

Bovine Spongiform Encephalopathy and Agriculture

Research Paper 96/62

15 May 1996



This paper deals with some agricultural aspects of the crisis over BSE which has continued since 20 March 1996. There is medical material in an earlier Library paper *Bovine Spongiform Encephalopathy* (95/132) of 20 December 1995, along with an account of the incidence of the disease. There is further material in a report by the Parliamentary Office of Science and Technology, *BSE and CJD : Science, Uncertainty and Risk* (POST Technical Report 78, April 1996)

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I Chronology of BSE and Measures to deal with it

(A) The original outbreak

Bovine Spongiform Encephalopathy (BSE) is a disease of cattle resulting in degeneration of the brain and eventually death. It was first noticed in the mid-1980s, and considerable research has since been undertaken. Many areas remain uncertain, however, and there is still no test for the disease in live animals, a fact which greatly complicates policies to control and eradicate the disease.

The disease was identified by the Central Veterinary Laboratory in **November 1986** following study of an affected cow. Initial epidemiological studies started in **April 1987**, and Ministers were informed of the new disease on **5 June 1987**. An experiment to determine the likely cause was then put under way, with results available in **September 1988**. On **15 December 1987** the initial epidemiological studies were completed, concluding that the only viable hypothesis for the cause of BSE was feedstuffs containing meat and bonemeal from ruminants - in this case, sheep. On **21 April 1988** the Southwood Working Party was announced. This was a working party, under the chairmanship of Professor Sir Richard Southwood FRS, to advise on the implications of BSE and matters relevant thereto. The Government indicated that they would legislate to make BSE notifiable and to ban feeding of rations that contained protein derived from ruminants. On **21 June 1988** the disease was made notifiable, and isolation of suspects when calving was required by the BSE Order 1988.¹ On **18 July 1988**, a temporary ruminant feed ban came into force.² The exact wording of the ban required an immediate end to the use of such feedstuffs, not simply to its production.

Prohibition of sale, supply and use of certain feedingstuff for feeding to ruminating animals

(1) No person shall knowingly sell or supply for feeding to animals any feedingstuff in which he knows or has reason to suspect any animal protein has been incorporated.

(2) No person shall feed to an animal any feedingstuff in which he knows or has reason to suspect that any animal protein has been incorporated.

¹ 1988 SI 1039

² *The Bovine Spongiform Encephalopathy Order 1988* (SI 1039)

On **5 August 1988**, based on interim recommendations from Southwood, a slaughter policy came into force, whereby animals with the disease were slaughtered. On **30 December 1988** legislation came into force to prolong the feed ban and to prohibit use of milk from suspect cattle for any purpose other than feeding to the cow's own calf.

On **27 February 1989** the Southwood Report was published and all its recommendations accepted. The establishment of the Tyrrell Committee on research was announced, following a Southwood recommendation. The Tyrrell Report was received by Government on **10 June 1989**. On **13 June 1989** the decision to introduce a ban on the use of certain specified bovine offals was announced. This was a Government initiative, not a recommendation of Southwood. On **13 November 1989** the Offals Ban Regulation came into force in England and Wales following consultation - a legal requirement - and consideration by top experts.³ On **30 January 1990** the offals ban was introduced in Scotland and Northern Ireland.

(B) The position in 1995

The restrictions in force before the present crisis are included in the *Specified Bovine Offal Order 1995*⁴ which came into force in August 1995, and represented a slight tightening up on the previous position. The reason for the tightening was explained by the Minister⁵, who said that the decline in the numbers of new cases showed that the ruminant feed ban was proving successful in bringing the epidemic under control:

However, we are continuing to see cases of BSE in animals born after the introduction of the feed ban in July 1988. This suggests that there has been some continued leakage of BSE infective material into animal feed.

We have already taken steps to prevent this by :

- introducing new requirements, in April 1995, on the staining of specified bovine offal (SBO);
- reviewing the controls on SBO to consolidate and strengthen them;
- introducing new EC standards at rendering plants and withdrawing from use a system which was found, in experiments, not to inactivate the BSE agent;
- identifying, with the industry, the potential for cross-contamination in feed mills so that systems can be tightened up;
- introducing the use of a new test to detect the presence of ruminant protein in animal feed.

³ 1989 SI 1039

⁴ SI 1928

⁵ *MAFF News Release*, 19 July 1995

He said that the new Order would bring in the following main changes:

- (i) To require all rendering plants, head-boning plants, incinerators and collection points for specified bovine offal to be approved by Ministers. Rendering plants will have to have a totally dedicated processing line for specified bovine offal.
- (ii) Movement permits for specified bovine offal issued by local authorities will no longer be required in view of tighter controls being introduced on approval and record keeping throughout the disposal chain;
- (iii) The brains and eyes of a bovine animal of six months or more may no longer be removed from the head so that the part of a skull containing brain and eyes, after removal of the head meat and tongue for human consumption, will have to be disposed of as specified bovine offal.

It is clear from the surveillance of slaughterhouses and head-boning plants that has been undertaken by my officials since the Government took over full responsibility for control of such premises in April this year, that current practice on the separation and staining of the specified bovine offals can be improved. Most of the failings we have identified are comparatively minor in nature - for instance using the wrong stain - and plant operators have been given clear instructions on what they must do to put things right. But some could have resulted in BSE infected material entering the animal feed chain. Further follow up visits are being made to ensure that the faults have been rectified....Although these lapses in our animal health control system are unsatisfactory, consumers have no cause for alarm. I am satisfied that these findings have no implications for human health and that measures to ensure that no infective material enters the human food chain are working effectively.

In November 1995, however, the Spongiform Encephalopathy Advisory Committee was concerned that the State Veterinary Service had found that in a small number of cases the spinal cord had not been properly removed in mechanically recovered meat. The Committee concluded that, unless and until there was full compliance with the requirement to remove the spinal cord, it would be prudent, as a precaution, to suspend the use of bovine vertebrae in the manufacture of mechanically recovered meat⁶.

(C) The position since 20 March 1996

The present crisis began with the announcement by the Secretary of State for Health about new conclusions from the Spongiform Encephalopathy Advisory Committee.⁷

The committee has considered the work being done by the Government surveillance unit in Edinburgh, which specialises in Creutzfeldt-Jakob disease. That work, which relates to the 10 cases of CJD that have been identified in people aged under 42, has led the committee to conclude that the unit has identified a previously unrecognised and consistent disease pattern.

⁶ *MAFF News Release* 28 November 1995

⁷ HC Deb 20 March 1996 c.375

A review of patients' medical histories, genetic analysis and consideration of other possible causes have failed to explain those cases adequately.

There remains no scientific proof that bovine spongiform encephalopathy can be transmitted to man by beef, but the committee has concluded that the most likely explanation at present is that those cases are linked to exposure to BSE before the introduction of the specified bovine offal ban in 1989...

The clearest statement of the Government's action came in the speech by Mr Hogg in the debate on 28 March 1996.⁸

I am pursuing the following timetable. Orders are being laid today that will have the effect of banning, from tomorrow, the manufacture of feeding stuffs for farm animals using mammalian meat and bonemeal and extending SBO controls to cover heads and lymph glands. As a temporary measure, I am also banning the sale of meat from newly slaughtered cattle aged over 30 months. This measure will apply until we have in place a procedure for licensing and supervising deboning plans, as recommended by SEAC. I am under a legal obligation to consult on the order introducing those procedures and on a proposed ban on the use of bonemeal in agricultural fertilisers. Despite that statutory obligation, I am proceeding rapidly. The consultation document has been issued, and I intend to make the relevant legislation in the week beginning 15 April...

The order to which I have referred has the effect of preventing cattle over the age of 30 months from entering the food chain, but the hon Gentleman should remember SEAC's recommendation that animals over that age could come into the food chain provided they did so in a deboned state, the deboning taking place in premises approved for that purpose...The order...is temporary in character and will cover the situation until such time as we can put in place the licensing regime that will enable farmers to sell cattle over the age of 30 months, the meat being in a deboned state...

The first [announcement] concerns the problem of the renderers, which is important because if the renderers cannot operate the slaughterhouse system will seize up and it will be impossible for farmers to sell their beef. Therefore the Government will make available transitional aid of around £1.5 million for week to help the rendering industry adjust to the changes...

The second announcement relates to the immediate problem of the young bull calves, for which there is not a market at present. I told the House on 25 March that a European Union market support scheme existed, which could be used to provide aid for the slaughter of young male calves from dairy herds. I am announcing today that we shall avail ourselves of that scheme, providing a premium of slightly more than £100 per head on all such calves slaughtered before reaching 10 days of age. That will be reviewed as the market position improves. I estimate that it will be worth some £50 million per year to UK farmers...

The orders were the following :

1. *The Beef (Emergency Control) Order 1996 (SI 961)*
2. *The Bovine Spongiform Encephalopathy (Amendment) Order 1996 (SI 962)*

⁸ HC Deb 28 March 1996 cc. 1230-1233

3. *The Specified Bovine Material Order 1996 (SI 963)*
4. *The Fertilisers (Mammalian Meat and Bone Meal) Regulations 1996*

The ban on meat from cattle of over 30 months is no longer seen as a short-term measure to last only until the deboning arrangements are finalised. That was made clear by the Minister in a further announcement on 16 April.⁹

The House is aware that animals slaughtered at 30 months of age or more are now excluded from the food chain, and of the expectation that farmers would be compensated by an EC scheme. I can announce today that such a scheme will come into effect in the week beginning 29 April, and will also be run by the intervention board. Depending on the weight of the animals, farmers could receive nearly £500 per animal - effectively the cull cow price. The Government will bear the costs of the slaughter and destruction of the animals.

I recognise that some producers of steers and heifers normally plan to bring their animals to market at over 30 months, and will not have had time to adjust their production systems. Such animals would typically fetch significantly more than cull cows. I am pleased to announce today that the Government will pay a nationally funded supplement to the basic premium in respect of such steers and heifers, at a rate that reflects the historic differences between cow prices and those for steers and heifers.

The supplement will be payable for six months, which will allow producers time to adapt their marketing programmes to the new circumstances. The cost is likely to be up to £80 million...the top-up will be set at no less than 25p per kilo for the first four weeks that the scheme is in operation.

In the longer run, we need arrangements to allow back on the market meat from breeds - specialist breeds, for example - that often do not mature until after 30 months. Many of the animals are in herds with no history of BSE. The case for exempting such animals from the 30-month rule is strong. As a matter of urgency, my officials are working up the technical elements of a scheme that would allow clearly defined exemptions to be made.

On 3 April, I reported extensions in the coverage of beef intervention. On 12 April, a further widening of the categories of intervention applicable in the UK and the removal of weight limits, were agreed. For the first time, intervention on young bulls will be possible in the UK.

More generally, I am pursuing with food retailers and manufacturers ideas for quality assurance schemes to help restore confidence in British beef. As a result, I can announce that we are proceeding as a matter of urgency with arrangements to improve animal identification and traceability. I hope to be in a position to introduce a scheme of mandatory animal passports for that purpose with effect from 1 June...

As for manufacturers, on 12 April I amended the emergency control order to allow imports of beef from animals over 30 months of age produced in certain third countries that traditionally supply the UK, in which there is no history of BSE...I should emphasise that my decision to lift the ban on imports does not apply to imports from EU countries.

As for the slaughtering sector, in my recent statements I have informed the House of the additional resources that we are giving the Meat Hygiene Service to ensure rigorous

⁹ HC Deb 16 April 1996 c.513

enforcement of the rules on hygiene in slaughterhouses, especially in connection with specified bovine offals...

I can announce today that I propose to introduce an aid scheme which will inject £110 million into the slaughtering sector. It will consist of two elements. The first is that all slaughterhouses that continue to slaughter bovines will receive payment based on their throughput of cattle in 1995/96. The payment will be made in two stages, with 80% to be paid immediately, and the remaining 20% in two months time. This assistance will replace the proposal to relieve slaughterhouses from Meat Hygiene Service red meat inspection charges to which we referred on 3 April. Assistance will be paid at around £8.75 for every bovine slaughtered during 1995/96, giving a total of £30 million to be paid under this head.

The second element is that the Government will introduce arrangements for purchasing and disposing of the blockage, which has already been identified and audited under the supervision of Coopers and Lybrand. The intervention board will purchase those stocks at a valuation of 65% of the pre-crisis market price and will take responsibility for their secure disposal. The board will enter into discussions with the trade associations on the detailed mechanisms. We estimate that the total cost of this second aid will be £80 million, making £110 million of aid overall.

On 25 April, Mr Hogg made a statement on a possible proposal for further action.¹⁰

Possible ways of targeting for either slaughter or movement restriction a limited number of cattle have been sent to the European Commission. These are designed to speed up the elimination of BSE from the UK herd.

Such a measure could only be part of a process which will lead to the lifting of the ban on British beef and beef products...

The main parts of the proposals are to target those cattle most likely to develop BSE by;

tracing recorded BSE cases back to the herd of origin;

using farm records to find other cattle of the same age from the same herd;

either culling, or placing movement restrictions on the defined birth cohort associated directly with BSE.

About 40,000 cattle are estimated to be affected. The plan could reduce BSE by between 15% and 30%. This is in the context of a continuing downward trend in the incidence of the disease.

However, this measure did not persuade the Council of Agriculture Ministers to remove the export ban. Mr Hogg reported to the House on the Agriculture Council.¹¹

¹⁰ *MAFF News Release*, 25 April 1996

¹¹ HC Deb 1 May 1996 c.1147

My first objective at the Council was naturally to achieve action on the export ban. Progress was made on this, and the conclusions of the Council explicitly recognise that the ban is temporary. They also recognise that the measures already put in place and foreseen form "part of a process which should allow the export ban to be progressively lifted on a step by step basis."

In addition, the Council has recognised that the lifting of the ban in respect of tallow, gelatine and semen should be addressed in the Standing Veterinary Committee shortly. As the House knows, the relevant decisions are taken by qualified majority vote in the Standing Veterinary Committee, not in the Council.

On 8 May, the European Commission stated, in a recommendation to the Standing Veterinary Committee, that once strict procedures for processing animal remains were introduced in the UK, it would no longer be necessary to maintain a ban on exports of gelatine, tallow and semen. The Standing Veterinary Committee is to consider the recommendation on Wednesday 15 May. However, Germany has already announced its opposition to the recommendation.¹²

II Reporting of the Crisis

During the recent crisis, three claims have been widely made in newspapers, each suggesting that the disease was the result of specific official mistakes. The first claim is that the law on the content of feedstuffs for animals changed, allowing cattle to be fed on meal containing remains of sheep infected with scrapie. The second claim is that the disaster resulted from deregulation and the consequential dropping of the proposed protein processing order which had been prepared in draft before the 1979 election. The third claim is that the Royal Commission on Environmental Pollution specifically warned against the dangers of feeding animal remains to ruminants in 1979, but was ignored.

(A) The Law on Contents of Animal Feedstuffs in the 1970s and 1980s

There are several regulations involved, but there is apparently not one which relaxed controls in a way that resulted in the outbreak. There are Regulations concerning animal feedstuffs from time to time, including two around the time of the origin of the disease:

*The Feeding Stuffs Regulations 1982 (SI 1143); or
The Feeding Stuffs (Amendment) Regulations 1984 (SI 51)*

However, neither of these changed the law to allow the use of meat in feed for ruminant animals, or in any other way apparently related to the BSE outbreak. Most of the rules are, in any case, derived from European Community Directives.

¹² *Agra Europe*, 10 May 1996 E/2

(B) The Proposed Protein Processing Order and its replacement

In 1978 the Labour Government issued for consultation a document on Proposed Protein Processing Orders.¹³ The purpose was explained in the introduction:

3 The aim of the proposed controls is to prevent as far as is possible the re-cycling of salmonella and other disease organisms in animal, bird or fish material processed for inclusion in feedingstuffs. There is growing concern about the increasing incidence of salmonella infection in livestock and poultry, and of food poisoning in human beings caused by those serotypes most frequently contaminating animal protein. Although it is recognised that there are other ways in which salmonella can be introduced and re-cycled, there is strong evidence to support the view that a uniformly high standard of hygiene in the protein processing industry, both at home and in our imported supplies, will make a significant contribution towards the reduction of the total pool of this infection.

All rendering plants supplying feedstuffs would have to be licensed.

8 The Agriculture Departments would license premises when they were satisfied that, as far as was practicable, (a) the method of processing was sufficient to destroy all organisms, excluding their spore forms, which may infect livestock or poultry and (b) no re-contamination of the processed product was likely to occur either in or during transport from those premises.

9 Before the grant of a licence could be considered the premises would first have to comply with the constructional and operational requirements of the order. These requirements would be set out in schedules to the order...Because of the variation in lay-out that in practice occurs between one plant and another, the likelihood is that operators would need advice on the means of complying with the order. Specially trained veterinary officers would provide this advice on request once the order was made.

10 The method of processing would not be laid down. It could be effected by heat, chemical or other means, the criterion being that the final product was free of salmonella organisms as indicated by the test method specified in Appendix II. Operators of plant which met the constructional and operational requirements of the order would be required to submit samples of their freshly processed product to an approved laboratory to demonstrate that the product met the required bacteriological standard.

The Conservative Government introduced another Consultation Paper with a different philosophy.¹⁴

2 The earlier proposals were formulated on the basis that all domestic plants processing animal protein for inclusion in animal feed should be licensed. Licences would be issued only if the process itself was capable of killing salmonellae and other disease organisms and the layout, construction and operation of the processing plant were such that re-contamination of the finished product was prevented. Similar standards were to be required of the imported product...

¹³ Proposed protein processing orders, MAFF 3 May 1978

¹⁴ Proposed Protein Processing Order, 16 April 1980

3 The new proposals reflect the wish of Ministers that in the present economic climate the Industry should itself determine how best to produce a high-quality product, and that the role of Government should be restricted to prescribing a standard for the product and to enforcing observance of that standard. Ministers take the view that this simpler approach would have the incidental advantage of enabling the Industry to prepare for more stringent measures which might have to be taken at some future date.

The resulting proposals appeared in the *Diseases of Animals (Protein Processing Order) 1981 (SI 676)*. The Explanatory Note describes the measure:

This Order, which applies to Great Britain, enables authorised officers (as defined in the Order) to take for analysis at an approved laboratory samples of processed animal protein from premises where it is being produced.

The Order gives power to veterinary inspectors, where such analysis shows that a sample of processed animal protein does not conform with the required bacteriological standard (as defined in the Order), to serve a notice on the owner or person in charge of the premises from which the sample was taken requiring him to ensure that all animal protein produced on the premises conforms with this standard as from a date specified in the notice. Failure to do so will be an offence against the Diseases of Animals Act 1950.

The Minister commented on the origins of BSE in March 1996.¹⁵

My hon. Friend is right that it had nothing to do with deregulation. The first regulation was imposed in 1981. There was no regulation in the 1970s : the Conservative Government were the first to impose one. There were draft proposals but...they had to do with salmonella. In any event, the temperatures contemplated in the draft regulations were wholly irrelevant to BSE because they would not have deactivated it.

The report by the Agriculture Select Committee in 1990 on Bovine Spongiform Encephalopathy¹⁶ contains some discussion of changing practices in the rendering industry, but the only specific criticism of MAFF rules seems to be that of a renderer who argued that the *Diseases of Animals (Protein Processing Order) 1981 (SI 676)* dealt merely with salmonella and not with other agents which could only be killed by processing at much higher temperatures.¹⁷ While this is correct, the 1981 Order did mark a tightening of rules not a relaxation.

The generally accepted explanation for the occurrence of BSE is that it followed a change of process in the rendering industry away from the use of chemical solvents, in a process which required a high temperature to drive off the chemicals, to another continuous process. The latter process did not use the chemicals, partly because of tighter regulations after the Flixborough explosion, and therefore did not use the high temperatures. Apparently, nobody

¹⁵ HC Deb 28 March 1996 c.1238

¹⁶ 1989/90 HC 449

¹⁷ Appendix 21

considered this to be a risk at the time. It remains obscure why this change in processes should have allowed the creation of BSE. The agent is so resilient that, once created, it cannot be destroyed by much higher temperatures. The practice of feeding cattle with meal including items from sheepmeat was not new - although it had increased for economic reasons in the late seventies, relative to the use of fishmeal for a protein supplement.

(C) The Royal Commission on Environmental Pollution Warning

Some newspapers have referred to a warning given to Ministers in 1979 over the dangers of spreading disease from animals through inappropriate animal feed. This was cited in the *Guardian* and in some other newspapers. However, the sentence they have quoted (in italics) needs to be seen in the context of the two paragraphs in which it appears.¹⁸ Taken as a whole, the passage generally endorses the use of animal remains in animal feed. It was, however, written, before the development of the prion hypothesis, the infective agent believed to be responsible for BSE.

5.63 In addition to its use as a fertilizer, some animal wastes may also be recycled as an animal feedstuff. The use of poultry manure as a feedstuff component is well recognised although there are obstacles to its full development. Poultry manure from intensive hen houses, which is virtually neat faeces, can be dried to provide protein which can be added to animal feedstuffs. Poultry and pig manures are used in some parts of the world for fish food, either directly or through detritivores such as worms. The recycling of poultry manure, however, has been beset with economic and environmental problems. Energy used for drying may increase costs to the point where bought-in protein is cheaper. The elimination of the unpleasant smell produced during the drying process may require the use of an afterburner in the drier exhaust which further increases cost. For this reason, poultry houses designed for natural drying may prove increasingly beneficial if energy costs continue to rise. Poultry litter from broiler houses can be ensiled by relatively simple means, such as clamping, to provide protein material that can be used in the diet of ruminants. *The major problem encountered in this recycling process is the risk of transmitting disease-bearing pathogens to stock and thence to humans (italics added).* This may occur, for example, when the ensiling process takes place on the farm and inadequate precautions are taken to ensure that pathogens are not carried to the clamp, perhaps on the wheels of vehicles.

5.64 The Commission noted in its Fourth Report that the use of poultry manure as a cattle feed ingredient, though distasteful to some people, represents an environmentally sound reuse of materials given that care is taken to avoid health hazards. We share the view expressed by ACAH that the practice could make a significant contribution to the disposal problem and should be encouraged. We were informed by MAFF that high fuel costs and problems of smell nuisance had resulted in the closure of many plants in the UK although we do not know the relative importance of these two factors. To the extent that the latter is the principal cause, this would add emphasis to the need to find ways of controlling smell.

¹⁸ The Royal Commission on Environmental Pollution, 7th Report, *Agriculture and Pollution*, (September 1979) pp. 149-150

III Why has BSE continued after the imposition of the feed ban ?

(A) Cows with BSE born after the feed ban

Although the feed ban was imposed in July 1988, cases of BSE continue to occur. That partly reflects the long gestation period of the disease, but also the fact that many cattle with BSE were born after the imposition of the ban. Critics sometimes suggest that this proves that transmission is not simply via infected feedstuff but also through maternal transmission (in other words mothers transmitting the disease to their offspring). However, the issue is more complex and less clear-cut than it might seem.

A PQ last October asked about the number of cows born after the feed ban¹⁹.

Mrs. Browning : The number of animals affected with BSE that were born after the feed ban is relatively small compared with the number born prior to the ban. As at 24 October 1995, there have been 22,946 cases confirmed in animals born after the ban - or BABs - 10,689 cases born in July to December 1988, 9,364 born in 1989, 2,425 born in 1990, 461 born in 1991, 6 in 1992 and one in 1993 - compared with the total number of BSE cases confirmed to 24 October 1995 of 154,150. Of cases born after the ban, 87% are in animals born in 1988 and 1989 when feed manufactured before the ban was still in the animal feed chain.

A number of pieces of evidence together indicate the role of feed in transmitting infection to animals born after the ban. First, the infectivity of cattle brain from animals with BSE has been demonstrated in a pathogenesis study when it is fed to calves. Secondly, the infectivity of rendered ruminant waste which included brain from clinically affected cattle has been demonstrated in experiments looking at various rendering mechanisms and conditions. Third, the case control study of BABs born after 31 October 1988 found no evidence that any methods of transmission, other than feed, which was not included in the study, was occurring at a frequency capable of maintaining the epidemic. In particular, the study found no statistically significant evidence that maternal transmission occurred. Fourthly, analysis of the geographical incidence of BSE in homebred animals shows that the proportion of cases of BSE in the northern and eastern regions of England, where the ratio of pigs and poultry to cattle is greatest, has increased relative to the rest of Britain. This change is consistent with the contamination of cattle feed stuffs by pig or poultry feed stuffs, or ingredients used to prepare them, having occurred in premises which produce both ruminant and monogastric rations. It was permissible to feed protein derived from specified bovine offals to non-ruminant species until 25 September 1990.

The following table shows the age of cattle with BSE, clearly indicating that some were born not just after the ban came into force, when a bag of old feed might have been lying around, but years later.

¹⁹ HC Deb 31 October 1995 c.220w

Age Profile of Cattle with BSE²⁰

Year Case Reported	Age (years)								total	
	1-	2-	3-	4-	5-	6-	7+	unknown		
1993		0	17	1056	6268	15725	7639	2969	697	34,371
1994		0	17	486	3642	6281	8467	4385	665	23,943
1995		0	6	415	1539	3149	2875	4197	556	12,737

As noted above, the tightening of controls in August 1995 was specifically linked to the suggestion "that there has been some continued leakage of BSE infective material into animal feed".²¹

(B) Studies on maternal transmission

Maternal transmission (the mother passing the disease to her offspring) has been demonstrated in sheep scrapie²². It is difficult to test whether such transmission is occurring and although work has been underway for some years, BSE, with its long incubation period, possible genetic predisposing factors and the absence of any live test for the disease does not lend itself readily to study. Simple maternal transmission of a disease should be very clearly distinguished from the possibility of any genetic predisposition, or even resistance, to BSE being inherited (for instance, there may be a large or slight genetic contribution to susceptibility to various forms of human spongiform encephalopathies; see Library Research Paper 95/132, page 20).

Two papers have so far been published which address the issue of maternal transmission. The first²³ attempted to assess all the risk factors which could be contributing to an animal developing BSE. To do this it carried out a 'matched case control study' in which 349 confirmed cases of BSE born after the feed ban were compared to unaffected control animals

²⁰ Library Deposited Paper 3/2962

²¹ MAFF News Release 19 July 1995. The controls were implemented in the *Specified Bovine Offal Order 1995* (SI 1928)

²² Spongiform Encephalopathy Advisory Committee *Transmissible Spongiform Encephalopathies A summary of present knowledge and research*. September 1994

²³ Hoinville, LJ, Wilesmith, JW and Richards MS An investigation of the risk factors for cases of bovine spongiform encephalopathy born after the introduction of the 'feed ban'. *Veterinary Record* (1995) **136**, pp. 312-318

born in the same herd and in the same season. The potential sources of infection to which both sets of animals had been exposed were compared. There was no significant difference between the affected animals and the control group when the number of cases whose mothers subsequently developed BSE was considered. In other words, the mother's BSE status was not a significant risk factor in determining whether the offspring subsequently developed BSE.

There was however some association between developing BSE and being born on the day or one to three days after a subsequently affected animal calved. While conceivably this could have been caused by infection from a placenta, placental tissues have not yet been shown to be infective and there was no difference in cases according to whether the placenta was routinely removed from calving accommodation. The statistical significance of the association was marginal so the authors considered that any evidence for a causal effect from exposure to subsequently affected animals at around the time of birth should be treated with caution.

A subsequent study²⁴ adopted two lines of approach. First, offspring born to two fathers or 110 mothers which had subsequently developed BSE were compared, in each case, to three control animals in the same herd, born of parents unaffected at the time of the study. There was no significant difference in the incidence of BSE between the animals born to BSE affected parents and the controls born to unaffected parents. The authors considered that this confirmed Hoinville *et al's* (1995) conclusion that there was no difference in the incidence of BSE between offspring born to parents which later developed BSE and born to those who didn't.

Secondly, the study examined correlations between BSE incidence and various risk factors in 2210 cases in five herds. The incidence of BSE was highly correlated with the animals' herd, the birth date, and the age of the animal at the most recent record, and to a lesser but still significant extent with the age of the mother at birth. However, there was no significant effect arising from the BSE status of the mother.

There are some problems with this, because some of the control mothers might have been incubating the disease while not appearing affected at the time of the study, and there may also be the confounding factor of susceptibility or resistance to BSE being inherited (see above) although there is no evidence for this as yet. However, assuming that the control mothers were not incubating the disease, the authors found no evidence for maternal transmission of BSE.

²⁴Curnow, RN and Hau, CM The incidence of bovine spongiform encephalopathy in the progeny of affected sires and dams. *Veterinary Record* (1996) **138**, pp.407-8

One study, involving 315 paired calves, is still on-going and should provide clearer information. Each pair consists of an exposed animal (an offspring of a confirmed case) and a control calf (from the same herd and birth cohort but born to an unaffected mother over six years of age). The work is due to be completed at the end of 1996 (it will take a little longer for the work to be published) when all the animals have reached their seventh birthday and have been slaughtered and examined for BSE. Although one statistician at the MRC Biostatistics Unit in Cambridge has called for the study to be unblinded now to allow its results to be used for projections of future case numbers²⁵, until all the pairs can be examined on post-mortem the statistical significance of the results would be reduced²⁶.

IV Restrictions on British Beef Exports

(A) Countries banning British Beef Exports before the present Crisis

The following is a list of countries which had a ban on the importation of UK beef as of 9 February 1996.²⁷

(i) Ban on bone-in beef and boneless beef :

Algeria, Argentina, Barbados, Bulgaria, Canada, China, Guyana, Iraq, Iran, Jamaica, Japan, Jordan, Kazakhstan, Libya, Lithuania, Paraguay, The Philippines, Russian Federation, Saudi Arabia, Syria, Taiwan, UAE, Uruguay, Uzbekistan and Slovenia.

(ii) Ban on bone-in beef

Switzerland

(iii) The following countries had previously placed a ban on the export of British beef, but then lifted it.

Chile, Cyprus, Egypt, Kuwait, Lebanon, State of Sarawak (Malaysia), Mauritius, Morocco, Oman, Qatar, Trinidad and Tobago, Turkey and Tunisia. Poland had had a ban on bone-in beef which had been lifted.

²⁵BMJ Volume 312 30 March 1996 pp. 790-793

²⁶Spongiform Encephalopathy Advisory Committee *Transmissible Spongiform Encephalopathies A summary of present knowledge and research.* September 1994 p. 67

²⁷ This information has been directly supplied by MAFF

The position of the USA is complex. For reasons unconnected to BSE, beef can only be exported from the UK to the USA, if it comes from animals slaughtered in an "approved plant". The justification for this is that the UK imports meat from countries which have foot and mouth disease, and the US authorities are concerned that the meat they buy should not be mixed with such meat. There is no such approved plant, so no exports have been possible for some years. In 1994, The British authorities persuaded the US to grant a certificate approving the import of boneless beef. The objective was not to start exports to the USA, which remained banned, but to use the certificate to show other countries to which the UK wanted to export beef that the USA would not be deterred from importing British beef because of BSE.

(B) Countries with bans introduced since 20 March 1996

Country	Official Ban	Unofficial Ban	Products
Bahrain	*		Beef and beef products
Benin		*	Beef
Cyprus	*		Beef and beef products
Gabon	*		All consumables from UK
Hong Kong		*	Beef
Ivory Coast		*	Beef
Japan	*		Beef and bovine semen
Jordan		*	Beef
Korea	*		Beef and beef products
Kuwait		*	Beef
Liberia		*	Beef
Malaysia	*		Beef and other bovine prods excl milk
Malta		*	Beef
Mauritius	*		Beef
Mayotte		*	Beef
New Zealand	*		Beef
New Zealand	*		Lamb
Qatar		*	Beef and all meat
Seychelles		*	Beef
Singapore	*		Beef
South Africa	*		Beef
Switzerland	*		Beef
Tahiti		*	Beef
Thailand	*		Beef + bovine prods except h
+gelatin			
Trinidad & Tobago	*		All beef products
Turkey	*		All beef products
Yemen		*	All consumables from UK

(C) The European Union ban on British exports of beef

The EU ban on British exports of beef was implemented by a Commission Decision 96/239/EC of 27 March 1996 on emergency measures to protect against bovine spongiform encephalopathy.²⁸ The paragraph explaining the reasoning comes in the preamble:

Whereas, under current circumstances, a definitive stance on the transmissibility of BSE to humans is not possible; whereas a risk of transmission cannot be excluded; whereas the resulting uncertainty has created serious concern among consumers; whereas, under the circumstances and as an emergency measure, the transport of all bovine animals and all beef and veal or derived products from the United Kingdom to the other Member states should be temporarily banned; whereas the same prohibitions should also apply to exports to non-Member countries so as to prevent deflections of trade;

In other words, the main point is the ban on exports to other EU countries. The ban on exports outside the EU is added on so as to enforce the internal one. In general terms, the ban on imports by other EU Members could probably be justified under Article 36 of the Treaty of Rome, which follows several Articles requiring the removal of trade restrictions within the Community.

The provisions of Articles 30 to 34 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants; the protection of national treasures possessing artistic, historic or archaeological value; or the protection of industrial and commercial property. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States.

The 1996 Commission decision is based on Directives concerning veterinary and zootechnical checks applicable in intra-Community trade.²⁹ Article 1 of the 1990 Directive requires veterinary checks. Article 10(4) - singled out for mention in the Commission Decision- reads as follows :

The Commission shall in all cases review the situation in the Standing Veterinary Committee at the earliest opportunity. It shall adopt the necessary measures for the animals and products referred to in Article 1 and, if the situation so requires, for the products derived from those animals, in accordance with the procedure laid down in Article 17. The Commission shall monitor the situation and, by the same procedure, shall amend or repeal the decisions taken, depending on how the situation develops.

²⁸ 1996 OJL 78

²⁹ 90/425/EEC and 89/662/EEC as amended by 92/118/EEC

Article 9 of the 1989 Directive is also singled out. Member States are required to notify other Member States when an animal disease has broken out, and shall take appropriate action. There follows an important provision.

Pending the measures to be taken in accordance with paragraph 4, the Member State of destination may, on serious public or animal-health grounds, take interim protective measures with regard to the establishments concerned or, in the case of an epizootic disease, with regard to the area of protection provided for in Community rules.

Once again, the Commission is to review the situation and to take necessary measures.

Whether the worldwide ban is justified in terms of this legislation is something to be tested in the European Court, where it is being challenged both by the British Government and by the National Farmers Union. The exact terms of the challenges have not yet been published. The NFU challenge started with an application for judicial review in the High Court of the refusal by MAFF and Customs & Excise to issue health certificates for live animals for export. Since they were carrying out the instructions of the EU, it is a method of challenging the Commission's power. Mr Justice Turner said that the National Farmers Union had an "arguable case" that the EU ban was illegal and ordered the case to be referred to the European Court "at the earliest expedient moment".³⁰

The Government's challenge is to be under Article 173 of the Treaty of Rome. This article states :

The Court of Justice shall review the legality of acts adopted jointly by the European Parliament and the Council, of acts of the Council, of the Commission and of the ECB, other than recommendations and opinions, and of acts of the European Parliament intended to produce legal effects vis-a-vis third parties.

It shall for this purpose have jurisdiction in actions brought by a Member State, the Council or the Commission on grounds of lack of competence, infringement of an essential procedural requirement, infringement of this Treaty or of any rule of law relating to its application, or misuse of powers.

The Court shall have jurisdiction under the same conditions in actions brought by the European Parliament and by the ECB for the purpose of protecting their prerogatives.

Any natural or legal person may, under the same conditions, institute proceedings against a decision addressed to that person or against a decision which, although in the form of a regulation or a decision addressed to another person, is of direct and individual concern to the former.

The proceedings provided for in this Article shall be instituted within two months of the publication of the measure, or of its notification to the plaintiff, or, in the absence thereof, of the day on which it came to the knowledge of the latter, as the case may be.

³⁰ *Guardian*, 26 April 1996

(D) Do other countries have BSE as well as the UK ?

There have been very few BSE cases abroad. There have been only 16 confirmed cases in France. There have been 186 cases in Switzerland. Other cases, according to MAFF, came in cattle imported from the UK and their numbers are very small. The low figures are surprising, particularly since the UK exported feedstuff, including some which would presumably have been contaminated.

There have been suggestions in the UK that these figures are gross underestimates but no evidence has been produced. It is possible that cows fall ill and die on the Continent more often without the farmer calling a vet. Therefore there would be no diagnosis. It is possible that there is a cumulative effect whereby few cases are seen by vets who are therefore unused to seeing BSE cases and favour a different diagnosis.

There is certainly no incentive for a farmer to reveal a suspect case. In Italy compensation is only paid at the rate of 70% of the value of the healthy cow. In France compensation is said by the French Government to be "generous". However, all the cattle in the herd are slaughtered, which could be devastating for a dairy farmer.

The position remains unclear, but the discrepancy between the 16 cases in France and the 160,000 in the UK is a gap too wide to be bridged.

The USA has, officially, never had a case of BSE, but this position has been challenged by Howard Lyman, food director of the Humane Society, the largest welfare group in the US, with 2.5 million members.³¹

Lyman is eloquent on what he sees as, at best, an ignorance in the US government or, at worst, a cover-up protecting the large companies with a vested interest in beef. The US may not have BSE, but in the light of an increasing number of farmers feeding cowmeat to cows, another bizarre and fatal condition has arisen.

Downer Cow Syndrome (DCS) is the term given to the 100,000 apparently healthy US cows that drop dead every year. A high proportion of these cows are ground up and fed to other cows. While none of these cows have exhibited symptoms like those in mad cow disease, researchers in Wisconsin discovered that minks given DCS feed did so. The most crucial evidence was that Holstein cows whose brains were injected with "mad mink" brain died after 18 months of an encephalopathy disease. It seems obvious to Lyman that there is some kind of brain disease infecting parts of the US herd. He doesn't wholly trust the US government's figures that of 2,700 DCS cows analysed, zero had BSE. "They realise that one case of BSE will put the entire export industry at risk," he says.

³¹ *Guardian*, 27 March 1996

V Possible European Compensation for BSE

(A) Cost of BSE Measures

There has been some confusion as to the European contribution to the cost of BSE measures. Spokesmen from the European Commission have referred to the European contribution as 70% of the cost of the measures, but the reduction in the UK's rebate resulting from higher UK receipts reduces the net benefit. The famous rebate achieved by Mrs Thatcher in essence amounts to 66% of the difference between the UK's payments and receipts. The rebate is deducted from the UK's VAT contribution in the following budget year. Because funding for the slaughtering campaign will be classed as a UK receipt, it will have the effect of reducing the UK's rebate, although there will be some mitigation from the fact that the funding will increase overall EU expenditure and thus also the UK's payments. Thus, the EU can claim to be paying 70% of the cost, while after taking account of the rebate, the net payments are only 25%.³²

The Government calculation was stated in reply to a PQ.³³ This suggests that the net contribution from the EU will be £260m out of a total cost of £1,010m in 1996/97; £140m out of a total cost of £740m in 1997/98; and £110m out of a total cost of £680m in 1998/99.

(B) The removal of cattle of 30 months and more from the food chain

At first, the UK saw it as a temporary measure until the deboning arrangements had been sorted out, but Continental Ministers want the ban to continue for longer. For some (indeterminate) time to come, therefore, cattle aged more than 30 months will be bought by the Government and disposed of in a way that does not go into the food chain. It will be a special one-off event rather than an application of a general policy already in force. It has been agreed that it should be 70% financed by the EU. The scheme opened in the week starting 29 April, and offers compensation of one ECU per kilo which, depending on the weight of the animal, could amount to nearly £500 per animal. There is also a supplement for those producers of steers and heifers who normally plan to bring their animals to market at over 30 months. That supplement will be payable for six months.

³² *Agra Europe* 4 April 1996 P/4

³³ HC Deb 26 April 1996 c.321w

(C) A Selective Slaughter Policy

Some other EU agriculture Ministers would like the UK to agree to slaughter all cattle in herds seriously affected by BSE. That might cover herds with 5 or more BSE cases, but some other number might easily be chosen. If that were to happen, it would also be a special policy, and the financing arrangements would have to be decided. The 70% rule, with the above qualifications, would probably apply but compensation for a whole dairy herd is more complex than that for individual animals and it is possible that the UK Government might want to compensate more generously for items such as income loss than the rest of the EU. That last possibility, however, is entirely speculative in a very uncertain situation.

(D) The cull of very young calves

This was a scheme theoretically open since the 1992 CAP reforms. Until now, Portugal has been the only Member State to take advantage of it. Under this scheme, a payment of 120.75 ECU is made for every male dairy breed calf disposed of before it reaches the age of 10 days. Since this is an alternative form of EU intervention, the cost of funding should be carried exclusively by the EU. However, the above argument about the rebate also applies in this case. The Agriculture Minister, Mr Hogg, announced that this scheme is being implemented and should be worth some £50 million to British farmers.³⁴

(E) The Intervention Mechanism

This is the normal way of keeping up beef prices in times when the market price is low.

It might seem that the normal intervention system could be used to protect farmers from losses from the crisis, but its effects are strictly limited for several reasons. Only certain types of carcass are accepted, and the UK has previously encouraged tightening of the rules so as to prevent wasteful spending. It operates for steers which are normally slaughtered well before 30 months. The EU Beef Management Committee has met recently and agreed extensions to the type of carcass acceptable to be taken into intervention, but it is still strictly limited. The Committee also agreed to take 50,000 tonnes of beef into intervention in April. Also, the intervention price is nowadays linked to the market price in that country. Therefore if the market price collapsed, the intervention price would follow it down, rather than staying at a fixed level and protecting farmers from the effects of the fluctuations.

³⁴ HC Deb 28 March 1996 c.1233

In the first tender, 9,275 tonnes were accepted, of which 4,500 came from Germany, 2,500 from France 1,500 from Italy and only 140 from the UK.³⁵ In the second tender the remaining 40,770 tonnes were accepted. 3,965 came from the UK, 13,212 from France and 11,155 tonnes from Germany. Of the UK figure, 2,388 (all steers) came from Northern Ireland.³⁶

According to Richard Cracknell of Anglo British Processors, the main obstacle was the processors' margin which stands at 10 ECU per head. Because of the ban on sales of specified bovine offals (SBOs), UK animals were worth up to £45 less than French carcasses, for example. Unless the processors' margin was changed, Cracknell said, traders faced a loss. The second problem was the rule which required slaughterers to debone and freeze meat on the same premises. Very few UK slaughterers had their own blast freezers and therefore sent their carcasses to cold stores to be frozen, a practise which had fallen foul of intervention rules.³⁷

Intervention is operating partly to help the Continental beef industry, which has seen its domestic market decline more than has its British counterpart. For example, in the week beginning 15 April, German beef consumption was still 55% below the pre-crisis level and French 40% below, while British consumption was only 36% below.³⁸

Intervention is totally funded by the EU, but appears only to offer a very limited safety net to the British farmer in this present situation.

³⁵ *A gra Europe*, 12 April 1966 P/2

³⁶ *A gra Europe*, 26 April 1996 E/2

³⁷ *op. cit.*

³⁸ *A gra Europe*, 26 April 1996 M/3