

## 5. IMPLICATIONS

1. Previously the SSC emphasised that brain, spinal cord, neuronal ganglia and the ileum of an infected bovine contain the highest concentration of BSE-infectivity. These tissues, therefore, are of particular concern in terms of their potential to induce human vCJD although the dose needed to induce human infection is not known.
2. Intestines used from young infected animals are of particular concern since they become infectious in an early stage of the BSE-incubation.
3. The SSC is aware of the direct human consumption of both intestines and brain material by many population groups within the EU and now has evidence of brain and spinal material being used in common meat products such as pâtés and sausages.
4. Wherever the direct consumption of intestine or central nervous tissue is still legally possible, there is a greater likelihood of inducing human infection because of the potentially high infective load of these tissues and hence the high dose involved in consuming them.
5. The pessimistic realistic analyses presented in the three scenarios are recognised to be based on uncertain assumptions. These relate to the rate of transfer of all SRM, in particular the brain and spinal cord, of an infected animal into a batch of food, its distribution within that batch, the estimate of the batch size of a meat ingredient and its incorporation into common food stuffs.
6. The SSC sought to avoid some of these uncertainties in its enquiry of Member States, but it was not possible to refine them because of a lack of reliable data and alternative analyses of risk.
7. The SSC would welcome different views based on new evidence or different analytical approaches, which would allow more reassurance to be given to policy makers and the public.
8. However, with the assumed widest distribution of SRM in food products, up to 0.4 million people could be exposed to infected material when only one infected animal with pre-clinical disease, close to the end of the incubation period but passed as fit for human consumption, enters the food chain.
9. Recent evidence suggests that in countries with a reported low incidence, the actual rate of BSE infected animals entering the food chain is not nil. It should be acknowledged that under such circumstances presently available methods to prevent that an infected animal entering the food chain are far from being satisfactory. The capability of the recently evaluated post-mortem BSE-tests to

identify pre-clinical BSE-cases has still to be determined before they should be considered for mass screening of pre-clinical animals.

10. The SSC therefore reaffirms its original analysis that the removal from the food chain of specified risk materials would significantly decrease the risk of vCJD.
11. Since there is inter-Member State transfer of animals, cross-border trading in animal organs and marketing of offals, ingredients and processed foods into and out of most EU Member States, it is reasonable to conclude that the risk of human exposure to BSE infectivity within any one country is not necessarily linked to the geographical burden of infectivity in the cattle within that Member State.
12. The ideal level of protection of consumers from exposure to BSE-infectivity is the absence of infected animals from the human food chain. In the event that this cannot be reasonably guaranteed, the second level of protection of consumers from exposure to BSE infectivity is the removal of SRMs, particularly CNS-based SRMs which account for 95% of the infective load in a BSE-case approaching the end of the incubation. Failure to do so is likely to expose a large number of consumers to an unnecessary risk.

## 6. LITERATURE CONSULTED

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## ANNEX I : DETAILS OF SCENARIO CALCULATIONS

### GENERAL ASSUMPTIONS

- Total infectivity in one fully infected animal: 8,000 CoID<sub>50</sub> (Cattle oral ID<sub>50</sub> units)
- Number of persons per household: 2.7

### SCENARIO 1

#### Burger Meat

- MRM is produced in batches of 5 to 7 tonnes. Assume batch size is 5 tonnes, packaged in 20kg packs (250 x 20kg).
- Assume all infectivity (8000 CoID<sub>50</sub>) from one infected animal gets into a batch of MRM. (this would be very unlikely)
- Burger meat is produced in batches of 1 tonne, and may contain 5 - 10% of MRM.
- Burger meat/mince is normally sold in packages of 600g for one household (2.7 persons on average).

#### Calculations

- If 3 x 20kg packs of MRM are included in one 1000kg batch of MRM (6%), then 5 tonnes (250 packs) of contaminated MRM could contaminate 84 batches of burger meat.
- 84 tonnes of burger meat represent 114,000 (84,000 / 0.6), 600g packs that could expose 378,000 (114,000 x 2.7) persons.
- Average exposure would be 8,000 / 378,000 = 0.02 CoID<sub>50</sub> per person.
- Note: If MRM content is reduced, more people are exposed to a smaller dose, e.g.:

No. 20kg packs MRM per ton batch of mince	Percent MRM	Tons of mince contaminated	People exposed	Average exposure per person [CoID <sub>50</sub> ]
5	10%	50	225,000	0.04
4	8%	63	280,000	0.03
3	6%	84	378,000	0.02
2	4%	125	560,000	0.01
1	2%	250	1,125,000	0.007

#### MEAT STUFFED PASTA

- Cheap meat stuffed pasta contains about 13% of filling, which could be up to 100% MRM.
- Meat stuffed pasta is sold in 1 kg packs to an average household of 2.7 people.

#### Calculations:

- If 100% MRM is used in filling, one batch of MRM could contaminate 38,500 1kg packs of meat-stuffed pasta, exposing 104,000 people to an average dose of 0.08 CoID<sub>50</sub>.
- If 50% MRM used in filling, one batch of MRM could contaminate 77,000 1kg packs of Meat stuffed pasta, exposing 208,000 people to an average dose of 0.04 CoID<sub>50</sub>.

**Annex 2: Opinions adopted by the SSC since November 1997 on questions related to Transmissible Spongiform Encephalopathies (status : 8.12.1999)**

N°	Date of adoption	Title of the opinion
1.	9 December 1997	Listing of Specified Risk Materials: a scheme for assessing relative risks to man
2.		Report on the UK Date Based Export Scheme and the UK proposal on Compulsory Slaughter of the Offspring of BSE Cases
3.	22-23 January 1998	Opinion of the Scientific Steering Committee on defining the BSE risk for specified geographical areas
4.	19-20 February 1998	Opinion on the revised version of the UK Date Based Export Scheme and the UK proposal on compulsory slaughter of the offspring of BSE-cases, submitted on 27.01.98 by the UK Government to the European Commission
5.		Final Opinion on the contents of a "Complete dossier of the epidemiological status with respect to TSEs".
6.	26-27 March 1998	Opinion on BSE risk
7.		Opinion on the Safety of Tallow
8.		Opinion on the Safety of Meat and Bone Meal
9.	25-26 June 1998	The safety of dicalcium phosphate precipitated from ruminant bones and used as an animal feed.
10.		Possible links between BSE and organophosphates used as pesticides against ecto- and endoparasites in cattle.
11.	24-25 September 1998	Opinion on the risk of infection of sheep and goats with Bovine Spongiform Encephalopathy agent.
12.		Report and Opinion on mammalian derived meat and bone meal forming a cross-contaminant of animal feedstuffs.
13.		Scientific Opinion on the safety of organic fertilisers derived from mammalian animals.
14.		Updated Scientific Report on the safety of meat and bone meal derived from mammalian animals fed to non-ruminant food-producing farm animals, presented to the Scientific Steering Committee on 24-25 September 1998.
15.	22-23 October 1998	Report and Scientific Opinion on the safety of hydrolysed proteins produced from bovine hides.
16.		Opinion on the safety of bones produced as by-product of the Date Based Export Scheme.
17.	10-11 December 1998	Updated Report and Scientific Opinion on the safety of tallow derived from ruminant tissues
18.		Updated Report and Scientific Opinion on the safety of gelatine
19.		Preliminary opinion on a method to assess the geographical BSE-risk of countries or regions

20.	21-22 January 1999	Report and Scientific Opinion on the evaluation of the "133°/20'3 bars heat/pressure conditions" for the production of gelatine regarding its equivalency with commonly used industrial gelatine production processes in terms of its capacity of inactivating/eliminating possible TSE infectivity in the raw material.
21.	18-19 February 1999	Report and Scientific Opinion on the Safety of Gelatine (updated version of opinion adopted on 21-22 January 1999)
22.		Opinion on a method to assess the geographical BSE-risk of countries or regions, including the Manual for the assessment of the geographical BSE-risk.
23.	27-28 May 1999	Opinion on Monitoring some Important aspects of the evolution of the Epidemic of BSE in Great Britain (Status, April 1999)
24.		Opinion on: Actions to be taken on the basis of (1) the September 1998 SSC Opinion on the risk of infection of sheep and goats with the BSE agent and (2) the April 1999 SEAC Subgroup report on Research and Surveillance for TSEs in sheep.
25.	24-25 June 1999	Opinion on risks of non conventional transmissible agents, conventional infectious agents or other hazards such as toxic substances entering the human food or animal feed chains via raw material from fallen stock and dead animals (including also: ruminants, pigs, poultry, fish, wild/exotic/zoo animals, fur animals, cats, laboratory animals and fish) or via condemned materials.
26.	22-23 July 1999	Opinion on the conditions related to "BSE Negligible Risk (Closed) Bovine Herds".
27.		Opinion on the policy of breeding and genotyping of sheep, i.e. the issue whether sheep should be bred to be resistant to scrapie.
28.	16-17 September 1999	The risk born by recycling animal by-products as feed with regard to propagating TSE in non-ruminant farmed animals.
29.	28-29 October 1999	Opinion on the Scientific Grounds of the Advice of 30 September 1999 of the French Food Safety Agency (the <i>Agence Française de Sécurité Sanitaire des Aliments</i> , AFSSA), to the French Government on the Draft Decree amending the Decree of 28 October 1998 establishing specific measures applicable to certain products of bovine origin exported from the United Kingdom.
30.		Summary Report based on the meetings of 14 and 25 October 1999 of the TSE/BSE <i>ad-hoc</i> group of the Scientific Steering Committee on the Scientific Grounds of the Advice of 30 September 1999 of the French Food Safety Agency (the <i>Agence Française de Sécurité Sanitaire des Aliments</i> , AFSSA), to the French Government on the Draft Decree amending the Decree of 28 October 1998 establishing specific measures applicable to certain products of bovine origin exported from the United Kingdom.