampling programme is laid down in “New Zealand TSE programmes – Summary document”, issued by MAF and NZFSA on 1 July 2002. According to this, it is foreseen to take 300 random samples and 150 targeted samples (samples taken immediately after feed was produced using ruminant proteins) annually. Feedmills producing ruminant feed have to be visited every 3 months (70 feedmills). In addition, imported compound feeds and feed materials of vegetable and animal origin are also sampled and analysed.

Rendering

- Forty-one facilities render animal waste to MBM and tallow. 79% of the rendering plants are linked to large slaughterhouses and process slaughter waste. The remaining 21% do not have a single source but collect material from slaughterhouses, butchers, tanners, directly from farmers, etc..
- In areas where dairy herds are concentrated most fallen cattle is rendered, the rest buried.
- The majority of rendering plants uses non-dedicated rendering lines for ruminant MBM, hence MBM from non-ruminants would normally be mixed with ruminant MBM.
- Three renderers are registered for a programme for the production of non-ruminant MBM. This MBM is also sampled and checked for the presence of ruminant MBM, because this MBM can be legally mixed into ruminant feed.

Rendering processes

- Since 1996, rendering has been subject to legislative control with respect to time/temperature records. However, the time/temperature/pressure combinations have never reached the 133/20/3-standard.
- The rendering plants are well monitored and record keeping and auditing within plants was assessed to be good.
- The rendering processes are unlikely to have the capacity to reduce any potential BSE infectivity.
- As SRM and fallen stock are rendered a very large fraction of BSE infectivity that could be harboured by infected cattle could enter this system and would be found in the MBM produced.

SRM and fallen stock

- No SRM ban has been instigated.
- SRM and fallen stock are treated like any other waste i.e. they are rendered and used for non-ruminant feed or exported.

Conclusion on the ability to avoid recycling

- The ability to avoid recycling of BSE infectivity, should it enter processing, was and is insufficient.
- Rendering is not according to standard (133°C, 20 min, 3 bar) and SRM and fallen stock are rendered for feed.
- Concentrate rations, which contained MBM, have been used as feed for a small proportion of fattening cattle and (infrequently) in dairy cattle.
- In May 1996, a voluntary, industry agreed ban on the use of ruminant derived MBM in ruminant rations was initiated but no compliance data were available.
- An official ban on the feeding of ruminant-derived MBM to ruminants came into effect in January 2000 but although taking of samples started in June 2001, no compliance data were available.
- Non-ruminant MBM is still permitted for ruminant feed. MBM, including ruminant MBM is and was used in pig and poultry feed, which is produced in the same lines as cattle feed. This indicates a potential for cross-contamination.

3.2 Overall appreciation of the ability to identify BSE-cases and to eliminate animals at risk of being infected before they are processed

Cattle population structure

- The total size of the cattle herd was 7.8 millions in 1989 and 8.8 millions in 1998.
- In 1998, there were 1,444,000 beef cows and 3,376,000 dairy cows.
- The dairy cow population grew from 2.6 millions in 1989 to 3.3 millions in 1998.
- The beef cow population grew from 1.3 millions in 1989 to 1.4 millions in 1998.

Age distribution of cattle, alive and at slaughter

- The mean age of dairy cows has reduced from 5 years in 1988/89 to 4.7 years in 1997/98.

Husbandry systems

- Both beef and dairy farming are, exclusively, extensive, pastoral based systems.

Cattle identification and monitoring system

- There has been no legal compulsion to identify livestock except imported animals.
- Ear tagging, ear marking or hide marking have been used almost universally for ownership identification and breeding purposes.
- Since 1986, progeny in 96% of dairy cattle herds are traceable by the Livestock Improvement Corporation (LIC). There are also extensive records for the period before 1986.
- LIC maintains an extensive database of DNA-profiles of semen donor bulls.

BSE surveillance

- According to the CD, since the 1920s, there has been a network of diagnostic laboratories to facilitate the passive surveillance of animal diseases in NZ.
- BSE is notifiable since 1989. A BSE-awareness program was initiated in 1990 and specific training in the pathological diagnosis of BSE has been provided to ensure cases were not misdiagnosed.
- From September 1989, there has been a surveillance of animals with a clinical history suggestive of TSE. In this process the 13 cattle imported from Great Britain were subject to annual clinical inspections by MAF-veterinary officers. Farms in which cattle imported from Great Britain were kept were annually visited and since 1996 twice per year.
- A NZ \$100 credit to the practitioner's laboratory account was initiated in 1990, whenever BSE is suspected on clinical grounds and the appropriate samples are submitted.
- All suspect cases of BSE which are reported, and the cases of neurological diseases which are identified, are examined by histopathology and, if the brain is autolysed, by SAF (at the VLA, Weybridge) as laid down in the OIE Manual of Diagnostic Procedures.
- Differential diagnosis is carried out in addition to the histopathological examination for BSE to provide as much information on the reasons for the clinical manifestations observed.
- In October 1988, a retrospective study of fixed adult (>18 months) bovine brain sections held in the Ministry of Agriculture and Fisheries (MAF) and Massey University collections was undertaken for histopathological evidence of BSE. A total of 50 brains were re-examined and no lesions were found suggestive of BSE.
- From January 1990 to December 1997, diagnostic veterinarians screened 3,857 cases presenting clinical signs of nervous disease in cattle.
- The number of brains examined for BSE was 76 in 1996, 108 in 1997 and 78 in 1998 (OIE-requirement: about 300).
- In 1998, an additional 1,009 brains from clinically normal cattle, 4 years and older, were screened for histopathological lesions of BSE. These brains were

examined because they were used in a research project as negative control samples.

- In 1999, 97 samples from cattle older than 24 months with nervous disease symptoms were histologically screened for TSE.
- In 2000, 46 samples from cattle older than 24 months with nervous disease symptoms were histologically screened for TSE. Additionally, 264 brains from fallen stock have been examined.
- In 2001, 99 samples and in 2002 (until June) 28 samples from cattle older than 24 months with nervous disease symptoms were histologically screened for TSE.
- Since 2001, a rapid BSE post mortem test is used for a programme to sample fallen stock, casualties and any imported cattle. In 2001, 285 brains from fallen stock have been tested for BSE. Since December 2001, 2149 additional brain samples were taken and 1,720 already tested negative. 154 were not tested because of quality issues, mainly failure to include the obex in the tissue sample. The samples have been taken at rendering plants (fallen stock, 1355 cattle), slaughterhouses (dead on arrival, died in yards, did not pass ante-mortem inspection, 205 cattle), pet food plants (emergency slaughters, 146 cattle) or elsewhere.
- The BSE surveillance programme has been revised and issued on 1 July 2002 (New Zealand TSE programmes – Summary document, issued by MAF and NZFSA). The OIE BSE case definition is quoted in the document and a wide interpretation of this definition is given as well. According to this document, the following cattle with 4 permanent incisors and which can be traced back to the farm of origin have to be sampled:
 - ◆ all cattle dead on arrival (at the slaughterhouse)
 - ◆ all cattle which died in the yard (at the slaughterhouse)
 - ◆ all cattle which did not pass the ante mortem inspection and fit the “case definition”
 - ◆ all cattle which are presented for emergency slaughter and fit the “case definition”
 - ◆ all imported cattle regardless of their age.
- Samples are unfit for testing if they are:
 - ◆ autolysed,
 - ◆ anatomically not identifiable,
 - ◆ autolysed during transport,
 - ◆ grossly contaminated,
 - ◆ not accompanied by appropriate, complete documentation,
 - ◆ not clearly labelled.
- Instructions are given on sampling of brain stem, storage conditions, dispatch of samples, disposal of sampled animals and for investigations to be carried out in case of clinical suspects or suspicious laboratory results.

- Actions are laid down for the case that BSE is confirmed (herd culling, culling of the birth cohort, sampling of all of these animals and disposal of the cadavers).

Quality of the surveillance system with regard to BSE

- Until 2001, the surveillance system was passive, with the exception of the targeted monitoring of animals with a clinical history suggestive of TSE, an unknown fraction of the total adult cattle population. It cannot be expected to detect all BSE cases, should they appear in the domestic cattle population. The fact that the number of cattle brains annually examined for BSE was well below the OIE requirement supports this assessment.
- A targeted surveillance of risk populations started in December 2001. This includes the risk populations similar to the monitoring programme in the EU. First results were provided, although the number of cattle tested within these risk populations is limited.

Overall appreciation of the ability to identify BSE cases and to eliminate animals at risk

- The ability to discover low levels of BSE incidence in the domestic cattle population was not sufficient until 2001, mainly because of the insufficient number of cattle brains annually examined for BSE and the mainly passive nature of the surveillance system.
- Since the introduction of the programme for the monitoring of BSE risk populations, the ability to detect even lower levels of BSE incidence increased. The monitoring programme could be further improved if the included possible derogation would be removed (i.e. also autolytic samples have to be tested) and a larger number of cattle would be tested.

3.3 Overall assessment of the stability

For the overall assessment of the stability, the impact of the three main stability factors (i.e. feeding, rendering and SRM removal) and of the additional stability factor, surveillance has to be estimated. Again, the guidance provided by the SSC in its opinion on the GBR of July 2000 is applied.

Feeding

Until 2000, it was legally possible to feed ruminant-MBM to cattle and a fraction of cattle feed is assumed to have included MBM. The voluntary ban of ruminant MBM from ruminant feed of 1996 might have reduced that risk, however, no evidence for the effectiveness of that de facto ban is available. Feeding is therefore considered “**not OK**” until 2000. As the official ban in 2000 was only a ruminant to ruminant feed ban and as long as no compliance data are available feeding will remain “**not OK**”.

Rendering

The rendering system was and is not able to significantly reduce BSE infectivity, should it be present in the raw material. For the time being rendering is therefore considered “**not OK**” throughout the entire period since 1980.

SRM-removal

SRM and fallen bovine stock are rendered into feed. Therefore, SRM removal was and is "not OK".

BSE surveillance

The BSE surveillance is mainly passive and the number of cattle brains annually examined for BSE remained below the requirements of the OIE. Hence the BSE surveillance of New Zealand was not able to detect clinical BSE-cases, should they have occurred. Since December 2001 this situation improved due to the new surveillance system testing larger numbers of samples.

| Stability of the BSE/cattle system in <u>NEW ZEALAND</u> over time | | | | | |
|--|--------------------|---------|-----------|-------------|------------------|
| Stability | | Reasons | | | |
| Period | Level | Feeding | Rendering | SRM removal | BSE surveillance |
| 1980 – 2000 | Extremely unstable | Not OK | Not OK | Not OK | ↓ |
| 2001 – current | | | | | → |

Table 4: Stability resulting from the interaction of the three main stability factors and the BSE surveillance. The stability level is determined according to the SSC-opinion on the GBR of July 2000.

On the basis of the available information, it has to be concluded that the country's BSE/cattle system is extremely unstable until now i.e. it would have recycled and amplified BSE-infectivity, should it have entered the system. If evidence were provided on the effectiveness of the feed ban, the system could be considered more stable than at current.

4. CONCLUSION ON THE RESULTING RISKS

4.1 Interaction of stability and challenges

In conclusion, the stability of the New Zealand BSE/cattle system in the past and the external challenges the system had to cope with are summarised in the table below.

From the interaction of the two parameters “stability” and “external challenge” a conclusion is drawn on the level of “internal challenge” that emerged and had to be met by the system, in addition to external challenges that occurred.

| INTERACTION OF STABILITY AND EXTERNAL CHALLENGE IN <u>NEW ZEALAND</u> | | | |
|---|--------------------|--------------------|--------------------|
| Period | Stability | External Challenge | Internal challenge |
| 1980 – 1985 | Extremely unstable | Negligible | Highly unlikely |
| 1986 – 1990 | | | |
| 1991-current | | | |

Table 5: Internal challenge resulting from the interaction of the external challenge and stability. The internal challenge level is determined according to guidance given in the SSC-opinion on the GBR of July 2000.

- An extremely unstable system was exposed to a negligible challenge.
- The risk that BSE-infected material, derived from imported animals, entered the feed production was considered to be negligible, given the small number of animals.
- Given the negligible level of the external challenge, no internal challenges occurred.

4.2 Risk that BSE infectivity entered processing

- Given the negligible risk that BSE has been imported into NZ, the processing risk was always negligible.

4.3 Risk that BSE infectivity was recycled and propagated

- Due to the negligible risk that BSE-infectivity entered the country there was no risk that BSE-infectivity was recycled or propagated.

5. CONCLUSION ON THE GEOGRAPHICAL BSE-RISK

5.1 The current GBR as function of the past stability and challenge

- The current geographical BSE risk (GBR) level is *I*, i.e. it is highly unlikely that domestic cattle are (clinically or pre-clinically) infected with the BSE-agent.

5.2 The expected development of the GBR as a function of the past and present stability and challenge

- As long as no external challenge occurs the GBR will remain low as it is. However, given the low stability of the system any such external challenge could lead to the building up of an internal challenge.

5.3 Recommendations for influencing the future GBR

- Improving stability.
- To continue import controls to prevent any external challenge.
- All measures that improve the stability of the BSE/cattle system of New Zealand would make the system less vulnerable and less dependent on the perfect functioning of a singular control measure.

Note: The emphasis on this aspect results from the fact that the stability determines the resilience of the system to unforeseeable future challenges. Moreover, a system where most critical points are controlled as good as possible, is safer than one in which all depends on one single point, here: avoidance of challenge. On the other hand, it is also obvious that successful avoidance of importing the BSE-agent or of feeding to cattle anything that could contain it, are valid, and apparently successful strategies to manage the risk.