2. The ruminant feed ban, 1989–96

Introduction

2.1 The purpose of the ruminant feed ban (RFB) was to prohibit all feeding of any ruminant protein to ruminants from 18 July 1988. Despite the general success of the RFB in reducing the incidence of BSE, the large number of animals born after 18 July 1988 that have been diagnosed with BSE (BABs) offer proof that this purpose was not realised in practice. Vol. 3: The Early Years, 1986–88 describes the introduction of the RFB. In that volume we identified accidental contamination of ruminant feed by other feed incorporating ruminant protein as the main reason for the occurrence of BABs. This chapter explains the circumstances in which cross-contamination occurred, and describes how MAFF came to appreciate that it was in fact occurring.

2.2 The chapter describes the difficulties of monitoring and enforcing the RFB. Without a reliable test for the presence of ruminant protein in feedstuffs, early monitoring of the ban was limited. It was, therefore, the emergence of BABs that provided MAFF with its first indication that the ban was not entirely effective in cutting off the source of BSE. The chapter therefore focuses on the consideration given to the emergence of the BABs and the efforts made to assess and then address their causes.

The legislation

The Bovine Spongiform Encephalopathy Order 1988

2.3 The Bovine Spongiform Encephalopathy Order 1988 (the Order) came into force on 21 June 1988. However, article 7, which established the RFB, came into force on 18 July 1988. This delay was intended to provide a period of grace during which producers, merchants and farmers could use up their existing stocks of ruminant feed before the ban came into force (see vol. 3: The Early Years, 1986–88). Article 7 provided:

(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.

(3) This article shall cease to have effect on 1st January 1989.
2.4 The definition of ‘animal’ for the purpose of the Order was restricted to ruminating animals. ‘Animal protein’ was defined as any protein material derived from a ‘carcase’. For the purposes of ‘animal protein’, ‘carcase’ meant the carcass, or part of the carcass, of an ‘animal’. Thus, by a circular method, the Order prohibited the feeding of ruminant protein to ruminants up to 1 January 1989. It was still permitted to incorporate ruminant protein in rations intended for pigs and poultry.

Extensions to the ban

2.5 When the Order was introduced, it was on the basis that the ruminant feed ban would be a temporary measure until studies into the BSE agent’s deactivation had established which rendering processes were capable of producing meat and bone meal (MBM) free of contamination. A study to determine the effectiveness of various rendering processes on the inactivation of the BSE agent was established in November 1990. The first results from these studies became available in early 1994 and are discussed at paragraph 2.256. In the event, in December 1988 the Bovine Spongiform Encephalopathy (No. 2) Order 1988 extended the ban for a further year.3 Following a Southwood Working Party recommendation, the ban was extended indefinitely by the Bovine Spongiform Encephalopathy (No. 2) Order 1989.4 See also vol. 3: The Early Years, 1986–88.

Implementation of the Order

Responsibility for monitoring and enforcement under the Order

2.6 Article 12 of the Order provided:

The provisions of this Order shall, except where otherwise provided, be executed and enforced by the local authority.

2.7 Article 9 of the Order provided:

Where an inspector of the Minister has reasonable grounds for supposing that the provisions of Article 7 of this Order have not been or are not being complied with he may take from any feedingstuff such samples as he considers necessary in order to establish the correctness of that supposition.

2.8 Thus County Councils and Unitary Authorities had a statutory duty to enforce the ruminant feed ban. However, a power to take samples, when it was reasonably suspected that the RFB was not being observed, was reserved to ‘inspectors of the Minister’, in effect the State Veterinary Service (SVS).

---

3 Article 8(4), L2 tab 3
4 Article 2, L2 tab 4
Legal powers of inspection and sampling

2.9 Section 63 of the Animal Health Act 1981, under which the Order was made, set out the general powers of local authority inspectors under the Act. Section 63(2) provided:

An inspector may at any time enter any land or shed to which this Act applies, or other building or place where he has reasonable grounds for supposing –

. . .

(c) that there is to be found any pen, place, vehicle or thing in respect of which any person has on any occasion failed to comply with the provisions of this Act, or of an order of the Minister, or of a regulation of a local authority; or

(d) that this Act or an order of the Minister or a regulation of a local authority has not been or is not being complied with.\(^5\)

2.10 The Animal Health Act 1981 did not provide specific powers for inspectors to take samples or require compounders and suppliers to provide information or documents.\(^6\)

2.11 However, local authority inspectors had powers to take samples under section 76 of the Agriculture Act 1970, which provided:

(1) An inspector may at all reasonable times enter –

(a) any premises on which he has reasonable cause to believe that there is any . . . feeding stuff . . . ready for sale;

(b) any premises . . . on which he has reasonable cause to believe that there is any . . . feeding stuff which the occupier of the premises has purchased;

and the inspector may take a sample in the prescribed manner on those premises of any material on those premises (including material in a vehicle) which he has reasonable cause to believe to be such a . . . of feeding stuff as aforesaid.\(^7\)

2.12 This did not give inspectors power to inspect documents.\(^8\) Further, in a minute to Mr Alan Lawrence\(^9\) on 10 June 1988, Mrs Elizabeth Owen\(^10\) doubted whether ‘lawyers would embrace the idea of your trying to enforce the BSE regulations made under the Animal Health Act by using powers of entry under the Agriculture Act’.\(^11\) Nevertheless, it appears that some local authorities did enter premises and

---

\(^5\) L1 tab 1
\(^6\) YB92/12.12/1.1
\(^7\) L3 tab 1
\(^8\) Regulation 21 of the Feeding Stuffs Regulations 1991 (L3 tab 7) enabled inspectors to require the production of documents and computer records in relation to compound feeds. This provision was introduced to allow certain EC legislation to be enforced. See YB93/02.02/2.1
\(^9\) Head of Animal Health (Notifiable Diseases) Division. Head of Animal Health (BSE and Related Issues) Division from January 1989
\(^10\) Food Standards, Fertilisers and Feedstuffs Division of the Emergencies, Food Quality and Pest Control Group
\(^11\) YB88/8.10/8.1
take samples, though as discussed in paragraphs 2.14–2.16, the lack of an effective field test for ruminant protein inhibited this practice.

2.13 MAFF faced numerous legal obstacles when it took steps to try to enforce the RFB. The primary problem was that the array of legislation described above did not give SVS officers power to enter premises to test, on a routine basis, for the inclusion of ruminant protein in feed intended for ruminants. The legal difficulties and the action MAFF took to try to overcome them are described in the narrative section later in this chapter.

Enforcement difficulties

The lack of a reliable test for ruminant protein in feedstuffs

2.14 Concerns about the enforceability of the Order were expressed prior to its introduction. The primary obstacle was the lack of a test to detect the presence of ruminant protein in feed (see vol. 3: The Early Years, 1986–88). However, a technique known as ELISA (Enzyme Linked ImmunoSorbent Assay) was being developed by the Meat Research Institute at Bristol, which had ‘some potential in determining the species of origin of processed protein’.

2.15 In a statement to the Inquiry, Mr Keith Meldrum, the Chief Veterinary Officer (CVO), summarised the crucial part the ELISA test played in the ruminant feed ban story:

MAFF realised in June 1988 that it needed a test to detect the presence of ruminant protein in ruminant rations and it was soon realised that existing systems would not be able to detect heat treated proteins in compound rations. The importance of distinguishing ruminant proteins from other animal proteins was clearly an objective of the work especially given the variety of materials incorporated into compound animal feeds. It was also realised that the ELISA test must be exquisitely sensitive because meat and bone meal inclusion rates could be extremely low in compound rations and where cross-contamination had occurred the levels could be lower still.

2.16 Although the ELISA was not available when the Order came into force, it was hoped that the test would become available soon thereafter. The delay in the production of a field test for ruminant protein, and its implications for the monitoring and enforcement of the ruminant feed ban, is discussed in the narrative section that follows.

Home-mixers

2.17 Further difficulties existed in monitoring on-farm feed mixing practices. This was an issue addressed by the Expert Group on Animal Feedingstuffs (Lamming Committee) during its sixth Meeting on 28 June 1991. The Lamming Committee considered enforcement arrangements for feedstuff legislation and, in particular, controls on home-mixers. Mr Colin Maclean said that the results of the Agricultural
Development and Advisory Service (ADAS) questionnaire on home-mixing of animal feed had raised doubts about the safety of this practice, which had been reinforced by a MAFF paper on controls governing feed composition and marketing. Powers to enforce legislation on farms were limited. Specifically, ‘there was concern at the absence of any sampling requirements for home-mixers, which made it impossible to assess the general standard of feed produced’. 15

2.18 These general concerns over the safety of home-mixing of animal feedstuffs were not specifically related to consideration of BSE infection. The Lamming Committee’s subsequent recommendations regarding controls for home-mixing are discussed in the chronological account in this chapter.

**Notice to enforcement officers**

**Veterinary Field Service**

2.19 On 15 June 1988 MAFF distributed instructions on BSE to the Veterinary Field Service (VFS) through an update to Inset 25 of its handbook. The instructions dealt with the diagnosis of BSE, and with notification procedures under the 1988 Order. A brief mention was made of the RFB:

> Current knowledge also suggests possible involvement of animal protein in the epidemiology of the disease and hence the order also introduces controls over the incorporation of animal protein obtained from ruminant carcases into ruminant feed. 16

2.20 During his oral evidence, Mr Iain Crawford, Director of the Veterinary Field Service, could not recall any further information about enforcement or monitoring of the ban being provided to field staff. He said:

> I do not recall any instructions to the field staff to take any action, at that point, at the feedmills. One of the reasons why that would not have been particularly fruitful was that there was no test at that time. It would be pointless taking samples of feed and trying to analyse them for the presence of ruminant material. There was no test available. The industry itself was widely consulted on the ban, and they were aware of the ban on feeding ruminant material to ruminants. So far as we were aware, they were implementing it. But for veterinary staff to go along to a feedmill and look at feedingstuffs would not really tell them very much. 17

**Local authorities**

2.21 We have not been able to locate a copy of the letter informing local authorities about the Order. A note signed by Mr Mark Hawkins of MAFF’s Animal Health Division indicates that copies of the Order were to be sent to local authorities on 16 June 1988. 18 Local authorities informed us that they became aware of the Order

15 YB91/6.28/5.5–5.6 and 5.15. The ADAS questionnaire referred to by Mr Maclean can be found at FEG 76, and the MAFF paper on controls governing feed composition and marketing is at FEG 77
16 M29 tab 1 p. 7
17 T34 pp. 96–7
18 YB88/6.16/9.1
when it was published, or when it was ‘identified in the usual way via internal mechanisms’.

2.22 In oral evidence, Mr Lawrence said that no specific instructions were issued to trading standards officers when the RFB was introduced. Mr Robert Lowson, Head of Animal Health Division from 1989 to 1993, said that MAFF officials had discussions with trading standards authorities and with industry about how to monitor compliance with the ban and ensure it operated effectively. However, we have found no written evidence of such discussions. Witnesses from local authorities and the Local Authorities Co-Ordinating Body on Food and Trading Standards (LACOTS), who gave evidence to the Inquiry, said they were not consulted before the Order was introduced.

2.23 Responses to questions about the advice received from MAFF after the Order came into force were varied. Mr Gordon Gresty said in oral evidence:

... we saw reluctance in the Ministry, certainly at local level and perhaps through my dealings at national level, to actually give it, if you like, a high profile. It seemed to be – the correct word, more of a face-saving exercise, a retracting exercise from their point of view. I do not think they seemed to be keen at that time on what you would call really effective and strong enforcement. We saw that for a period of years, so I think that was our perspective of the situation.

2.24 However, when asked specifically whether he had discussions with Ministry representatives about sampling, Mr Gresty, Head of Trading standards at North Yorkshire County Council, indicated that though he could not recollect, advice might have been available:

I mean we have consultation with the local DVOs [SVS; Divisional Veterinary Officers] as they were then on a regular basis. Whether it was raised or not I just cannot remember, I am afraid. I have no written records and have no recollection at this present time. We may have done, we may not.

2.25 Mr Peter Heafield also indicated that regular liaison meetings between SVS officers and Lincolnshire County Council enforcement officers took place in the period when the ruminant feed ban came into force and could have been a source of advice on enforcement of the ban.

2.26 On the other hand, Mr Richard Lodge said:

Due to the Government’s insistence at the time that BSE was not a major problem and presented no risk to human health, no advice was sought in

---

19 S171 Heafield para. 8
20 S170 Lodge para. 6
21 T43 p. 102
22 T43 p. 101
23 Mr Richard Lodge, Head of Food, Health and Safety, Birmingham City Council; Mr Peter Heafield, Trading Standards Officer, Lincolnshire County Council; Mr Gordon Gresty, Head of Trading Standards and Regulatory Services, North Yorkshire County Council
24 Mr Bailey, Senior Executive Officer
25 S170 Lodge para. 5; S171 Heafield para. 7; T64 p. 20; T65 p. 12
26 T64 p. 28
27 T64 p. 27
28 S171 Heafield para. 16
relation to the listed regulations [including the ruminant feed ban Order] and circulars and none was received.\textsuperscript{29}

**Notification of the ruminant feed ban to industry**

2.27 Adherence to the ruminant feed ban was dependent, to a large degree, on the cooperation of farmers and feed manufacturers. In a statement to the Inquiry Mr Kevin Taylor\textsuperscript{30} said that until a test was developed:

\>[\ldots]\text{in the interim we had no option but to rely on compliance by farmers and the agricultural suppliers, acting in their own and in the wider interest. All animal health legislation depends, to a large extent, on such compliance, and to this extent BSE was no different to other animal diseases. As the animal health status of this country over many decades demonstrates, the farming community in Britain has a good record of compliance with statutory requirements.}\textsuperscript{31}

2.28 Mr Meldrum explained further:

Mr MacGregor’s\textsuperscript{32} decision to make the ban compulsory gave the ban the force of law and so provided a further lever to encourage compliance, but in essence it was recognised that it would rely as much on the co-operation of the feed industry in complying as would a voluntary ban. Both the feed and rendering industries had co-operated fully with MAFF since March 1988 in the epidemiological investigations into the cause of BSE that led to the formulation of the meat and bone meal hypothesis. Whether the eventual ban was voluntary or compulsory, there was no reason for me or anyone else within MAFF to believe that such co-operation would not continue.\textsuperscript{33}

2.29 Mr Kevin Taylor stated that:

\>\text{The approach was in fact to explain to the industry and to the farming community in general the reasons that the actions were taken, and if they failed to obey it, it was the health of their other animals that they were prejudicing.}\textsuperscript{34}

2.30 He maintained that it had been his view at the time that the ban was ‘completely unenforceable’ if it were not voluntarily obeyed.\textsuperscript{35}

2.31 MAFF organised two meetings to discuss with the industry its intentions regarding the ruminant feed ban, both on 1 June 1988. Representatives of the United Kingdom Renderers’ Association (UKRA), the United Kingdom Agriculture Supply Trade Association (UKASTA), the Grain and Feed Trade Association (GAFTA), the Federation of Agricultural Cooperatives (FAC), and the National Farmers’ Union (NFU) attended the feed industry meeting.\textsuperscript{36} Representatives of various cattle breeding associations, the National Cattle Breeders’ Association

\begin{footnotes}
\begin{enumerate}
\item S170 Lodge para. 8
\item Veterinary Head of Notifiable Disease Section 1986–91. Assistant Chief Veterinary Officer, Animal Health and Welfare Veterinary Section, 1991–97
\item S92D Taylor para. 10
\item Minister of Agriculture, Fisheries and Food
\item S184E Meldrum, Section B para. 30
\item T36 pp. 136–7
\item T36 p. 137
\item YB88/6/2.1–2.4
\end{enumerate}
\end{footnotes}
(NCBA), the Milk Marketing Board (MMB), the British Veterinary Association (BVA), the NFU, the Farmers’ Union of Wales (FUW), and the Royal College of Veterinary Surgeons (RCVS) attended the cattle industry meeting.³⁷

2.32 Later on the same day MAFF issued a press release announcing the terms of the imminent legislation, ³⁸ and the NFU issued a statement supporting MAFF’s proposed measures.³⁹

2.33 On 28 June 1988 MAFF met cattle industry representatives again. Mr Lawrence confirmed the ban’s duration and that MAFF teams would investigate plants to see which processes could destroy the BSE agent. He also said that MAFF had powers to take samples of feedstuffs in cases where it was thought that the law was being broken. When questioned how this would apply to rendering plants, Mr Meldrum explained that he expected that the rendering industry would continue to cooperate, and that the Animal Health Act 1981, the Bovine Spongiform Encephalopathy Order 1988 and the Disease of Animals (Protein Processing) Order 1981⁴⁰ gave power to enter and sample.⁴¹

Information to farmers

2.34 MAFF relied on farming organisations and the press to relay information about the ban to farmers. Mr Peter Rudman, Secretary of the NFU’s Animal Health and Welfare Committee, said during oral evidence:

I think it had been agreed that the NFU should be the vehicle for publicising to farmers the requirements and I think it was seen to be a more practical and effective method of getting the message across.⁴²

2.35 UKASTA informed the Inquiry that it ‘did not itself offer advice to be passed on to the customers of our members relating to the disposal of feed containing MBM’.⁴³ Representatives of J Bibby Agriculture, a large feed compounder, said in a statement to the Inquiry that:

The Government bodies did not suggest it was necessary for us to advise our customers not to use up current feed stocks; we were meeting our obligations under the Order by not supplying feed containing MBM after the specified date. The prohibition on actual feeding was presumably directed to farmers but we are not aware how this was transmitted to them.⁴⁴

2.36 Representatives of Dalgety Agriculture Limited, another major feed compounder, added that:

No advice was given to customers. We relied on MAFF and the NFU to give information and advice to farmers on their obligations under the Order (in particular the obligation not to feed offending feedstuff to animals after the coming into force of the Order).⁴⁵

³⁷ YB88/6.1/3.1
³⁸ YB88/6.1/5.1
³⁹ YB88/6.1/1.1
⁴⁰ L1 tab 4
⁴¹ YB88/6.28/1.2–1.3
⁴² T57 p. 95
⁴³ S24B Reed para. 10
⁴⁴ S154 Raine & Marsden para. 29
⁴⁵ S151 Cooke & Clegg para. 4.10
2.37 On 15 July 1988 an article in *Farmers Weekly* included 20 questions on BSE, with answers supplied by the Central Veterinary Laboratory (CVL). The article warned that from 18 July 1988 the use of ruminant protein in ruminant feed would be suspended and explained the hypothesis that BSE arose from the transmission of the scrapie agent through scrapie-infected sheep brains in ruminant feed. The CVL told *Farmers Weekly*:

> Our hypothesis is that the entry of the suspect agent into the host is probably via the mouth. Exit from the live animal in significant disease producing quantity is unlikely except possibility at the time of calving where afterbirth (using the analogy of sheep scrapie) may be infected. This could be a source of infection for other cattle but there is no evidence for it at present.46

### Initial efforts to enforce the Order

2.38 It appears that despite apparent enforcement difficulties (see paragraphs 2.14–2.18), some local authorities made efforts to ensure that feedmills were not incorporating ruminant protein in cattle rations. Mr Lawrence said in a statement to the Inquiry that:

> What is evident from recent conversations I have had with a number of my colleagues in trading standards, is that some action was taken, although this may have been applied unevenly. This was no doubt due, in part, to the fact that no specific instructions were issued when the Order came into force. However, in my experience, it was not the normal practice to issue specific guidance when animal health legislation came into force, for which they had enforcement responsibilities, although it may be argued that the terms of this particular legislation were rather different from the norm.47

2.39 For example, in a statement to the Inquiry, Mr Heafield of Lincolnshire County Council said that:

> Firstly, in 1989 over 100 samples of animal feed, intended to be fed to ruminant animals, were taken. These samples were to be tested for ruminant protein. In order for such a test to be used one had to be developed by the authority’s Public Analyst.

> Although a test was devised it could at best only detect levels in excess of 5% ruminant protein and could be confused if milk was present in the sample.

> Although no samples failed the test which had been devised the lack of an accurate, reliable test meant that this part of the order was unenforceable.48

2.40 The absence of a sufficiently sensitive and reliable test meant that such sampling was not an effective enforcement tool. Mr Lawrence told us:

> Trading Standards Officers (TSOs) were very experienced at taking samples (under Part IV of the Agriculture Act 1970) and having them tested by the

---

46 YB88/7.15/5.1–5.2
47 S76E Lawrence, para. 15
48 S171 Heafield, paras 27–29
public analyst. Certainly in some authorities samples were taken and tested for signs of ruminant proteins. Of course they ran into difficulties because the tests were not sophisticated nor sensitive enough to provide clear answers and simply indicated the presence of animal protein as distinct from ruminant protein.49

2.41 Mr Lawrence also said that ‘some authorities also conducted product audits at compounders (whom they visited regularly for their sampling work under the Agriculture Act). If protein was included [in a feed batch], they would check the specification to see if it was ruminant based’.50

2.42 Dr Brian Cooke, of Dalgety Agriculture and Chairman of UKASTA’s Scientific Committee, agreed:

I think one has to appreciate there was at that time no test for presence of meat and bonemeal and therefore enforcement would be by looking at records. Local authorities are variable in how often they visit our premises. Some visit more often than others. When they did visit they tended to look at formulations for ruminant feed to make sure there was no mention of meat and bonemeal.51

2.43 Mr James Reed, Director-General of UKASTA, added in oral evidence:

I think there was some assumption that local authorities had the ability to implement the legislation if they so choose to put the resources on the ground, visit feedmills, check the records, but it would have been quite a big job.52

2.44 Representatives of J Bibby stated that they sent their records showing the exclusion of ruminant protein from ruminant, and indeed other feed, after 18 July 1988 to MAFF ‘during the course of their follow-up investigations’.53

Cross-contamination in feedmills

2.45 In vol. 3: The Early Years, 1986–88 we concluded that once pipeline stocks of ruminant feed containing MBM had been consumed, cross-contamination in feedmills was the principal reason why cattle continued to be infected with BSE.

2.46 The chronological account later in this chapter sets out the evidence that suggests this was so, and describes how it was not until 1994 that MAFF and the feed industry became aware of the problem. In this section we set out the evidence we have received about the industry’s awareness of general cross-contamination difficulties in feedmills prior to the RFB’s implementation.

---

49 S76E Lawrence para. 16
50 S76E Lawrence para. 18
51 T61 p. 31
52 T61 p.31–32
53 S154 Raine & Marsden para. 21
Avoidance of cross-contamination in feedmills

2.47 Feedmills have been aware for decades of the risk of cross-contamination between batches of feed intended for different species. UKASTA has suggested that ‘the reasons for cross-contamination occurring in a feed milling process are simple, obvious and have been well understood since the early days of the modern feed compounding industry’. Mr James Crawford, former Chairman of UKASTA’s Feed Executive, described the types of cross-contamination possible in feedmills:

- Because compound milling plant is not completely self cleaning each raw material transported along a common conveyer system will leave microscopic traces which will be picked up by the next raw material conveyed. Similarly a blended batch of feed will leave microscopic traces which will be picked up by the next batch in the system. If a batch of dairy compound follows a batch of pig compound, microscopic traces of the raw materials in the pig compound could be found in the dairy compound. Prior to BSE this low level contamination was considered a problem only when drugs were being incorporated.

*Macro as well as micro levels of contamination can take place in feedmills.*

- Raw materials can adhere to the sides of bins and conveyers and build up sizeable agglomerations. In time these agglomerations can fall into the stream of material and may corrupt a formulation.
- Slides on bin tops or bottoms do not always open and close perfectly e.g. a slide which is stuck partially open may leak a particular raw material into formulations into which that material is not programmed.
- Formulators can make mistakes.
- The software in a feed mill which controls weighing and blending can be corrupted for various reasons.
- At the point of intake a material can be consigned to the wrong bin resulting in an unplanned mixture of raw materials.
- Raw materials which were themselves semi-products containing a number of component raw materials were on sale to compounders and were bought because they appeared to be cheap sources of nutrients. The manufacturers of these semi-compounds were sometimes less than open about their ingredients.
- Contamination of one raw material with another may take place in importers’ stores.
- Unplanned mixtures of finished products may occur in feedmills and may be delivered to farms.
- Weighbridgemen may consign a product to the wrong compartment of a bulk delivery truck resulting in delivery of the wrong product to the farm.
- Drivers of bulk delivery trucks may mix up their deliveries.
2.48 Though compounders devised procedures to help avoid these risks, the nature of the feed manufacturing process made it impossible to avoid the risks completely.\textsuperscript{56} Up to the late 1980s, steps taken to avoid cross-contamination mainly revolved around the need, under the Medicines Act 1968, to avoid the accidental inclusion of medicines or other additives in the wrong product. Careful scheduling of production was the main tool used to achieve this. Suitable gaps would be left in the production process to ensure, for example, that a ruminant ration was not manufactured immediately following a monogastric ration that contained medical additives.\textsuperscript{57}

2.49 UKASTA issued a Code of Practice on Cross Contamination in Animal Feedingstuffs Manufacture in 1982. Companies either adhered to this Code, or their own codes based on the UKASTA code.\textsuperscript{58}

2.50 We now turn to examine events following the introduction of the ban, which necessarily revolve around the discovery of BSE in calves born after the ban (BABs).

The chronological account

The period prior to the identification of the first BAB

Development of the ELISA test

2.51 As discussed earlier in paragraphs 2.14–2.15, at the time when the RFB was under consideration, there was concern within MAFF that it would not be enforceable in the absence of a reliable test to detect ruminant protein in animal feedstuffs. It was hoped that a test would become available soon after the RFB came into force. The Enzyme Linked ImmunoSorbent Assay (ELISA) test was a technique subsequently developed to detect ruminant protein in feedstuffs. The underlying technique of the test is discussed in vol. 2: \textit{Science}. In this chapter we explain the development of the test and the effect its delay had on the RFB’s development.

2.52 On 15 January 1989 Dr Richard Cawthorne, Head of Veterinary Investigation Section at Tolworth, minuted Dr Peter Dawson, Head of Veterinary Investigation Service, to update him on the progress of techniques to detect animal protein in feedstuffs. He explained that the ELISA test had been developed at the Agriculture and Food Research Council (AFRC) Meat Research Institute in Bristol, and that following two meetings in the second half of 1988, ‘AFRC have been appraised of MAFF’s needs and collaborative development work has continued on the development of the ELISA technique’. There were still a number of problems to be resolved, such that it was not ‘presently well enough advanced to be of routine diagnostic value’. Dr Cawthorne thus presented two options. If the need for the test was urgent, MAFF could work with AFRC to produce a commercial package. This would be costly, but a test could be available within three to four months. However, AFRC would retain intellectual property rights to the work and MAFF would have...
to purchase the test kit from AFRC. Alternatively, MAFF could initiate its own programme of research and development at Worcester VIC. It was estimated that this work would take between 12 and 18 months. Dr Cawthorne said that the necessary equipment, facilities and expertise were available. 59

2.53 By 21 February 1989 Mr Meldrum had elected to develop an ELISA test within MAFF, with Mr Mike Ansfield, a Senior Scientific Officer at Worcester Veterinary Investigation Centre (VIC), leading the project. 60 In a statement to the Inquiry, Mr Meldrum said that this was due to ‘Redundancies at the AFRC and other difficulties’. 61

2.54 Mr Ansfield prepared a project proposal with a development work timetable, which was forwarded to Dr Cawthorne on 6 April 1989. It was anticipated that by December 1989 MAFF would have available ‘a technique or techniques that will give maximum sensitivity to antigens in processed protein within the limitations of the antisera provided’. 62

2.55 In a statement to the Inquiry, Mr Ansfield said it was explained to him that the:

. . . purpose of the work was to find a method for the detection of species of ruminant origin in processed material for animals because of the increased incidence of BSE at that time. 63

2.56 On 21 July 1989 Mr Ansfield informed Mr Allsup, Senior Veterinary Investigation Officer at Worcester VIC, that Mr A R Hunter, Deputy Regional Veterinary Officer, had told him over the telephone that Mr Meldrum was ‘inquiring of the stage of the BSE project, and that he wanted the results “yesterday”’. Mr Ansfield told Mr Hunter that the project was going to plan. 64

2.57 Mr Ansfield provided progress reports to Mr Allsup on 21 August and 29 September 1989, describing various aspects of the project work. Neither of the reports mentioned any significant problems or delays. 65

2.58 The first problem with the ELISA test was raised following the 29 September report, when difficulties were encountered with the extraction of gelatine from feed. Mr Ansfield explained to Mr Allsup the avenues that were being pursued to overcome this problem on 13 November 1989. 66 Mr Ansfield reported on 17 January 1990 that progress was being made in overcoming the obstacles. 67

2.59 Mr Ansfield said in a statement to the Inquiry that:

I do not recall, during the early development of this test, receiving any written communication declaring the urgency or priority of the task, but my telephone conversations with Mr A R Hunter and occasionally Dr R Cawthorne gave credence to the importance of the work . . . 68

59 YB89/1.15/1.1–1.4 60 YB89/2.21/7.1 61 S184E Meldrum para. B33 62 YB89/4.6/3.3 63 S332 Ansfield para. 25 64 YB89/7.21/8.1 65 YB89/8.21/7.1; YB89/9.29/10.1 66 YB89/11.13/8.1 67 YB90/1.17/8.1 68 S332 Ansfield para. 31
Dissemination of information

2.60 MAFF issued a Food Facts leaflet on 9 January 1990 entitled, ‘Government Action on BSE’. It listed ‘wide-ranging measures’ taken by the Government, including the ruminant feed ban (RFB). It noted:

The use of ruminant-based protein as food for cattle, sheep and other ruminants was banned from 18 July 1988. Research shows this to be the most likely cause of BSE.

There is no scientific justification to extend the ruminant food ban to pigs and poultry. The Southwood Report acknowledged the importance of the feed ban for ruminants, but did not recommend that it be extended to pigs and poultry. 69

2.61 By early March 1990 MAFF had begun work on an advisory leaflet on BSE to be distributed to farmers. 70 A draft of this leaflet, entitled, ‘Bovine Spongiform Encephalopathy (BSE): Advisory Notes for farmers’, was submitted to Mr John Gummer, the Minister of Agriculture, on 11 April 1990. He decided that it should be submitted to SEAC for comment. 71 In the event, at its meeting on 1 May 1990, SEAC’s attention was directed to the leaflet’s advice on breeding from the offspring of affected cattle (see Chapter 6 and vol. 11: Scientists After Southwood), and it therefore did not consider the leaflet’s content about the RFB. 72

2.62 Also in May, a draft ‘Leaflet for Consumers’ was circulated within MAFF and sent to the Department of Health (DH) for consultation. It summarised the Government’s knowledge of BSE and the action taken. It concluded:

The most likely cause of BSE was the feeding to cattle of compound rations which contained protein material derived from sheep, some of which were infected with scrapie.

The practice of feeding ruminant protein to ruminants, including cattle, sheep and deer, was banned in July 1988 so the source has been cut off. 73

2.63 Mr Gummer sent this advice by letter to Lady Wilcox, Chair of the National Consumer Council. He hoped that Lady Wilcox would bring the advice to the attention of interested organisations, and informed her that he would be releasing the text of the letter to the press. 74

2.64 MAFF’s Advisory Note to farmers was released in June 1990. It stated:

Scrapie infected sheep are thought to be the origin of BSE, not by direct contact on the farm but, most probably through the feeding of contaminated meat-and-bone meal. Since then, BSE infected material will also have passed through the rendering system, allowing recycling of the disease to cattle.

69 YB90/1.09/6.2
70 YB90/3.05/9.1
71 YB90/4.11/9.1
72 YB90/5.01/2.1
73 YB90/5.15/24.1–24.8; YB90/5.15/26.1–26.4
74 YB90/5.15/17.1–17.3
The use of ruminant protein (ie from animals such as sheep, cattle, and deer) in ruminant diets was banned in July 1988 to cut off this source of transmission.\textsuperscript{75}

2.65 On the future of the disease the Advisory Note recorded:

Cutting off the main source of infection to cattle through feed should cause the number of reported cases to fall from 1992/3 – in other words some 4 years after the introduction of the feed ban. Much will depend on whether or not infection can spread from cow to calf, or more importantly from animal to animal (cow to cow, calf to calf). At the time of writing it is still too early to detect evidence of such spread because all cases reported so far will potentially have had access to contaminated feed.\textsuperscript{76}

Dose

2.66 Mr John Wilesmith, Head of the CVL’s Epidemiology Department, attended a UKASTA meeting on BSE on 10 April 1990, where he provided an update on the BSE epidemic. Various BSE issues were discussed. He advised that the CVL was ‘totally satisfied’ that the feeding of infected MBM was the cause of BSE. Mr Wilesmith also outlined points of epidemiological interest and noted that it ‘was also considered that the higher the dose the shorter the incubation period’ (see vol. 3: The Early Years, 1986–88 for discussion on early perceptions about infective dose).\textsuperscript{77}

Rumoured UKASTA ban on all meat and bone meal

2.67 On 22 May 1990 Mr Hill, Private Secretary to Mr David Maclean, Parliamentary Secretary, minuted Mr Gummer about a conversation he had with Mr Bob Harrison of UKRA. Mr Harrison informed Mr Hill that he believed UKASTA intended to exclude all MBM from animal feed as from 1 June 1990. Mr Hill had asked Mr Lowson to ‘confirm the rumours and to advise on the next step’.\textsuperscript{78}

2.68 Mr Lebrecht, Principal Private Secretary to Mr Gummer, replied on the same day that if the rumour was confirmed, Mr Gummer would like Mr Maclean ‘to take the matter up with UKASTA and try to steer them off this course’.\textsuperscript{79}

2.69 In the event, Mr Lowson’s investigations revealed that UKASTA had not changed its position. Their advice to members remained that they should not incorporate MBM that contained specified bovine offal (SBO) in their feed.\textsuperscript{80}

Further work on the ELISA test

2.70 Meanwhile, work on the development of the ELISA test continued. On 3 April 1990 Mr Ansfield reported to Mr Allsup that sample extraction was at the ‘next
stage of development’, using the gelatine extraction processes he had previously described.81

2.71 Mr Ansfield provided a full update for Dr Cawthorne on 24 May 1990. He predicted that:

If the concentration procedure is successful I will be able to assess the most suitable immunoassay within a month to six weeks.

I have discussed validation times with the CVL, Weybridge and in their opinion validation of ELISA, which I expect to be the most sensitive assay, will take at least to the end of the year. This time includes a period at the CVL which would be essential to expediate validation.82

2.72 The use of commercially available meat species identification kits was a possibility considered at various points in the development of the ELISA test. Early in 1990 Mr Ansfield had tested one such kit, but it was incapable of detecting meat species in material cooked for 40 minutes at 121°C. The producers of the kit informed Mr Ansfield that an improved version would soon be available, and on 19 June 1990 Mr Ansfield sought Mr Hunter’s approval to purchase and test the new kit. The aim of the testing would be to establish its detection limits. Mr Ansfield advised that ‘I will be looking at our own antisera with a view to perfecting our own immuno-assay by the end of the year’.83

2.73 During oral evidence, Dr Brian Cooke confirmed that the kit Mr Ansfield had tested was of limited value. He stated that it gave ‘an awful lot of false results; and we rapidly concluded that we could put no reliance on it whatsoever’.84

Report of the Agriculture Select Committee

2.74 The House of Commons Agriculture Select Committee decided on 16 May 1990 to undertake an inquiry into BSE, ‘to gather the relevant evidence and present the House with an early assessment of the available facts’.85

2.75 Mr Gummer gave evidence to the Committee on 23 May 1990. He assured them that MAFF had a continuing programme looking at ways in which it could improve the control of animal feedstuffs. He said:

[W]hat we did was in advance of the knowledge being there we did the ban on feeding ruminant animal protein to ruminants which I believed to be right. I have a natural sympathy with the argument that there is something odd about that and something which we should not follow, although it is perfectly true that many animals have been fed animal protein for centuries, going back to the Romans, but not cows in these circumstances and that is why we stopped it.86

81 YB90/4.3/5.1
82 YB90/5.24/1.4
83 YB90/6.19/13.1
84 T61 p. 126
85 IBD1 tab 7 p. viii
86 IBD1 tab 7 p. 13
2.76 Mr Raymond Bradley, Coordinator of BSE research at the CVL, gave evidence to the Committee on behalf of the CVL, noting that:

. . . since the ruminant feed ban in 1988, and having removed the source of infection, the infectivity rate of cattle is now falling down in an equivalent fashion to how the epidemic was rising at an earlier point in its course. Thus animals which were born after July 1988 are in fact coming into the slaughterhouse now as prime-beef animals. These animals will not have been fed the incriminated protein, thus infection or infectivity within them will be absent. We have to concede there are the possibilities of maternal transmission . . .

2.77 In its report, which was published on 10 July 1990, the Agriculture Select Committee said:

The most obvious loopholes have already been closed. Since 18 July 1988, the feeding of animal protein derived from ruminants to cattle and other ruminant animals has been prohibited under the Bovine Spongiform Encephalopathy Order 1988. This legislation, if strictly applied, should arrest the presumed cause of the disease in cattle: cases will continue to be reported because of the disease’s prolonged incubation period.

2.78 The Agriculture Select Committee recommended that the Government establish an expert committee to examine the whole range of animal feeds and advise how the industries that produced them should be regulated. The Lamming Committee was subsequently established in early 1991 (see paragraph 2.143).

MAFF issues instructions to the SVS in the event that BABs are discovered

2.79 On 5 July 1990 Mr Wilesmith met Dr Cooke and Miss Judith Nelson of UKASTA’s Feed Committee, to discuss various BSE issues. It was noted that the RFB would have been in operation for two years on 18 July 1990. However, it was estimated that actual feeding of ruminant derived protein to ruminants would have effectively stopped two months after the date of the ban, after farmers had used up existing supplies. It was noted that the youngest animal to have been identified with BSE was 22 months of age. The note of the meeting recorded that:

If it were now to be diagnosed in such young animals it would mean that the disease could be transmitted by means other than through animal feedingstuffs.

2.80 Animal Health Circular 90/58 was issued on 20 July 1990. It instructed veterinary officers (VOs) that when giving details of suspect BSE cases, they should draw attention to any animal born after 18 July 1988. VOs were also to record details of each animal’s dam, such as breed, age, origin (homebred or purchased), present whereabouts (still in herd or sold elsewhere), whether still alive and whether the dam was ever a suspect or confirmed BSE case.
2.81 Mr Wilesmith explained in a statement to the Inquiry that these measures ‘enabled us to make an initial assessment of the risk of maternal transmission and, following the complete pathological examination, to determine whether there was any change in the pattern of lesion distribution which could be indicative of a different route of infection’.\(^9^2\)

**The Bovine Spongiform Encephalopathy (No. 2) Amendment Order 1990**

2.82 The Bovine Spongiform Encephalopathy (No. 2) Amendment Order 1990 (the Order) introduced the animal SBO ban on 25 September 1990.\(^9^3\) The purpose of this ban was to extend the prohibition on the use of SBO from human food to feed intended for all animals and poultry (see Chapters 3 and 4).

2.83 The animal SBO ban was introduced by an amendment to article 8 of the Bovine Spongiform Encephalopathy (No. 2) Order 1988, which implemented the ruminant feed ban. The new article 8 provided:

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

2. Subject to paragraph (5) below, no person shall feed to a ruminating animal any feedingstuff in which he knows or has reason to suspect that any animal protein has been incorporated.

3. No person shall knowingly sell or supply for feeding to animals or poultry any specified bovine offal or any feedingstuff which he knows or has reason to suspect contains specified bovine offal or animal protein which is derived from any specified bovine offal.

4. Subject to paragraph (5) below, no person shall feed to an animal or poultry any specified bovine offal or any feedingstuff which he knows or has reason to suspect contains specified bovine offal or animal protein which is derived from any specified bovine offal.

5. The prohibitions in paragraphs (2) and (4) above shall not apply to the feeding of specified bovine offal or a feedingstuff to an animal or poultry for research purposes under the authority of a licence issued by a veterinary inspector and in accordance with any conditions subject to which the license is issued.\(^9^4\)

2.84 The first two paragraphs retained the ruminant feed ban, and the second two introduced the new animal SBO ban (see Chapters 3 and 4). However, to accommodate the animal SBO provisions, the definition of ‘animals’ was extended from ruminating animals to ‘any kind of mammal except man, and any kind of four footed beast which is not a mammal’.\(^9^5\)
‘Animal protein’ was defined in the Order as any protein material derived from a ‘carcase’. For the purposes of ‘animal protein’, ‘carcase’ meant the carcass, or part of the carcass, of an ‘animal’. Therefore, the new Order had the unintended effect of extending the ruminant feed ban to ban the feeding of any animal protein to ruminants.

As explained in a note prepared by the Animal Health and Veterinary Group for the Lamming Committee, this oversight had little practical consequence. This was because no rendering plant was producing MBM for incorporation into ruminant feeds. Nevertheless, this error was subsequently amended.

The introduction of the animal SBO ban had further relevance to the RFB. Before its introduction, compounders could legitimately include protein derived from SBOs in animal feed for non-ruminants (mainly pigs and poultry). Many feedmills produced such feed using the same lines as those used to manufacture feed for ruminants, with an associated risk of cross-contamination. Mr Meldrum noted that:

Therefore, the protection of cattle and other ruminants from the agent of BSE was firstly afforded by the ruminant protein ban of 18th July, 1988 and, secondly, by the SBO ban of September 1990.

ELISA test progress

On 1 November 1990 Mr Ansfield reported to Mr Allsup ‘considerable progress’ on the development of the ELISA test. The test was capable of detecting extracts from bovine and ovine material at a dilution of 1/400, which was ‘a sensitivity far greater than the current commercial kit available’. Further ‘fine tuning’ was required, but the test was not cross-reacting with other species, so was specific to ruminant protein. The test could not distinguish between bovine and ovine material and work so far suggested that this would not be possible. Mr Ansfield said that he felt ‘confident that validation will be carried out before the end of the year and the test will then be available for use’. Dr Cawthorne relayed this information to Mr Meldrum on 8 November 1990. Mr Meldrum told Dr Cawthorne that he should ‘keep up the pressure to obtain validation by the end of this year’.

UKASTA’s concerns about cross-contamination

According to Mr Meldrum, when the RFB was introduced MAFF did not foresee that cross-contamination in feedmills could pose practical difficulties – see vol. 3: The Early Years, 1986–88 for a discussion on whether cross-contamination was foreseen. In a statement to the Inquiry, he pointed out that cross-contamination was not an issue raised by industry representatives during meetings to discuss the proposed feed ban in 1988. Further, given the knowledge that some cross-contamination could occur at feedmills and given the views on infective dose expressed by Mr Wilesmith (see paragraph 2.66):

96 FEG17 p. 1. See however also paragraphs 2.157–2.163 on a proposal to produce porcine MBM for inclusion in ruminant rations
97 See paragraphs 2.119–2.221 on the Bovine Spongiform Encephalopathy Order 1991
98 S184A Meldrum para. E54
99 YB90/11.1/14.1
100 YB90/11.08/6.1
... if I, or indeed any of the other MAFF or industry representatives, had known at that time that the infective dose was really so low as to lead to cross-contamination problems, the issue would have been pursued, as indeed it was at a later stage as a result of the investigations into BABs and the use of the ELISA test in the field.\textsuperscript{101}

\textbf{2.90} A note of a meeting with the cattle industry on 28 June 1988 records Mr Meldrum as saying that ‘feed compounding mills presented, at worst, only a low contamination risk.’\textsuperscript{102}

\textbf{2.91} However, MAFF’s attention was drawn to cross-contamination in feedmills when Dr Danny Matthews, SVO in the Notifiable Diseases Section, attended a meeting of the UKASTA Scientific Committee on 14 November 1990 to discuss a number of BSE issues. Various questions were put to him. In response to a question on genetic susceptibility, the note of the meeting records:

It was considered that the BSE agent had adapted to the host and not that the host had changed to become more susceptible to the agent. There was no change in the cattle; the change had been in the challenge, i.e the dosage rate of the infected material which would have increased over the past few years. A dose-related response had been seen; the bigger the dose the greater the chance of BSE developing.\textsuperscript{103}

\textbf{2.92} On the issue of cross-contamination, the note of the meeting records:

UKASTA pointed out that, with the use of special detection kits, Trading Standards Officers could detect very low levels of meat and bone meal in ruminant rations because of either the possibility of cross-contamination in the feed mill or because traces could be present in tallow which was still permitted for use in ruminant rations. Compounders could, therefore, be faced with the possibility of prosecution by Trading Standards Officers. Also, if a compounder sold a dairy feed to a farmer who subsequently had a case of BSE and traces of ruminant animal protein were found in the feedingstuff a court could find the compounder legally responsible. In the light of these considerations, compounders might feel that they had no option but to review their policy on the use of meat and bone meal altogether.\textsuperscript{104}

\textbf{2.93} It was concluded that:

Mr Meldrum should be made aware of the concern arising from possible cases of cross-contamination of a dairy feed with small traces of monogastric ration and/or the detection of meat and bone meal in tallow used in ruminant feedingstuffs.\textsuperscript{105}

\textbf{2.94} Accordingly, on 15 November 1990 Dr Matthews reported the outcome of the meeting to Mr Meldrum, and highlighted UKASTA’s concern about cross-contamination:
. . . knowing that there will always be some risk of cross contamination at the mill, for whatever reason and usually only in trace amounts, they fear that they will be accused by cattle owners of introducing disease . . . In addition, Trading Standards officers around the country have been showing increasing interest in their practices. They therefore fear that use will be made of developing ELISA techniques to detect small amounts of ruminant contaminant in feed for ruminants, leading eventually to prosecution. 106

2.95 Dr Matthews explained the concern about cross-contamination in a statement to the Inquiry:

References . . . to cross-contamination relates to the concerns of feed manufacturers that a sensitive test to look for evidence of contamination with ruminant protein might be capable of detecting trace amounts of protein that they might only be able to prevent by the total exclusion of meat and bone meal from all their products. At this time the purpose of the development of the ELISA Test was to assist in enforcing the Ruminant Feed Ban. I do not recall any concerns within MAFF at that time that cross contamination of feed was or might be taking place such as to undermine the effectiveness of the Ruminant Feed Ban. 107

2.96 Dr Matthews further explained his difficulty in establishing when MAFF first became concerned about cross-contamination:

I was not party to all discussions amongst senior officials, and in other parts of MAFF, on many aspects of BSE policy. I can therefore only report on issues of which I have personal knowledge. I regret that I cannot therefore identify with any precision when MAFF or myself first became concerned about the issue of cross-contamination. I have equal difficulty in identifying with any precision when I “first became concerned” that relevant cross-contamination might have occurred. The impression given from the questions posed is that such concern may have occurred as a single event, but I believe that . . . the process was one of gradually increasing concern as alternative routes of exposure were eliminated. 108

ELISA test produces ‘accurate and reproducible results’

2.97 On 14 December 1990 Mr Ansfield informed Mr Allsup that minor changes had been made to the ELISA test and that it produced ‘accurate and reproducible results’. He said:

I therefore confirm that the sandwich ELISA for speciation of animal species in processed meal incorporating a concentration procedure can detect ruminant protein at a minimum concentration of 1 in 200 for ovine and 1 in 400 for bovine. 109

2.98 MAFF now had a test that could accurately detect bovine and ovine material in MBM. It still needed to assess whether the ELISA test could accurately detect these amongst the multitude of other ingredients within compound feed, which was
the finished product ultimately fed to cattle. Mr Hunter asked Mr Ansfield to carry out this work, and on 24 January 1991 Mr Ansfield told Mr Winkler, SVO at Worcester VIC, that he had obtained 27 different compound feeds for this purpose. He advised that it was his ‘intention over the next 2–3 months’ to incorporate MBM and then test the samples and ascertain limits of detection for bovine and ovine material.110

**Developments in 1991 – the first BAB is confirmed**

**The first BAB – maternal transmission is considered**

2.99 On 22 March 1991, soon after Mr Meldrum expressed to the Lamming Committee his doubts over controls on BSE,111 Mr Taylor reported to Mr Gummer the first confirmed case of BSE in an animal born after the introduction of the ruminant feed ban (BAB). The infected animal was the progeny of a cow confirmed as having BSE in March 1989. Mr Taylor advised:

This is not the first confirmed case of BSE in the offspring of a confirmed dam: there have been 23 others, but they were all born before the introduction of the feed ban and so exposed in the same way as the other 25,000 confirmed cases.

Although this could be the first case of maternal transmission of BSE, further detailed investigations on the farm and at the feed suppliers have still to be carried out before the probable cause of infection can be established. These investigations are being carried out as a matter of urgency.112

2.100 Mr Lowson provided Mr Gummer with a draft question for written answer and a news release on 25 March 1991 to announce the BAB’s discovery in a ‘low-key way’. In his covering minute, he noted:

Further detailed work needs to be done on this case, in particular to establish conclusively whether or not the animal might have been fed on ruminant-derived protein (e.g. as a result of using up old stock or accidentally being given feed from the poultry operation on the same site).113

2.101 The news release was issued on 27 March 1991. It noted that:

The [BAB] was born in November 1988, after the imposition of the feed ban. This one animal should not have been fed on ruminant-derived protein and its feeding regime, and other possible sources of infection, are being investigated.114

2.102 In a statement to the Inquiry, Dr Matthews explained that although the case was born to a mother that had died of BSE, MAFF also investigated whether or not the suspect had been fed compound feed manufactured before the feed ban, or feed

---

110 YB91/1.24/4.1
111 YB91/3.13/3.8. Mr Meldrum said that he was ‘not totally content with the current controls, as at present there was no test for ruminant protein in feed’. See paragraph 2.144 below
112 YB91/3.22/5.1
113 YB91/3.25/6.1
114 YB91/3.27/1.1
for poultry housed on the same farm. As indicated in following paragraphs, ‘at that time it was concluded that feed sources had been eliminated as potential sources’.115

Problems with the ELISA test emerge

2.103 During his attendance at the Lamming Committee meeting on 13 March 1991 (see paragraphs 2.144–2.145), Mr Meldrum undertook to provide a detailed paper on the ELISA test. On the next day Mr Lowson sought information on the test from Dr Cawthorne.116

2.104 Dr Cawthorne replied on 9 April 1991, and outlined the current position:

We now have an ELISA test which has been validated and which can detect bovine protein at a concentration of 1/400 and ovine protein at a concentration of 1/200 in samples of meat and bone meal which have been heated to temperatures greater than 130°C.

Work is in progress to determine whether the same test can be used to detect ruminant protein in samples of finished/compound feed. The results of this validation should be available towards the end of this week.117

2.105 On 11 April 1991 Mr Ansfield explained to Mr Hunter the difficulties he was having with using the ELISA test on compound feeds. In particular:

One of the major problems I have found with compounded feeds in relation to the ELISA test is that the majority produce positive results even without the inclusion of known positive meat and bone meal . . . As yet more work has to be done in this area . . .118

SEAC considers the first BAB

2.106 SEAC discussed the first BAB at its meeting on 10 May 1991. SEAC had been provided with background information on the BAB in a minute from Mr Bradley. It recorded that there was no pig food kept on the farm where the case was discovered and poultry food was kept in hoppers inaccessible to cattle. Cattle feed was received in bulk into one-ton bags. It also noted that the SVS was investigating what care was taken with residual food in bags before refilling.119

The minutes of the meeting note:

. . . that the possibility that the animal concerned had been fed on ruminant protein could not be fully ruled out. But even if it could, this case, and further similar sporadic cases at a low level in the future, would not alter the Committee’s view of the disease and the advice that had been offered. There were apparently no similar cases in the field and no positive results had occurred in the offspring study, whereas if BSE were going to be widely transmissible more examples would have occurred.120
At its meeting on 28 June, it was reported to SEAC that, following epidemiological investigations, a food source for the single confirmed BAB case could now almost certainly be ruled out.\textsuperscript{121}

**Investigations into the cause of BABs continue**

On 12 June 1991 Dr Matthews reported the results of further investigations into the BAB case to Mr Meldrum. On feed, Dr Matthews stated:

Investigations . . . have included detail of feed supplies, the potential for carry-over of feed from before July 1988, and for the use of poultry feed intended for the intensive poultry unit on the same premises. Details of feed composition have been received from suppliers after some delay. All feed sources have been eliminated as potential routes of transmission.\textsuperscript{122}

Dr Matthews concluded that the most likely route of infection for the BAB was maternal.\textsuperscript{123}

Mr Meldrum responded to Dr Matthews on 18 June 1991, stating:

I would be grateful if you could re-examine the composition of the feed fed to the animal and let me have full details including as to whether any animal fat was ever fed to the animal either as a calf or cow.\textsuperscript{124}

Dr Matthews provided ‘a limited amount of additional information’ on 4 July 1991. He reported that two concentrate feeds were given to the BAB in its first year of life, with one company ‘insisting’ that the feed it provided contained no raw material of animal origin. It was proving more difficult to obtain details of the other feed provided by a different company, though it was likely that it contained fats of animal origin. Dr Matthews had asked the local VO to pursue this matter further.\textsuperscript{125}

Dr Matthews minuted Mr Meldrum again on 16 July 1991 with further details of the fat included in the second concentrate feed. He set out the percentage breakdowns in the feed, which included 10 per cent residues of soyabean and tallow. Mr Meldrum advised Mr Lowson and Mr Lawrence two days later in a manuscript note on the minute, that the inclusion rate of the tallow in animal feed was extremely low and that he thought it was ‘highly unlikely’ that it caused BSE in the BAB.\textsuperscript{126}

On 17 July 1991 Dr Matthews reported to Mr Ian Robertson,\textsuperscript{127} Mr Wilesmith, Mr Taylor and Mr John Maslin\textsuperscript{128} that 26 suspected cases of BABs had been listed by the SVS. Two of those were recorded as positive at the CVL, but Dr Matthews awaited confirmation of the dates of birth. Three of the suspect cases had been born more than four months after the ban. The SVS continued to consider the possibility of maternal or horizontal transmission in these cases.\textsuperscript{129}

\textsuperscript{121} YB91/6.28/2.5
\textsuperscript{122} YB91/6.12/3.1
\textsuperscript{123} YB91/6.12/3.2
\textsuperscript{124} YB91/6.18/2.1
\textsuperscript{125} YB91/7.4/3.1
\textsuperscript{126} YB91/7.16/4.1
\textsuperscript{127} Veterinary Head of Notifiable Diseases Section – succeeded Mr Kevin Taylor in July 1991
\textsuperscript{128} Head of Notifiable Diseases Branch in the Animal Health (Disease Control) Division
\textsuperscript{129} YB91/7.17/10.1–10.2
2.114 Mr Wilesmith wrote to Mr Hayward, DVO Carlisle, on 29 July 1991 about the second case of BSE in an animal born after the ban. Mr Wilesmith noted that ‘this animal appears to have an accurate date of birth and was born very soon after the ban’. However, further details were needed:

The main aspect of interest is whether there was any accidental feeding of concentrates containing meat and bone meal. The feeding history of the animal probably needs confirmation as the BSE1 gives a history from 1986. Then, in the first instance determine the herd owner’s feedstuffs purchasing regime in terms of the frequency of supply and the turnover of food stocks on the farm. If it appears that there was no accidental feeding then we will need to direct enquiries to the feed compounders . . .

2.115 The second BAB was confirmed on 16 September 1991 and reported to Mr Meldrum by Dr Matthews. The second confirmed BAB was not the offspring of a confirmed case. Dr Matthews said:

While horizontal transmission and feed still have to be eliminated as possible sources, I am sure that vertical transmission would be the easiest to handle politically, given that the VO is certain that there will have been no carryover of feed containing meat and bone meal.

2.116 Dr Matthews attached a ‘summary of the current state of play’. The probable origin of infection for the first case was recorded as ‘maternal’. Two other previously reported BABs were also noted, though both had since been disregarded. The first was discounted because its calving date was not precise and carry-over of feed was likely. The other’s date of birth could not be confirmed.

ELISA test progress

2.117 On 16 September 1991 Mr Ansfield reported progress on the ELISA test to Mr Hunter. The problems with using the test on compound feeds had not been resolved, but for 13 out of 27 compounded feeds, bovine and ovine meat and bone meal residue could be detected down to 1 per cent. For the others, non-specific results were still being obtained.

2.118 Dr Cawthorne relayed this information to Mr Meldrum on 19 September 1991. He attached a draft letter for Professor Eric Lamming, as promised by Mr Meldrum when he appeared before the Lamming Committee in March (see paragraphs 2.144–2.145). The letter was sent on 23 September 1991 and stated:

We now have a validated ELISA test which can detect bovine protein at a concentration of 1/400 and ovine protein at a concentration of 1/200 in meat and bone meal derived from material heated to temperatures greater than 130°C.

Unfortunately, problems were encountered when the test was applied to compound feedingstuffs and we have had to develop methods to overcome
them. Progress has been made and I am pleased to report that we can now detect bovine and ovine proteins in a sizeable number of compound feedingstuffs at incorporation rates as low as one per cent. Work is continuing and I will keep you informed of developments.135

The Bovine Spongiform Encephalopathy Order 1991

2.119 The Bovine Spongiform Encephalopathy Order 1991 (the Order) came into force on 6 November 1991 (see Chapter 4).136 The Order consolidated the Bovine Spongiform Encephalopathy (No. 2) Order 1988 and the 1990 BSE Amendment Order. Article 12 of the Order provided:

(1) . . . no person shall –

(a) knowingly sell or supply for feeding to ruminant animals any feedingstuff in which he knows or has reason to suspect any protein which is derived from a ruminant animal has been incorporated;

(b) feed to a ruminant animal any feedingstuff in which he knows or has reason to suspect that any protein which is derived from a ruminant animal has been incorporated . . .

2.120 Article 15 stated:

Where an inspector of the Minister has reasonable grounds for supposing that the provisions of article . . . 12 . . . have not been or are not being complied with he may take from any protein, offal or feedingstuff such samples as he considers necessary in order to establish the correctness of that supposition.

2.121 This removed the anomaly in the Bovine Spongiform Encephalopathy (No. 2) Amendment Order 1990, whereby a ban was placed on the feeding of all animal protein to ruminants (see paragraph 2.85).

The number of BAB cases increases

2.122 By 15 November 1991, five BAB cases had been confirmed, with another four likely to be confirmed. Dr Matthews informed Mr Meldrum that he was concerned at MAFF’s inability to link four of those cases with food or an infected dam, which would ‘raise the profile of horizontal transmission in the eyes of importing countries’.137

2.123 Mr Wilesmith raised further concerns when he wrote to Mr Meldrum on 21 November 1991:

As Danny Matthews’ initial summary of the cases born after the [ban] indicates we have a number of problems with these cases. We have taken action to obtain as rapid a flow of information in a standard manner, but at any point in time we will always have incomplete information on a number
of cases. Also, it is clear from the handful so far dealt with that not all relevant information will be available, especially to assess the risks of a food borne source.

. . . It is becoming increasingly difficult to provide a succinct summary of the state of play. I would be very grateful if we could discuss the presentation of information in order to have a standard agreed format and the details required for summaries of this set of cases for internal circulation.\textsuperscript{138}

\textbf{2.124} Following a request from Mr Meldrum to deal with the matter,\textsuperscript{139} Mr Taylor wrote to all RVOs on 24 December 1991. He noted that the large number of referred BAB cases was stretching diagnostic resources at CVL to the limit. Further, out of 177 brains examined, only 10 had been confirmed with BSE. There were 39 results pending. He said:

To ease the burden for the laboratory staff who have to carry out detailed histopathological examinations and for those involved in obtaining epidemiological data in the field, it is essential that as many as possible of these negative cases are eliminated at the stage of clinical assessment on the farm.\textsuperscript{140}

\textbf{ELISA test progress}

\textbf{2.125} Meanwhile, Mr Ansfield had written to Mr Hunter on 10 December 1991 informing him that all 27 compound feeds tested gave a positive result when 1 per cent bovine meat and bone meal was added. However, the addition of ovine meat and bone meal did not give results, so work was to continue.\textsuperscript{141}

\textbf{2.126} In a statement to the Inquiry Sir Derek Andrews, MAFF Permanent Secretary from 1987 to 1993, summarised his view of the developments during the latter half of 1991:

I was aware that there was a growing – but still small – number of BSE suspects born after the feed ban. It became increasingly likely that some cattle had in fact been fed with ruminant feed after the feed ban came into force. There was still no test in use to establish whether feed contained ruminant material. This meant that enforcement depended largely on visual inspection in feedmills and at farms. Given the number of separate premises at which feed might be stored, it was not surprising that there had been some enforcement problems.\textsuperscript{142}
Developments in 1992 – infective feed identified as cause of BABs

2.127 According to Mr Wilesmith:

As epidemiological data accumulated on the BAB cases, early in 1992, it became apparent that the 1988 and early 1989 born BAB cases were most likely to have been infected from the feedborne source as a result of cattle feedstuffs containing ruminant derived MBM which had been manufactured before the 18th July, 1988 and was still in the feed supply chain or on farms.143

Attack rate experiment begins

2.128 The attack rate experiment entitled ‘Effect of Oral Inoculum Dose on Attack Rate and Incubation Period of BSE in Cattle’ started in CVL in January 1992. The experiment sought to establish how many cattle in a group would be affected by oral inoculation with different doses of infected material, as well as to understand how incubation period might be related to dose.144 It also aimed to look at whether attack rate and incubation period differed for single and multiple exposures. Groups of calves received oral doses of BSE-infected cattle brain homogenate in doses of 1g, 10g, 100g or 3 x 100g and were monitored clinically through to the point at which they succumbed to the disease.145 The latest completion date estimated for this experiment was December 1999.146 Initial results of this experiment became available in late 1994. Their impact on MAFF’s action on the monitoring and enforcement of the RFB is considered later in this chapter. See vol. 2: Science for further details on the experiment.

MAFF considers publishing BAB data

2.129 On 16 January 1992 Mr Lowson provided a summary of various BSE matters for Mr Maclean. On the BAB cases he said:

Over 300 BSE suspects believed to have been born after the ban on feeding ruminant protein to ruminants have now been investigated. Only 11 have been confirmed, of which one was the offspring of a BSE positive dam and has been announced. In several of these cases it is impossible to be certain of the animal’s parentage or of whether or not it had been given ruminant protein. Nothing has therefore happened yet to alter the view that sources other than feed are not likely to be important for the future of the epidemic.147

2.130 Mr Lowson advised that a clear statement on the topic should be made at some stage. In the meantime he recommended that the small number of BAB cases should be emphasised, as should the doubts about the age and history of some and their ‘very limited significance in the long term control of the disease’.148

142 S91A Wilesmith para. 117
144 YB92/2/02/1–2.4 at 2.2
145 YB92/3.31/6.1
146 YB92/2/02/1–2.4 at 2.3
147 YB92/1.16/1.2
148 YB92/1.16/1.2
2.131 Mr Simon Tanner, Private Secretary to Mr Maclean, advised Mr Lowson on 21 January 1992 that Mr Maclean would like Mr Meldrum to consider ‘any opportunities where he could present a paper to put this information into the public domain’. Mr Meldrum indicated in a manuscript note on the minute that he could not think of any opportunities ‘off hand’. In a further manuscript note, Mr Kevin Taylor identified the May 1992 report to the Office International des Epizooties (OIE) as a possibility, with an update to the British Veterinary Association (BVA) or a brief report in the Veterinary Record as alternatives.149

2.132 On 7 February 1992 MAFF issued further instructions on BABs to all VOs via Animal Health Circular 92/17. It noted:

> With the passage of time, more and more suspect animals will inevitably come within the “Born after the Ban” category. The diagnostic confirmation rate in such animals is at present extremely low, and the extension of such statistics into the three and four year old categories will not only severely strain the diagnostic capacity of the CVL Pathology department, where detailed investigation of these potentially epidemiologically significant animals is carried out, but will also ‘prolong the epidemic’ significantly, albeit with negative animals.150

2.133 It advised that it was essential that all potential routes of infection were investigated. The circular made it clear that while farmers’ feeding records should be checked (where available), no tracing of ingredients should be undertaken without further instructions from headquarters.

2.134 Following the receipt of a Parliamentary Question asking how many BABs had been confirmed, Mr Lowson suggested to the Parliamentary Branch, on 14 February 1992, that this presented ‘the opportunity to get on record that the number of BSE cases in cattle born after the ban is very small and that most of these had in fact been fed on ruminant protein’.151 He attached a draft reply to the question, which read:

> Up to the end of January, there have been sixteen confirmed cases of BSE in cattle born after 18 July 1988 when the ban on feeding ruminant derived protein to ruminants was introduced. One of these, as previously announced, may have been a case of maternal transmission. Investigations are still continuing into some cases, while for others interpretation of data is incomplete, but it is already clear that most have probably received some ruminant protein largely by carry over of feed produced before the ban.

> That there have been so few cases born after the ban is very encouraging. If either maternal transmission or other direct cattle to cattle transmission was a significant factor in BSE many more such cases would have been expected. The evidence so far still supports the view that sources of infection other than food are not likely to affect significantly the future of the epidemic and that the measures which have already been taken will eradicate the disease.152

---

149 YB92/1.21/1.1
150 YB92/3.16/1.1
151 YB92/2.14/6.2
152 YB92/2.14/6.4
However, Mr Simon Dugdale, MAFF’s Chief Information Officer, advised that if MAFF were to appear ‘too bullish’ about the development of the epidemic, undue attention could be created and MAFF might be accused of being too optimistic when the number of cases was still high. Mr Lowson therefore recommended that the second paragraph of the draft reply should be removed and the accompanying draft press notice should be withdrawn.\footnote{YB92/2.14/6.1}

Mr Lowson also provided a question and answer brief, which read in part:

Were all these animals fed ruminant protein?

We cannot say for certain. Must remember that we are dealing with events over three years ago. Our investigations are incomplete and may remain that way particularly if invoices for purchased concentrates have not been kept. Nevertheless apart from the one possible case of maternal transmission, most of the others probably were fed this material.

Why were these animals fed ruminant protein?

Should not cause great surprise. Although the feed ban was introduced on 18 July 1988 it would be unrealistic to expect that it was universally and immediately effective particularly if farmers already had stocks of feed on farm produced before the ban.

Will the farmers be prosecuted?

No. It is clear that in most if not all cases this was done through ignorance, accident or carelessness. The important thing is to obtain full and accurate details of what happened, for epidemiological purposes, rather than seek to punish anyone.\footnote{YB92/2.14/6.7}

On 10 March 1992 Mr Lowson provided material for incorporation into a note requested by the Prime Minister’s Private Secretary. He listed factors that supported the expectation that the ruminant feed ban would contain the epidemic:

– Only a very small number of cattle born after this feed ban succumbed to the disease. In most of these cases, the use of contaminated feed cannot be ruled out;

– The effectiveness of the feed ban can best be judged by the end of 1992, when BSE ought not to be confirmed in significant numbers of animals less that three years old. The first signs that this shift in the age incidence of disease are now discernible, although it is too early to be firm;

– The number of cases per herd has remained constant and very low, which suggests that animal-to-animal transmission is not an important factor.

– The incidence is the same in cattle which are the offspring of confirmed cases as in those which are not, which suggests that maternal transmission is not an important factor.\footnote{YB92/3.10/2.3}
Feed carry-over becomes apparent

2.138 On 9 April 1992, SEAC met with the Lamming Committee, during which the integrity of the ruminant feed ban was discussed. Dr David Tyrrell, Chairman of SEAC, explained that 33 confirmed BABs were being fully investigated and though it was difficult to establish the cause of infection, there was a clear possibility the animals had received contaminated feed. Mr Bradley added that there was confidence that animals had only been fed ruminant protein up to three months after the ban, though there was an incident in June 1989 when a compounder had accidentally incorporated ruminant material into cattle feed.156

2.139 On 11 June 1992 MAFF Ministers met Sir Derek Andrews, Mr Charles Capstick,157 Mr Geoffrey Hollis,158 Mr Lowson, Mr Wilesmith and other officials, to discuss the recent BSE figures. Mr Wilesmith reported that the number of confirmed BABs was sixty-nine. He advised that the total number of BSE cases for the year was almost half what it would have been had the ruminant feed ban not been introduced. In response to Mr Gummer’s query as to whether a point had been reached whereby a drop in the number of cases in 3 and 4-year-olds confirmed that the ban was having its intended affect, the note of the meeting records that:

Mr Wilesmith said that the latest figures showed some reduction, but this was not yet a dramatic fall. Only one case of the disease had been found so far in which there was not a clear link with feed, and this case was being investigated further (while it was not necessarily possible to find out whether a particular animal had eaten contaminated feed, it was possible to find out whether it had access to such feed). The reason why the effect of the feed ban was taking longer to show than had originally been estimated was that it was now clear that some contaminated feed supplies had continued to be used after the implementation of the ban on 18 July 1988. The feed had a shelf life of about six months, and in some cases, it appeared that it had continued to be used on farms after 19 July. The best estimate was that this would lead to a three month lag in the effect of the ban.159

2.140 Mr Gummer concluded ‘that even on the most cautious interpretation, there was no evidence suggesting that the introduction of the feed ban was not proving effective’.160

2.141 Mr Meldrum later wrote to Mr Rossington, Principal Private Secretary to Mr Gummer, to clarify aspects of the ‘confused discussion’ during the 11 June meeting. He explained:

Only one case . . . appears to have the potential to have been infected from its mother . . . At the time, although it had not been possible to obtain details of all ingredients in concentrates fed to the animal in calfhood, it was assumed that the ruminant feed ban had been effective from July, and that the risk via feed should have been zero. On reflection, taking into account more recent information gathered about carry-over of feed on farm, and from the compounding industry about carry-over of stocks manufactured before

156 YB92/4.9/1.4
157 Head of the Food Safety Directorate
158 Head of Livestock Products Group
159 YB92/6.15/2.1–2.3
160 YB92/6.15/2.2
July 1988, we are now able to acknowledge that there is some risk of exposure via compounded feed.\textsuperscript{161}

\textbf{2.142} In a statement to the Inquiry, Dr Matthews explained the implications of evidence of carry-over of feed for the identification of cross-contamination in mills as a source of BABs:

The information gathered by Veterinary Officers for many early BAB cases, born in 1988/89, clearly identified evidence of consumption of feed that had been manufactured and purchased before the 18 July 1988 (i.e. carry over of feed). It was therefore difficult to identify cross-contamination as a serious hypothesis until we began from 1992 onwards to gather more data on animals born in 1989 and 1990. In the majority of such instances it was not possible to confirm carry-over of feed on the farm, nor deliberate inclusion of ruminant protein in the feed.\textsuperscript{162}

\textbf{The Lamming Committee Report}

\textbf{2.143} The Expert Group on Animal Feedingstuffs (the Lamming Committee) was established in early 1991 following the recommendation of the Agriculture Select Committee in July 1990 (see paragraph 2.78). Its terms of reference were:

To review the existing regulatory framework covering the animal feed industry in the United Kingdom. To advise on whether any improvements are required in the mechanisms by which the responsible Departments take account of food safety requirements in regulating the industry and to report to Ministers by the end of 1991.\textsuperscript{163}

\textbf{2.144} During his attendance at the Lamming Committee’s second meeting on 13 March 1991, Mr Meldrum outlined recent developments on BSE. The minutes of the meeting record that:

Mr Meldrum was not totally content with the current controls, as at present there was no test for ruminant protein in feed. However, an ELISA method was currently being validated for use in the field . . .\textsuperscript{164}

\textbf{2.145} On the other hand, Mr Meldrum was ‘fairly confident’ that on-farm feed mixers were observing the controls and were aware of the ruminant feed ban.\textsuperscript{165}

\textbf{2.146} LACOTS’s submission to the Lamming Committee, dated 25 March 1991, also mentioned the enforcement difficulties associated with the ruminant feed ban:

The Bovine Spongiform Encephalopathy (No. 2) Order 1988 has caused some enforcement problems. Agricultural Analysts initially did have difficulty in identifying the presence of meat proteins but this has been resolved even though it is impossible to give exact quantities present. Analysts report to the nearest 5%.\textsuperscript{166}
At its ninth meeting on 10 October 1991, the Lamming Committee agreed that there should be a recommendation in its Report on the need for greater control of on-farm mixing to minimise the occurrence of contamination in feedstuffs.167

The Lamming Committee held its eleventh meeting on 14 November 1991. It was attended by NFU representatives, who told the Committee that home-mixing did not represent a major problem in terms of food safety, as farmers took care to establish that ingredients were of the appropriate standard. Mr Robert Parsons, Chairman of the NFU Animal Feed Group, argued that registering home-mixers would be more burdensome than was necessary to protect the public. When asked why home-mixers should be subject to less stringent controls than compounders, Mr Parsons said that, with regard to medicated feed, there was less likelihood of cross-contamination through home-mixing.168 An NFU representative also noted that the emergence of BSE had meant that farmers were questioning compounders more about the content of their feeds.169

The Lamming Committee reported to the Government on 15 June 1992, and the report was published shortly thereafter. The Committee recommended that:

... the [ruminant and animal SBO] feed bans be retained, even after the results of the inactivation study become available, unless the results provided unequivocal information on the inactivation of the scrapie/bovine spongiform encephalopathy agents, and that the necessary conditions can be consistently achieved by the rendering industry.170

The Committee also concluded:

The evidence suggests that in the majority of cases, the controls are working, despite the fact that the ruminant protein ban and the specified bovine offals ban are to a considerable extent dependent on self-regulation by the industry. However, there are indications that some cattle may have had access to ruminant meat and bone meal since the 1988 ban and it is thought that this may account for most of the 69 confirmed cases of BSE in cattle which, up to 5 June 1992, have been born after the ruminant feed ban was introduced. The majority were born shortly after the statutory intervention. This number is small compared with the earlier incidence, but it suggests that the integrity of the ban is not complete.171

Although the Committee acknowledged there were signs that this was a diminishing problem, it recommended:

... that the incidence of BSE in cattle born after the ruminant protein ban is monitored carefully. We also welcome the development of the tests for the detection of ruminant protein in meat and bone meal and compound feedingstuffs which, when they become available for enforcement purposes, will provide an additional safeguard.172

167 YB91/10.10/2.7–8
168 YB91/11.14/2.4–2.9
169 YB91/11.14/2.9
170 IBD1 tab 11 p. 81. The aim of the inactivation study was to determine under which conditions the BSE agent could be destroyed
171 IBD1 tab 11 p. 8
172 IBD1 tab 11 p. 8
Later in its report, the Committee said:

There is currently no method of analysis available for detecting ruminant protein in ruminant rations and therefore for the enforcement of the BSE Order 1991. However, an ELISA system has been developed by MAFF. It has proved successful in tests involving meat and bone meal and it has been possible to differentiate between bovine and ovine material in samples processed below temperatures of 130°C. The method has now been validated and can be applied to compound feedingstuffs. We welcome the development of this test.\textsuperscript{173}

Availability of the ELISA test

On 3 June 1992 Dr Cawthorne advised Dr Dawson that:

When I left the VI Service, the [ELISA] test had been developed to the point where it could be used to detect animal proteins in a limited number of compound feeds but that further work was necessary to resolve a number of outstanding problems. I gather that these have now been overcome and that the test can now detect cattle and sheep proteins in all the compound feed rations currently available.

One of the reasons for developing the test was to enable us to enforce the ruminant feed ban. No doubt you will now wish to discuss with Robert Lowson, John Maslin, Kevin Taylor and Ian Robertson how this technology should now be exploited.\textsuperscript{174}

On 13 July 1992, having read Dr Cawthorne’s minute, Mr Maslin sought advice from Dr Dawson on the use of the ELISA test to enforce the RFB. He questioned whether trading standards officers could use the test with appropriate equipment, or whether samples would need to be submitted to the VIS.\textsuperscript{175}

Dr Dawson requested the relevant information from Mr Ansfield, which was provided on 11 August 1992. In addition to providing a project summary, which had been circulated earlier in the year, Mr Ansfield provided an update on the test sensitivity. For both ovine and bovine material, detection in meat and bone meal was now 1/6,400 and detection in compounded feeds was 1/200. It was now possible to differentiate between bovine and ovine material.\textsuperscript{176}

Mr Ansfield advised that the test required ‘high standards of laboratory expertise and a composite range of equipment’. He estimated that for bovine detection, 310,000 samples could be tested, and for ovine samples, 216,000 (the availability of antiserum limited the test’s capacity). The tests would be performed on the third day following receipt of the sample.\textsuperscript{177}

\textsuperscript{173} IBD1 tab 11 p. 68
\textsuperscript{174} YB92/6.3/1.1
\textsuperscript{175} YB92/7.13/1.1
\textsuperscript{176} YB92/08.11/5.9
\textsuperscript{177} YB92/08.11/5.9
The inclusion of porcine MBM in ruminant rations is proposed

2.157 On 2 September 1992 Mr Meldrum advised Mr Gummer that a company producing MBM from pig waste was considering selling it for incorporation into ruminant rations. Mr Meldrum had advised a reporter that the ruminant feed ban would not prohibit the use of porcine MBM in ruminant rations, nor was it contrary to the Southwood Working Party’s or SEAC’s advice. He continued:

We intend to follow this report up with the animal by-products company concerned to determine what exactly they have in mind and how they intend to ensure that there is no possibility of adulteration or cross contamination. In addition they will be advised that we have the ability to detect low levels of ruminant protein in meat and bone meal.178

2.158 Mr Meldrum sought Mr Gummer’s confirmation that he did not want MAFF to make any comment on the advisability of incorporating porcine MBM into ruminant rations.179

2.159 Mr Rossington replied to Mr Meldrum on 8 September 1992 and advised that Mr Gummer was extremely concerned to hear that a company was proposing to incorporate porcine MBM in cattle rations. He thought that MAFF should actively discourage, and be seen to discourage this practice.180

2.160 On 16 September 1992, Mr Meldrum instructed the local Deputy Regional Veterinary Officer (DRVO) to visit the company intending to produce porcine MBM for incorporation into ruminant rations. He set out a number of presentational points that needed to be made, including:

. . . it would have to be produced under the very highest standards to ensure that there was no possibility of ruminant protein being incorporated and that there was no possibility of cross-contamination with ruminant protein. To that end we would be keeping a very close eye on the production of the meat and bone meal and would be carrying out detailed analytical tests to ensure that no such contamination arose.181

2.161 He concluded that he hoped the DRVO would be able to do his best to persuade the company not to go ahead with its proposal.182

2.162 The DRVO reported on 22 September 1992 that it appeared the project was no longer viable and there was little chance of it being revived, even without pressure from MAFF.183 Mr Meldrum forwarded the report to Mr Dugdale, suggesting they needed to decide what line to take in response to Mr Gummer’s previous comments on the topic.184

2.163 It was subsequently decided that if pressed for comment, MAFF’s line should be that neither the Lamming Committee nor SEAC had identified the feeding of porcine material to ruminants as requiring action, though SEAC would be asked

178 YB92/9.2/1.1
179 YB92/9.9/21.2
180 YB92/9.9/8/4.1
181 YB92/9.16/1.1
182 YB92/9.16/1.2
183 YB92/9.24/6.2-6.4
184 YB92/9.24/6.1
to consider the issue at its next meeting. In the event, at its meeting on 15 October 1992 SEAC noted that in practice porcine material was not being fed to ruminants and felt that it was advisable for this situation to continue.

Concerns about non-compliance with the ban

2.164 Meanwhile, Dr Matthews minuted Mr Meldrum on 4 September 1992. He referred to the November 1988 BAB case that had been publicised as a potential case of maternal transmission, and stated:

You will recall that in this instance we were unable to trace the ingredients of one compound feed supplied. In addition, we were not in a position to openly admit to the fact that the ruminant feed ban was not absolute as of 18 July. In view of the information received from the major compounders both before the ban and recently, it is clear that they needed at least three months to clear stocks, in some cases longer. Add to that the fact that some heavy discounting led to bulk buying of meal just before or after the ban, and the risk of carry-over on farm has to be seen as considerable. Initial evidence suggests however that smaller compounders are disproportionately represented amongst suppliers to owners of BAB cases, and not being party to discussions prior to the introduction of the ban they might be expected to take longer to clear their stock.

2.165 On 8 September 1992 Mr Meldrum advised Dr Matthews that ‘we need to write to UKASTA about the feeding of animals born after the ban and our suspicions that there was a significant time lag before existing stocks of meat and bone meal were consumed within the ruminant feed chain’.

2.166 Mr Meldrum wrote to Mr Reed, Director General of UKASTA, on 18 September 1992. He reported that as at 9 September 1990, 220 BABs had been confirmed and that ‘We do consider the majority to have been at risk from consumption of concentrate containing meat and bone meal, but short of tracing feed to source for every case this will be difficult to prove’. Mr Meldrum continued:

My concern at the moment is the extent to which there was slippage in full implementation of the ruminant feed ban. Realistically we could not expect an absolute ban from 18 July and carry-over on farm was expected. Furthermore, we were aware from discussions with major compounders before the ban came into effect that it would take considerably longer than the few weeks given to them for stocks of concentrate containing meat and bone meal to be cleared. At the moment our modelling suggests a time lag of between three and six months before the ban became fully effective, excluding human error.

While interest in this area has hitherto been muted during the quiet summer season, I do not expect the status quo to be maintained for long. As a consequence, not only will this cause us additional pressures, but it may also turn the spotlight on your members. Indeed it may well present the risk of
litigation, a prospect already encountered by some compounders as I understand.

There appears to be a slight chance, at least, that the smaller compounders, particularly non-members of UKASTA, may have taken longer to clear their stocks. We are examining this aspect by analysis of the data on these cases, but it is perhaps a little premature to draw any conclusions as there is nothing to substantiate the hypothesis and we are dealing with a rather small number of cases.189

2.167 Mr Meldrum concluded by asking whether UKASTA would be content to meet MAFF to discuss the assistance they might be able to give in ‘quantifying the risk of feeding ruminant protein to ruminants after July 1988’.190

2.168 During oral evidence, Mr Meldrum commented on his reasons for writing the letter:

. . . I [had] no evidence, at that time, that the compounders were supplying material after the date set. I have said already and I believed at the time that there could be small amounts of material left on farm after 18th July that were consumed after that time; and that would account for the number of cases, born after the ban cases that I referred to in paragraph 4. My concern at the time was that the number was going up very fast indeed. Looking at the figures in 1992, in the third and fourth quarters there was a very significant number of cases born after the ban and I was worried. That is why I wrote to Mr Reed. But I do not think it can be – I do not think you can assume from that letter that I assumed that the smaller compounders had not in fact complied.191

2.169 On 2 October 1992 Miss Nelson of UKASTA sent Dr Brian Cooke a note that had been prepared using comments made at a recent Scientific Committee meeting. Miss Nelson asked for Dr Cooke’s views because she intended to use the note as background briefing for UKASTA’s forthcoming meeting with Mr Meldrum. The note explained that Mr Meldrum would be seeking explanations as to why MBM could have been available for consumption by cattle after the imposition of the RFB. It advised that information required from UKASTA would be ‘in general’:


ii) Whether or not material was recalled from merchants’ premises.

iii) Whether or not material was recalled from farms.192

2.170 Points of interest to UKASTA were the history of suspect BABs, including the geographical spread, and whether they had received feed containing MBM from UKASTA members. The note continued:
It would also be interesting to know what member companies’ responses were to the imposition of the feed ban. This would include the use of returns (such as sow feeds) in cattle rations. It was noted that MAFF were not concerned about cross contamination of feedingstuffs in mills because the dose rate of meat and bonemeal would be too low.

On feed in merchant stores, it was considered that the stock concerned would have been rundown by the end of September at the latest. It was possible, however, that farmers could have ruminant feed containing meat and bonemeal which was delivered in June and still be available for feeding in the early autumn.193

2.171 During oral evidence, UKASTA witnesses were asked whether they could attribute the comment in the note on MAFF’s attitude to dose and cross-contamination in feedmills to a particular meeting or person. Miss Nelson replied:

No, I cannot. It is just my general understanding at the time. I cannot attribute it to any particular MAFF official or a particular meeting. I am just reflecting the views held within the UKASTA at the time that I wrote that memo.194

2.172 However, Miss Nelson referred to two UKASTA meetings – one attended by Mr Wilesmith on 10 April 1990 and the other by Dr Matthews on 14 November 1990 – as examples of the information UKASTA was receiving on dose.195 Mr Wilesmith had said that a greater dose led to a shorter incubation period (see paragraph 2.66), while Dr Matthews had said that a greater dose gave a greater chance of BSE developing (see paragraph 2.91). Mr Reed accepted that:

That does not mean necessarily that a small dose cannot pass the infection on. But it reinforced the view we had been developing that a larger dose was more likely to pass the disease, a smaller dose much less likely. And of course all those terms, ‘larger’, ‘smaller’, are relative. You did not know what the infective dose was.196

SEAC’s consideration of BABs

2.173 At SEAC’s meeting on 15 October 1992 Dr Matthews and Mr Wilesmith gave a ‘detailed presentation of the procedures for investigating individual BSE cases born after the feed ban and of the epidemiological evidence’.197

2.174 A paper on BAB cases prepared for SEAC’s consideration stated that up to the end of August 1992 there were 122 confirmed BABs. It explained in detail the investigations undertaken when a suspected BAB was reported, and described the risk assessment used for potential sources of infection. Three categories were used to assess the risk for feed:

---

193 YB92/10.2/1.2
194 T61 p. 116
195 T61 pp. 117–8
196 T61 p. 118
197 YB92/10.15/2.3
High: There has been a definite carry over of food rations purchased before 18 July 1988 or where a ration was fed in which MBM was known to have been included accidentally.


Unknown: No feedstuffs potentially containing MBM known to have been fed during the animal’s lifetime.\textsuperscript{198}

2.175 The paper summarised the detailed epidemiological investigations that had been undertaken and concluded:

The results of the investigations of these cases supplement the results of analyses of age specific incidences over time which indicates that the ban on the inclusion of ruminant derived protein in ruminant rations has produced the expected effect on the epidemic.

It was known at the time the legislation was introduced that rations manufactured before 18 July 1988 could remain in the food supply chain for 6 months. Therefore, realistically, an instantaneous effect of the ban could not be expected. The current epidemiological evidence suggests that the lag in the ban taking effect is between 3 and 6 months. This is supported by these specific investigations. As a result cases in animals born after 18 July 1988 will continue to occur and increase in number over the next two years when animals born shortly after the ban will reach the modal age at onset of BSE. However, the results indicate that the cases which have occurred so far do not present any cause for concern.\textsuperscript{199}

2.176 The main points to emerge from discussion during SEAC’s meeting were:

– the pathological characteristics of the BABs remained the same as those of the rest of the epidemic;

– it was impossible to establish how much meat and bone meal remained in the animal feed chain, and for how long, after the ban. But because of recycling, this would have been the material with the greatest level of infectivity;

– the incubation period did not appear to have changed substantially, which was surprising in view of the recycling effect; and

– although the numbers were very small, there appeared to be a deficiency in the very youngest category (ie born in 1989).\textsuperscript{200}

2.177 SEAC noted that a large majority of BABs analysed to date were likely to have been exposed to infected feed. The minutes recorded that ‘all the evidence continued to suggest . . . that infected feed was the origin of infection and that there was still no evidence of any alternative source’.\textsuperscript{201}
Further BAB cases are anticipated

2.178 In response to a request from Mr Capstick, on 19 October 1992 Mr Lowson provided an update on the ruminant feed ban’s effect on the BSE epidemic. He made the following ‘key points’:

i. of the 291 confirmed BABs that had been analysed in detail, all had either a high or medium risk (see paragraph 2.174 for a description of the risk categories) of having been fed ruminant protein. SEAC had endorsed the view that there was no evidence to suggest an alternative source of infection;

ii. by 1 October 1991, 1,774 cases had been confirmed in animals born after 18 July 1987. In the absence of the ruminant feed ban, the number of cases born after 18 July 1988 confirmed by 1 October 1992 would be expected to be much higher than 1,774; and

iii. the proportion of the national herd succumbing to BSE under four years of age during the period January to March 1992 was significantly lower than the proportion for the same period in the previous two years.202

2.179 Mr Lowson concluded that the ‘picture therefore remains encouraging’. However, he said:

There does however emerge from all this what will be a very difficult presentational problem. The cases that are currently emerging are only the first of a group that will continue to emerge for years to come. We can expect that the rate at which the new born-after-the-ban cases are reported will accelerate over the coming years. It will be important not to give the impression that we expect the current rate of new cases to tail off; rather what has happened so far shows that numbers will increase markedly.203

2.180 After seeing this update, Mr Meldrum informed Mr Capstick that he had ‘no wish’ for the public use of statistics comparing numbers of BABs with confirmed cases in the same period in the previous year. He explained that ‘we have a significant number of cases in the pipeline where the animals were born after the ban but where there will be some delay in confirmation’. He noted that while it was correct to say there were 291 confirmed cases, ‘this figure would be higher if we were to confirm within the same time frame after slaughter as we did in the previous 12 month period’. Mr Meldrum concluded that although there was a significant reduction in the number of BAB cases as compared with the previous 12 months, such absolute comparisons ‘are not wise and should not be used specifically in Ministerial correspondence or PQs’.204

Meeting on UKASTA’s survey of feed compounders

2.181 Mr Meldrum met with UKASTA representatives on 10 November 1992 to discuss a UKASTA survey of feed compounders. By this time, there were 353 confirmed BABs, with an estimated 16 of those born in 1989, the youngest of which was born in September 1989. Of the confirmed cases, 341 were thought to have consumed feed containing ruminant protein.205
To meet Mr Meldrum’s request for information (see paragraphs 2.166–2.167) as to when companies ceased to incorporate ruminant MBM into ruminant rations, UKASTA had asked all companies represented on its Executive Committee to complete a questionnaire. The companies surveyed accounted for over 50 per cent of ruminant feed production. At the meeting, UKASTA summarised the findings:

(a) *Date when incorporation of ruminant protein in ruminant rations stopped.*

Two companies replied that they did not use animal protein. The other replies ranged from December 1987 to July 1988 with most saying July 1988.

(b) *Date when such stocks were cleared from compounders’ premises.*


(c) *Date when stocks were cleared from distribution premises or merchants’ stores.*

The point was made that merchants’ stores were not under the control of compounders. As in (b) replies ranged from February 1988 to October 1988 with most saying end August or end September 1988.

A further question on the date when stocks were cleared from farms was also asked.

The replies were, however, obviously estimates and varied greatly so no details were given. In theory feed should have been used by the expiry date on the bag which would have been some 3 to 4 months after manufacture.206

Other points made included:

(i) Most of the feed supplied after July 1988 would have been in bags not bulk and thus probably used as calf feed.

(ii) Protein supplements have a shelf life of 5 to 6 months (and would probably still be edible for a while after that).

(iii) UKASTA were not aware of any court proceedings against its members in respect of BSE.

(iv) BSE cases could well occur into 1989 because of the tendency of some farmers to take feed bags from the top of the pile thus leaving the lower bags some time before use.207
2.184 MAFF’s note of the meeting concludes:

[Mr Meldrum] thanked UKASTA for the information it provided but expressed his extreme concern that compounders had supplied ruminant rations containing ruminant protein after the ban was introduced. It had always been recognised that stocks on farm would have been used up but it had not been expected that material would continue to have been supplied. UKASTA’s reaction was to claim that recalling stocks was not practical and to say that the questionnaire replies were of course the outside possibilities when such feed might have been supplied.

Dr Matthews added that we now have a very sensitive test which can detect ruminant protein in feed.208

2.185 UKASTA’s note of the meeting does not record this final point made by Dr Matthews. It does record that:

MAFF noted that very shortly before the ban came into operation, the risk of exposure to contaminated feed increased greatly and thus the animals born in the 1988 calving season would have been at the highest risk of exposure for all time. The MAFF, therefore, expected that the number of animals with BSE who had been born after the ban would increase, over time, to between 1,000 to 2,000. The number of animals with BSE born in 1989 was expected to show a considerable decline over those for the previous year.209

2.186 Regarding Mr Meldrum’s concern that some companies had supplied feed containing ruminant MBM after the ban, UKASTA’s note said:

No feed containing this material had, however, been manufactured after that date.

UKASTA explained that in completing the proformas, individual companies had been totally honest in reporting that ruminant feeds containing ruminant meat and bone meal could have been supplied after the introduction of the ban. This was essentially because the feedingstuff would have a shelf life of between three to four months from the date of manufacture. Thus the latest date on which stocks would have been cleared from compounding premises and/or distribution premises/merchant stores would have been October at the latest . . .

The question of stocks of feedingstuffs available on farm was unknown. UKASTA stressed that the use of feedingstuffs at farm level was out[side] the control of the manufacturer. It was possible that a farmer could keep a protein concentrate for between five to six months. Thus it was suggested that the Ministry accept that there would have been a period of about six months before the ban was fully operative.

Mr Meldrum reiterated his concern that the ban had not been immediately observed. It was expected that the Ministry could be challenged, in due course, to what action officials were going to take in view of the fact that
compound feed containing ruminant animal proteins was sold after the introduction of the ban. He did, however, reconfirm that the information that he had been handed would be treated in the utmost confidence and stated that he wanted no further information on companies that might have supplied feed after the imposition of the ban. He also stated that the information provided by UKASTA would provide MAFF officials with a clear lead in the investigations being carried out into the incidence of BSE in cattle born after the ban.210

2.187 In a statement to the Inquiry, Mr Meldrum expressed his concern at the discovery that some compounders had supplied ruminant feed containing ruminant protein after the ban, as ‘it had not been expected that the supply of such feed would continue after the ban’.211

2.188 During oral evidence, despite the records of the 10 November 1992 meeting, UKASTA and GAFTA witnesses said that feedmills would have disposed of cattle feed containing ruminant MBM by 18 July 1988. UKASTA witnesses had not heard of any company that at 18 July 1988 was left with unsaleable material. GAFTA witnesses believed that trade in feed containing ruminant protein would have ceased on the date the ban came into force.212 This conflict of evidence is discussed in vol. 3: The Early Years, 1986–88.

MAFF acknowledges a six-month carry-over period of contaminated feed

2.189 On 19 November 1992 Mr Nicholas Soames213 met Sir Derek Andrews, Mr Meldrum, Mr Wilesmith and Dr Matthews to discuss recent statistics relating to BSE. Dr Matthews reported that, overall, the recent figures were ‘encouraging’, and explained that ‘the bulk’ of the new BSE cases being identified were 5-year-old animals which had been infected prior to the introduction of the ruminant feed ban. However, Dr Matthews commented that the figures for BABs were ‘disappointing’.214

2.190 Mr Wilesmith explained that, despite the introduction of the ruminant feed ban on 18 July 1988, there was ‘clear evidence that contaminated feed would have been available for at least six months after that date’:

This was because feed produced before the introduction of the ban could have been sold afterwards and because farmers may have bought in bulk and thereby established a store of contaminated feed. [Mr Lowson] added that as a result of the potentially contaminated feed being available after the introduction of the restrictions, the number of cattle infected which were born after the ban would continue to rise for some time.215

2.191 Following agreement during the meeting, a report entitled ‘Bovine Spongiform Encephalopathy in the United Kingdom – A Progress Report’ was

---

210 YB92/11.10/2.3–2.4
211 S184A Meldrum para. E93
212 T61 pp. 25–7
213 Mr Soames succeeded Mr Maclean as Parliamentary Secretary in April 1992
214 YB92/11.20/1.1
215 YB92/11.20/1.1
The effect of the ban on ruminant protein in feed in 1988 is not yet reflected by a decline in the epidemic of BSE in Great Britain. This is because the modal age at onset has ranged between 60 and 62 months, so that any major effects on the national incidence in terms of the number of cases reported each week will not become apparent until during 1993. Nevertheless there are several factors which already indicated the effectiveness of the ban:

– The significantly smaller number of cattle born after the feed ban which have succumbed to disease than would have been expected had no ban been in place. As indicated above, there is evidence in almost all of these cases, that ruminant protein was the source of infection. If non-food routes of transmission had been significant the number of cases in animals born after the ban would have been much higher;

– the percentage of affected animals within affected herds each year (within herd incidence) has shown no significant increase other than that which would be expected from the increase in exposure from recycling through feed containing material from infected cattle before the feed ban was imposed. This supports the view that direct animal to animal transmission is not an important factor;

– the slowdown in the numbers of cases being reported . . .

– the most reliable early indicator of the success of the control policy is a change in the age specific incidence of the disease. By the end of 1992, BSE should not be confirmed in significant numbers of animals less than four years old . . . recent information [shows] a significant fall in incidence in the two youngest age-groups in the first 9 months of 1992 by comparison with 1990 and 1991.

Taken together these indicators provide solid evidence of the success of the feed ban. As the ban continues to take progressive effect the average age of cases being reported will rise. As successive age groups drop from the picture, (first the three year olds, then the four year olds and so on) the total number of confirmed cases will decline until the ultimate disappearance of the disease in the UK.216

2.192 The reported concluded:

All the evidence continues to point to infected ruminant protein as the origin of the epidemic, and to justify confidence that the ban on feeding such material to ruminants will bring about its end. The evidence from cases born after the feed ban is wholly consistent with this view, but because it was not universally observed for some months after it was imposed it is inevitable that cases of BSE will continue to occur in animals born after 18 July 1988.217
Enforcement difficulties are identified

2.193 On 11 December 1992 Mr Adrian Dixon of MAFF’s Animal Health (Disease Control) Division minuted Mrs Davis of the Legal Department and explained that MAFF was undertaking investigations into potential sources of infection for BABs. Although investigations were carried out with the full cooperation of feed companies, it was thought that over time they might begin to feel vulnerable and fear legal action from farmers. He sought legal advice on two points:

(i) Do we have the legal powers to require the feed compounders/suppliers to provide the information we need?

(ii) Do we have powers to prosecute if we found that feed containing ruminant protein had been sold, supplied or fed, for example in 1989?218

2.194 Mrs Davis responded that offences under the BSE Order were summary only and subject to the normal six-month limitation period.219

2.195 She also advised that the Animal Health Act 1981 did not provide specific powers to require feed compounders or suppliers to give information. Powers of entry for the purpose of documentary enquiry were not provided either. Mrs Davis continued:

There is a power of entry in section 63(2) [of the Animal Health Act] for an inspector to enter land, a building or place where he has reasonable grounds for supposing there is to be found anything in respect of which any person has on occasion failed to comply with an order of the Minister or where he has reasonable grounds for supposing an order of the Minister has not been or is not being complied with. So if there were suspect feed on premises or if it were suspected feed had been wrongly made up on premises it would be possible to gain entry. It would be an abuse however to use that power to enter premises where there were no feed and where the suspect activity took place over 6 months ago.

If the inspector does enter premises he is not empowered to look at documents.220

2.196 Mrs Davis suggested it might be possible to make a new Order to require disclosure of information or documents. However, such an Order would only operate if inspectors had existing powers of entry, since the Order could not extend the powers of entry. It could only extend the activities that could be carried out once on the premises.221

2.197 On 29 January 1993 Mr Dixon sought clarification from Mr A Corbett of the Legal Department, of MAFF’s powers to prosecute. Mr Dixon suggested that section 127 of the Magistrates’ Courts Act allowed prosecuting action to be taken within six months of the discovery of the offence, which would apply to the
situation where BABs led to the discovery that contaminated feed had been supplied after the ban.\textsuperscript{222}

2.198 Mr Tony Williams, Trading Standards Adviser, informed Mr Dixon on 2 February 1993 that ‘I have no reason to question the advice given by Mrs Davis’. He noted that the Feeding Stuffs Regulations 1991 now gave inspectors power to require the production of documents, but they related only to compound feedstuffs. However, he commented:

Regulations made under the Agriculture Act require compound feeds to bear a list of ingredients. However, ruminant derived protein can be disguised in such a list under a generic term – ‘Land Animal Products’. Officers enforcing the legislation under the Agriculture Act have powers to inspect recipes, computer records, etc of compound feeds and would be able to determine what animal products were included in the feed.

The Agriculture Act has a further provision restricting the use of ingredients which are deleterious to animals. It may be difficult to prove that any ruminant protein was deleterious. Suspicion is one thing, proof is quite another. The powers to inspect records etc of raw materials under the Act do not exist and this makes enforcement difficult. However, the provisions of the Agriculture Act may be strengthened shortly to take account of new EC legislation.

Another difficulty facing enforcement officers under the Agriculture Act is that having found ruminant derived protein in an animal feed, they have no power to pass the information onwards. To do so could be a criminal offence.\textsuperscript{223}

2.199 Mr Williams suggested three possible options to deal with these difficulties:

1. Strengthen the BSE Order/Animal Health Act to include similar provision to Regulation 21 [of the] Feeding Stuffs Regulations 1991 [which provided a power to inspect records] or the Food Safety Act 1990, Section 32.

2. Ask local authorities, through LACOTS, to monitor samples of compound ruminant feeds for the presence of ruminant protein, either by an examination of recipes or, preferably, by analysis. I understand that a method of identifying ruminant protein in compound feeds is now available.

3. Include in Regulation 15(6) Feeding Stuffs Regulations 1991 [which controlled inclusion of certain products] an entry for ruminant derived protein in ruminant compound feeds. Local authorities could then enforce this and achieve what the BSE Order 1991 is trying to do. They would have all the necessary powers of inspection of documents, etc.\textsuperscript{224}

2.200 On 16 February 1993 Mr Dixon informed Dr Matthews that feedstuffs legislation was ‘not of help’ in tracing feed details of BABs. Before pursuing the proposals to obtain the powers, he wished to confirm that these powers were in fact needed. On the question of available prosecution powers to pursue compounders, he
noted that as his interpretation of section 127 of the Magistrates’ Courts Act was incorrect, they had ‘reached a dead end’. Mr Dixon sought views as to whether attempts should be made to acquire the required powers, although he appreciated that they would be retrospective and might be deemed impermissible by lawyers. 225

**Developments in 1993 – testing of ruminant feeds is proposed**

**The first BABs born in 1990 are reported**

2.201 Meanwhile, on 3 February 1993 Mr Lowson provided Mr Soames with an update on BABs, of which there were now approximately 1,200. This included 73 suspected cases born during 1990. Mr Lowson reported that two suspects born in September and October 1990 were likely to prove positive, with horizontal transmission suspected for one of them. He continued:

> Although the evidence of the effect of the feed ban is very strong in the age pattern of confirmed cases, and still enables us to look forward to a downturn in the number of newly-reported cases this year, it is becoming apparent that the disease will continue to be confirmed in animals born well after the ban. There are a number of possible explanations for this. The most likely, certainly in the majority of cases so far reported, is as we have already made clear publicly, that they were fed on ruminant protein after the July 1988 ban, either because of material carried over after that date, or the use of feed intended for other species, which could have quite legally have contained ruminant protein, and indeed until September 1990 the ‘specified offals’. But it is also possible that other elements such as maternal or horizontal transmission have occurred to a limited extent but were undetectable whilst the influence of the feed source was so overwhelming. As the feed source is removed in younger age groups these alternative routes of transmission will become apparent. 226

2.202 On 22 February 1993 Mr Meldrum wrote to Sir Richard Southwood, following his request for an update on BSE. Mr Meldrum explained that Mr Wilesmith would provide a full background soon, but in the meantime noted:

> We are confident that progress is being made, albeit with a clear time lag in full effectiveness of the ruminant feed ban. Feed containing meat and bone meal was clearly available on farm for several months after the ban, largely due to carry-over of material produced beforehand, but also because it took longer than we would have liked to clear the supply chain. 227

**Consideration of the inclusion of porcine material and tallow in ruminant feed**

2.203 On 25 February 1993 Mr Lowson forwarded a submission to Mr Soames, seeking guidance on ‘some relatively minor issues’. He recommended that since in practice operators were not incorporating porcine material into ruminant rations, no
legislation should be implemented to make it illegal, as this could attract unwelcome negative publicity. Instead, MAFF should make it clear to the industry that they would reconsider the situation if things changed in practice (see paragraphs 2.157–2.163 concerning the deliberations on this advice).

2.204 The submission also proposed an amendment to the ruminant feed ban, to allow bovine tallow, which contained minute traces of protein, and dicalcium bone phosphate to be incorporated in ruminant rations. This was in accordance with SEAC’s view that incorporation of non-SBO tallow in ruminant rations did not present a problem. Mr Lowson commented that since this change reflected what was already believed to be the position, ‘it is unlikely to provoke much controversy’.

2.205 The proposals were discussed during a meeting on 23 March 1993 attended by Mr Soames, Mr Capstick, Mr Lowson, Mr Taylor and Mr Maslin. Mr Soames agreed with the recommendation against banning the inclusion of porcine material in ruminant rations. However, he said that both he and the Minister had reservations about allowing material containing minimal quantities of ruminant protein to be fed to ruminants. Despite assurances from Mr Lowson and Mr Maslin that the proposed materials for exclusion from the ban were currently only included in error, Mr Soames said he would prefer to consider the matter at the Ministers’ meeting the next day. At that meeting, it was agreed that the amendment should not be made (see vol. 11: Scientists after Southwood).

Mr Bradley suggests the ELISA test should be employed in the field

2.206 On 26 March 1993 Mr Bradley suggested to Mr K Taylor that even though the ELISA test had yet to be validated in a blind trial, it would ‘be useful to employ this test to ruminant rations in the field now’. He explained:

If it shows positive results it is well we know about them and deal with the problem. If it shows negative results the data can be used to reassure the EC and importing countries that our feed ban is now effective (even if it was not completely so after July 1988 for an indeterminate period). This would be valuable supporting evidence to enable us to recommence trading in cattle for breeding.

2.207 Mr Bradley also suggested that it was theoretically possible that the test, if sensitive enough, could detect the inclusion of tallow in compound rations. He thought, ‘If this validation has not been undertaken it might be as well to do it’. Mr Bradley concluded:

Of course the presence of ruminant protein in ruminant rations does not equate with presence or absence of infection but it would be reassuring to know that it is now completely excluded from all ruminant rations.
Mr Taylor passed the minute to Dr Matthews for comment, who agreed with Mr Bradley. He informed Mr Taylor that he had discussed the issue with the VIS about three months previously and that development had been halted by the Worcester VIC’s relocation. Dr Matthews further advised that the test still needed to be subjected to quality control validation, and that difficulty was being experienced in obtaining raw material for the purpose. Finally, no testing for cross-reaction with fishmeal had been done. Nevertheless Dr Matthews concluded that ‘as it stands the test can identify and differentiate ovine and bovine protein in meat and bone meal and compound feed’.

Mr Taylor responded to Mr Bradley on 6 April 1993:

I agree that application of the test in the field is desirable, but am not sure that we are yet in a position to do so. Development work was halted during the relocation of Worcester VIC, and the test still needs to be subjected to quality control validation. I understand that there is some difficulty in obtaining equivalent raw material to that used when developing the test. Also, more importantly, no testing has yet been done to see if the test cross reacts with fishmeal, and I believe this must be done before the test can be used in the field.

I am grateful to you for reminding me of the importance of the subject, and am asking Danny to continue liaison with the VIS to ensure that the necessary validation is carried out as quickly as possible.

On 19 April 1993, in response to a request by Dr Matthews for an update, Mr B Preece, SVO, advised that a quality control regime was being established. However, difficulties with the provision of quality assurance samples were being experienced, and alternative methods were being investigated.

Further consideration of BABs by SEAC

Mr Wilesmith and Dr Matthews prepared a paper summarising the investigations into BABs for SEAC’s meeting of 22 April 1993. As at 2 April 1993, there were 1,791 confirmed BABs. Of those, 1,683 were born before 31 December 1988, with the remaining 108 born between 1 January 1989 and 31 October 1989. The two cases born in 1990 would be confirmed shortly, but there was no conclusive evidence of their likely source of infection. The paper repeated the view that there was still no evidence to suggest anything other than infected feed was sufficient to maintain the epidemic. It continued:

The full extent of what could be termed the ‘carry-over’ effect of feedstuffs manufactured before the statutory prohibition of ruminant derived protein in ruminant rations, which could have survived in the supply system, and were fed to cattle, has still yet to be realised quantitatively. In reality, this is probably impossible, but would appear to be longer than the 3 to 4 months shelf-life of commercial cattle feedstuffs.
2.212 During their meeting, Mr Bradley updated SEAC on the progress of the BSE epidemic. He pointed out the ‘welcome signs of reduction in the age specific incidence of the younger age groups and in the report rate of cases compared to previous years’. He also noted the ‘less welcome’ BABs, but said there was no evidence of maternal transmission. SEAC supported a proposed case control study on BABs to establish what, if any, factors other than feed were involved. They also noted that, until the overall number of new cases began to decline, it was only possible to say that the trends ‘looked promising but that we could not yet be confident the epidemic was beaten’.239

Mr Taylor and Mr Bradley press for the ELISA test

2.213 Further to his correspondence with Mr Bradley in April 1993 (see paragraphs 2.206–2.209), Mr K Taylor minuted Dr Dawson on 20 July 1993. He pointed out that whilst BABs born in the months immediately following the introduction of the RFB could be explained by feed carry-over, ‘it becomes far more difficult to point the finger at feed once we get into 1989, and we currently have 390 or so 1989-born cases’. He explained that a case control study was under way and said:

While retrospective testing of feed consumed in 1988 or later is obviously impossible, we are likely to come under increasing pressure to test feed currently in circulation. The industry is keen to make use of such a test, and as Ray [Bradley] has pointed out it could provide useful reassurance to potential trading partners. It may also be important in epidemiological terms if we find that the study concludes that the ban has not been wholly effective.240

2.214 Mr Taylor’s understanding was that the test had been developed at Worcester and Luddington due to their existing expertise in species testing of meats, and was not an area requiring major research and development funding. He asked:

How near are we to having a test that can be used on field rather than test samples? Can it be made available to local authorities on a commercial basis? Has it been tested on fishmeal or tallow? If there are problems with its development, it is possible to identify the difficulties and means by which they may be resolved sooner rather than later? I fear that we will be vulnerable to criticism if we are not able to test feed intended for ruminant animals fairly soon.241

2.215 Mr Michael Prince, Senior Veterinary Investigation Officer (SVIO) at Luddington, advised Dr Dawson on Mr Taylor’s queries on 28 July 1993. He said that the test was ready for use on field samples and that samples from Northern Ireland had already been tested satisfactorily. It had been tested satisfactorily on fishmeal, but not specifically on tallow. Fat did not appear to be a problem. Mr Prince explained that the test had given 100 per cent accuracy for 50 MBM samples and 24 compound feed samples, though the latter was not ‘blind’. He continued:

We have been awaiting full validation by the QA Unit but since this is dependant on material prepared in this laboratory, I wonder whether there is

239 YB93/4.22/2.3
240 YB93/07.20/5.1
241 YB93/07.20/5.2
any virtue in pursuing this. The trials described above are documented at this laboratory and should, I feel, suffice to validate the test. If this were acceptable the test would be ready for immediate use.242

2.216 Following an EU Scientific Veterinary Committee meeting on 18 June 1993, Mr Meldrum minuted Mr Bradley on 30 July 1993 with comments on risk assessment of MBM. Amongst other issues, Mr Meldrum reiterated his full support for the ‘mandatory zero tolerance adopted in the UK’ for incorporation of MBM in ruminant rations.243

2.217 Mr Bradley replied on 10 August 1993 and said:

I do not believe anyone will be advocating that a little ruminant derived MBM will be all right but a lot will not, but it is logical to suggest that the more that is fed the greater the risk will be if it was infected. I fully agree with your view of the need for the ruminant feed ban in the UK. However I would add that to be effective it must be enforced. I believe it would be helpful to show that it was effectively enforced by feed testing as advocated in the Lamming Report.244

Cross-contamination is suspected and a feed testing programme is pursued

2.218 In a statement to the Inquiry, Dr Matthews explained that:

Evidence to support the hypothesis that cross contamination of feed was a problem did not accumulate rapidly. . . during the course of routine epidemiological investigations by veterinary officers during 1992 and 1993, MAFF became aware of cattle that supposedly had not consumed feed in which it had not knowingly been included. In many instances, where mothers for example were still alive, or where the incidence of disease in the herd was low, and horizontal transmission effectively ruled out, it inevitably led to considerations of risk following low dose exposure.245

2.219 Mr John Howard of MAFF’s Animal Health (Disease Control) Division246 and Mr Robertson discussed the enforcement issue. On 24 August 1993 Mr Howard minuted Mr Robertson, asking, ‘Would it be possible to arrange for some voluntary random sampling to test for the presence of ruminant protein in ruminant feedingstuffs?’ He said:

I understand that this sampling could contribute to the validation of the testing procedures which we need to have formally accepted. The results of such testing would provide at least an indication of the level of compliance with the ruminant feed ban, and the effectiveness or otherwise of our main control measure. I believe that we are vulnerable at present in having no

---

242 YB93/07.28/3.1
243 YB93/7.30/3.2
244 YB93/8.10/2.2. The Lamming Committee did not explicitly recommend greater use of feed testing. However, it did recommend that powers be given for inspection and sampling of home-mixers, and welcomed MAFF’s development of the ELISA test (IBD1 tab 11 pp. 83–4)
245 S94B Matthews para. 6
246 Branch B – policy health aspects of imported and exported and farmed animals
evidence of this sort and depending upon the results of the random sampling we can propose what further action, if any, should be taken.247

2.220 On 16 September 1993 Mr Howard provided a background briefing paper on BSE to Mr Soames for a proposed seminar. The paper was also copied to the new Minister of Agriculture, Mrs Gillian Shephard.248 The paper had been ‘agreed’ by ‘all concerned at Tolworth except Mr Taylor’, who was due to provide comments on his return from overseas. Under the heading, ‘Cases born after feed ban’, the paper stated:

Up to 3 September 1993 there have been 4,010 cases confirmed in cattle born after 18 July 1988. The great majority of these cases had access to ruminant protein in their feed. If the ban was not working we would have seen at least 12,000 cases by this time.

Although the ruminant feed ban was introduced in July 1988, it is not surprising that it took a while to become effective as material in the system worked its way through. Ministers knew this was a possibility but did not wish to delay introduction by allowing a longer time for stocks to be used up. Most cases infected via feed after July 1988 were fed material containing meat and bonemeal by accident or by ignorance. The ban on the use of protein derived from specified bovine offals in animal feed introduced in 1990 also has an effect of reinforcing the ruminant feed ban by removing the offals most likely to contain the infective agent from the animal food chain.249

2.221 The paper then explained:

The trading standards officers of the local authorities have powers to check that unauthorised material is not used in animal feeding stuffs although no test has been available to prove illegal incorporation/sale/feeding of ruminant protein to ruminants. A test has however now been developed to differentiate between ruminant and other proteins in compound rations. [The practical application of this test in field conditions is now being considered.]250

2.222 It concluded by noting that a case control study of BSE in cases born after 30 October 1988 was underway to assess the risks of feed, maternal and horizontal transmission, with the results expected in 1994.251

2.223 On 21 September 1993 Mr Colin Maclean of the Meat and Livestock Commission (MLC) met Mr K Taylor, Mr Bradley and Mr Wilesmith to receive an update on BSE. In his note of the meeting, Mr Maclean recorded general BSE statistics and BAB statistics. He said:

Evidence that cumulative exposure is not a problem. It still looks as if each case is caused by one sporadic loading dose.252

247 YB93/08.24/2.1
248 Mrs Shephard succeeded Mr Gummer in May 1993
249 YB93/9.16/4.7–4.8
250 YB93/9.16/4.8
251 YB93/9.16/4.8
252 YB93/9.22/1.1
2.224 On 1 October 1993, in the context of discussion on changes to the Bovine Spongiform Encephalopathy Order 1991, Dr Matthews informed Mr K Taylor that he had been reminded ‘of the need to seriously discuss where we go with sampling of feed for the presence of ruminant protein’. He said that he had discussed the issue with Mr Wilesmith, who:

. . . appears to be more concerned about potential cross-contamination or accidental inclusion at mills manufacturing multi-species rations than with deliberate contraventions of the order. With respect to the mills we could simply visit to investigate current practices and precautions against cross-contamination, although we may not have powers of entry to do so.253

2.225 Dr Matthews explained that MAFF was seeking powers so that in the future they could routinely sample feed, without reasonable suspicion that the RFB was being breached, as required by the current Order. He noted however that:

. . . given the likely appearance of many more 1989 and 1990 born BABs, I do feel that we need to address the possibility that they may have been infected via feed, if only to allay public fears that ruminant protein is not in use today. While we had no test for the presence of ruminant protein in 1988 we do have a reasonable excuse for not policing the ban, but cannot avoid a more positive approach now.254

2.226 He listed a number of options for targeting sampling in the future:

a) random on-farm sampling nation-wide, with the aid of computerised selection;

b) random sampling at all mills, or possibly unannounced sampling at mills;

c) sampling on-farm, targeting herds with high incidence of BABs;

d) sampling on-farm whenever any BAB is reported or slaughtered;

e) sampling on-farm whenever BABs born in 1989 or later are reported or slaughtered;

f) sampling on-farm whenever BABs born in 1990 or later are reported.255

2.227 Dr Matthews recommended the final option, on the understanding that later born BABs would be indicators of a historical problem with feed if there had been contamination after 18 July 1988. He thought that if such contamination had existed in 1990, it might ‘indicate real and continuing problems at specific mills’.256

2.228 Dr Matthews also recommended that whenever a home-bred BAB born in 1990 or later was slaughtered, samples should be collected of any feed likely to contain protein, whether animal or vegetable, to which cattle could gain access. He said that the samples should be held until BSE was confirmed and then submitted for analysis. His ‘major reservation’ was that farmers would want the results

---

253 YB93/10.1/2.1
254 YB93/10.1/2.1
255 YB93/10.1/2.1
256 YB93/10.1/2.2
divulged and ‘should they have confirmed BABs and protein positive feed we could find ourselves caught up in litigation other than prosecutions for contravention of the BSE Order’. Furthermore, under the Order, sampling at mills or rendering plants would involve establishing intent to supply feed to ruminants.257

2.229 SEAC considered a progress report on BABs during its meeting on 7 October 1993. The report noted that of the 4,010 confirmed BABs, 3,392 were born in 1988, 614 in 1989 and 4 in 1990. The risk of feed being the source was high for 1,636 cases, medium for 1,756 and unknown for 618 cases.258 The minutes of the meeting record that:

The Committee was disturbed that the feed ban had not been as effective as early as hoped when the industry had given assurances that the material would be used up in 2–3 months. It was recognised that the level of infectivity in meat and bone meal produced just before the ban was still increasing due to recycling of bovine material and it is now obvious that compounders and farmers have taken longer to use up this material than expected. It was agreed that some of the present data were being overinterpreted for example by commenting on fluctuations in incidence in single months. Information on cases in the cohort born in 1990 would be critical. Mr Wilesmith’s data on the decline in age-specific incidences in younger age classes, and other information supported downward trend in the epidemic.259

2.230 On 14 October 1993 Mr Howard advised Mr K Taylor, Dr Matthews and others that current legal advice was that while a regulation or order made under the Animal Health Act 1981 could provide for routine sampling of feedstuffs, it could not be used to extend the powers of entry required. Mr Howard said that he was pursuing the possibility of taking routine samples under section 73 of the Agriculture Act 1970.260

2.231 Mr Howard advised Mrs Davis on the same day that ‘we have dropped at least for the time being the proposal for the routine sampling of feedingstuffs under the Animal Health Act 1981’. However, he continued:

I am wondering if we could use provisions already available in section 73 of the Agriculture Act 1970 . . . It appears that local authorities are already visiting feedingstuffs manufacturers premises and taking samples for analysis. As you know the purpose of our sampling would be to test for the presence of ruminant protein in feedingstuffs intended for ruminants which is banned under the BSE legislation. It seems to me that we could do this under section 73(3) of the Agriculture Act.261

2.232 On 4 November 1993 Mr Robertson responded to Dr Matthews’s minute of 1 October 1993 regarding the establishment of a testing regime. He pointed out that ‘We now have a reliable test for bovine and ovine material’, and said that ‘We must try to find a way of using the tests in the short term’. He argued that if MAFF did...
not have legal powers to take samples, ‘we can surely rely on the co-operation of most farmers’. He concluded:

If we are going to worry about the possibility of litigation between farmers who have positive BABs and compounders of what appears to be contaminated feed we will never be able to use the test in farm situations. We may, in any case, be exaggerating the risk of such legal actions.\footnote{YB93/11.04/4.1}

\textbf{2.233} Mr Howard pursued the legal issues with Mrs Davis again on 10 November 1993. He said:

I would be grateful if you could let me have your views about sampling. The ruminant protein ban is a key measure in our control policy and we are anxious to obtain more information to indicate whether or not animal protein from ruminants is being detected in ruminant feedingstuffs, and if so to what extent.\footnote{YB93/11.10/3.1}

\textbf{2.234} In a statement to the Inquiry, Mr Meldrum said, ‘It was about this time that I was becoming increasingly uncomfortable about the number of BABs that were being confirmed and the possibility that BSE infectivity was present in meat and bone meal intended for feeding to pigs and poultry was finding its way into cattle rations’.\footnote{S184A Meldrum para. E103}

\textbf{2.235} On 17 November 1993 Mr Robertson informed Mr Paul Gayford of the Veterinary Investigation Section that the Animal Health Group was content to take his advice that the ELISA test had been validated. However, this was so provided that he was confident that it could stand up to expert scrutiny in the event of prosecutions for contravention of the RFB. Mr Robertson said that they were awaiting legal advice on their powers to take samples, but hoped that ‘we will shortly be in a position to submit material for testing at Luddington VIC, regardless of the advice given to us by the lawyers’.\footnote{YB93/11.17/6.1}

\textbf{2.236} Mr Howard received the legal advice that he was seeking on 17 December 1993. Ms Shasa Behzadi advised that section 76, not section 73(3), of the Agriculture Act 1970 was relevant to routine sampling of feedstuffs. This gave an ‘extremely wide’ power for a local authority inspector to enter premises and take samples. In her view the provision conferred power to sample feedstuff on a routine basis to test for the presence of ruminant protein. The only qualification was that the powers would have to be exercised in accordance with the detailed provisions contained in section 77 of the Act on the division of samples and analysis by an agricultural analyst.\footnote{YB93/11.17/6.1}

\textbf{2.237} Mr Howard conveyed this advice to Mr K Taylor, Mr Eddy, Mr Robertson, Dr Matthews and Mr Bradley on 22 December 1993. He advised that there were no obstacles to carrying out sampling or taking prosecutions, but warned:

What is equally clear though is that the sampling and enforcement would be carried out by local authorities and not MAFF staff. Presumably this would
mean that test results would be available in the local authority domain. Bearing in mind the sensitivity of BSE and the fact that the ruminant feed ban is the main plank of our controls, information suggesting that the ban was not working could be very damaging. Unless we could guarantee that test results would not be released to anyone but ourselves, at least in the early stages, it seems to me that we would be embarking on an extremely risky exercise.\textsuperscript{267}

\textbf{2.238} Mr Taylor replied on 31 December 1993:

Assuming that the legal advice is correct, and that one Act can be used to obtain evidence which may then be used in a prosecution taken for an offence against a different Act, there seems to be no reason why local authorities should not now be encouraged to collect samples for examination at Luddington VIC, and to take appropriate action if ruminant protein is found to be present where it should not be.

If contraventions are found the information will be damaging, whoever obtains the evidence. But I don’t see that it matters much whether we or local authorities do so: we could hardly suppress information even if only we had it. Since the testing will be done at a VIC we will at least know the bad news before anyone else does.

If we wanted to limit the risk of embarrassment and still prove to the world that the law was effective we could, I suggest, simply publicise the fact that routine sampling was about to start.\textsuperscript{268}

\textbf{Developments in 1994 – on-farm testing regime is established}

\textbf{2.239} In a statement to the Inquiry, Dr Matthews summarised what he perceived to be the situation regarding testing for ruminant protein in feed and the practical difficulties involved in establishing a testing regime:

By the beginning of 1994 it was felt that the test was ready for field testing, but capacity at Luddington VIC was limited. Despite the potential of ELISA tests for testing considerable numbers of samples at speed, as I recall, the major difficulty with this test is the amount of time needed to prepare samples for testing. Because of this, and concerns about the robustness of the test, there was no hope at that point of embarking on large scale monitoring at feedmills. In addition, because source test materials had been supplied by a limited number of companies during the developmental stages it was likely that field testing would present a new range of proteins against which the antibodies had not yet been tested. A pilot study therefore began in June 1994, targeting farms on which BABs born in 1990 or later were being presented . . . The method chosen to select farms was no more than a means of stratifying the sampling regime, and could not attempt to identify the source of infection for the BAB being dealt with at the time. It was also considered possible that a farm that was presenting BABs born in 1990 or
later could well prove to be an indicator of a supply mill that had had a long
term cross-contamination problem.269

Doubts cast on routine sampling powers

2.240 In her minute to Mr Howard dated 17 December 1993, Ms Behzadi advised
that section 76 of the Agriculture Act 1970 gave powers to take routine samples,
provided that the requirements of section 77 were met. On 24 January 1994
Ms Behzadi told Mr Howard that she was ‘concerned as to whether your plans for
the testing at Luddington will fulfil the requirements of section 77 of the Act’.270
Section 77 required the division of samples and their analysis by an ‘agricultural
analyst’. Agricultural analysts were to be appointed by local authorities.271

2.241 On 31 January 1994 Mr Howard circulated a minute summarising the
progress made in establishing routine sampling of ruminant feed. He advised that
despite earlier confidence, it was not feasible to use the Agriculture Act 1970 for
routine sampling, since it required sampling to be undertaken by an ‘agricultural
analyst’ as defined in the Act. Mr Howard attached a draft minute from Mr Taylor
to Mr Meldrum, which suggested ways of overcoming the difficulty, but he said that
‘in the short term it looks as though we will have to be content with voluntary
sampling’.272

2.242 It was suggested in the draft minute that:

One solution to this problem would be to make the test available for local
authorities to carry out. I understand though that the test requires the
production of specific antisera to bovine, ovine, and porcine protein, and
vigorous quality control tests to ensure specificity and sensitivity of the test.
Whilst Luddington have sufficient tested material for conducting several
thousand tests, they are not equipped to produce kits for use by other
laboratories on a large scale. Whilst the test methods have apparently been
published with a view to patenting, the question of mass production has not
been addressed.

Another solution would be to ask local authorities to appoint analysts from
Luddington as ‘agricultural analysts’ as required under the Agriculture Act.
We are pursuing this possibility with lawyers which if legally acceptable
would have to be discussed with the local authority associations.273

2.243 The draft minute stated that samples taken in the immediate future would
have to be on a voluntary basis with all testing done at Luddington VIC. This could
be done either using veterinary staff carrying out investigations into BSE suspects,
or by manufacturers through UKASTA. The first option, which could be pursued
along the lines suggested by Dr Matthews in his minute of 1 October 1993 (see
paragraphs 2.224–2.228), would provide data quickly and in the long term could
operate effectively alongside a statutory sampling regime. For the second option:
UKASTA would probably get support from some of their members for the carrying out of voluntary sampling, by MAFF on a chargeable basis, as they have supported the banning of the incorporation of ruminant protein into feedingstuffs for ruminants. Costs imposed on the compounder could be a determining factor because in addition to the charge for taking the sample, the VIC would be charging for the testing of samples.\(^\text{274}\)

2.244 It was recommended in the draft minute that arrangements should be made to pursue both options for voluntary sampling. It was also recommended that the statutory sampling regime should be pursued and introduced as quickly as possible once the difficulties were overcome and the Ministers’ agreement obtained.\(^\text{275}\)

2.245 In his covering minute, Mr Howard sought advice from Ms Behzadi on whether local authorities could legally appoint analysts at Luddington as ‘agricultural analysts’ under the Act. He also questioned whether feedstuffs from all investigations into BSE suspects could be sampled. Mr Howard disagreed with Dr Matthews’s recommendation that samples should be held until BSE was confirmed in the suspect (see paragraph 2.228), and said:

\[\ldots\] we are trying to find out if the ban is being complied with rather than associate positive test results with cases of BSE. The sooner we collect some meaningful data the sooner we will know if there is a problem.\(^\text{276}\)

2.246 In a manuscript note on the covering minute, Mr Robertson indicated that he was content with the draft minute, but noted:

It must be made clear to Mr Gayford [of the VIS] that this will not be a subject to be raised by him at his meeting with UKASTA and BVA unless they mention it, in which case he can give a low-key answer. He will need a short brief on this subject so that he knows what to say if he is pressed on the matter.\(^\text{277}\)

2.247 On 2 February 1994 Mr Bradley minuted Mr K Taylor on the policing of BSE controls. He believed that ‘we are content at present that all the necessary controls to protect public and animal health are in place’. However:

I, amongst others, have stressed the importance of ensuring that these controls are being effectively policed with particular respect to the ruminant feed (RF) ban and the SBO ban. It has always been important to do this but any deficits will be more plainly revealed for all to see in the next few years and there could be serious financial implications re compensation and disposal, not to mention drains on veterinary resources.\(^\text{278}\)

2.248 A number of events had focused Mr Bradley’s attention on policing. First, the Lamming Report had welcomed the development of tests for detecting ruminant protein in feed and recognised that when they became available they would provide an additional safeguard (see paragraph 2.152). Mr Bradley suggested:
They are available and they have not been used anywhere to my knowledge. The Swiss have been testing feed for well over a year and the Lamming Report was published in 1992. In 1994 we are still discussing legal aspects. I believe there could be substantial criticism of this retrospectively especially when it is formally shown that the RF ban was significantly abused and that continuing abuse may be occurring (ie BSE in animals born in 1991, though it is premature to accept this as a fact or as feed source). Why cannot feed on MAFF farms be checked now or why can it not be done on a voluntary basis and why cannot we move legally at a much faster pace?

2.249 During oral evidence, Mr Bradley explained his belief that other countries were already testing feed for the presence of animal protein at this time:

When we had the feeding of ruminant protein ban in originally ruminant protein and subsequently mammalian protein, it was a question of being able to have a check system to see that this was effective. And there had been an ELISA test which, according to the Lamming Committee’s report, the working group on feedstuffs had been validated in about 1991 or 1992, whatever date was their report. However, in other countries they were using other methods quite outside of this ELISA. This was a microscopic examination, so they would take a sample of the meat and bonemeal or the cattle food product, examine it under the microscope and I believe by looking for bone structure they could actually identify whether mammalian protein was present. Obviously they could not detect species but could detect whether mammalian protein was present. This had been used in the Republic of Ireland to the best of my knowledge, and in Switzerland. If that is what I said, that was the period over which it was being used. To the best of my knowledge this method has not been used in the UK.

2.250 In his minute, Mr Bradley also voiced concern about the enforcement of the SBO ban (see Chapter 4). He said:

I believe we are both of the opinion that whilst the RP [ruminant protein] ban was effective, though not completely so, after 18 July 1988 any infected RP getting through would be stopped by the SBO ban 2 and a bit years later. If the SBO ban itself is being abused then there is a weakness in this argument. Furthermore, even if the SBO ban was completely effective and cattle were therefore not being exposed to infection via protein in the feed any abuse of the [RFB] would still be revealed by the test we hope to apply. If a positive test was announced then we would be unable to determine whether the protein contained infectivity and certainly would not be able to convince our extremist critics that it did not. It is therefore absolutely essential that effective audits are carried out and policing is continuous and sound and is seen to be so by publication of the results where this is appropriate or, at the very least, to have them available to counteract criticism.

2.251 BABs born in 1991 were also a source of concern to Mr Bradley and he thought that if feed was the cause ‘we really do have to get to the bottom of it’. He concluded:
For all these reasons I believe we have to quickly and effectively re-assess, and if necessary, improve the policing of controls both via MAFF and the Local Authorities. Any trickle of infected RP into the cattle feed chain could result in an unfortunate plateau of confirmed BSE cases in a couple of years which will be hard to deal with and may even prevent export of live breeding cattle or, re-introducing a ban if we are successful in having it lifted this year. We can afford no trouble at all and must see that it does not happen.282

2.252 On 15 February 1994 Mr Howard recirculated a draft minute from Mr Taylor to Mr Meldrum, which included comments from recipients of the first draft on 31 January 1994. His covering minute noted:

. . . this minute concludes that the best option open to us is to carry out voluntary sampling on-farm at the same time that the investigations into reported BSE suspects are done. There are difficulties regarding statutory sampling. In short we either make the ‘Luddington test’ available to local authorities or we appoint analysts at Luddington as ‘agricultural analysts’ under the Agriculture Act.283

2.253 Following her receipt of this minute on the next day, Ms Behzadi pointed out a further obstacle. Section 77(4) of the Agriculture Act 1970 required that when a method of analysis had been prescribed, it must be followed. Part 4 of schedule 2 of the Feeding Stuffs (Sampling and Analysis) Regulations 1982 prescribed the method for the determination of protein in feedstuffs.284 Ms Behzadi therefore believed that ‘we are faced with the problem that it seems as though the only method of analysis which could be adopted by an agricultural analyst in the routine sampling of feeding stuffs for ruminant protein . . . is that method laid down in Part 4 of Schedule 2’. The ELISA test would not be useable.285

2.254 After consulting with a colleague, Ms Behzadi revised this opinion on 18 March 1994. She advised that an agricultural analyst would not be tied to the method in Part 4 of schedule 2, since it did not deal specifically with the detection of ruminant protein. Therefore, the Agriculture Act 1970 could be used as a basis for statutory sampling, so long as ‘agricultural analysts’ undertook the testing.286

2.255 On 12 March 1994 an article by Miss Linda Hoinville of CVL’s Epidemiology Department entitled ‘Decline in the incidence of BSE in cattle born after the introduction of the feed ban’ appeared in the Veterinary Record. It raised the possibility of accidental cross-contamination, stating:

The gradual decline in the incidence [of the disease] following the introduction of the feed ban is consistent with a decrease in the amount of contaminated feed remaining on farms or in the feed supply chain. This suggests that the feed ban was not immediately fully effective. The continued exposure of animals born in 1989 could be due to this gradual exhaustion of the supply of feedstuffs manufactured before July 1988. The accidental inclusion of meat-and-bone meal in cattle feedstuffs

282 YB94/2.02/1.3
283 YB94/02.15/6.1
284 L3 tab 1D
285 YB94/02.16/5.1–5.2
286 YB94/03.18/7.1
or contamination with ingredients used in pig and poultry rations is also possible.\textsuperscript{287}

### Study of the effect of rendering on BSE infectivity

\textbf{2.256} As discussed in paragraph 2.5, when the RFB was introduced in 1988, it was intended to be a temporary measure pending the results of BSE inactivation experiments. A study to determine the effectiveness of various rendering processes on the inactivation of the BSE agent was established in November 1990. On 21 March 1994 Mr Meldrum briefed Mr Soames on the preliminary results of these experiments. The brief was copied to Mrs Shephard and Mr Packer, amongst others. It said:

The first phase of the project studied BSE. The bioassays have not yet reached an end point, so it cannot yet be concluded that any system provides inactivation. It is, however, already clear that the three systems which collectively provide most of the British rendering capacity do not provide effective inactivation – in fact it appears that only two plants are satisfactory and this would represent less than 20\% of total red meat rendering capacity. At least one of the systems appears to have no detectable effect on the amount of infective agent present. This is particularly worrying because these three plants process a significant volume of product and are only used in the UK and USA.

The results support the hypothesis that BSE was caused by the presence of the agent in animal protein which was fed to cattle and underline the wisdom of the measures which have been implemented since July 1988 to prevent ruminant derived protein being fed to ruminant animals.\textsuperscript{288}

\textbf{2.257} Mr Meldrum advised that existing control policies were ‘vindicated’ and that no change was needed to respond to the findings. He noted that once the results were publicised, the rendering industry could be affected by buyers unwilling to purchase MBM from plants using processes that did not inactivate the BSE agent. Mr Meldrum continued:

The Government might also be criticised for allowing the continued use of rendering systems which were perceived to be ineffective in activating SE agents, and by that means exposing pigs and poultry to an unnecessarily high dose of the agents. One possible response would be to require an additional pre or post-rendering heat treatment process but the evidence to support any particular process which might be used is not yet conclusive . . . However it is likely that the industry would nonetheless install such systems to protect their sales.\textsuperscript{289}

\textbf{2.258} Mr Hollis responded to this point the next day:

Adding such a requirement now would look rather odd. If we felt that rendering was ineffective back in 1988, why have we waited until now to protect pigs and poultry? It would also play into the hands of the Germans...

\textsuperscript{287} \textit{Veterinary Record}, vol. 134 p. 274 and YB94/3.12/1.1
\textsuperscript{288} YB94/3.21/1.2
\textsuperscript{289} YB94/3.21/1.2
by apparently demonstrating that we have not been as strict as we should have been. And what would our consumers of pig and poultry meat make of such a change? Finally, I understand that such a requirement would force renderers to install new equipment costing over £200m.

If the CVO is happy to continue the current feeding practices for pigs and poultry, and his minute suggests he is, then I strongly recommend that we defend the status quo rather than introduce new regulations.

To achieve this I suggest we present the news in a positive rather than a negative way, drawing on the arguments in . . . the CVO’s minute. These early results demonstrate the soundness of our vets’ hypothesis on the reason for the appearance of BSE. They underline the wisdom of the measures implemented since 1988. They present no new threat to animal or public health. 290

2.259 Following agreement at a meeting with Mr Soames, Mr Thomas Eddy, Head of Animal Health (Disease Control) Division, prepared a note on the handling of the interim results of the rendering study. The final version was submitted to Mrs Shephard on 25 March 1994. Under the heading, ‘Discussion’, the note stated:

The actual results so far are not, in our view, technically a problem. They confirm our hypothesis that the disease was spread by BSE contaminated material surviving the rendering process and being incorporated into meat and bone meal. Ruminants have been protected from this risk by the ruminant feed ban introduced in July 1988. Pigs and poultry have never been shown to develop a BSE like disease through feeding – either in the field or in experiments – though pigs can be infected by material injected into the brain . . . However, the SBO ban, extended to all animal feed in 1990, means that protein from the only tissues shown to be infective in tests is not used for animal feed, or indeed for any other purpose. In our view therefore there are no new animal or public health measures which need to be introduced as a result of these findings. 291

2.260 An attached question and answer brief stated:

Q. Is UK meat and bone meal safe now we know rendering does not kill BSE?

A. Yes: do not forget that we believe the disease was spread by contaminated feed so all the controls assume that rendering does not kill the agent. Those controls are that ruminant protein cannot be fed to ruminants and that the only tissues found to be infective (brain and spinal cord which are covered by the specified bovine offals) are destroyed and cannot be used for any purpose; not for animal feed and not even for fertiliser. 292

2.261 The note was discussed at a meeting with Mrs Shephard on 28 March 1994, with discussion focused on how the results should be publicly disseminated. 293
2.262 In a statement to the Inquiry Mr Andrew Fleetwood explained the results’ implications:

These results provided the first direct experimental evidence that infectivity may survive some forms of rendering . . .

These results came as no surprise. They corroborated epidemiological evidence which suggested BSE had been present in MBM, having survived the rendering process. The particular concern, shared by all those involved including the industry, was that there was now definite evidence that BSE infectivity would survive certain processes, but no evidence of what processes would eliminate it.

However, to put this into context, it is important to note that eliminating BSE infectivity through the rendering process was a second line of defence – the first being the various legislative measures to cut off recycling of infection.

Implementation of a voluntary feed sampling regime

2.263 On 25 March 1994 Mr Howard minuted Mr K Taylor, hoping to ‘take forward positively proposals to commence sampling as soon as possible’. He thought it would be helpful to summarise the position on voluntary sampling:

Sampling would be carried out by veterinary/technical staff at the time of the investigations into reported BSE suspect cases; the number of premises from which samples would be taken to be decided. Mr Gayford tells me that although Luddington have capacity to test only 20 samples a week, resources could be made available, within reason, to meet our needs. Mr Gayford would like testing to commence as soon as possible and would prefer it to be on a voluntary basis initially for a run-in period.

Ms Behzadi advises that if a farmer agrees to the sampling and testing of feedstuffs it would be unreasonable on our part not to provide the test results. This would be even more important should positive test results occur when we may consider prosecution action. Positive test results from voluntary sampling could also lead to civil action being taken. Evidence in such instances would be based largely on the sampling and testing techniques in use which would be without statutory backing and possibly open to challenge.

2.264 On the statutory routine sampling of feedstuffs Mr Howard surmised:

We have established that routine sampling could be carried out under the provisions of the Agriculture Act 1970, by the local authority, and that the method of testing developed at Luddington, although not included as a recognised method of analysis under the 1982 Feedingstuffs Regulations, could also be used.
Regarding the appointment of an agricultural analyst as defined under the Act, Mr Gayford has said that there is no one in the VI Service possessing the necessary qualifications. This leaves us with the alternative of buying the services of an agricultural analyst who would be responsible for the testing of samples at Luddington in accordance with the statutory requirements. Mr Gayford agrees in principle with this idea. I understand that this function could be carried out in an overseeing capacity with the delegation of duties to staff at Luddington. 297

2.265 Mr Howard felt that MAFF should press ahead with voluntary sampling rather than wait for resolution of the problems associated with statutory sampling. He recommended:

(a) as a priority we discuss our proposals with the local authorities (LACOTS)

(b) we reach agreement on the methodology for the sampling and testing of feedingstuffs with a view to commencing shortly

(c) the necessary arrangements are made for the statutory sampling by local authorities with testing at Luddington under the supervision of an agricultural analyst. 298

2.266 Mr Taylor briefed Mr Meldrum on 8 April 1994 and suggested initial steps that could be taken to allow sampling and testing ‘without further delay’. He stated that the ELISA test had been available since the opening of Luddington VIC but action was delayed because it was hoped to include statutory powers to sample in the proposed BSE Amendment Order, which for other reasons was still being discussed. Mr Taylor explained the legal difficulties that prevented sampling unless there was evidence of a contravention of the ban and advised:

Unfortunately, while that situation has still to be resolved, the need to be seen to carry out some policing of the ruminant feed ban is now urgent. 299

2.267 He proposed that voluntary on-farm sampling should start ‘as soon as possible’ with the target date of 1 May 1994. Divisions would be set a target of submissions from two to three farms per month, targeted towards farms with BABs born in 1990 or later. This could mean the submission of 100 to 300 samples per month, as some farms would have more than one feed. A press release would be issued to warn that sampling was about to begin, ‘in the hope that any compounder knowingly using ruminant protein will cease forthwith’. 300

2.268 Mr Taylor hoped that the issues associated with nomination of an ‘agricultural analyst’ would soon be resolved, so that statutory sampling could be initiated. However, the voluntary ‘trial run’ would help to identify the pitfalls in the field and in the laboratory before local authorities were briefed. 301
2.269 On 29 April 1994 Ms Behzadi advised Mr Howard on the relationship between the proposed voluntary sampling regime and article 15 of the Bovine Spongiform Encephalopathy Order 1991. She noted that it was agreed that if positive results were obtained under voluntary sampling, MAFF should then sample under article 15 of the Order, since they would have reasonable grounds for suspecting the RFB was breached. If the intention was to establish the offence of feeding ruminant protein to a ruminant, testing would be on farm. If the intention was to establish the offence of selling or supplying, testing would be at the relevant premises. Under this process, samples acquired during voluntary sampling would not be used for evidential purposes. Ms Behzadi set out procedures that should be followed to help avoid problems at the prosecution stage.

2.270 Although Mr Meldrum and Mr Taylor discussed the issue, Mr Meldrum did not respond in writing until after the proposed implementation date of 1 May 1994. He informed Mr Taylor that in the ‘absence of comment from others I assume that we are all agreed that we should move into a voluntary sampling arrangement as you propose, to be announced by Press Release and to come into effect, I assume, on 1 June’. Mr Meldrum concluded:

> However, I think it essential that not only should we consult Ministers but we should also advise the major trade organisations including BVA, NFU, NCBA, UKASTA, UK Renderers and De Mulders of what we propose. They will need to have some assurances as to what action we would take should we find a positive sample on the basis of voluntary sampling. How would we respond to that question?

2.271 On 19 May 1994 Mr Eddy distributed to Mr Meldrum, Mr Martin Haddon, Mr Taylor and Dr Cawthorne a draft submission for Mr Soames on the proposed voluntary testing. In his covering minute, Mr Eddy noted that Mr Meldrum felt that a press release announcing the testing regime should be issued. However, Mr Dugdale thought it would be unnecessary and ‘could be counter productive by drawing attention to the weaknesses of our ruminant protein ban enforcement up to now’. Mr Meldrum responded by way of manuscript note:

> I have no difficulty with the thrust of [the draft submission]; others may have minor drafting proposals. I support a low key Press Notice; a PQ will only raise questions later.

2.272 A final submission was forwarded to Mr Soames on 24 May 1994. In his covering minute, Mr Eddy noted that the debate over the degree of publicity to be afforded the announcement had yet to be resolved and that he would be particularly grateful for Mr Soames’ views on that point.

2.273 Mr Soames was invited to agree:

(a) that we should introduce the new test to detect ruminant protein in animal feed but that

---

302 YB94/04.29/9.1–9.2
303 YB94/5.9/4.1
304 Head of Animal Health and Veterinary Group
305 YB94/5.19/2.1
306 YB94/5.24/12.1
(b) we should introduce the test only on a voluntary basis under MAFF control and use compulsory powers only where we had detected a positive result from the initial voluntary test;

(c) that we should issue a press notice.\textsuperscript{307}

\textbf{2.274} The submission reiterated the information previously provided by MAFF officials on the background to the testing and why it was preferred that samples be collected on a voluntary basis and submitted to Luddington VIC. However, on local authority involvement, it continued:

There is also the problem that some local authorities are unnecessarily assiduous in relation to BSE, for instance some ban the use of beef in school meals, and we cannot guarantee that they will treat the existence of this test in a prudent way. We therefore feel that on balance it would be better at this stage to retain the test capacity in-house so that we can monitor the situation and see whether the ruminant protein ban is being fully effective or whether there is a need to put significant extra resources into much more widespread use of the test which would involve local authorities in routine sampling of feedstuff supplies.\textsuperscript{308}

\textbf{2.275} The submission concluded by addressing the publicity issue:

There are in effect two main options. One would be simply to introduce the test on a voluntary basis but not to give it any publicity. There are certain attractions to this, not least because any publicity highlights the fact that we have not up to now had this test and that the policing of the ruminant protein ban has not been as tight as it might have been with the test. But against this there is the general presumption that we have always aimed to be open on BSE and that the test does represent a strengthening of the control arrangements which is good news and should therefore be given publicity.\textsuperscript{309}

\textbf{2.276} The Q&A brief attached to the submission said that the test had not been introduced earlier ‘because a reliable test was not available’. It also addressed the question how, without such a test, it was possible to know that the ban was complied with:

Enforcement is a matter for local authorities. It can be checked by visiting animal feed suppliers and looking at their records. But this new test will be a supplement.\textsuperscript{310}

\textbf{2.277} It also answered the question whether there was any reason to think that the ruminant protein ban was not being enforced:

No, since I am sure that everyone in the industry realises how important it is in the fight against BSE but this test will provide a useful confirmation.\textsuperscript{311}
A draft news release was also attached to the submission, together with a draft letter to be sent to relevant industry bodies informing them of MAFF’s intentions regarding feed testing.\textsuperscript{312}

In a statement to the Inquiry, Mr Soames explained that although he responded that he was content to introduce the ELISA test on a voluntary basis under MAFF control, he told Mr Eddy a press release was not necessary given that the capacity of the test was limited.\textsuperscript{313}

On 29 May 1994 Mr Bradley wrote to Mr Meldrum recommending steps that could be taken to enhance MAFF’s actions to eliminate BSE. Whilst he was mostly concerned with improvement of the SBO controls, on the ruminant feed ban he said:

> It seems imperative that the RFB is completely enforced by the power of law. If we do not ensure it is watertight we will pay for it with continuing BSE confirmations in 4–5 years time and it may jeopardise live cattle exports if we successfully get these re-instated. Testing feed is one way this could be done and there seems to have been an inordinate delay in getting this established.\textsuperscript{314}

### Notification of voluntary testing regime

On 15 June 1994 Mr Howard informed Mr Hayward of the Press Branch that it had been agreed that voluntary routine sampling would commence on 1 July 1994 and that an Animal Health Circular (AHC) was being distributed within the next few days. He attached a draft letter to relevant organisations informing them of the sampling programme prior to its introduction.\textsuperscript{315}

AHC 94/93 was issued on the same day. It stated that it was ‘essential to ensure that feedingstuffs do not present an on-going risk to cattle through the inclusion of ruminant protein whether by accident or deliberately’. It also explained the voluntary testing regime. A protocol for the collection of samples was included and VOs were advised:

> It will be obvious that sampling at the time of examination of a suspect is not intended to quantify the risk via feed to that suspect. The aim is to use BABs born in 1990 or later to indicate premises on which there may be a potential long term feed contamination problem. This is no more than a simple means of targeting limited resources, and must not be misinterpreted as implying that such cases have been infected via feed.\textsuperscript{316}

DVOs were requested to ensure that samples were submitted from two farms within the Division per calendar month. Ideally these were to be from farms with BABs born in 1990 or later but if none were reported appropriate alternative suspects were to be identified and samples taken. If more than one source of ruminant feed was identified on any given farm samples of each were to be

\textsuperscript{312} YB94/5.24/12.7–12.8
\textsuperscript{313} S326 Soames para. 110
\textsuperscript{314} YB94/5.29/2.1
\textsuperscript{315} YB94/06.15/7.1
\textsuperscript{316} YB94/0.15/2.2
collected and sampled – this specifically included protein supplements used for home-mixing.\(^ {317} \)

\section*{2.284} The circular also advised that where there was evidence that feed containing ruminant protein was knowingly fed to ruminants, the instructions for statutory sampling should be followed. This involved collecting further samples of all feed intended for ruminants on the supplier’s premises, which should be unannounced. A protocol for statutory sampling was included.\(^ {318} \)

\section*{2.285} On 22 June 1994 the letter was sent to relevant organisations, notifying them of the general arrangements for the voluntary routine sampling regime, commencing on 1 July. It noted:

\begin{quote}
It has been our intention to carry out surveillance of this kind for some time but until recently no test has been available to determine the presence of ruminant protein in feedingstuffs. Such a test has been developed and validated at the Ministry’s Veterinary Investigation Centre at Luddington and we are now able to proceed with sampling and testing which will provide data about the effectiveness of the ruminant protein ban.\(^ {319} \)
\end{quote}

\section*{Mr Wilesmith briefs UKASTA on BAB case control study}

\section*{2.286} On 21 June 1994 Mr Wilesmith and Miss Hoinville presented to UKASTA’s Scientific Committee an assessment of the risk factors for BABs. The note of the meeting records that during discussion, it was noted that:

\begin{quote}
The industry’s voluntary ban on the use of specified bovine offals in all feedingstuffs became generally operative from early 1990 and was given statutory backing in September of that year. Prior to the feed bans, the practice in some rendering plants was for specified bovine offals to be collected separately from other material and then put back, en masse, with the other animal by-products. This, in turn, could have resulted in animal protein containing plugs of infected material being produced and subsequently used in ruminant feedingstuffs.\(^ {320} \)
\end{quote}

\section*{2.287} The extent to which the development of BSE was associated with the doses of infected material that cattle might have consumed was discussed:

\begin{quote}
It was considered that, basically, the larger the dose the shorter the incubation period for BSE. However, a picture was emerging, which was supported by work undertaken in mice, that BSE could develop further to one initial exposure to infected material.\(^ {321} \)
\end{quote}

\section*{2.288} The Scientific Committee advised that equipment used in feedmills was ‘being updated as and when required’. The Committee was advised that before undertaking any specific work on collecting information on the mechanical aspects

\(^{\text{317}}\) YB94/6.15/2.2
\(^{\text{318}}\) YB94/6.15/2.3
\(^{\text{319}}\) YB94/6.22/4.1
\(^{\text{320}}\) YB94/6.21/3.1
\(^{\text{321}}\) YB94/6.21/3.1
of feedmills, the CVL would review available data to assess whether BSE cases had been supplied from particular mills.322

**SEAC discusses cross-contamination**

2.289 An emergency meeting of SEAC was held on 25 June 1994, during which the Committee considered a paper prepared by Mr Wilesmith, Miss Hoinville and others on a case control study of BABs. The paper concluded that maternal or horizontal transmission was a risk in only a small number of cases. SEAC agreed that feed contamination was likely to be the major source of infection and expressed its concern that:

. . . the later BAB cases suggested that there could still be some contaminated material slipping through the controls into animal feed through cross-contamination in mills producing ruminant and monogastric feed and through lax compliance with the SBO rules . . .323

2.290 SEAC was advised that Mr Wilesmith had recently met UKASTA and had been told that whilst cross-contamination had been a problem, improvements had been made lately. Mr Eddy also advised that the ELISA test would be introduced to detect ruminant protein in feed and SEAC hoped ‘that this could be used pro-actively particularly in the areas where there were suggestions that contaminated feed might still be a problem’.324

**Further monitoring is debated in light of cross-contamination concerns**

2.291 On 4 July 1994 MAFF met UKASTA representatives to discuss the programme of voluntary routine testing of feedstuffs for ruminants, which had commenced on 1 July 1994. UKASTA opened by expressing its disappointment at not having been informed in advance of MAFF’s intentions. This was particularly because UKASTA would have been willing to discuss the possibility of the work being undertaken at compound feed mill level rather than on farms. UKASTA’s note of the meeting records that MAFF had considered taking a high profile stance on policing the feed bans, but on reflection, had decided not to do so.325

2.292 MAFF explained that it was important to find an explanation for the occurrence of BSE in animals born in 1989 and later, since the general view was that if maternal or vertical transmission was occurring, it was doing so at a low level. It was noted that the source of infection had to be from something else, such as ruminant protein. Furthermore:

An important point was that the CVL considered that an animal could become infected with BSE following one meal. From (incomplete) rendering experiments it had been demonstrated that BSE could survive the cooking process and, with the removal of water and fat, the degree of concentration of the agent potentially increased in the meat/bonemeal.326
2.293 The ELISA test’s detection sensitivity was discussed and the note records that:

UKASTA advised MAFF that the technique could be expected to detect ruminant protein present in a ruminant feedingstuff due to accidental cross contamination if that portion of the feed were sampled. The Association was concerned about the implication this could have on individual member companies’ liabilities with regard to farmer customers whose cattle had developed BSE. The only protection available to the industry was, therefore, to withdraw totally from the use of meat and bonemeal as a feed ingredient.327

2.294 UKASTA expressed its concern that pockets of old feed in bulk bins might be sampled, to which MAFF:

. . . advised that officials were looking for fresh feedingstuffs and were being steered away from sampling feed in bulk bins. The Ministry would not be taking any statutory action if ruminant protein was found in a sample of ruminant feedingstuff. The supplier concerned would, however, be contacted with a view to further investigation being carried out.328

2.295 The issue of contamination between rations intended for different species was also raised. A trend had been identified whereby the eastern and northern regions of England were experiencing a disproportionate level of BABs. This raised the unanswered question as to whether these cases were caused by cross-contamination in mills producing for both monogastric and ruminant animals. This was particularly relevant given that MBM was used in higher levels in the eastern and northern regions.329

2.296 In a statement to the Inquiry, Dr Matthews explained how the regional distribution of BAB incidence led to suspicions of cross-contamination in feedmills:

As the numbers of BABs accumulated, the incidence of such cases in East Anglia and Northern England was disproportionate to the earlier incidence of BSE. There did however appear to be a statistically significant correlation between the incidence of BABs born in 1990 or later with the size of the local population of pigs and/or poultry. This association did not relate to the farm level, and consequently the most likely common factor was the feed mill that produced feed for pigs and poultry as well as ruminants.330

2.297 On 11 July 1994 Mr Howard wrote to Miss Nelson with MAFF’s comments on UKASTA’s note of the meeting. He confirmed that the content of the meeting should be treated as confidential. He also said that Dr Matthews was following up a request for further information about the sensitivity of the ELISA test and that the results of the tests would be discussed with UKASTA at its next meeting. They would also discuss ‘the way ahead if we opt for sampling and testing under

327 YB94/7.4/2.2
328 YB94/7.4/2.2
329 YB94/7.4/2.2
330 S94B Matthews para. 6
the Agriculture Act 1970’. In a manuscript note at the foot of the letter, Miss Nelson noted:

Danny Matthews is urging Luddington to release [a] copy of the techniques. This is being resisted as it is to be patented and therefore Luddington would not wish to see copies made until its position is secure. However, details to be published in about 3 months. D Matthews still pressing.

N.B From samples taken so far – results negative. 332

2.298 Miss Nelson forwarded a final copy of UKASTA’s note of the meeting to Mr Howard on 20 July 1994. She reiterated UKASTA’s wish to see details of the ELISA technique at an early opportunity. Miss Nelson sought clarification on whether the test could distinguish between ruminant protein and that of porcine or avian origin, and requested that UKASTA should meet MAFF to discuss the preliminary results of voluntary routine sampling, before they were released to the farmers from whom they were taken. She advised that UKASTA wanted to organise a meeting with Mr Wilesmith to discuss features of CVL’s epidemiological work that had come to light including ‘the fact that an animal could become infected with BSE following one meal’. 333

2.299 Meanwhile, on 14 July 1994, Mr Ansfield minuted Mr Prince about the ELISA technique. He suggested that a commercially available ELISA test, while relatively insensitive to meats or MBM cooked to high temperatures, could be made to work if advanced techniques in MAFF’s system were used as a prerequisite to testing the sample on it. The commercial kit was very expensive and Mr Ansfield sought guidance on whether some kits could be purchased for evaluation. 334

2.300 Mr Ansfield subsequently advised Mr Gayford that he had subjected the commercial kit to extracts prepared using MAFF’s method. He summarised that it had the potential for use with MAFF’s extraction procedure for ovine and porcine MBM. However, neither the bovine or avian modules were satisfactory and so they would not be used. 335 The testing of the commercial kit against every available feed was not pursued. 336

2.301 Mr F Whaley, a Regional Veterinary Officer (RVO), raised cross-contamination concerns earlier in the year, on 27 May 1994. He had briefed Mr Crawford and Mr K Taylor on the recent Eastern Regional meeting of the UKASTA/BVA/MAFF liaison group. He reported that attention had focused on ‘the apparent carry over of infection to BABs and a possible explanation of how infective ingredients or feedstuffs could have been and continue to be carried over to livestock’. UKASTA representatives ‘quoted their own experience of material being discharged from bulk bins years after entry’:

Pig nuts purchased over 3 years earlier were discharged on-farm from a bulk bin which had subsequently been charged with a different formulated and sized nut. Discovery was made during an investigation by the milling company following a complaint.

331 YB94/7.11/1.3
332 YB94/7.11/1.1
333 YB94/7.20/6.2
334 YB94/7.14/10.1
335 YB94/8.6/6.2
336 S332 Ansfield para. 59
Barley was discharged from a bulk bin which had been used for several years for wheat at a mill.\textsuperscript{337}

\textbf{2.302} It was explained that most bulk bins discharged by a vortex process, similar to an hourglass, from the centre and top. Therefore, UKASTA representatives thought it possible that ‘some material will remain \textit{in situ} in bulk tanks indefinitely if they are constantly replenished’. Mr Whaley commented:

\begin{quote}
It is easy therefore to visualise the intermittent discharge over very long periods of infective ingredients during milling and formulation of feedingstuffs on the farm.

This may of course be ‘old hat’ to you, but I do not recall it having been actively discussed as a likely cause of BAB infection.\textsuperscript{338}
\end{quote}

\textbf{2.303} Mr Whaley suggested that the new ELISA test provided a ‘potentially invaluable tool’ for testing the theory, and recommended that consideration should be given to the sampling of both ingredients and feedstuffs stored in the bottom of bulk bins on and off farm.\textsuperscript{339}

\textbf{2.304} On 14 July 1994 Mr Taylor forwarded Mr Whaley’s minute to Mr Meldrum. His covering minute said:

\begin{quote}
In view of the concern about the possibility of cross-contamination, at feedmills and elsewhere, of ruminant feed with ruminant protein intended for rations for other species, the attached minute from Frank Whaley is of considerable interest. We need to consider whether this should lead us to revise our instructions for collecting samples for testing for the presence of ruminant protein.\textsuperscript{340}
\end{quote}

\textbf{2.305} Dr Matthews advised Mr Taylor, by way of a manuscript note on Mr Taylor’s original minute, that sampling from the bottom of bulk bins would be impossible unless they were emptied. However, Dr Matthews believed that Mr Whaley’s information warranted a VO inspection of plants and practices to assess the scale of the problem.\textsuperscript{341}

\textbf{2.306} On 22 July 1994 Mr Bradley voiced his thoughts to Mr Taylor, Mr Eddy and Dr Matthews on the issue:

\begin{quote}
If the industry has not emptied out the bins, generally tidied up their quality control and policed the controls in an adequate fashion they are being irresponsible as well as [flouting] the law. Any deficits there are will be revealed in 4-6 years by an occurrence of BSE that could be avoided. I think they should be very severely fined if they are found wanting in any way. We have the knowledge to prevent all feed borne BSE and the law must be rigorously applied to compounders and farmers if ever we are to rid ourselves of the problem.
\end{quote}

\textsuperscript{337} YB94/5.27/2.1
\textsuperscript{338} YB94/5.27/2.1
\textsuperscript{339} YB94/5.27/2.2
\textsuperscript{340} YB94/7.14/2.1
\textsuperscript{341} YB96/07.14/17.1
The preparation of ruminant and non-ruminant feed using the same equipment on the same premises is a weakness and will be compounded by the same situation on farms even though risks are less now the SBO ban has bitten.

Mr Wilesmith tells me that several mills in E. Anglia are wise to the problems and have installed new equipment and cleaned up to avoid cross contamination or contamination of new with old. We really do need to see all the loopholes plugged.342

2.307 On 27 July 1994 Dr Matthews reiterated his opinion that mills should be formally inspected. He pointed out to Mr Taylor that ‘we are all now aware’ that cross-contamination in the feedmill could occur, particularly if they were producing multi-species feeds. He said that discussion with UKASTA indicated ‘that this may be a real problem’, and was distressing the industry as they attempted to ensure they were not identified as the ones producing ruminant feed containing ruminant protein. Dr Matthews suggested ‘they may go to the extent of excluding meat and bone meal altogether’. He attached a report submitted by a VO, which identified likely problem areas in a mill he had visited:

My reason for copying the report is to suggest that apart from relying on compounders getting their act together from fear of prosecution or litigation, it may be worthwhile formally inspecting plants in order to assess risks. We did just this with respect to the rendering industry in 1988, but with the exception of mills that may have been visited for salmonella or residue sampling purposes, or possibly for factory inspection approval, we have not formally forced compounders to seriously review their procedures. While such visits may in part become advisory, it could give us a better feel for the scale of any potential problem which the small scale on-farm sampling may not.343

2.308 The report identified routes for possible incorporation of ruminant protein into cattle feed:

1. Augers may not be routinely cleaned between being used for pig and/or poultry feed and cattle feed.

2. Screenings from pig and poultry feed are not kept separate and can become incorporated into cattle feed.

3. Sweepings from the factory floor are recycled and may be put into cattle feed.

4. Animal fat is used in cattle feed. This is acquired from renderers who process abattoir waste. This includes bovine and ovine offal, and ovine brains. I understand this material contains some protein, as it is not profitable to extract all the protein from offal when making tallow.

342 YB94/07.22/18.1
343 YB94/07.27/11.1
5. **Ruined** batches of pig and poultry feed and feed returned from customers may be recycled and then be incorporated into cattle feed as a raw ingredient. 344

2.309 On 27 July 1994 Commission Decision 94/474/EC was adopted. Article 3 read, in part:

3. The United Kingdom shall take appropriate measures to ensure that:

...  

(b) ruminant protein destined for use in pig and poultry rations and other uses is not included in ruminant rations;

(c) scientific tests are used to monitor the implementation of . . . (b). 345

2.310 On the same day, Mr Eddy sought Mr Dixon’s opinion on whether this meant MAFF could overcome the existing legal constraints on testing for ruminant protein by introducing legislation under the European Communities Act. 346

2.311 Prompted by Mr Bradley’s minute of 22 July 1994, Mr Eddy advised Mr Taylor on 4 August 1994 that he had ‘re-read all the papers’ on carry-over of feed. He said:

It does seem to me that we have a problem which can extend from the farm right back through the feed supply chain wherever bulk bins are used. Mr Whaley’s minute is worrying in suggesting that material can lie around in these bins for over 3 years and that if the supply is constantly replenished then some material can remain indefinitely. I would have thought that this was not ideal on organoleptic grounds but it is certainly worrying in relation to the controls we have introduced on BSE and the lag times between the introduction of these controls and their effectiveness. It does seem to me that we need to issue some sort of guidance to farmers and everyone in the supply chain encouraging them to empty out bulk supply bins to ensure that there is no carry-over of old potentially contaminated stock. Until we have cleared this out of the system we are never going to know where we are on the various measures to prevent BSE through contaminated animal feed. 347

2.312 He concluded by saying that Mr Howard had an ongoing remit to redraft the advisory leaflet to farmers, first issued in June 1990 (see paragraphs 2.64–2.65), though he suspected it had been held up by other more urgent work. Mr Eddy also asked whether Mr Taylor would like a leaflet for the feed industry to be drafted along similar lines. 348

2.313 On 3 August 1994 a meeting was held between UKASTA and MAFF to discuss the ELISA technique. Mr Ansfield presented technical information about the test, and it was reported that Luddington VIC’s capacity for testing was ‘fully occupied’ with the samples taken from farms during routine examinations of...
suspect BSE cattle. MAFF advised that no samples had proved positive for ruminant protein thus far.\textsuperscript{349}

2.314 UKASTA advised that individual member companies would wish to submit samples of compound feedstuffs to check that their manufacturing procedures did not allow carry-over of ruminant protein into ruminant rations. The note of the meeting records:

The interest [of UKASTA members] was for initial screening and to see whether there was any possibility of cross contamination taking place between the production of one brand of feedingstuff and another. It was estimated that approximately 1,000 samples could be submitted for analysis.

MAFF advised that such a requirement would tie up the existing analytical capacity at Luddington for about a year. The question of whether further resources should be made available was for the Ministry officials at Tolworth to give a ruling upon.\textsuperscript{350}

2.315 On 17 August 1994 a meeting was held between CVL and UKASTA representatives. Following discussion about concerns regarding the animal SBO ban (see Chapter 4), attention turned to exposure and dose. UKASTA’s note of the meeting records:

The CVL reiterated the finding known for some time that a single exposure to the BSE agent [was] likely to cause the disease to develop. There was no evidence of the occurrence to BSE resulting from a cumulative exposure.

The BSE epidemic is consistent with a low dose exposure. Studies were being carried out in order to ascertain the magnitude of the dose required. In one study animals had been dosed with 100g of brain from terminal BSE cases. Results of this indicated that the incubation period for BSE in the trials was likely to be the same as that found in the field. In another experiment, single doses of infected material had been given to animals at levels of, respectively, 1g, 10g and 100g.

A discussion took place on the implications to the feed industry if it was subsequently shown that a dose of 1g had caused BSE. Setting aside considerations of the effectiveness of the SBO legislation and even though it was possible to try and minimise the risk of cross contamination between feeds for ruminants and those for monogastrics, the only protection for a feed manufacturer might be to stop using meat and bonemeal in any feedingstuff.\textsuperscript{351}

2.316 BAB cases were also discussed during the meeting:

Particular attention was drawn to the data indicating that, for the Eastern Region of the country, cattle born in the 1985/1986 cohort, the incidence in homebred cases was 6.86\% whereas in 1990/91 the incidence had increased to 15.49\%. The CVL considered that it was not possible to explain the majority of the BAB’s other than by accidental cross contamination of

\textsuperscript{349} YB94/8 3/3.1
\textsuperscript{350} YB94/8 3/3.2
\textsuperscript{351} YB94/8 17/2.2
ruminant meat and bone meal in ruminant feedingstuffs. This was of concern particularly in light of the low exposure/single dose needed for BSE to develop. 352

2.317 UKASTA noted that protein concentrates were species specific, as required by legislation, but the manufacture of different type of feedstuff caused the industry concern because of the potential for cross-contamination between it and the subsequent batch of feed. The possibility of species specific mills was discussed, but it was noted that this was impossible for the majority of compounders who only had one mill. Pig-and poultry-only mills could not be justified in the western part of the country. 353

2.318 CVL reported that, under the voluntary sampling scheme, 109 samples had been taken and all were negative. Samples had only been taken from farms on which animals born in 1990 or later had developed BSE, and between one to five feeds had been sampled per farm. It was recorded that 'samples were taken both because of fear of cross contamination and the need to be seen to be policing the feed ban'. UKASTA repeated its request for member companies to be able to submit samples to Luddington VIC for analysis to ascertain whether their procedure minimised the potential for cross-contamination. CVL said it would be possible for officials to get the necessary legal powers to carry out surveillance at feedmills, but that before any change in the current sampling procedures was introduced, it was necessary to assess the results obtained from the on-farm sampling scheme. It was agreed that MAFF and UKASTA should discuss a future scheme covering sampling at feedmills at a further meeting, and that MAFF would contact UKASTA in due course. The aim would be to design a scheme under which representative samples were taken without the need for any legislative backing. 354

2.319 The CVL reported that it was drafting a questionnaire designed to obtain data on the distribution of mills against a population study of BABs. In response to UKASTA’s concern about the possibility that the information gathered might be used in a civil action against an individual compounder, MAFF stated that it would not be possible to identify any particular feed manufacturing plant from the final report. 355

The first BABs born in 1991

2.320 On 22 August 1994 Mr Meldrum advised Mr Packer that MAFF was now aware of four cases of BSE in cattle born in January, May, August and ‘between June and September’ 1991. None of the cases had been formally confirmed, though ‘all diagnostic investigations are complete and there is no reason not to do so’. Further epidemiological enquiries were to be made, but detailed investigation into feeding histories could not begin until the cases were officially confirmed. Mr Meldrum advised that Ministers should be informed, but that deliberate publicity was unnecessary and probably unwise. However, he noted that the information should not be hidden, but routinely released in answers and reports without comment. 356
2.321 On the following day Mr Packer forwarded the briefing to the new Minister of Agriculture, Mr William Waldegrave. A manuscript note on the submission, dated 26 August 1994, records that ‘the Minister is content with [Mr Meldrum’s] proposals for handling these cases’.

UKASTA considers excluding all MBM following confirmation that only a ‘very low dose’ is required to transmit BSE

2.322 On 7 September 1994 Mr Reed provided Miss Nelson with UKASTA’s objectives for a meeting with MAFF on the following day. Mr Reed proposed that UKASTA should revisit a number of topics to clarify MAFF’s intentions and to allow UKASTA to get certain key points across. His proposed questions were:

– What is the latest thinking on infective doses? If these are now thought to be small and ‘one meal’, what control measures might be envisaged that are not already in place? . . .

– What are the real objectives of the on-farm tests to detect bovine [and ovine] MBM, given that these should have little or no relevance to the infection of a beast long before? How can [UKASTA] reassure [its] members that a deliberate attempt to blame feed suppliers for the epidemic is not being mounted to distract attention from the inadequacies of the control measures in place?

– If cross-contamination is now suspected as the main cause of BSE in BABs, why is the rendering of SBOs permitted on the same lines as other offals from cattle and sheep? What steps might be envisaged to control the cross-contamination risks in rendering plants, feedmills, transit, and on farms?

– Apart from the wish to assess the level of cross-contamination risk in feedmills and identify where the risk occurs, what is the aim of the proposed questionnaire? Will similar surveys be carried out simultaneously at rendering plants and on farms? If not, why not, since the risks of cross-contamination may be just as great or greater, and the consequences just as deadly? UKASTA members’ willingness to co-operate honestly in the survey will depend on their being convinced that an even-handed, open-minded but closed-mouthed approach will be employed . . .

2.323 In turn, Miss Nelson advised Mr Reed that Dr Cooke wished two key points to be made, to reflect discussions between BOCM Pauls and Dalgety Agriculture. They were:

i) Will the Ministry give a written undertaking that, in its opinion, proper heat treatment will inactivate both the BSE and scrapie agents in processed ruminant meat and bone meal such that a 1% cross contamination from one compound feed to another is of no concern;

357 Succeeded Mrs Gillian Shephard in July 1994
358 YB94/8.22/4.1
359 YB94/9.7/1.1. The proposed questionnaire was that mentioned by the CVL during the 17 August 1994 meeting (see paragraph 2.319)
if not;

ii) should the Ministry not introduce legislation prohibiting the use of meat and bonemeal in animal feedingstuffs.\textsuperscript{360}

\textbf{2.324} The meeting was held on 8 September 1994.\textsuperscript{361} The infective dose required for transmission of BSE was the first topic discussed. UKASTA’s note of the meeting records that:

The CVL had always considered that the infective dose of exposure to BSE was relatively small. Studies were being undertaken on the oral exposure of cattle. These included an experiment whereby single doses of infected material had been given to animals at levels of, respectively, 1g, 10g and 100g. Although the work was not yet complete, the indications were that a very low dose was sufficient to cause BSE.\textsuperscript{362}

\textbf{2.325} It was recorded in the note of the meeting that following the completion of the case control study on BABs, ‘the potential for cross contamination at feedmills should be a cause of concern’. It was reported that there was a correlation between the incidence of BABs and the ratio of cattle to pigs and poultry on a county basis. It was noted:

The objective of the Ministry’s animal health control policy, is to prevent or reduce the exposure of animals to the BSE agent to a level that is not significant. The policy was largely dependent on the effectiveness of the ruminant protein feed ban to prevent the infection of cattle, and the specified bovine offal ban to prevent infection of other animal species. The objective had not changed although the legislation had been refined in the light of pertinent information.\textsuperscript{363}

\textbf{2.326} UKASTA expressed its concern that the feed industry was being singled out as the cause of the BSE epidemic, and pointed out that any cross-contamination at feedmills ‘should not be of any consequence if the controls in place further up the supply chain were totally effective’. UKASTA stated that, in the current circumstances, the only way the industry could fully protect itself against possible claims for causing BSE was to stop using MBM in mills making ruminant feed.\textsuperscript{364}

\textbf{2.327} Discussion turned to the ELISA test. It was recorded that:

MAFF reiterated that, although it was not possible to eliminate maternal/vertical transmission as a cause of BSE, all evidence pointed to the main cause being contaminated feed. The ruminant feed ban was the cornerstone of the Ministry’s control policy for BSE and thus it was necessary for the legislation to be enforced. The development, by Luddington VI Centre, of its ELISA technique meant that the sampling and testing of feedingstuffs for the presence of ruminant protein could be carried out.\textsuperscript{365}

\textsuperscript{360} YB94/9.7/2.1
\textsuperscript{361} Attended by Mr K Taylor, Mr A Fleetwood, Mr Howard, Dr Matthews and Mr Wilesmith and Mr Cameron, Dr Cooke, Mr Reed and Miss Nelson
\textsuperscript{362} YB94/9.8/4.1
\textsuperscript{363} YB94/9.8/4.1
\textsuperscript{364} YB94/9.8/4.2
\textsuperscript{365} YB94/9.8/4.2
2.328 MAFF reported that under the voluntary sampling scheme 154 samples had been taken from 62 farms, and that the first positive result had been obtained from a compound feedstuff sample. It was being assessed whether there was any cross-reaction with individual raw materials that might not have been verified during the technique’s development. Enquiries at the compound feedmill would be made. UKASTA reiterated that the only way the industry could fully protect itself would be to stop using meat and bone meal.366

2.329 There was further consideration of CVL’s proposal to produce a questionnaire to collect information that might be relevant to ‘levels’ of potential cross-contamination. UKASTA expanded its concerns:

The fear was that any evidence submitted to the MAFF could be accessed by the prosecution in future possible Court cases from farmers seeking compensation from individual feed compounders. UKASTA had co-operated fully with MAFF throughout the investigations into BSE. Now, however, it was considered essential that the questionnaire should be addressed equally to other sections of the supply chain for processed animal protein in order to put the role of the feed compounding into perspective.

MAFF considered that it was possible that action could be taken now by individual farmers based on published scientific evidence. It was also noted that even if the questionnaire was not circulated evidence still existed that the disease was feed borne. The CVL was, however, to send UKASTA a copy of the proposed questionnaire together with background information on its importance . . .367

2.330 UKASTA also drew attention to the case of an SVS officer who had commented to a farmer that the BSE agent was present in feedmills due to use of contaminated MBM. MAFF undertook to contact the officer concerned and also to try and stop this ‘type of disinformation being circulated by MAFF officials’.368

2.331 Mr Reed said in a statement to the Inquiry that:

In the context of BSE, cross-contamination was not thought to be a crucial issue before 1994, because our understanding was that the SBO ban had successfully tackled the source of infection, and that a relatively high level of exposure to infective agent was required for transmission to occur. During that year, however, more cases of infected cattle born after the ruminant feed ban occurred, research results showed that lower doses of infected brain tissue were capable of transmitting the disease.369

SEAC publishes its report on BSE knowledge and research

2.332 In September 1994 SEAC published a report entitled ‘Transmissible Spongiform Encephalopathies: A Summary of Present Knowledge and Research’. On BABs, it stated:

366 YB94/9.8/4.4  
367 YB94/9.8/4.3  
368 YB94/9.8/4.4  
369 S24B Reed para. 34
There was surprise in some quarters that despite the imposition of the animal health controls in 1988 (ruminant feed ban) and 1990 (SBO ban for feeding to other species) 12,807 cases of BSE have been confirmed (to mid September 1994) in animals born after the 1988 ban, and this has given rise to comment. This was because it was expected that the ban could be implemented immediately, but this view did not take account of human nature and the practical difficulties involved. As nothing was done to eliminate the large amount of feed already in the distribution ‘pipeline’, the benefits of the ban were not instantaneous and complete.370

2.333 The report noted a number of factors that suggested BSE was a food-borne epidemic:

i. The number of confirmed BABs was much lower than the expected number of confirmed BSE cases had the epidemic run its natural course;

ii. The majority of BABs were born in the calving season following the introduction of the RFB; and

iii. Enquiries had shown that BAB cases had a greater association with feed history than possible maternal or horizontal transmission.371

The first positive ELISA test result

2.334 On 9 September 1994 Mr Robertson briefed Mr Meldrum on the first positive test from on-farm surveillance of ruminant feeds. He noted that there was uncertainty in the result as the sample had been taken from the bottom of a hopper, which made it difficult to determine the supplier and delivery date. Luddington VIC reported that the sample contained bovine, ovine and porcine protein. Mr Robertson suggested this could be the result of ‘legitimate inclusion of porcine protein with bovine and ovine contamination’. However, the possibility of a non-specific result could not be excluded, since no feed made by the compounder in question had been tested during validation of the test.372

2.335 In a statement to the Inquiry, Dr Matthews mentioned the significance of the ELISA test for establishing cross-contamination in mills as a continuing source of BSE:

[I]t was inevitable that concerns about infection via cross-contamination of feed grew progressively as more BABs were confirmed and other sources of infection were not identified. The introduction of the ELISA test in June 1994 provided confirmatory evidence soon after that cross-contamination was a real issue that had to be dealt with. In other words hard evidence was found as opposed to anecdotal evidence and interpretation of epidemiological data.373

370 IBD2 tab 10 p. 40
371 IBD2 tab 10 p. 41
372 YB94/9/3.1–3.2
373 S94B Matthews para. 8
Development of the CVL questionnaire

2.336 On 19 September 1994 Mr Wilesmith wrote to Miss Nelson with information on the proposed survey of feedmill practices. He summarised the further epidemiological studies involving feed compounders that could be undertaken and the reasons for them. Mr Wilesmith also wished to ‘allay the fears of UKASTA members of incriminating themselves as a result of participation in the proposed survey’.\footnote{YB94/9.19/1.1–1.2}

2.337 Mr Wilesmith highlighted the importance of explaining the occurrence of BSE in animals born in 1989 and 1990 for ‘re-establishing the international trade in animals and their products’. He explained that the first phase of the proposed epidemiological studies involved a questionnaire to obtain data and information on ‘practices within feedmills which have some relevance to the possibilities of cross-contamination during 1989/90’. The next phase was ‘a between herd case-control approach’ using herds which had a homebred 1989/90 born BSE case and those that did not. A part of the comparison to investigate risk factors would involve management and husbandry practices and feeding history including risk factors obtained from the questionnaire. Mr Wilesmith assured Miss Nelson that the results of the analyses could not be used to incriminate any particular mill as the cause of BSE in the cases being studied. Mr Wilesmith explained that the final ‘optimistic’ stage was to use the questionnaire information to assess the degree to which practices had changed over time.\footnote{YB94/9.19/1.2}

Ministers are updated on the BAB situation

2.338 On 21 September 1994 Mr Eddy informed Ministers that MAFF would now have to confirm the first four cases of BSE in animals born in 1991. Mr Eddy did not recommend that MAFF issue a press notice as the cases would become public knowledge via the regular published statistics, for which a question and answer brief was attached.\footnote{YB94/9.21/1.1}

2.339 The current number of confirmed BABs was 12,860. Of those, 358 had been born after the end of 1989. Mr Eddy advised that infected feed was the likely explanation for BAB cases born in 1988 and 1989, and probably for those born in 1990 and 1991 too, though investigations were continuing. He stated:

> It is certainly true that feed can remain on farm for a long time, particularly when farms and suppliers use bulk feeding hoppers which may not be completely cleaned out before refilling. But there may be cases due to maternal . . . and horizontal . . . transmission although the Ministry’s attempts to clarify this through statistical analysis have failed to show any firm evidence of maternal transmission and only limited evidence that horizontal transmission is occurring.\footnote{YB94/9.21/1.2}

2.340 Mr Eddy explained that there was ‘nothing particularly significant in 1991 as opposed to 1990 in epidemiological terms’, though ‘the media may well find it more difficult to accept carry over of contaminated feed as a cause’. Mr Eddy advised that the BSE Sub Group of the EU Scientific Veterinary Committee was
due to meet the following week and said, ‘We do not believe that there is anything to be gained by not revealing these cases’.378

**Compounding consider excluding MBM from ruminant rations**

2.341 On 23 September 1994 Mr Fleetwood informed Mr Meldrum and others that one feed compounder was ‘close to taking the decision to stop purchasing meat and bone meal for any of their rations’. He noted that if one major compounder made this decision, ‘the rest are likely to follow with significant consequences for the disposal of ruminant by-products’.379

2.342 Mr Robertson, to whom the minute was copied, pointed out that action by compounders based on positive results from on-farm sampling would be premature, since the ELISA test could be over-sensitive. He noted that further samples were being taken at the mills involved to clarify the situation.380

2.343 During a UKASTA Scientific Committee meeting on 29 September 1994, it was noted that:

A number of sites where cross contamination between animal proteins and other types of raw materials might occur were identified. These included not only on-farm but in-store, in the country of origin, in boats, in transport as well as different points within the feed mill. It was noted, however, that it might be counter productive to stress these varying numbers and sites.381

2.344 The Committee also expressed concern that:

. . . MAFF had commenced on-farm testing without necessarily thinking through the consequences for the whole of the agricultural industry. Officials were aware that one course of action open to feed compounders was to stop using meat and bone meal in the manufacture of any feedingstuff. An alternative for the industry was the establishment of ruminant feed only mills. Such a step would only be open to those companies with more than one manufacturing site.382

2.345 MAFF’s proposed survey of feedmills was also discussed. The Committee acknowledged the survey’s aims (see paragraphs 2.336–2.337), but noted that there were still difficulties with companies incriminating themselves if they completed the questionnaires. It was decided that whilst the CVL was finalising the survey, UKASTA should cooperate and members should send their comments on the proposed survey to the Secretariat.383

2.346 On 3 October 1994 Mr Robertson updated Mr Meldrum and others on results from the voluntary routine sampling regime. He reported that 482 samples collected from farms had given negative results, with only two farms returning positive results. Statutory sampling was undertaken on 19 September 1994, pursuant to article 15 of the Bovine Spongiform Encephalopathy Order 1991, at the mill of
origin relating to the first farm previously reported. Of the ten samples collected, two were ‘weakly positive’ for bovine, ovine and porcine antisera. Further samples of the ingredients of the two positive rations had been requested. Statutory sampling at the mill in question relating to the second farm had also been carried out and the results of the tests were pending. Mr Robertson advised that:

Both the renderers and the compounders are closely watching the developments in the matter of the testing of feedstuffs, and there have been indications from the compounders that, if too many problems arise as a consequence of positive results from the tests, they may consider discounting the inclusion of meat and bonemeal in any rations. There would be obvious consequences for the rendering industry. 384

2.347 He also noted that the BSE Sub Group of the EU Scientific Veterinary Committee had expressed the view during its meeting of 27–28 September that policing of the ruminant feed ban should be improved. Mr Robertson said it would be important for MAFF to continue to test feed samples and to report the results to the relevant EU bodies.

2.348 Mr Robertson addressed potential causes of the positive results:

It seems improbable that ruminant derived meat and bonemeal has been deliberately incorporated into the feeds which have given positive test results. Cross-contamination is more likely to be the explanation but, since the test will detect a 1 in 400 (0.25%) inclusion of ruminant meat and bonemeal, a 5% carry over of a feed with 5% ruminant bonemeal would be necessary for threshold of detection to be reached. A 5% carry over seems improbable, but advice from the industry on that aspect would be helpful.

Accidental inclusion of meat and bonemeal is a further possibility, but more likely is the accidental contamination or deliberate adulteration of imported ingredients prior to shipment. So far, however, no positive results have been obtained in tests of such materials.

It would appear that the test is not over sensitive, and we have had a period of testing completely free from positive results. But some previously unencountered cross-reactions may be occurring. 385

2.349 Miss Nelson wrote to Mr K Taylor on the same day. She reiterated the point that, having discussed the routine voluntary testing regime within a number of UKASTA committees, ‘the clear message coming through is that individual companies would wish to have access to the test’. Miss Nelson therefore asked Mr Taylor to let her know whether MAFF had plans to either increase the testing capacity at Luddington or to allow commercial laboratories to make an analytical service, using the ELISA test, available to the trade. 386
Fears grow that compounders might stop using MBM

2.350 On 7 October 1994 Mr Reed met Mr Packer ‘with some disquieting news about possible action by the feed industry triggered by concerns over BSE’. Mr Packer reported to Mr Waldegrave on the same day that ‘the major feed manufacturers . . . were now very seriously considering stopping using ruminant bonemeal in all feed’. Mr Packer stated that such a ban had been considered ‘over 5 years ago at the beginnings of the BSE epidemic but had not been seen as necessary’. He set out the recent developments that were forcing the feed companies to reconsider the issue:

(i) (alleged) increasing evidence from our research that a low dose of the BSE agent was sufficient to cause infection;

(ii) the development and use on farm of a test which was capable of detecting very low levels of contamination from ruminant meal; and

(iii) a questionnaire sent by MAFF vets to all feedmills asking very detailed questions about the opportunities for cross contamination in each mill. The reality was that zero cross contamination was virtually unachievable, and the companies were therefore reluctant to reply.387

2.351 Mr Packer advised that the feed companies feared that they might lose their insurance cover if they did not now inform their insurers that there had been a change in their exposure to product liability claims. However, notifying would lead to an increase in premiums. Mr Reed felt that the feed companies had three options:

(i) stop using ruminant meal in all feed;

(ii) use individual mills to make species specific feed. This would prevent cross-contamination. The large companies could manage this but smaller feed manufacturers (representing perhaps 50% of the industry) would not have enough mills to give the flexibility to do this;

(iii) obtain adequate assurances from Ministers and their scientists that it is safe to continue using ruminant meal in feed. The key point here was on the time and temperature regime for rendering – did it eliminate or only minimise the BSE agent?388

2.352 Mr Packer regarded ‘all of this [as] very unwelcome’, and stressed the serious implications a decision to stop using ruminant meal would have on the livestock industry. He felt ‘at first sight’ that there were two possible courses of action:

First, we could look to see whether we can legitimately reconstruct our investigations so as to give less worry to the feed industry. Secondly, we could see what assurances we can give, perhaps about our new rendering rules. By copy of this minute I am asking veterinary colleagues to advise on

387 YB94/10.7/5.2
388 YB94/10.7/5.2
this urgently. In addition, it may be necessary for you to meet UKASTA’s Feed Executive after their meeting on 19 October. I have agreed to keep in close touch with Mr Reed and will report on progress in due course.\textsuperscript{389}

\textbf{2.353} Mr Reed wrote to Mr Bob Cameron of BOCM Pauls on the same day, to describe his meeting with Mr Packer. Mr Reed related how he had explained to Mr Packer that MAFF had dissuaded UKASTA from similar action about five and a half years ago, but that changes in circumstances now meant UKASTA had to reconsider. He said:

[Mr] Packer’s response was understanding and he clearly grasped the potential consequences. He said that he would immediately inform the Minister of the changing situation. He would also enquire of officials what possibilities there might be of delivering the assurances needed by the feed industry. He also used extremely colourful language about the action taken by vets. The words, ‘\textit{another veterinary own goal}’ stand out in my memory.

\ldots

Overall, I found his attitude encouraging. His inclination is clearly to give the feed industry what it wants to prevent an MBM ban – if it is remotely possible.\textsuperscript{390}

\textbf{2.354} Following receipt of Mr Packer’s submission, Mr Waldegrave queried whether there was a temperature at which it would be safe to render ruminant MBM for feeding to ruminants. MAFF officials were therefore asked to advise on this and whether new work was needed to discover such a ‘safe’ temperature.\textsuperscript{391}

\textbf{2.355} On 13 October 1994 Mr K Taylor provided the veterinary assessment sought by Mr Waldegrave and Mr Packer. Mr Taylor explained that the time and temperature to deactivate the BSE and scrapie agents, particularly under industrial conditions, were not yet known. So while in theory there was a rendering temperature and time at which the infectious agent could be deactivated, ‘the only practical method of control is to prevent cattle consuming infected feed’. Mr Taylor summarised MAFF’s knowledge on BABs – the key point being that there was no evidence to suggest that anything other than feed was the cause. He concluded:

There is no doubt that UKASTA, and the compounders they represent, are genuinely concerned about the risk of civil action by aggrieved farmers. But neither can there be any question about the critical importance of ensuring that the ruminant feed ban is universally observed \ldots

Commission interest makes it imperative that we continue to use the ELISA test to monitor compliance with the rules \ldots The need to be able to explain the occurrence of BABs – and give assurance that any loopholes that existed have been blocked – makes a detailed epidemiological study essential, although we hope this can be conducted in a way which does not cause problems for the individual businesses.
We cannot at present advise on the time and temperature needed to produce a safe product. This situation is unlikely to change in the foreseeable future. There is no practical alternative at this stage to an effectively operated ruminant protein ban.

Regrettable as it may be, I believe that the need to ensure that our BSE controls are effective must take precedence over the concerns of the industry. We must, however, continue to work closely as possible with UKASTA, and encourage them not to take precipitate action. Of Mr Reed’s suggested options, (ii) is preferable to (i), whilst (iii) is impossible, at least in the short term.392

2.356 On 26 October 1994 a meeting took place between representatives of UKASTA and UKRA. UKASTA outlined its concern at the ‘pressure being imposed by MAFF on the industry’:

It was considered that, rather than putting major resources into enforcing the feed bans by use of the ELISA technique, it would be more beneficial to renderers, feed compounders and farmers alike if proper controls had been imposed, on the introduction of the [human SBO ban] in November 1989, at slaughterhouses, abattoirs and knackers yards.393

2.357 UKASTA advised that it was impossible to avoid very small amounts of cross-contamination (for example, if MBM was blown into a raw materials bin, or other pieces of equipment at the mill, such as the weighers and mixers, were used for both ruminant and monogastric rations). It explained that the only way that compounders could ensure that no cross-contamination occurred would be to stop the use of meat and bone meal. UKRA suggested this would be easier to accept if legislation banned the use of MBM in animal feedstuffs. The adverse consequences of such a decision for both the rendering and feed industries were discussed, and it was agreed that a joint meeting with MAFF should be arranged to outline the ‘very serious concerns about the future use of meat and bonemeal in the feed industry and the consequent ramifications the non-use of this product might have on the UK livestock industry’.394

2.358 On 28 October 1994 UKASTA Scientific Committee representatives met Mr Taylor and Mr Wilesmith. UKASTA emphasised the ‘intense scrutiny’ of the feed industry’s use of MBM, due to:

– on-farm sampling and the use of the ELISA technique;

– legal advice confirming the nil tolerance for the presence of ruminant protein under the BSE Order;

– the possibility that an infective dose of BSE could be as low as one gramme of infected raw brain tissue;

– the questionnaire highlighting the potential for accidental contamination at feedmills.395
2.359 UKASTA reiterated that, despite the adverse consequences to the industry, to preserve their position, compounders’ best option was to stop using MBM. Discussion moved on to the ELISA testing, and MAFF explained that it needed to continue to satisfy EU demands for ‘auditing’ of BSE controls. UKASTA in turn reminded MAFF that it wished to have access to the technique. 396

2.360 On the risk of BSE transmission, UKASTA noted that the ‘one gram experiments’ involved the use of raw brain from a BSE case – ‘a different material to the meat and bone meal used in the manufacture of compound feedingstuffs’. UKASTA sought assurances from MAFF that new EU rendering legislation would produce a ‘safe’ product. It maintained that it was difficult for the feed industry to carry out a quantitative risk assessment on the use of MBM because compounders did not have information on likely levels of infective material in MBM. In response, Mr Wilesmith undertook to provide UKASTA with information on levels of infectivity going into rendering processes, that could be used in a ‘risk’ assessment of the use of meat and bone meal by the feed industry. 397

2.361 UKASTA repeated its concern about MAFF’s proposed questionnaire of feed compounders and MAFF advised that it did not intend to introduce legislation to compel completion of the questionnaire. In conclusion MAFF asked for an early warning of any moves by UKASTA members to stop using MBM, and Mr Taylor undertook to ‘produce a statement which set out the Ministry’s view of the safety of meat and bone meal’. 398

2.362 On the same day of the meeting, Dr Matthews distributed an ‘Update on BSE for the week ending 21 October 1994’ to Mr Waldegrave, Mr Packer and others. He reported that there were 14,040 BABs as at 27 October 1994, and advised that this number would rise considerably as animals born in 1989 and 1990 became older and developed clinical disease. 399

2.363 Dr Matthews discussed the voluntary sampling regime. He explained that the statutory sampling under article 15 of the BSE Order that followed positive tests on farm was intended to:

- Identify finished products that contain ruminant protein in contravention of the ruminant feed ban;
- Identify raw materials other than meat and bone meal that cross-react with the test either non-specifically or due to an unrecognised ruminant protein content; and
- Identify and quantify any cross-contamination that may occur within the mill, particularly if manufacturing concentrates for feeding to pigs and poultry (which can quite legitimately include meat and bone meal of ruminant origin) as well as concentrates intended for ruminant feed. 400

396 YB94/10.28/3.2
397 YB94/10.28/3.2
398 YB94/10.28/3.3
399 YB94/10.28/8.2
400 YB94/10.28/8.3
2.364 He continued:

Testing of samples collected at the mills is receiving priority at present . . . The feed industry, and UKASTA in particular, are clearly concerned about the surveillance, particularly about the apparent ability of the test to detect low concentrations of ruminant protein. In mills producing feeds for both ruminants and non-ruminants they fear that the risks of relatively minor cross-contamination are such that they may have to stop using meat and bone meal altogether, with consequent effects on the rendering and slaughtering industries. At the moment such action would be precipitate, since the ELISA test clearly requires further validation.401

2.365 Mr Taylor related the events of the 28 October meeting to Mr Packer on 31 October 1992. He advised:

There is little doubt that [UKASTA] is near to advising members that MBM should not be used in any mill which produces ruminant feed, and that few companies are big enough to dedicate a particular mill to feed for particular species. They say that they recognise the damaging consequences of such action and appreciate that in the long run their members may be victims of those consequences. But they consider the short term risks of taking no action to be greater.402

2.366 In addition, Mr Taylor said that MAFF could not give an assurance that meat and bone meal was safe, at least until rendering studies were completed in 18 months’ time. Mr Taylor noted that the proposed survey of compounders’ practices ‘remains alive, but only just’.403

Feeding of all mammalian protein to ruminants is banned

2.367 Article 1 of Commission Decision 94/381/EC, adopted on 27 June 1994, required that:

1. Within 30 days of notification of the present Decision, Member States shall prohibit the feeding of protein derived from mammalian tissues to ruminant species.

2. However, Member States which enforce a system that makes it possible to distinguish between animal protein from ruminant and non-ruminant species shall be authorized, by the Commission under the procedure provided for by Article 17 of Directive 90/425/EEC, to permit the feeding of protein from species other than ruminants to ruminants.404


401 YB94/10.28/8.4
402 YB94/10.31/3.2
403 YB94/10.31/3.3
404 L4A tab 1
In article 12 (prohibition of sale, supply and use of certain feedingstuffs for feeding to animals and poultry) for (a) and (b) of paragraph (1) there shall be substituted the following:

(a) knowingly sell or supply for feeding to ruminant animals any feedingstuff in which he knows or has reason to suspect any mammalian protein has been incorporated;

(b) feed to a ruminant animal any feedingstuff in which he knows or has reason to suspect that any mammalian protein has been incorporated.\(^{405}\)

2.369 This extended the RFB to prohibit the feeding of mammalian protein to ruminant animals. In practice, the RFB had always operated as if it so provided.

UKASTA seeks a way forward

2.370 On 1 November 1994 Mr Taylor wrote to Miss Nelson with comments on the draft note that she had provided of the 28 October 1994 meeting. He advised that he hoped to write to her again in a few days, ‘when I have given further consideration to the question of assurances about the safety of meat and bone meal’.\(^{406}\)

2.371 Miss Nelson replied on the next day. She advised that, since the meeting, she had had further discussions with Mr Wilesmith, and it now appeared that ‘it will not be possible, at least in the short term, to provide the feed industry with the assurances for which it is looking’. Miss Nelson suggested a meeting between MAFF, UKASTA, UKRA and Prosper de Mulder to ‘discuss further how best the feed supply industry in the UK can work with MAFF to ensure that meat and bone meal is a safe product to use in animal feedingstuffs’.\(^{407}\)

2.372 On 14 November 1994 Mr Taylor advised Miss Nelson that the testing capacity at Luddington was being increased to allow for the submission of private samples. Capacity would be increased to 160 samples per month, but could be increased to 240 if there was sufficient demand. He explained that these figures included samples submitted under the voluntary sampling regime, so only part of the capacity would be available for privately submitted samples. Mr Taylor said:

As you are aware the test is new and we are still clarifying whether, in certain circumstances, false positives might occur. I can confirm, however, that results to date have indicated that the test is both highly specific and very sensitive.\(^{408}\)

2.373 A meeting between Mr Packer, Mr Taylor, Mr Eddy and UKASTA, UKRA, Prosper de Mulder and GAFTA representatives took place on 18 November 1994. All present agreed that they wished the inclusion of MBM in monogastric diets to continue; however, compounders were critically assessing their position for the reasons previously given.\(^{409}\)
2.374 Mr Cameron of UKASTA explained that, since contravention of the ruminant feed ban provisions required knowledge or a ‘reason to suspect’ that ruminant protein was incorporated in ruminant feed, a ‘due diligence’ defence was available to the feed industry. So if compounders took adequate measures to avoid accidental cross-contamination, they could meet their legal obligations. It was considered that compounders would have to use the ELISA test to demonstrate ‘due diligence’.410

2.375 In turn, MAFF explained that the ELISA technique ‘was not yet sufficiently robust for MAFF to draw categoric conclusions in all circumstances’, but since it was available, they had to use it. This was so that MAFF could confirm to the EU that the feed ban was being audited, to detect companies deliberately contravening the ban and to deter others from doing so. The feed industry supported the aim of deterrence. However, UKASTA’s note of the meeting recorded:

Unfortunately it was virtually impossible for the feed industry to completely prevent accidental inclusion. As the MAFF had pointed out, the word ‘knowingly’ was part of the legislation and the only way of detecting contraventions was by the ELISA technique. MAFF accepted that the availability of the ELISA technique meant that feed compounders had to use it to establish ‘Due Diligence’ and observance of the ruminant feed ban. The feed industry therefore needed to know at what level infectivity occurred in meat and bone meal.

MAFF suggested that one means of auditing all feed compounders would be to sample a number of feedingstuffs. UKASTA pointed out that it would be a practical impossibility to detain sampled batches until the result was available. It was reiterated that the only way in which the feed industry could be totally confident that accidental inclusion did not take place was to remove meat and bone meal altogether from ruminant feed manufacturing mills.411

2.376 In conclusion, UKASTA’s note recorded:

The Ministry would . . . be sorry to see UKASTA take action with regard to the use of meat and bone meal which might not be necessary in the light of the current circumstances especially as this could rebound to the detriment of the whole UK animal production sector. The MAFF also stood by the sentence in the statement that there was no reason ‘in principle’ why protein derived from ruminants, in the form of meat and bone meal, should not continue to be used as an ingredient in feed for non-ruminant animals.412

2.377 MAFF’s note of the meeting records that:

The Secretary said that the legislation on feed was clear and it would not be possible, politically, to change it, for instance to amend the requirements of ‘knowingly’ doing things or to accept that there was an inescapable possibility of accidental cross-contamination. It was not for MAFF to urge companies to take actions which were incompatible with their legal liabilities or contrary to the rules. That said, MAFF would be sorry if the
companies took action which was not warranted by the circumstances. The Secretary felt that the detection limit of the ELISA test would in practice set the level at which the 'knowingly' test could be applied. The companies were, of course, able to use the test on all, or a percentage, of their production. Clearly they would be in the wrong if they sold feed which they knew to have tested positive. The Secretary repeated that MAFF could not give UKASTA the assurances it was seeking about the level of infectivity of MBM. Nor could we say unequivocally that feed contaminated with levels of MBM undetectable by the ELISA test was not infective.\textsuperscript{413}

**MAFF contemplates UKASTA's stance**

2.378 On 21 November 1994 Mr Packer highlighted for Mr Waldegrave some issues that emerged from the meeting. In particular, he said:

It is interesting that [with the development of the ELISA technique] the trade's protestations that cross-contamination never occurred have been reversed; they are now more or less telling us that where the same mill is used for ruminant and non-ruminant feed some cross-contamination is inevitable, though this is usually at low levels.\textsuperscript{414}

2.379 Mr Packer advised Mr Waldegrave that he thought it a ‘strong possibility’ that feed compounders would soon introduce new constraints on the use of MBM. He then noted the limitations on how far MAFF could properly go in trying to persuade compounders not to pursue this course of action:

We carefully pointed out the consequences to them but I judged it important not to overdo this aspect. Certainly we would not wish to leave ourselves open to the charge that we had, whether by nods or winks or more overtly, suggested that we did not expect processors to keep to the rules in this area.\textsuperscript{415}

2.380 Mr Waldegrave strongly agreed that MAFF could not suggest anything other than that compounders must fully respect the ruminant feed ban. However, a minute to Mr Packer from Mr A Cahn, Principal Private Secretary to Mr Waldegrave, records that:

The Minister has further asked whether in practice we believe that cross-contamination has been taking place. If it has, what consequences does this have and is there any action which the Ministry should take given the new judgement we now have of the possibility of cross-contamination having occurred, albeit at low levels.\textsuperscript{416}

2.381 Mrs Angela Browning, Parliamentary Secretary, also read Mr Packer’s minute to Mr Waldegrave. On 30 November 1994 her private secretary wrote to Mr Packer, saying:\textsuperscript{417}
Mrs Browning’s understanding is that as little as 1 gramme of ruminant protein from an infected animal is sufficient to transmit BSE. She therefore feels that if cross-contamination is detectable, the correct course of action would be to move, in consultation with the industry, to a situation in which separate production lines would have to be used for ruminant and non-ruminant feed.\textsuperscript{418}

\textbf{2.382} Mrs Browning told us that she remembered this being raised in discussions, but that Mr Packer believed that the significant improvements that were being made to tighten SBO controls would have been sufficient and therefore separate feed lines were not necessary.\textsuperscript{419}

\textbf{UKASTA decides against a ban on MBM use}

\textbf{2.383} On 28 November 1994 Dr Timothy Render, Private Secretary to Mr Packer, provided Miss Nelson with a copy of a MAFF statement entitled, ‘Preventing the Transmission of BSE to Cattle’. The statement summarised the steps taken to control BSE and continued:

The effect of these measures is to minimise the importance of any errors which may occur in the manufacturing process. Ruminant protein (and, since 2 November 1994, mammalian protein) should not be included in ruminant feed, but the removal of SBOs before rendering will preclude the presence of any significant titre of BSE agent in the unprocessed or processed material anyway. The separate handling of SBOs allows the material which is potentially most dangerous to be destroyed, usually after having been rendered separately, under official control. The mechanics of controlling the separation and processing of SBOs are currently being strengthened. The most recent change is the introduction of more effective processing standards on 27 June 1994, which at best will prevent any infection which was present in the unprocessed material surviving, and at worst will significantly reduce the titre of any agent present.

Compounders have indicated that they wish to utilise an ELISA test which has been developed by MAFF to detect the presence of bovine or ovine protein in feed, as an additional element in assuring the safety of their output. The test has still to be fully validated in use but does provide a practical method of checking to ensure the ruminant protein is not present (within the limits of the sensitivity of the test). The test offers particular advantages in testing individual ingredients of compound feed before they are diluted by mixing.

The Ministry considers the feed ban to be only one of a number of measures which are in place to protect animal health and prevent the further transmission of infection to cattle in feed. The requirement that the raw material which is most likely to contain infectivity is separated and destroyed, that rendering standards are sufficiently rigorous to inactivate at least 99\% of any BSE agent present in raw material, and the decreasing number of infected cattle in the British population as a result of the measures taken to control BSE, all reinforces the effectiveness of the feed ban. The use
of ruminant protein, other than that derived from the specified bovine offals is permissible in non-ruminant feed. The Ministry considers there to be no reason in principle why it should not continue to be used in non-ruminant feed, even in premises preparing feed for ruminant and non ruminant species, provided that steps are taken to prevent accidental inclusion in ruminant rations. \(^{420}\)

2.384 As noted by Mr Reed in a statement to the Inquiry, ‘in the light of that statement . . . the idea of a voluntary ban on all MBM use was not pursued’. \(^{421}\)

Validation of the ELISA test and its impact on manufacturers

2.385 Mr Packer, Mr Taylor and Mr Eddy met with UKASTA representatives on 30 November 1994. A main point of the meeting was to advise UKASTA that the ELISA test had been validated and that MAFF believed that the positives found so far were due to the accidental incorporation of ruminant protein. MAFF did not plan to publicise this, but if asked, they would respond that the ELISA test had been validated since 30 November 1994. \(^{422}\)

2.386 The test had been validated sooner than UKASTA had anticipated, and it advised that feed manufacturers would have to move rapidly to respond to this change in circumstances. MAFF envisaged that testing would take place at feedmills rather than on farms, with unscheduled random visits. Mr Lake of UKASTA believed that this would receive UKASTA’s full support and added that they were willing to work with MAFF to develop a testing regime. \(^{423}\)

2.387 In light of the discussions during the meeting and the validation of the ELISA test, it was concluded that:

\[\ldots\] it was likely that feed companies would give very serious consideration over the next week to their future actions probably leading them to stopping using MBM in those mills which were also producing ruminant feed \[\ldots\] this would affect a significant proportion of feedmills with perhaps 70–80% at present being used to make both ruminant and monogastric feed. It should be possible in a few weeks for companies to adjust either by moving production around between different plants or by altering the production flows through a specific mill. \(^{424}\)

2.388 On 20 December 1994, after reading the note of the meeting, Mr Meldrum advised Mr Taylor that one point ‘I always refer to when I am challenged on the issue of BABs’ was ‘that there is always the possibility of accidental inclusion of meat and bone meal in ruminant rations’. \(^{425}\)

Mr Packer advises Mr Waldegrave on cross-contamination and dose

2.389 On 2 December 1994 Mr Packer reported on the meeting with UKASTA representatives to Mr Waldegrave. He noted that compounders were now likely to
re-organise their production to avoid contamination from ruminant protein in ruminant rations and noted:

It must be likely that there will be short term decline in meat and bone meal usage. But it now looks much less likely that UKASTA will issue a clear statement to their members recommending an end to all use of meat and bone meal as had been suggested initially. To that extent the resulting effect on the industry is likely to be reduced in scope.

My only comment would be that it is a pity the industry did not take the steps now contemplated at an earlier stage.426

2.390 Mr Packer then dealt with Mr Waldegrave’s enquiries about cross-contamination. He advised that officials ‘strongly suspect’ that cross-contamination had occurred in some feedmills and that the industry’s reaction ‘more or less’ confirmed this. As to the consequences of this, he advised:

If significant amounts of ruminant material got into ruminant feed after 18 July 1988 then this would account for a proportion (or indeed all) of the born after the ban cases. As such this is reassuring in that it would tend to confirm our thesis as to the main cause of the epidemic, though if the animal health controls are shown not to have been 100% effective it will be necessary (but difficult) to explain that there is no necessary read across to the effectiveness of the public health controls.427

2.391 Mr Packer also advised that one experiment had shown that 0.5 of a gram of infected raw cow’s brain fed to sheep would cause BSE. However:

There is . . . a lot of difference between raw brain from clinically infected cattle and meat and bone meal since all clinical BSE cases are incinerated, all brains from cattle over six months of age are classified as specified bovine offal and cannot be used for human or animal feed or spread as fertilisers and meat and bone meal has by definition been rendered.428

2.392 The minutes of the ‘top of the office’ meeting on 5 December 1994 record that:

The Minister had seen [Mr Packer’s] note on his discussions with UKASTA about testing for contamination of feed with ruminant protein. He felt that the instances of contamination which the test had highlighted gave weight to the hypothesis that the aetiology of the disease was related to feed. The Minister agreed with Mr Dugdale [Head of Information] that the existence and use of the feed test should be put on the public record. The best way of doing this might be via the BSE progress report, due to be published before Christmas.429

---

426 YB94/12.2/1.2
427 YB94/12.2/1.2–1.3
428 YB94/12.2/1.3
429 YB94/12.06/2.1. Those present at the meeting included Mr Waldegrave, Mrs Browning, Mr Packer, Mr Capstick and Mr Dugdale
Developments in 1995 – a mandatory routine sampling regime is pursued

UKASTA continues to question the value of the CVL questionnaire

2.393 On 11 November 1994 Mr Wilesmith forwarded a draft copy of the proposed questionnaire for feedmills to Miss Nelson, and commented that ‘we should only proceed with the mooted survey if there is sufficient documentary data available’.430

2.394 Following discussion of the draft at UKASTA Scientific Executive Committee and Feed Executive Committee meetings, Miss Nelson replied on 25 January 1995. She advised Mr Wilesmith that individual companies could only provide accurate information backed by written records for 1993 and 1994 and explained that:

For the four previous years, the information would become less accurate and, consequently, somewhat unreliable. Also it was very likely that some feed compounders could only provide information about the store or the broker who supplied the raw materials. It was doubtful whether information could be provided on the precise source such as factory of origin. Similarly, information on production processes could only accurately go back for the last couple of years. The Committees also believe that the collection of the data required would be quite onerous.431

2.395 Miss Nelson noted that MAFF’s November 1994 progress report clearly stated that infected ruminant protein was the cause of BSE and that no other source of infection had been identified. UKASTA questioned the value of information that could be obtained from the proposed survey and whether it was needed at all.432

2.396 According to Mr Wilesmith, the CVL Epidemiology Department was denied access to the information it sought via the questionnaire after the feed compounders took legal advice.433

Joint feed sampling proposal

2.397 On 30 January 1995 UKASTA representatives met Mr Howard, Mr Fleetwood and Dr Matthews to discuss future action on the monitoring of feedstuffs using the ELISA test. At this stage, under the voluntary regime, 745 samples had been tested from 284 farms, with only three positive results, which had been obtained prior to the technique’s validation in December 1994.434

2.398 It was agreed that UKASTA members, with an allocation of 20 samples to be tested each week at Luddington, would organise their own sampling programme. It was agreed that MAFF would continue with routine sampling following BAB visits to farms, but in accordance with a revised programme:

430 YB94/11.11/1.1
431 YB95/1.25/5.1
432 YB95/1.25/5.1
433 S91A Wilesmith para. 125
434 YB95/1.302.3
i) where farmers used feed produced by commercial compounders, whether UKASTA members or not, samples would not be taken on farm, but at the mills as part of MAFF’s routine unannounced sampling programme; perhaps on average one visit to each mill per year.

ii) on these visits samples would be taken from all ruminant rations being produced at the time but the testing of these samples would depend on the testing capacity at Luddington.

iii) MAFF would take samples of feed on those farms where the feed was home produced.435

2.399 It was agreed that one protocol should cover sampling procedures undertaken by compounders and MAFF. The text of the protocol was discussed and it was agreed that the new sampling procedures should be implemented as soon as possible – hopefully during March.436

2.400 On 1 February 1995, Mr Howard wrote to Miss Nelson to clarify that senior officials still needed to approve the joint sampling proposal, but that there should be no problems. He also asked that UKASTA quantify their future demands on Luddington’s testing capacity, which would be helpful when officials put forward a case to increase testing capacity.437

2.401 Miss Nelson could not provide a specific indication of the number of samples that compounders were likely to submit. However, she suggested that companies would be checking their manufacturing processes and procedures. She said that once companies had identified ‘critical control points’ and satisfied themselves that the potential for cross-contamination had been minimised to the greatest possible extent, they would reduce the number of samples they submitted and rely on MAFF’s random sampling.438

2.402 On 10 February 1995 Mrs Terry Gurnhill of the Animal Health (Disease Control) Division distributed the note of the 30 January meeting and a revised draft protocol on sampling procedures. She asked recipients to confirm that they agreed with the proposals so far.439

2.403 Dr Matthews replied on the same day that he believed the proposal was that random sampling at mills would only take place at UKASTA member mills. Non-UKASTA-member mills would only be tested if they had supplied feed to BABs discovered on farm. He also stated that one protocol could not cover the joint sampling programme, because for the private submissions it was for the company to decide on the frequency of the sampling. However, the sampling procedures could be identical. Dr Matthews suggested that the protocol for MAFF still required discussion.440

435 YB95/1.30/2.1–2.2
436 YB95/1.30/2.2
437 YB95/2.1/2.1
438 YB95/2.8/2.1
439 Mr Taylor, Mr Eddy, Mr Cawthorne, Mr Wilesmith, Dr Matthews, Mr Fleetwood and copied to Mr Howard
440 YB95/02.10/5.1
441 YB95/02.10/5.1
2.404 Mr Wilesmith was also concerned about the proposals:

. . . there are a number of problems with what is proposed. The first, and probably most important, is the restriction to the sampling of commercial feedingstuffs at the mills producing the rations fed to animals on farms which have experienced 1990, and later, born BABs. There must be sampling and testing of feedstuffs on the farms at the time of the visit of the Veterinary Officer. This must not be restricted to feedstuffs produced by members of UKASTA. Any positives need to be followed up by further sampling on the farm and at the producing mill or mills. The problem here seems to be that non-UKASTA member feedmills are not involved; they are certainly not aware of what is going on.

. . .

In summary, we need to discuss more fully the use of the ELISA in the monitoring of finished feedingstuffs and their ingredients, especially as non-UKASTA members could be epidemiologically important in the cross-contamination problem.442

2.405 On 21 February 1995, having read Mrs Gurnhill’s and Mr Wilesmith’s minutes, Mr Eddy suggested a short meeting to ‘talk through this since I think there are a number of strands we now need to draw together’.443

Mrs Browning informs Parliament of BAB situation

2.406 Meanwhile, on 31 January 1995 Mrs Browning had answered a series of written Parliamentary Questions on BSE. In response to a request for information on ‘the numbers and circumstances’ of confirmed BABs, she said:

As at 23 January 1995, 15,771 cases of BSE had been confirmed in cattle born after 18 July 1988. Of these 8,955 were born in 1988, 5,995 in 1989, 812 in 1990 and nine in 1991. The great majority of the born after the ban cases have probably been exposed to ruminant protein in feed. The normal range of incubation period makes it inevitable that further cases will be confirmed in some animals exposed to infected feed and born in the months following the feed ban. Although it is still possible that BSE can occasionally be transmitted maternally or horizontally, there is no unequivocal evidence that either has actually occurred.444

2.407 Mrs Browning was also asked how many renderers, feed compounders and farmers had been prosecuted for contravening BSE regulations since 1988. She replied that two prosecutions had been taken – one in 1991 and the other in 1992. She did not indicate the nature of the prosecutions or whether they involved renderers, feed compounders or farmers.445
SEAC reviews the voluntary testing regime

2.408 On 10 February 1995 SEAC considered Mr Wilesmith’s completed case control study of BABs. Mr Wilesmith told SEAC that there was an absence of new trends or clusters of cases that might indicate a change in the nature of the epidemic. He expressed his concern about the number of BABs and said that the cooperation of feed compounders, which had not been forthcoming, was needed to investigate a possible continuing feed source.446

2.409 SEAC was informed that the ELISA test had been in use for a few months and ‘seems to be having a salutary effect’. One mill had changed its raw material delivery procedure to avoid cross-contamination and sampling protocols had been agreed with another manufacturer.447

2.410 In a statement to the Inquiry, Mr Meldrum noted that:

I should add that at this time I was in discussion with at least one small compounder who found it difficult to accept that cross-contamination with meat and bone meal could occur with the result that cattle could be exposed to the agent of BSE through feed. It was very much later that they were forced to the conclusion that cross-contamination had occurred in their mill as a result of an ELISA positive result and an advisory visit to their plant from an expert in compounding.448

2.411 In response to information that Luddington was working to capacity, SEAC suggested ‘that there may be a case for expanding the capacity to do these tests’.449

2.412 The minutes of the meeting record that:

Dr Tyrrell concluded that there are a number of possibilities for cross contamination which appears to be the main reason for the BAB cases. It should be possible to develop the test so that it could be performed on a large number of field samples. Epidemiology must be continued and reiterated. Feed manufacturers and compounders need to co-operate so that risks can be measured. The Committee is very concerned that possible contamination of feed will continue the epidemic. It was felt that as 40% of suspect cases being reported now are BABs, MAFF must continue to look for a consistent, significant feed source.450

UKASTA queries integrity of the ELISA test

2.413 On 22 February 1995 Mr Taylor and Mr Wilesmith attended a UKASTA meeting to discuss various aspects of the ELISA test. A number of feed compounders had been submitting feedstuff samples to Luddington since the start of the year. Of particular concern was that a sample of MBM ‘almost certainly’ containing ruminant protein had tested negative, whilst salseed, of plant origin, had returned a positive result. It was confirmed in the latter case that no oil derived from animal material had been used to lubricate the pressing machinery. A sample of
salseed had also been examined by microscope and no animal protein had been found. Further, it was reported that although an undiluted salseed sample had tested positive, a ruminant feedstuff containing 20 per cent salseed had tested negative. Another inconsistency was that whey powders from one factory had given a positive result, while whey powder from another factory had given a negative result.451

2.414 It was agreed that the test gave a false positive for the salseed, but it was believed this problem could be overcome. The false negative for the MBM caused more concern, but again it was thought this could be remedied. A list of compound feedstuff constituents that had been tested was tabled, and UKASTA undertook to provide a list of other ingredients commonly used in the feed industry that also needed to be tested. It was hoped this would eliminate as far as possible false positive tests in the future.452

The Minister is updated on the BAB situation

2.415 In response to an earlier request, on 27 February 1995 Mr Eddy provided Mr Waldegrave with a BAB update. He noted that the ruminant feed ban had clearly cut the number of BSE cases substantially, however:

The challenge is to squeeze the disease out completely and that is more difficult because cases may arise from rare accidents or low levels of cross contamination which are hard to prevent and virtually impossible to investigate retrospectively because the disease has a 5 year mean incubation period. The long incubation period also makes it impossible to check whether the arrangements we now have and level of compliance by the industry are adequate: that will only become clear in 5 years or so.453

2.416 He reported that there were currently 16,957 confirmed BABs, with most born in the period immediately following the introduction of the ban when there was likely to have been a carry-over of feed. Mr Eddy said:

[T]he use of protein from specified bovine offal (SBO) in animal feed was not banned until September 1990 and if, as now seems likely, there was cross-contamination of ruminant feed by feed for pigs and poultry there could be some inclusion of low levels of processed SBO in cattle feed up to September 1990 and some carrying over of material in the pipeline into 1991. Experiments still underway exposing cattle to different amounts of brain from BSE infected cattle indicate that very small amounts of untreated infective material can cause disease in cattle, even smaller than the 1 gm often quoted. This suggests that even a low level of contamination of SBO in pig and poultry rations into ruminant feed could cause disease.454

2.417 Mr Eddy advised that of greater concern was the ‘future level of late 1991 BAB’ s and in due course any post 1991 cases which cannot reasonably be attributed to SBO contamination of animal feed before September 1990’. He said there were 18 confirmed 1991 BABs, though more than 50 were histopathologically positive, awaiting confirmation whilst further detailed enquiries were made. If 1992 BABs occurred, Mr Eddy advised that they could reflect one of four factors:

451 YB95/2.22/4.1
452 YB95/2.22/4.1–4.2
453 YB95/2.27/3.1
454 YB95/2.27/3.2
(a) that infection is coming from sheep offals (which are not covered by the SBO ban and can still be used for production of meat and bone meal for use in feed for pigs and poultry).

(b) that the range of cattle offals covered by the SBO ban is too narrow. (Although research studies provide no evidence for this.)

(c) that the disease in cattle may be caused by other mechanisms such as maternal or horizontal transmission (this is not ruled out); direct contact with sheep (which can be ruled out on epidemiological grounds) or spontaneous disease as with human CJD though the incidence of CJD is so low that an equivalent mechanism in cattle would account for only a handful of cases each year.

(d) Failure to comply fully with the disposal requirements for SBO. 455

2.418 Mr Eddy described the detailed epidemiological investigations that had been undertaken or were proposed for BAB cases and the associated difficulties. He concluded that in the absence of firm epidemiological evidence, ‘one can only speculate’ whether any of the four factors applied. 456

Results of the attack rate experiment are reported to the Minister

2.419 On 28 February 1995 Mr Meldrum minuted Mr Packer with an update of BSE research results. He noted that results from the attack rate study (see paragraph 2.128) indicated that ‘the amount of unprocessed brain needed to cause disease is very small’. Mr Meldrum also pointed out that:

The findings may help to explain why the feed ban was less effective than intended, and they will certainly cause UKASTA uneasiness. This supports our view that we should tighten up our controls on the disposal of the specified bovine offals; an issue we have discussed with Ministers. 457

2.420 On 31 March 1995 Mr Packer forwarded Mr Meldrum’s minute to Mr Waldegrave. He also forwarded a submission by Mr Howard proposing action in light of the research finding on dose. Mr Packer noted that the attack rate study ‘is a very serious result meriting careful reflection and, if necessary, action’. 458

2.421 Mr Howard’s submission suggested that ‘there is a risk that skulls still containing brain tissue may be rendered into meat and bone meal and subsequently incorporated into animal feedingsuffs’. Given the attack rate study’s indication that a small dose of infective brain could transmit BSE, ‘Veterinary advice is therefore that steps should be taken to avoid the risk that any brain attached to bovine skulls could find its way into animal feedingsuffts’. It was therefore recommended that the removal of the brain from the skull should be prohibited, thereby requiring the whole skull to be disposed of as SBO once head meat had been removed (see vol. 6: Human Health, 1989–96 for a full discussion of brain removal). 459

455 YB95/2.27/3.2
456 YB95/2.27/3.3
457 YB95/2.28/2.2. See Chapter 4b for discussion on SBO disposal controls
458 YB95/3.31/7.1
459 YB95/03.31/4.3
2.422 On the presentational aspects, Mr Howard’s submission advised:

Infection of cattle through feed continued to be a problem after the ruminant protein ban was introduced in 1988, and to a much smaller extent, even after the SBO ban was extended to animals in 1990. There is circumstantial evidence that ruminant protein which is used in pig and poultry feed may cross contaminate cattle feed being produced at the same mill. Although better house keeping will help to overcome this, it will not be practically possible to ensure that cross contamination never occurs, and it is therefore essential that additional steps are taken to make sure that ruminant meat and bone meal contains no significant infectivity . . .

The change should be presented as a measure to increase the effectiveness of the current legislation in response to the number of cases of BSE confirmed in cattle born since 18 July 1988.\textsuperscript{460}

2.423 On 5 April 1995 Mr Packer was informed that Mr Waldegrave agreed with the recommendations set out in Mr Howard’s paper. However, Mr Waldegrave asked whether action on feedlines needed to be taken. In particular, he queried whether the attack rate study results meant that MAFF needed to do more to ensure that feedlines that had contained contaminated feed were now clean.\textsuperscript{461}

2.424 Mr Meldrum responded to Mr Waldegrave’s query on 19 April 1995:

The short answer is “no”. The important thing is to prevent infected material continuing to enter feedlines, and additional measures have been and will be taken to achieve this (for example, enforcement of minimum rendering standards, and the tightening up of controls on the disposal of SBO). By contrast, the problem of infectivity already in the feedlines is insignificant, and any infected material will have been flushed out by uninfected material some time ago. There is no action I can recommend that we should take at this time except to continue to intensify the controls on the disposal of the SBOs.\textsuperscript{462}

2.425 A manuscript note on the covering minute recorded that Mr Waldegrave was content with Mr Meldrum’s recommendation.\textsuperscript{463}

2.426 On 9 May 1995 Mr K Taylor forwarded a report on the BSE epidemic’s progress to Mr Waldegrave. In his covering minute, Mr Taylor noted that there was a continued downturn in the BSE incidence in 5-year-olds, ‘which is further evidence of the effect of the ruminant protein ban introduced in July 1988’. He advised that it was planned to publicise the information by an arranged Parliamentary Question and press notice, of which drafts were attached. The draft press notice stated:

The number of cases of BSE being reported at present is 45.3% fewer than at the same time last year and there is continued downturn in incidence of BSE in five year old animals. Both changes are attributable to the ban on
feeding ruminant protein to ruminant animals which was introduced in 1988.464

Further progress on joint monitoring and enforcement programme

2.427 On 3 April 1995, owing to a backlog of material at Luddington, Dr Matthews had advised all DVOs that collection of samples from farms should cease until further notice.465

2.428 On 10 May 1995 Mr Howard distributed a note to Mr Taylor, Dr Cawthorne, Mr Eddy, Mr Fleetwood, Dr Matthews, Mr Wilesmith and Mrs Gurnhill. The note summarised the main action points that had been agreed at a meeting held on 2 May 1995. These points were:

(a) that officials should continue to encourage feedingstuffs manufacturers to submit samples of feed ingredients, or finished feed for testing at Luddington making full use of the allocation of testing capacity made available for them.

(b) that veterinary staff should continue with routine sampling for the present on farm.

(c) that plans would be drawn up for veterinary staff to visit feedmills to carry out advisory visits which would include explaining to manufacturers about the BSE controls, the situation on BAB cases, and how to avoid the cross contamination of ruminant feeds with ruminant protein. This proposal subject to agreement by senior management.

(d) that when agreed by senior management the proposals would be put forward for the Secretary to consider with a view to putting them to Ministers to keep them informed of the action being taken.

(e) that unannounced sampling visits to mills were preferable to on-farm sampling, subject to the agreement from the mill (already given by UKASTA on behalf of their members), and that in the long term on-farm sampling would be carried out only where samples were not collected from the mills supplying the feed. Such a change would follow the exercise of 1(c) above and in agreement with industry representatives.466

2.429 Five days later, on 15 May 1995, Mr Andrew Fleetwood, SVO in the Animal Health (Zoonoses) Division, formalised the proposals. He minuted Mr K Taylor, Mr Eddy and Dr Cawthorne467 and recommended that SVS officers ‘visit premises compounding feedingstuffs for ruminants in order to check and advise on the systems used to segregate mammalian protein from those feedingstuffs’.468

2.430 Mr Fleetwood explained that the visit programme was needed because no explanation had been found for BABs other than the continued presence of ruminant protein in ruminant rations. He summarised the evidence that suggested this was so
and advised that officials wished to supplement the existing sampling programme with ‘a system of proactive checks designed to minimise the chances of rations becoming contaminated in the first place’. Mr Fleetwood said:

This has been recognised by the major members of UKASTA who have designed and promoted a system of quality controls for use at their compound feedmills. These controls are designed to minimise the possibilities of accidental cross contamination of ruminant compound feed, and should it occur, minimise the extent of the problem. UKASTA members are supplementing these measures by sending materials to Luddington VIC for spot checks. However, it is far from clear whether similar controls have been implemented by smaller compounders or non-UKASTA members, or how well the controls are working within larger mills.469

2.431 Mr Fleetwood continued:

It is assumed that most visits will be made to commercial compounders on the basis that home mixers are unlikely to mix rations for more than one species. The register of UKASTA members provides an obvious entry to commercial compounders, but officials believe that visits to non-UKASTA compounders are at least as important.470

2.432 Compounders who gave evidence to the Inquiry suggested that when they became aware that cross-contamination was an issue in 1994, they reviewed their controls on the production of ruminant rations. For example, Dalgety Agriculture identified the handling of raw materials between the intake point at the mill and their delivery via raw material storage bins and weighers to the blending process as an area of concern. The equipment was identified as having a number of points where contamination could occur in material handled after MBM. The company subsequently invested in a blow line intake of MBM, which allowed MBM to be blown straight into storage bins and thereby avoiding conveyors and elevators.471

2.433 Similarly, J Bibby Agriculture conducted an intensive study of its mills when it was made clear that cross-contamination was an issue. As a result, MBM use was stopped in two mills and dedicated MBM blow lines were installed in remaining mills.472

2.434 In his minute, Mr Fleetwood said mills to be visited would be selected either on a random basis or on a known risk factor basis. Most visits would be made to commercial compounders because home-mixers were unlikely to mix rations for more than one species. Mr Fleetwood recommended that the visits’ objectives should be:

- an investigation of the mill so as to identify the critical points at which cross-contamination could occur.
- an audit of existing operating procedures to determine whether risks have been adequately addressed.

469 YB95/5.15/4.2
470 YB95/5.15/4.2
471 S151 Cooke & Clegg para. 10.3
472 S154 Raine & Mansden para. 73
the provision of advice in circumstance where risks are identified that have not been adequately addressed by operating procedures.

Briefing of mill operators on the current BSE disease position, and that accidental cross-contamination of ruminant rations is the probable cause of the BABs.

Advice to mill operators that samples of ruminant rations may be taken then or at a later date so as to monitor compliance with the feed ban.473

2.435 Mr Fleetwood invited the recipients to consider the proposals, and if they agreed, he recommended that further detailed planning should take place on instructions for visits and training of SVS officers.474

2.436 Dr Matthews responded by a manuscript note to Mr Fleetwood on the following day, noting that he thought the aims were:

– ideally to visit all mills;
– if not, then all mills producing ruminant rations,
– if not, all non-UKSATA mills producing ruminant rations (probably all).475

2.437 Mr Fleetwood replied that, as there were probably in excess of 1,000 mills and home-mixers producing ruminant feed, some sort of targeting would be required if MAFF resources were to cope.476

2.438 On 18 May 1995 Mr Howard raised a further point regarding his note of 15 May, which had been prepared following the meeting on 2 May. He said:

Regarding the continuation of routine sampling by field staff at the time of BAB investigations we agreed a new procedure. It was that the officer would establish whether the ruminant rations in use were from a UKASTA member or from a non-UKASTA member including on farm mixers. It was agreed that in the case of the former a sample would be taken from the mill (we hold the lists of UKASTA members) and if the latter, samples would be taken on farm as before. We agree that it was important to cover non-UKASTA members as the risks of cross contamination could be greater on these premises.477

2.439 Dr Matthews responded by a manuscript note. He said that he understood the intention to be:

1. UKASTA mills – unannounced random sampling

2. NON-UKASTA mills – with their approval – as UKASTA.

– if approval not forthcoming sample on farm when identified as a supplier to farm with 1990 BAB or later.

473 YB95/5.15/1.3
474 YB95/5.15/1.3
475 YB95/5.15/4.1
476 YB95/5.15/4.1
477 YB95/5.16/8.1
3. Home mixers – sample on farm either at time of report of a 1990 BAB, or if logistically possible as part of surveillance of all ‘feed manufacturers’.\textsuperscript{478}

2.440 Also on 18 May 1995 Dr Cawthorne responded to Mr Fleetwood’s minute of 15 May. He said:

Can we assume that all UKASTA members have been through a process of self-examination and have identified critical points in their mills where cross-contamination might take place and have taken corrective action? If so, we need not visit all feedmills but could concentrate on non-UKASTA members producing ruminant rations.

The major problem as I see it is, from a standing start, identifying critical points in mills at which cross-contamination might take place, and training staff to carry out mill audits on corrective action. I don’t see that this is something that SVS can do by itself, it will need assistance from UKASTA. The next question is where we will find the appropriate staff. We already have a pool of SVOs who have been carrying out mill audits in connection with salmonella. Might it not be possible to include a number of those in the core of SVS staff to get trained in this BSE procedure?\textsuperscript{479}

2.441 His initial thoughts were that this was not a scheme that could ‘be progressed on a broad front’ until MAFF had more experience and information at its disposal. Therefore, if attention was focused on the small mills who were unlikely to be aware of cross-contamination problems, ‘this would allow us to develop the policy at a sensible pace, learning as we go’.\textsuperscript{480}

2.442 In a manuscript note dated 19 May Dr Matthews replied that in relation to Dr Cawthorne’s assumption, ‘UKASTA actually stated that they would like contact with local plant management to be made, particularly with respect to raising levels of awareness concerning our expectations if we resort to unannounced random sampling’.\textsuperscript{481}

First BAB born in 1992

2.443 On 16 May 1995 Dr Matthews informed Mr Meldrum that he had received the first positive result for a suspect born in 1992. The case had yet to be confirmed. At that time there were 73 confirmed BAB cases born in 1991, out of a total of 19,151 overall. A further 68 awaited confirmation. Dr Matthews advised that this meant that it would be several weeks before he could process the 1992-born case, ‘although I fear that there will have to be an increase in the throughput rate soon in order to keep up with receipts’.\textsuperscript{482}

2.444 Mr Eddy conveyed this information to Mr Waldegrave on the following day. He advised that since the case was yet to be confirmed, the information should not be put into the public domain. He said that if confirmed, the case would be
disappointing but not unexpected. In light of the exemption from BSE export rules for animals born after 1 January 1992, it ‘will need careful handling’.

2.445 Also on 17 May 1995 Mr Eddy provided Mr Haddon with a ‘contingency note’ on the line to take for BABs born in 1992. In his covering minute, he said:

In our discussions my veterinary colleagues were anxious to make the point that we must expect to have 1993 and 1994 BAB cases as well as 1992 cases and there is something to be said for preparing the public, and the Germans, for this now rather than giving the impression, perhaps by omission, that 1992 would be the last year for BABs. I can see merit in this and have included a low key comment . . . But I do feel on balance that it may be better not to make too much of this point at this stage. In a year or so’s time we may well have better statistical evidence and be able to say that the incidence of the disease in each birth year group is continuing to decline, and may well have more confidence in the statistical sense about the strength of any decline in 1991 and possibly even into 1992. At the moment we cannot really say very much and there is a risk that reference to 1993 and 1994 born cases could be potentially more damaging as a result.

2.446 The ‘contingency note’ suggested that there was no reason to regard BABs born in 1992 differently from those born in 1991. It then sought to put the case in context by quoting various BSE incidence figures which indicated the ban had been ‘extremely effective’. The note also cited changes made in dealing with mammalian waste as further assurance that there was no cause for alarm. It listed the measures in place to prevent transmission of BSE through feed as:

– the destruction of clinically suspect cattle;

– the seizure and destruction of specified bovine offal from clinically unaffected cattle, and the use of stains which allow the illegal use of such material to be detected;

– the ban on feeding mammalian protein to ruminant animals, and the use of tests which will identify ruminant protein which is illegally incorporated in ruminant feed;

– the prohibition of the use of rendering systems which have been shown not to inactivate the BSE agent.

2.447 Dr Render, Private Secretary to Mr Waldegrave, subsequently advised Mr Eddy that Mr Waldegrave wanted the 1992 BAB case to be published once it was confirmed. However, he said that officials would need to consider carefully ‘what we say in the EC and to Germany’. He also queried whether there were any contingency plans which needed to be set in place.

2.448 On 23 May 1995 Mr Richard Carden, Head of the Food Safety Directorate, minuted Mr Eddy advising that publication of the case could cause consternation in the European Community and lead to arguments that trading arrangements for
UK beef exports should be altered. Mr Carden thought that MAFF officials must be clear about what the repercussions might be and what their line of response would be to the European Commission, Member States and trade interests within the UK before the news went public. He asked to see the advice prepared for Mr Waldegrave before it was submitted.  

2.449 Following discussion between officials on how best to present briefing material to Mr Waldegrave, on 1 June 1995 Mr Haddon provided a final note to Mr Packer for onward submission to the Minister. It noted that there was no suspicion of maternal transmission for the 1992 case, which suggested that transmission via feed continued ‘well into 1992, which is not unexpected’. The note proposed that the case should not be individually announced, but rather processed in the same way as other BAB cases, to avoid ‘indicating greater concern on the Government’s part about the risks to human or animal health that the case objectively warrants’. 

2.450 A question and answer brief was included in the briefing material. Under the heading, ‘If Necessary’, it included the following:

What is being done to stop cross contamination occurring?

The Government has recently gone out to consultation on new specified bovine offal (SBO) proposals which would require all rendering plants processing SBO to have the necessary facilities to hand and store SBO separately from non-SBO material. We are also proposing to require all SBO to be processed in cookers dedicated solely for this operation and to require the processing of all SBO in dedicated rendering plants. This would prevent contamination of normal meat and bone meal with that produced from SBO, which is potentially contaminated. Discussions have also taken place with representatives of the feed industry who have assessed systems for potential cross contamination. Such contamination of cattle feed with mammalian protein (bovine, ovine or porcine) can [be] detected by an ELISA test currently available to test feed samples collected on farm.

Is there still contaminated feed on farms?

It is difficult to say. No positive feed samples have been detected since the new ELISA test was introduced and subsequently validated. What is clear is that the number of new BSE cases this year is down 45.1% on the same period last year and that the ruminant feed ban is having the intended effect in controlling the disease in the national herd.

2.451 Mr Packer forwarded the material to Mr Waldegrave on 5 June 1995. He pointed out that since there were no changes in controls between 1991 and 1992, the discovery of the 1992 BAB was not unexpected. He also suggested that Mr Haddon’s proposals for public handling were ‘about right’. However, regarding a background note included in the material, Mr Packer suggested that because it was envisaged that it would be sent to the German Government and the European Commission, ‘I am not yet convinced it is quite right’.
I wonder whether a more positive and reordered note might not be more appropriate. We might start by noting the success of one overall policy as evidenced by the reduction in mortality and perhaps go on to acknowledge perhaps more openly the existence of cross-contamination after 1990, which apparently occurred at a fairly low level. This would implicitly acknowledge the likelihood of further 1992 cases. We could then go on to point out that this problem had been/was being addressed by further control measures.491

2.452 In the event, Mr Packer decided that the 1992 BAB should be made public492 and a low-key parliamentary question was organised for Mr Waldegrave’s approval. It was published on 9 June 1995.493

Further problems with the ELISA test

2.453 On 5 June 1995 UKASTA representatives494 met Mr Taylor, Mr Howard and Mr Wilesmith to discuss the ELISA test and sampling of ruminant feedstuffs. UKASTA’s note of the meeting records that since the 22 February 1995 meeting, where UKASTA raised doubts over the test’s integrity (see paragraphs 2.413–2.414), UKASTA had provided samples of 83 different raw materials for testing. It was reported that a number of vegetable products gave positive bovine, ovine and non-specific reactions. They discussed what further steps could be taken to address these problems.495

2.454 The MAFF officials advised that the Ministry was still collecting feedstuff samples from a proportion of farms where BSE suspects were being investigated. However, analysis of the samples was being delayed by further investigative work at Luddington, and few samples had been collected since Easter due to storage problems. The testing of privately submitted samples was also on hold. It was confirmed that since the test was validated in November 1994 (see paragraph 2.385), there had been no positive reactions to any compound ruminant feedstuff analysed.496

2.455 In general discussion on BAB cases, UKASTA’s note of the meeting records that:

An explanation for the BABs was infection via the feed route, which accidental cross-contamination could be expected to account for. . . MAFF commented that in practice the system was not perfect and even if it were to be made so now the results would not be seen this century.

Reference was made to the ‘attack rate’ experiments which had yet to be finalised. Whilst it was necessary to wait and see what results were found on completion of the work, it was expected that a gramme or less of infected brain would be sufficient to cause BSE in cattle if eaten.

...
The clear objective of the feed industry was to put pressure further up the supply chain to ensure that no infective material could reach a compound mill. Also, in the interest of ‘due diligence’ a record of all the action taken with regard to minimising the risk of cross contamination should be maintained. 497

2.456 UKASTA’s note of the meeting also recorded that:

Further to the discussions at the next Scientific Committee, consideration was to be given to UKASTA issuing a circular to feed members stressing the need to minimise the risk of cross-contamination. This could cover not only the question of ruminant protein getting into ruminant feedingstuffs but also veterinary medicinal additive residues into feeds for non-target species. 498

SEAC considers the 1992 BAB

2.457 SEAC considered the 1992 BAB during its meeting on 21 June 1995. The background paper prepared for Mr Waldegrave (see paragraphs 2.449–2.450) was provided for SEAC’s information. The minutes record that:

It was recognised that the 1992 case was not a one-off and evidence suggested that the existing controls had not been fully applied in some slaughterhouses and in some feedmills. Dr Tyrrell said that for contamination of feed to continue there must have been failures at all three levels: the slaughterhouses, the renderers and the feedmills. 499

2.458 Enforcement of the RFB in feedmills was discussed. Mr Eddy explained the difficulties that were being experienced with the ELISA test, which included the fact that the test had not been validated for all raw materials. He advised that there had been three positive tests from 936 samples. Two mills were involved, of which one had changed its practices ‘instantly’. However, ‘some mills had admitted as a result of the test that there was no way with their current set-up that they could prevent small scale cross contamination’. In conclusion:

Dr Tyrrell accepted that the test was not sufficiently robust for use in prosecutions but it was clearly helpful to have an independent test. 500

Plans for advisory visits to feedmills

2.459 In late June MAFF decided that the industry should be informed of its concerns regarding cross-contamination in mills. It was agreed at a meeting on 26 June that a letter should be sent to UKASTA members stressing MAFF’s concerns about the potential risk of cross-contamination particularly at mixed mills. Mrs Gurnhill circulated a draft letter for this purpose on 28 June. She asked in her covering minute that Mr Fleetwood provide a list of critical control points in order to seek UKASTA’s approval and endorsement of them. 501
2.460 In a manuscript note dated 30 June Mr Fleetwood questioned whether the letter should not go to all feedmills. He commented that he ‘would rather meet UKASTA and discuss critical control points with them before putting them in the letter.’

2.461 On 3 July 1995 Mrs Gurnhill replied to Mr Fleetwood:

   It was not my understanding that we were to write to all mills, I understood from our meeting that we were to write to UKASTA members only. I know that Dr Matthews agrees with you, but I wonder if this is the right approach initially as it could be difficult to persuade non-UKASTA members to adopt UKASTA recommendations on cross contamination. Perhaps it would be best to write to UKASTA members first and then as a second stage, when we can determine how successful our campaign has been, write to non-UKASTA members.

2.462 Dr Matthews was sent a copy of Mrs Gurnhill’s minute, and in a manuscript note on the following day to Miss Jill Wordley, temporary Head of Branch C (BSE Issues) of the Animal Health (Disease Control) Division, he commented:

   . . . we can’t afford to mess around with this. UKASTA will primarily be a source of technical advice so we need to meet soon. After that it is imperative that we write to all mills. We had assumed that UKASTA had kept their members aware of our concerns. We now know that they haven’t. The non UKASTA members still don’t know any details of our findings on low dose risks. The letters will only open the door. Visits to mixed species mills should follow and are far more important.

2.463 Miss Wordley replied on the same day. She said

   I think Dr Matthews is right. We could justly be [illegible] failed to give all mills the same information at the same time (particularly if there is any suggestion of insurance liability). Would the right procedure be as follows:

   (i) prepare a draft letter including an initial draft of our understanding of the critical control points (if possible)

   (ii) discuss this draft with UKASTA and amend in the light of their comments

   (iii) send to all mills inviting them explicitly to comment. We might need to make clear the legal position i.e. they need to know if any information they give will be used to take enforcement action against them.

2.464 Mr Fleetwood also responded to Mrs Gurnhill’s minute on 4 July 1995. It was his understanding that the letter would be sent to all mills, not just UKASTA members. It was intended that the letter would present a list of ‘critical points’ at which cross-contamination could occur. Mr Fleetwood suggested a ‘logical order around the mill’.
• cross contamination in vehicles delivering raw materials
• common intake pits
• shared conveyors throughout the mill
• equipment that is shared between different rations – in particular mixers, grinders, screw presses, conditioners and coolers
• re-working of faulty material and spillages
• final product storage if it is used for different rations at different times
• cross contamination in vehicles delivering the final feed. 506

2.465 Mr Fleetwood stated that it ‘may be worth making clear that this list is based on actual inspections of mills and is not a theoretical exercise’. He suggested setting up a meeting with UKASTA’s Technical Committee to ‘see what they made of the list, in particular whether it is sufficiently comprehensive and whether the risks can be ranked into any order of likelihood’. He noted that MAFF would be on ‘shaky ground’ if it attempted to advise how to address the risks, so it needed to be made clear that recipients of the letter would be expected to identify appropriate remedial action themselves. 507

2.466 On 11 July 1995 Dr Cawthorne wrote to Miss Nelson to seek UKASTA’s ‘co-operation in taking the next step in raising levels of awareness about our concerns on cross-contamination of feed throughout the feed manufacturing industry’. He recounted that MAFF was concerned about the potential for small-scale contamination of ruminant rations by ruminant MBM, particularly in mills also producing pig and poultry feed. MAFF had not yet visited mills to quantify risks in specific plants, though they had expressed a desire to do so via Mr Wilesmith’s proposed questionnaire. Dr Cawthorne also believed that discussions with UKASTA had established that MAFF hoped to visit plants to explain its intentions, should it consider it necessary to redirect the feed sampling programme from farms to mills. He understood that UKASTA members felt that personal contact with the officers who would be responsible for the sampling would be helpful, and would be ideal for discussing general risk reduction principles. 508

2.467 However, Dr Cawthorne said that Commission Decision 95/287/EC (see paragraph 2.471) would overtake them, since MAFF would soon be required to use the ELISA test for monitoring at mills, specifically those producing mixed species diets. He commented that the resource implications were enormous and that MAFF did not have the testing capacity to start immediately. The first step would be to obtain legal powers to sample. 509

2.468 Dr Cawthorne advised that MAFF still believed there was an urgent need to visit mills before statutory sampling commenced. He explained that MAFF hoped to make an initial approach to all mills by letter expressing its concerns. Dr Cawthorne therefore asked that UKASTA should help to identify the major
critical control points, and appended the list that Mr Fleetwood had formulated for UKASTA’s Technical Committee to discuss as soon as possible.\textsuperscript{510}

**Announcement of ‘tightening the rules on BSE’**

\textbf{2.469} On 19 July 1995 Mr Douglas Hogg, who had become Minister of Agriculture on 6 July 1995, announced by way of press release\textsuperscript{511} and Parliamentary Question that he would soon make the Specified Bovine Offal Order 1995.\textsuperscript{512} His Written Answer highlighted the BSE epidemic’s decline and noted:

The decline in the number of cases demonstrates that the ruminant feed ban, the key control measure, is proving successful in bringing the epidemic under control. It is estimated that the total number of cases is at least 150,000 fewer than would have occurred in the absence of the ban. 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.\textsuperscript{513}

\textbf{2.470} Mr Hogg’s answer then outlined the steps that had been taken to try to remedy the problem, and also explained how the Specified Bovine Offal Order 1995 would make it even harder for SBO to enter the animal food chain.\textsuperscript{514}

**Commission Decision 95/287/EC requires routine testing in mills**

\textbf{2.471} Commission Decision 95/287/EC was adopted on 18 July 1995. Article 1(1) required that:

\begin{quote}
Official Elisa tests for the identification of ruminant protein in feed intended for ruminants shall be carried out for routine monitoring, in particular in plants which produce feed for pigs and/or poultry as well as for ruminants.\textsuperscript{515}
\end{quote}

\textbf{2.472} In a statement to the Inquiry, Mr Meldrum noted that the Decision ‘overcame the problem of right of access to feedmills which had not been overcome in the meantime’.\textsuperscript{516}

\textbf{2.473} Dr Matthews indicated in a statement to the Inquiry that although the capacity for ELISA testing had been increased, routine monitoring required MAFF to allocate its resources efficiently:

\begin{quote}
. . . we gathered data from the industry in order to target mills that represented the greatest risk – those that were recognised as being associated with a disproportionate number of BAB cases (simply as suppliers of feed – we had no knowledge that any particular feed was contaminated), and those that produced ruminant diets as well as feed for pigs and poultry. That programme commenced in February 1996 and capacity was expanded by the
\end{quote}

\textsuperscript{510} YB95/7.11/6.2–6.3

\textsuperscript{511} YB95/7.19/6.1

\textsuperscript{512} L2 tab 13

\textsuperscript{513} YB95/7.19/11.6

\textsuperscript{514} YB95/7.19/11.1. See Chapter 4a and vol 6: Human Health, 1989–96 for detailed discussion of the Order

\textsuperscript{515} L4A tab 6

\textsuperscript{516} S184A Meldrum para. E145
end of 1996 to 18,000 and again by the end of 1997 to the current capacity of 24,000 test per year.  

**2.474** Before the Commission Decision was adopted, Dr Matthews had, on 17 July 1995, minuted Dr Cawthorne, Mr Meldrum, Mr Taylor, Mr Eddy and others to bring to their attention ‘the difficulties of implementing’ the Decision. He explained that although recent internal documents had been upbeat, he suspected there would be ‘real difficulties in organising sampling at mills before the [EC] mission visit at the end of next month, and we need to be ready for delays’. Dr Matthews described action planned before the Decision, which involved writing to every operator listed by the Pharmaceutical Society of Great Britain for inclusion of medication. This amounted to about 2,000 premises with an estimated 500 of those being manufacturers, the rest home-mixers. He continued:

> Because it is going to be impossible to visit all of the above, it is essential to target those that present the highest risk – the mixed species mill. These will be the subject of advisory visits. They should also be the prime target for sampling and testing of feed. We cannot cope with the workload involved in visiting all home mixers, but we should not forget them as a potential route of transmission... They are likely however to be responsible for fewer cases than are mills should cross contamination occur.

**2.475** Dr Matthews discussed the number of samples that would need to be collected for the results to be interpreted with confidence, before describing the testing limitations. Of primary importance was testing capacity. Luddington could process 50 samples per week. To increase this to 100 would require an additional two to three staff and to increase the capacity to 150 would require four to five staff. Another laboratory would be needed to increase the capacity further. Dr Matthews indicated that although problems with false positive results appeared to have been resolved, MAFF would have to be wary of the test’s integrity. He concluded that until visits to mixed species mills had taken place to quantify the size of the problem, and to identify needs and time-scales to resolve the problems, there was little point in increasing capacity.

**2.476** Dr Matthews’s minute was subsequently discussed by Mr Meldrum and Dr Cawthorne, who agreed that all voluntary testing should be replaced by official testing, with attention focused on mixed species feedmills. The aim should be to have the testing up and running by the end of August, when the Commission mission was due to visit. In a minute to Mr Meldrum, Dr Cawthorne estimated the required number of samples per year and reiterated the testing capacity difficulties. He concluded:

> Finally, there appear to be no legal powers under which we can enter mills and take samples for testing. We have discussed this matter with lawyers who say that the recent Decision agreed at the last SVC provides a basis for taking official samples but that this will need to be transposed into domestic legislation. We are therefore preparing instructions but again it is unlikely that these powers will be available to us by the end of August.
Despite our best intentions, it seems likely that circumstances will severely limit our ability to embark on a full and comprehensive programme of testing by the time the Commission arrive at the end of August. We will endeavour to have some sampling of mixed species mills under way by then and hopefully we should be able to present them with a draft SI as an indication of our intent. I hope you will find these arrangements acceptable in the circumstances.520

2.477 Mr Meldrum replied on 25 July 1995 that he was keen for the present ELISA testing capacity to be doubled. He also said that Dr Cawthorne would have to do his best to identify multi-species mills by the end of August so that he could explain the intended sampling system to the Commission mission. Mr Meldrum expressed concern that the Legal Department would not have a new Order finalised by then, and asked Dr Cawthorne to query whether an Order could be signed before the visit took place.521

2.478 Mr Eddy received a copy of Mr Meldrum’s minute and replied on the same day. He commented:

I think we all recognise the desirability of making this Order quickly but I do want to make sure that we are clear precisely what we want to do so that we can be sure that the legal powers are all provided. I do not want to be in the position we often find ourselves in, that we think we have got the powers to do something and when it comes to the crunch, Legal Department turn around and say we haven’t.522

MAFF advises UKASTA on the implications of Commission Decision 95/287/EC and seeks assistance

2.479 On 21 July 1995 Dr Cawthorne advised Miss Nelson that Mr Meldrum had asked that the ELISA testing in mills required by Commission Decision 95/287/EC should begin as soon as possible. Dr Cawthorne explained that it had been MAFF’s intention to write to feed manufacturers in August, drawing their attention to cross-contamination and asking those who produced mixed species feeds to identify themselves to MAFF so that they could be targeted for advice and testing. This was now unlikely to be achieved by the end of August 1995, so Dr Cawthorne asked whether UKASTA could assist MAFF in identifying mixed species mills that would be willing to have their products tested.523

2.480 Mr Reed replied in Miss Nelson’s absence on 31 July 1995. He advised that UKASTA did not have the information that MAFF sought and added:

Before [seeking the information], I think it would be right to get through the discussions planned for 7 August and see what comes of them, as we would need to reassure our members not only as to the efficacy of the ELISA test but also on the purpose of the inspection and testing programme. In particular, our scientific experts still remain to be convinced that the ELISA test has been fully validated and risks of false positives eliminated.524
2.481 Mr Reed also sought to clarify assertions that BABs were caused by SBO-contaminated feed. In particular, he referred to Mr Meldrum’s statement on ‘Farming Today’ on 20 July 1995 that ‘We know there has been cross-contamination in feedmills’. Mr Reed argued that:

So far as we in UKASTA are aware, there is no evidence as a result of the on-farm testing programme that ruminant protein has been included in ruminant feed. How then can anyone know that there is a risk of cross-contamination involving ruminant protein at the feed mill?525

2.482 He explained that the media had questioned UKASTA about the results of the tests and what they might imply about cross-contamination in feedmills. UKASTA dealt with these by saying that they were not aware of any hard evidence, but were cooperating in the development of the testing programme to help give ‘the best possible assurance at every level that ruminant protein cannot stray into ruminant feed’. Mr Reed suggested that ‘This line will not be easy to sustain for long, so it would help to know whether MAFF views are dictated by hard evidence or by supposition’.526

MAFF meets with UKASTA to discuss cross-contamination in mills

2.483 On 7 August 1995 UKASTA representatives met Mr K Taylor, Miss Mary Coales,527 Dr Matthews, Mr Fleetwood and Mr Prince. Mr Reed expressed his displeasure at MAFF’s recent public announcements on SBO. The note of the meeting records that he was ‘anxious not to have any more nasty surprises from MAFF’. UKASTA had only discovered Mr Hogg’s statement on SBO of 19 July 1995 from a journalist. Further, during a ‘Farming Today’ interview Mr Meldrum had said that he ‘knew’ cross-contamination was occurring in feedmills. Mr Reed said that UKASTA should be informed of any evidence. Mr Taylor sought to reassure UKASTA by ‘emphasising the difficulty of managing announcements of this kind, and explaining the background to the need for tightening up on any possible small amounts of cross contamination in the feed chain’.528 UKASTA’s note of the meeting records that:

MAFF advised that there was epidemiological proof rather than hard evidence that cross contamination took place at a particular mill on a particular day. There was also both published and unpublished research work which concluded that there was no other significant means of transmission of BSE than the feed route. The evidence for potential cross-contamination had been identified in the following areas:-

(a) residues of meat and bone meal at the intake point which were subsequently flushed into a bin for which they were not destined;

(b) the use of unidentified reworks.529

---

525 YB95/7.31/4.1
526 YB95/7.31/4.2
527 Temporary Head of Branch C (BSE Issues) of the Animal Health (Disease Control) Division. Dr Render succeeded Miss Coales
528 YB95/8.7/4.1
529 YB95/8.7/5.1–5.2
2.484 MAFF explained their understanding of dose which had been obtained from the attack rate experiment:

   It was now public knowledge that the dose of infected material needed to transmit the disease was relatively small. MAFF advised that, from unpublished results of an incomplete experiment, it had been shown that BSE had developed in animals fed 10g of infected tissue. It was more questionable as to whether a dose of 1g would cause the disease.530

2.485 UKASTA was informed that case control studies carried out to date were of little value in explaining feedstuff’s role in the transmission of BSE. A study, anticipated to commence after 1 April 1996, was being planned using herds that had BABs compared with those that did not.531

2.486 Discussion turned to the proposed monitoring programme in feedmills. UKASTA had sent a draft protocol to Mr Howard on 8 February 1995, but it was agreed that a small working group should be established to develop a sampling protocol that satisfied the requirements of Commission Decision 95/287/EC. MAFF ‘stressed the importance of being seen to be implementing the EC Decision by the time of the Commission’s visit on 28 August’.532 UKASTA’s note of the meeting records that:

   [W]ith particular reference to the ELISA technique, MAFF intended to take powers to check anywhere in the chain. The premises to be visited would include both farms and commercial mills as well as distributors of feedingstuffs (both premises and delivery vehicles).533

2.487 UKASTA reiterated their concern that ‘false positives’ could give a misleading message to the public, and their fear that there could be claims from farmers if testing showed that there was cross-contamination in mills. It was also suggested that fault could lie with farmers who allowed animals access to feed intended for other species. MAFF agreed to cover this point in a letter to home-mixers.534

A letter is sent to manufacturers and mixers of animal feedstuffs

2.488 On the day after the meeting Dr Matthews sent a fax to all DVOs in England, Wales and Scotland, instructing them that on-farm sampling was to be reinstated immediately. Sampling had been suspended in April due to a backlog at Luddington (see paragraph 2.427).535

2.489 Also on 8 August 1995 a draft letter that MAFF intended to send to manufacturers and mixers of feedstuffs was forwarded to Mr Reed.536 Following the receipt of his comments on the next day,537 the final version of the letter was distributed in Mr K Taylor’s name on 10 August 1995. It set out relevant background information and stated:

530 YB95/8/7/5.2
531 YB95/8/7/5.2
532 YB95/8/7/4.1
533 YB95/8/7/3
534 YB95/8/7/4.2
535 YB95/08.08/7.1
536 YB95/8/8/3.1
537 YB95/8/9/3.1
We would now like your help in ‘fine-tuning’ the controls at the feedingstuffs end of the chain. If you are manufacturing or mixing feedingstuffs for farm animal species, you may well be making use of mammalian protein, for example meat and bone meal, either on its own, or as part of a protein balancer, for the preparation of feedingstuffs for pigs and poultry. If you also make feedingstuffs for ruminants, we would ask you to make careful checks so as to ensure that feedingstuffs for ruminants do not become inadvertently contaminated with mammalian protein or substances containing that protein. I attach a list of examples of where such contamination could occur. Farmers are particularly asked to make sure that cattle do not have access to feed which is intended for pigs or poultry, and which may contain mammalian protein, and that feed for pigs and poultry is stored separately from ruminant feeds at all times.538

2.490 The attached list of examples of points at which cross-contamination might occur read:

*Receipt and handling of raw materials*

- Cross contamination in vehicles delivering raw materials
- Common unloading area/intake pit (for example cereals or vegetable proteins contaminated by meat and bone meal or protein concentrate remaining in reception hopper)

*Preparation of feedingstuffs*

- Share conveyors in a feed mill
- Equipment shared between the preparation of different rations – in particular mixers, grinders, pelleting presses, conditioners and coolers
- Reworking of faulty material and spillages
- Use of an inappropriate ingredient (e.g. a protein balancer containing meat and bone meal in a cattle ration.)
- Failure to clean shared equipment between the production of say poultry feed and a following batch of cattle feed.

*Storage of feedingstuffs*

- Use of the same bulk storage for different rations at different times
- Cross contamination in vehicles delivering final feed
- Access by ruminants to feed prepared for a different species

*Use of feedstuffs*

- Use of feed intended for pigs and poultry in cattle or sheep ration, either on a regular basis or in an emergency. This includes protein balancers that may contain meat and bone meal. If unsure, play safe, and do not feed to cattle or sheep.539
2.491 The letter concluded by asking those who produced feed for ruminants and pigs and poultry to contact their local DVO, so that they could be prioritised in the forthcoming programme of visits.\textsuperscript{540}

**UKASTA and MAFF meet to discuss implementation of Commission Decision 95/287/EC**

2.492 As decided during their 7 August 1995 meeting, UKASTA met Mr Fleetwood and Mr Wilesmith on 11 August 1995 to discuss the implementation of Commission Decision 95/287/EC. UKASTA stated that legislation to implement the Decision’s requirements should apply to all stages of the production process, from slaughterhouses through to commercial compounders and home-mixers. It argued that too narrow a focus, on the compound feed industry alone, would indicate a lack of adequate control and would not be as effective in plugging gaps in the system. A letter formally expressing this view was sent by Miss Nelson to Miss Coales on 24 August 1995.\textsuperscript{541} During the meeting MAFF advised that its understanding was that legislation was required to secure powers of entry throughout the chain.\textsuperscript{542}

2.493 UKASTA sought to clarify the meaning of ‘routine monitoring’ as used in the Commission Decision. MAFF considered that the objectives were to find holes in the system and to ensure continued compliance with statutory requirements. MAFF was working on the development of a structured sampling system to replace existing random sampling on farms. Its suggested sampling programme was:

- monogastric mill only – no samples to be taken;
- ruminant mills only – lower levels of sampling;
- multi species mills – sampling frequency to depend on production facilities at each individual site and whether meat and bone was used.\textsuperscript{543}

2.494 The draft protocol, ‘Monitoring of ruminant feeds for the presence of mammalian meat and bone meal’, which UKASTA had prepared at the beginning of the year, was discussed. It was agreed that it should be redrafted and used as guidance for sampling under the new legislation.\textsuperscript{544}

**Further steps to implement the mandatory sampling regime**

2.495 On 18 August 1995 Mr K Taylor forwarded a draft Animal Health Circular (AHC) to Mr Meldrum for comment. The AHC advised DVOs on the changes that were to take place in the sampling regime. In his covering minute, Mr Taylor noted that the Legal Department had yet to decide ‘how powers to sample should be taken’, and had not drafted any legislation. Voluntary on-farm sampling had therefore been re-instituted as a temporary measure, and it was intended to move towards mandatory sampling ‘in a series of steps’. Mr Taylor told Mr Meldrum that he had written to over 3,000 mills registered with the Royal Pharmaceutical Society.
We have been advised that there is no point in testing more than 4,600 samples a year – perhaps less: it depends on the number of multispecies mills, and we do not yet have that information. It was originally envisaged that 18,000 or so samples would be taken annually, but it is clear that increasing the number of samples would make little difference to the confidence level for detecting a 0.1% contamination rate.\footnote{YB95/8.18/1.1}

2.496 The draft AHC recounted the evidence that had led to Commission Decision 95/287/EC:

- The continued absence of epidemiological and experimental evidence that maternal and horizontal transmission are playing a significant part in the epidemic:
- The experimental evidence, albeit incomplete, that oral challenge with a very small amount of bovine brain from a confirmed case of BSE will cause clinical disease in cattle:
- The epidemiological evidence that there appears to be a correlation between the size of pig and poultry populations in a region, relative to that of cattle, and the incidence of disease in BABs. This does not appear to be a direct correlation with pigs and poultry kept on the same farm as suspects, but is considered to be associated with the fact that some feedmills will be producing feed for pigs, poultry and ruminants on the same premises. If the former contain meat and bone meal, there is a risk of cross contamination within the mill:
- The evidence from some visits to mills generated by the on-farm sampling of feed suggests that there is real potential for cross contamination in many mills:
- The evidence from the recent audit of SBO controls in abattoirs that historically at least there has been a small, but real, continuing animal health risk because some SBOs have not been handled properly and may have contributed to meat and bone meal used in monogastric diets.\footnote{YB95/8.18/1.2–1.3}

2.497 It summarised:

The conclusions drawn from the evidence above is that the potential dose of bovine brain needed to infect a calf is ‘small’. It is difficult to translate that into quantities of meat and bone meal, but investigations so far have indicated that there is continued potential in some plants for accidental cross contamination of raw materials and finished feed. This does not take into account the possibility for deliberate inclusion of ruminant protein or for raw materials not to be composed of the ingredients specified by the suppliers, or the accidental feeding of diets intended for monogastric animals to ruminants.\footnote{YB95/8.18/1.3}
DVOs were advised that they should be contacted by mills following their receipt of the letter sent on 10 August 1995. They were instructed that visits should be arranged to explain MAFFs intentions regarding the mandatory sampling regime, which was soon to be implemented.\textsuperscript{548}

Also on 18 August 1995 Miss Coales informed various MAFF officials that the Legal Department ‘have confirmed their view that we already have the required powers to do sampling at all points of the feed chain’. A statutory instrument was not required to implement the mandatory sampling regime.\textsuperscript{549}

It was believed that section 64A of the Animal Health Act 1981 conferred the necessary powers. It provided that:

\begin{quote}
[A]n inspector (on producing, if required to do so, some duly authenticated document showing his authority) may at all reasonable hours–

(a) enter–

(i) any land, building, or other place, or

(ii) any vessel, boat, aircraft, hovercraft or vehicle of any other description, for the purpose of ascertaining whether the provisions of any order made under this Act in implementation of any community obligation have been or are being complied with, and

(b) carry out such inspections (including inspection of documents) as may be necessary for that purpose.\textsuperscript{550}
\end{quote}

Community Decision 94/381/EC provided that ‘Member States shall prohibit the feeding of protein derived from mammalian tissues to ruminant species’.\textsuperscript{551} As described in paragraphs 2.368–2.369, article 4(4) of the Spongiform Encephalopathy (Miscellaneous Amendments) Order 1994 implemented this Decision by amending article 12 of the Bovine Spongiform Encephalopathy Order 1991.

The Legal Department was satisfied that ‘inspections’ under section 64A of the Animal Health Act included regular sampling and testing of feedstuffs. Decision 94/381/EC did not specify that the supply of feedstuffs, in which a person knew or suspected that mammalian protein has been incorporated, was to be prohibited. However, the Legal Department thought that the prohibition on sale and supply, as contained in article 12 of the Bovine Spongiform Encephalopathy Order 1991, ‘is inextricably linked to the prohibition on feeding’. Therefore, the Legal Department advised that:

\begin{quote}
. . . it is justifiable to rely on Section 64A as a power to enter, take samples and test for the purpose of ascertaining whether the prohibitions in Article 12(a) and (b) of the BSE Order are being complied with. This results in inspectors having the power to enter effectively anywhere and to sample
\end{quote}
and test to ascertain whether any feedingstuff which contains mammalian protein is being fed to ruminants or being sold or supplied for feeding to ruminants.\textsuperscript{552}

2.503 On 23 August 1995 Mr Crawford informed Miss Coales that he had discussed the matter with Mr K Taylor, and that it was agreed that the SVS would accept the task of sampling. He confirmed that the work was accepted ‘on the basis that it has a high priority’.\textsuperscript{553}

2.504 The finalised Animal Health Circular 95/133 was issued on 1 September 1995.\textsuperscript{554} As noted by Miss Coales in a letter to Miss Nelson on 8 September 1995, the AHC initiated ‘essentially an information-gathering exercise to enable the sampling plan to be drawn up’. DVOs were required to submit all required information on feedmills in their area to headquarters by 13 October 1995.\textsuperscript{555}

2.505 Miss Coales also advised Miss Nelson that MAFF now considered that it did not need a statutory instrument to establish powers for a mandatory sampling regime. She also noted that they had the powers that UKASTA considered important, namely the powers of entry and testing throughout the whole supply chain.\textsuperscript{556}

**Suspect 1992 BABs are confirmed**

2.506 On 24 August 1995 Dr Matthews informed Mr Meldrum that he was about to confirm two further BSE cases with dates of birth in 1992, which would bring the total confirmed 1992 BABs to three (the first was confirmed on 8 June 1995). There were now 21,475 confirmed BABs overall.\textsuperscript{557}

2.507 Mr Meldrum passed this information on to Mr Hogg, Mrs Browning, Mr Packer and others on the next day. He commented that ‘neither are exceptional’ and that ‘more are bound to follow in due course’. He added that the cases presented no new issues and advised against taking specific action to publicise them.\textsuperscript{558}

**Mr Meldrum raises the possibility of banning MBM in all mammalian rations**

2.508 In a statement to the Inquiry, Mr Meldrum said that during autumn 1995 Mr Hogg raised with him the issue of the effectiveness of the ruminant feed ban. Mr Hogg inquired whether any further steps should be taken ‘to close off the leakage of meat and bone meal into ruminant rations through cross-contamination in feedmills, which appeared to have caused so many of the cases of BSE born after the feed ban of 1988’.\textsuperscript{559}

2.509 Mr Meldrum explained in his evidence that he could not find a written record of the discussion, probably because he asked that his comments not be recorded, as some might perceive them as ‘alarmist’. Mr Meldrum recalled that Mr Hogg...
asked ‘whether it would be prudent to require that all cattle rations were compounded in mills dedicated to the ruminant species only’. Mr Meldrum advised that SEAC was due to consider the issue, but from a ‘personal viewpoint’ suggested that ‘it was possible that the wisest course of action might be to ban the use of meat and bone meal in all mammalian rations’, although the views of SEAC should be awaited. In the event, SEAC appeared content with the action being taken to tighten up the SBO ban.560

2.510 On 8 September 1995 SEAC was briefed on the new SBO controls implemented by the Specified Bovine Offal Order 1995. SEAC concluded ‘that there may have been some leakage of SBOs into animal feed, prior to the new 1995 SBO Order and the revised surveillance programme’. However, it expected ‘a decline in the number of new BSE cases born after the 1995 SBO Order’.561

2.511 SEAC discussed the implementation of Commission Decision 95/287/EC. Dr Matthews had provided a progress report for this purpose. Under the voluntary sampling regime, 1,260 samples had been received, with three returning positive results. Those samples had been tested before the cross-reactions with some plant proteins had been identified.562

2.512 Dr Matthews’s paper advised that before a statutory sampling programme could commence, it was necessary to:

a) agree on action subsequent to a positive result, bearing in mind the doubts that still exist surrounding the validity of the test;

b) identify the plants to sample;

c) calculate the number of samples to be collected on a regular basis to provide sufficient guarantee that deliberate inclusion or cross-contamination are not taking place;

d) scale up the testing capacity at Luddington VIC;

e) put in place sampling arrangements by the Veterinary Field Service.563

2.513 The paper outlined the steps that had been taken so far to implement the sampling regime. It also identified cross-contamination of feed whilst in transit and on farm as additional risk areas that required action. The paper advised that the former was being addressed by communication with haulage companies, ‘although attempts to police this area of concern will be fraught with difficulty’. An advisory leaflet to be issued to farmers would deal with the latter area.564

2.514 During the meeting, it was agreed that MAFF would present at SEAC’s next meeting a progress report on the sampling strategy that it was developing.565
Observations of the EC mission to inspect BSE control measures

2.515 The EC mission to Great Britain was conducted between 28 August and 1 September 1995. On 13 September 1995 Mr Taylor distributed among MAFF officials his note of Dr Cavitte’s, the EC mission’s leader’s, oral report to the Standing Veterinary Committee (SVC). Dr Cavitte was presenting the team’s observations and told the SVC that conclusions had not yet been drawn. Mr Taylor recorded the observations on MBM as:

Steps taken to inform users of risk or low-level contamination.
Plants taking precautions.
Anti-microbial code of practice may be extended to cover SBO.
No requirement to identify constituents on bags or labels.
Tests developed to identify SBO stain (chromatography) and protein constituents in feed (ELISA test).
Samples for ELISA test collected only on farm so far.
Main producers concerned by risk of litigation so very willing to carry out audits to ensure compliance.

2.516 The EC mission’s final report was presented to the Standing Veterinary Committee on 4 October 1995. Under the section entitled, ‘Observations’, on the use of MBM it said:

Contamination of ruminant feed with meat and bone meal containing mammalian protein, and possibly SBOs, is the most likely source of the infection for the case of BSE in animals born after the feed ban (18/7/88); recent evidence suggests that less material is needed to infect cattle by the oral route than had previously been considered.

The UK has taken steps to inform feed producers of the potential risks of even low levels of contamination of ruminant feeds with mammalian protein; the operators of the plant visited had taken the necessary precautions. A Code of Practice is being developed by the industry to avoid contamination with antimicrobials; this could be extended to cover mammalian protein also.

There is no requirement to identify constituent species on bags of MBM or feed; there are no labels either on MBM or on the finished feed to indicate that it contains ruminant or mammalian protein, and should not be used for ruminant feed.

Tests have been developed to identify the presence of the new SBO dye and the species of the constituent protein. The ELISA test for the species-specific protein has until now been used only on farms which have had cases born after the feed ban, due to the fact that testing capacity is to date limited.
The main producers are very concerned about possible litigation, and are more than willing to carry out tests and audits to ensure that the products they sell are safe and in compliance with the law.\textsuperscript{567}

\textbf{2.517} In its conclusions, the report said:

The risk of contamination in feedmills has been reduced, but official action must be continued to ensure that all operators take the necessary action, and not just the major companies. The tests should be made more available to the industry as soon as possible. Clear information must be given to the farmer to indicate that MBM and feeds containing mammalian proteins must not be fed to ruminants. Labelling of bags could be considered, but a way of providing the same warning for bulk material must also be developed; this could be done at EC level.\textsuperscript{568}

\textbf{A 1993 BAB is found}

\textbf{2.518} On 3 October 1995 Mr K Taylor minuted Mr Meldrum about a case of BSE in an animal born in June 1993. He noted that there was no suspicion of maternal or horizontal transmission, but that feed tracing could not be initiated until the case was confirmed. He stated that the ‘only surprising feature of the case is that the animal was born some 15 months after what has been, until now, the latest birthdate of a confirmed case’.\textsuperscript{569}

\textbf{2.519} Mr Meldrum responded that before going further, he would like a documentary audit on the animal to be undertaken, to ensure that its identity had not been confused. He also asked that confirmation be delayed until the audit was complete.\textsuperscript{570}

\textbf{2.520} On 10 October 1995 Dr Matthews advised Mr Meldrum that the audit had been completed and that ‘the identification of the suspect and positive diagnosis remain unchanged’. Mr Meldrum therefore advised that confirmation could proceed.\textsuperscript{571}

\textbf{2.521} Mr Meldrum informed Mrs Browning and Mr Hogg on 20 October 1995 that the 1993-born case was about to be confirmed. He recommended that the case be publicised by a Parliamentary Question and that the European Commission and the German Government be informed, as had been done for the first 1992-born case. Mr Meldrum confirmed that maternal and horizontal transmission were highly unlikely for the 1993 case and said:

\begin{quote}
The fact that BSE occurs in an animal born in 1993 is not surprising, indeed we have said all along that we expected born after the ban cases (BABs) in animals from later years than 1992. It can readily be explained by our current thinking on the causes of BABs and no further action is needed in response to this case. The leakage out of our BSE control system and through our
\end{quote}

\textsuperscript{567} ‘Report of an EC Mission to the United Kingdom to Assess the Implementation of EC and National Rules in Relation to Bovine Spongiform Encephalopathy’, M27 tab 5 p. 6
\textsuperscript{568} M27 tab 5 p. 7
\textsuperscript{569} YB95/10.03/2.1
\textsuperscript{570} YB95/10.03/2.1
\textsuperscript{571} YB95/10.10/5.1
feedmills is thought to have continued beyond 1992, and so cases born in 1993 and later years can be expected.\footnote{YB95/10.20/3.2}

### MAFF Ministers’ meeting on BSE

#### 2.522
On 30 October 1995 Mr Hogg, Mrs Browning, Mr Packer, Mr Haddon, Mr Meldrum, Dr Cawthorne, Dr Matthews, Dr Render\footnote{Head of Branch B (BSE Issues) of Animal Health (Disease Control) Division. Prior to September 1995, PS/Minister} and other MAFF officials met to discuss BSE. Mr Meldrum explained that MAFF was facing difficulties in two areas. Inadequate separation and staining in slaughterhouses was a concern, and in feedmills ‘there appeared to be some cross contamination from feed for pigs and poultry’. He described the steps that were being taken to counter these problems, which for feedmills involved improved testing for cross-contamination based on unannounced sampling.\footnote{YB95/11.1/1.1}

#### 2.523
Mr Hogg noted that concern about feedmills was only relevant if there was leakage of SBOs into MBM. He asked whether it was possible that there was some other source of contamination, to which Mr Meldrum responded that extensive testing had shown that only a limited number of infective cattle tissues existed.\footnote{YB95/11.1/1.1–1.2}

#### 2.524
Mr Meldrum explained the practical difficulties in setting up separate production lines for ruminant and non-ruminant feed in feedmills. Mr Hogg agreed that it would not be feasible to require feedmills to establish separate lines, though he noted some larger companies had already moved in that direction. Mr Meldrum advised that a submission on action in this area would be forthcoming and that MAFF would soon be introducing the compulsory sampling regime.\footnote{YB95/11.1/1.2}

#### 2.525
On 3 November 1995 Dr Render provided Mr Hogg with briefing material in preparation for his forthcoming meeting with Dr Kenneth Calman, the Chief Medical Officer. Dr Render advised that Dr Calman was concerned about BABs and noted:

[BABs] are indicative of BSE infected material entering the animal feed chain, ie, of SBOs entering the animal feed chain. In addition to the steps to tighten controls on SBOs, we introduced controls in rendering plants over the summer which require SBO and non-SBO offals to be rendered in separate, dedicated processing lines. This should prevent cross-contamination at that point in the chain. We will also be introducing testing at feedmills, hopefully by the end of the month, to check for cross-contamination at that point. Our sampling regime is designed to detect 0.1% cross contamination 99.9% of the time, a very high degree of confidence.\footnote{YB95/11.3/2.1–2.2}

#### 2.526
The meeting between Mr Hogg and Dr Calman took place on 7 November 1995. Dr Calman aired his various concerns about BSE controls, which Mr Hogg sought to allay by referring to the new SBO controls in slaughterhouses. The note of the meeting records:
Dr Calman said that we appeared in the past not to have tackled adequately problems in slaughterhouses and feedmills. He implied that, if he were pressed on the point, he would say that the processes in place now were satisfactory but those in the past had not been.

Draft revised Advisory Note for farmers

On 23 November 1995 a draft revised Advisory Note for farmers was put to SEAC for comment. The draft note included a section entitled, ‘The Feed Ban’, which stated that contaminated feed was the route by which BSE was transmitted and that the ruminant feed ban had worked well to reduce BSE’s incidence. However, it noted that the existence of BABs indicated the ban had not been completely effective. It set out ‘seven key points to remember’ to help ensure that contaminated MBM was not fed to cattle:

- Don’t include meat and bone meal in cattle feed.
- Don’t feed food intended for pigs or poultry to cattle – it may contain meat and bone meal. Even poultry litter may contain unused feed. Cattle should, therefore, not have access to poultry litter, either as bedding or if spread on pasture as fertilizer.
- Do store cattle feed separately from feed intended for pigs and poultry.
- Do clean out buckets, trucks, and skips or any other containers that may have carried pig or poultry feed, or meat and bone meal, before they are used to carry cattle feed.
- Do flush milling equipment before you mix cattle rations, especially if you also mix feed for pigs and poultry which contains meat and bone meal or protein supplements.
- Do clean out storage areas before you fill them with fresh feed – they could harbour old feed stocks. This applies to finished feed or raw materials. Silos pose a particular risk and should be completely emptied and cleaned at least once before refilling. Any residual material which may contain meat and bone meal should be burned or buried.
- Do check that vehicles delivering cattle feed do not also contain meat and bone meal, pig nuts or poultry feed. Cattle feed may become contaminated during transport and the fault may lie with the haulier rather than the compounders. If in doubt contact your supplier.

SEAC suggested a number of improvements to the note, including ‘more and clearer advice on risks with feed’ and ‘more advice on thorough cleaning of feed areas including milking parlour feed bins’.

Mandatory sampling regime nears finalisation

Meanwhile, on 15 November 1995 Dr Matthews forwarded to Mr Crawford a draft AHC, designed formally to implement the requirements of Commission...
Decision 95/287/EC. The draft AHC noted that following the issue of the letter to feedmills (see paragraph 2.489) and AHC 95/133 (see paragraph 2.504), ‘Veterinary staff have subsequently contacted mills and/or visited mills that have been identified as producing ruminant and monogastric rations’.581

2.530 A total of 153 mills had been identified as primary targets for sampling because they were producing ruminant and monogastric rations. Sampling frequency was to be based on turnover, so larger mills would be visited more often than smaller mills. It was envisaged that most mills would be subjected to monthly visits. Visits were to be unannounced and a sampling protocol was attached to the draft AHC. On-farm sampling was to cease unless there were grounds for suspecting that feed available on the farm, intended for feeding to ruminants, contained mammalian protein.582

2.531 On 20 November 1995 Mr Crawford informed Dr Matthews that he agreed with the draft AHC’s proposals.583

2.532 On 1 December 1995 Dr Matthews forwarded the draft AHC to Miss Nelson, seeking UKASTA’s Scientific Committee’s views on the practical issues raised. He noted a few aspects that UKASTA might be disappointed with and said:

You will no doubt be concerned about the lack of detail when it comes to intended action in the event of positive results. This is partly because of the need for legal opinion on the options open to us, but primarily because in many, if not most, mills we are going to be visited so frequently that further samples will have already been submitted before results are available. Under the circumstances the onus will rest with the company concerned to be seen to review processes and procedures, if necessary with submission of private samples, to reassure themselves that they have done all that they need within their duty of care to satisfy themselves, MAFF and customers.584

2.533 Dr Matthews recognised that MAFF should police the ban on farm. He advised that MAFF had drafted a leaflet for farmers, ‘which will give priority to actions that they can take on farm to play their part in breaking this cycle’. He continued:

One aspect of the advice that will impinge on your members is that we have clearly warned farmers to ensure that feed delivered to their farm is exactly as ordered (uncontaminated), and that they should return product to source rather than run the risk of exposing their ruminants to meat and bone meal. We are still concerned about the extent to which this loophole may be undermining any efforts your members may make within the mill.585

2.534 On 8 December 1995 Mr Meldrum provided Mr Hogg with a note that addressed the issue of cross-contamination in protein processing plants and feedmills. Mr Hogg was advised that:

581 YB95/11.15/5.4
582 YB95/11.15/5.4 and 5.6
583 YB95/11.20/4.1
584 YB95/12.1/1.2
585 YB95/12.1/1.2
We are aware from our enquiries at feedmills that cross contamination can take place at rates up to about five per cent. In addition we know from our epidemiological investigations that born after the ban cases are more frequently associated with areas where multi-species feedmills are commonplace and where, therefore, we believe that cross contamination is a greater risk.586

2.535 Mr Meldrum briefly outlined the proposed mandatory sampling regime and recommended against introducing legislation that would require cattle feed to be produced in a dedicated mixing line. This was ‘because of the various steps that are now in place to prevent infectivity entering meat and bone meal and the measures that we have in hand to further reduce the risk of cross contamination in feedmills’.587

Further work on ELISA test required

2.536 Mr Ansfield advised Dr Matthews that further work was required on the ELISA test. He was concerned that the non-ruminant control used for the test was put in place specifically for examining meat and bone meal samples, not compound feed samples. Mr Ansfield set out a course of action to establish a non-ruminant control for compound feeds.588

2.537 Dr Matthews agreed with Mr Ansfield and sought Mr Taylor’s endorsement.589 Mr Taylor responded, ‘Like you, I have been concerned that the ELISA is being used in circumstances which are different from those under which it was validated’. He therefore supported the work proposed by Mr Ansfield.590

2.538 Mr Meldrum received a copy of Mr Taylor’s minute and in a statement to the Inquiry explained that:

[T]his was not the first time that this problem had been raised since as far back as January 1991 an earlier version of this test had been validated against samples of compound rations rather than pure rendered material, although since then the sensitivity of the ELISA test had been refined which gave rise to the need for further validation.591

2.539 On 18 January 1996 Dr Matthews informed Mr Prince that ‘we are happy for you to re-evaluate your test on the basis of adjusting your controls so that they more appropriately reflect testing of compound feed’. However, there was concern about ‘the potential to move the goal posts at this stage’, and therefore it was suggested that any refinement of the test should not be put in place for surveillance purposes ‘until the consequences have been fully considered’.592

586 YB95/12.6/4.4. The ELISA test would detect a 1 in 400 (0.25 per cent) inclusion of MBM in compound feed. This meant a 5 per cent carry-over of feed with 5 per cent inclusion of MBM would be necessary for this threshold to be reached – see Mr Robertson’s minute to Mr Meldrum on 3 October 1994 at paragraphs 2.346–2.348 above (YB94/10.3/9.2–9.3)
587 YB95/12.6/4.4
588 YB95/12.22/6.1
589 YB95/12.22/6.1
590 YB96/01.03/3.1
591 S184A Meldrum para. E153
592 YB96/01.18/12.1
Development in 1996 – the mandatory sampling regime is implemented

Routine testing at feedmills commences

2.540 Animal Health Circular 96/5, which instructed SVS staff on measures to implement the mandatory sampling regime, was issued on 16 January 1996.\(^\text{593}\)

2.541 On 23 January 1996 Miss Nelson wrote to Dr Matthews to ask if it would be possible for MAFF to advise farmers of the need to label their feed bins. She commented that this would ‘help minimise the risk of feedingstuffs going into the wrong bins on farm’.\(^\text{594}\)

2.542 Two days later Dr Matthews assured Miss Nelson that UKASTA’s suggestion would be taken on board. He explained that due to other events, the draft leaflet to be issued to farmers had slipped in priority, ‘but with any luck it should reach the top of the pile again in the next couple of weeks’.\(^\text{595}\)

2.543 In his letter Dr Matthews enclosed AHC 96/5 and explained that he hoped to notify company head offices of any positive results before the mill itself was notified, as he could not cope with notifying all results to headquarters first. He suggested that ‘If we start sampling in the week starting 5 February I don’t expect to have any results to issue until probably the last week of February’.\(^\text{596}\)

2.544 On 29 February 1996 UKASTA advised its members via Feed Circular 699 that:

The statutory monitoring of feedmills to test for the inclusion of ruminant protein in ruminant feedingstuffs commenced earlier this month. The samples of ruminant feedingstuffs are being analysed by the ELISA technique. MAFF is to advise the person, nominated by his/her company, in the individual mills of the results of the analysis.\(^\text{597}\)

Progress on Advisory Note to farmers

2.545 Meanwhile, the draft revised Advisory Note for farmers was submitted to Mrs Browning on 6 February 1996. Dr Render’s covering minute noted that:

The Parliamentary Secretary will recall . . . three important areas which needed to be addressed if we were to eliminate BSE. All related to avoiding the contamination of cattle feed with potentially infectious material; first, by ensuring rigorous controls on SBOs in slaughterhouses and rendering plants, secondly by avoiding cross contamination in feedmills and thirdly by avoiding cross contamination of feed on farms. The first of these points has been addressed by increased controls and SVS surveillance in slaughterhouses and rendering plants. The second element is being
addressed through our surveillance regime in feedmills . . . This advisory note to farmers addresses the third element. 598

2.546 Dr Render explained that it was hoped that if farmers followed the guidance, the risk of cross-contamination on farm would be reduced ‘to an absolute minimum’. He also advised that SEAC had endorsed ‘its message on best practice for the handling of feed on farms’ and ‘emphasised the need for the design of the leaflet to highlight the importance of the message on feed handling’. It was proposed that the leaflet be issued to all farmers in England and Wales by mailshot. 599

2.547 Since SEAC’s consideration of the draft note (see paragraphs 2.527–2.528), the heading ‘The Feed Ban’ had been changed to ‘How to avoid BSE’. The paragraph introducing the ‘seven key points to remember’ read:

Contaminated feed has been identified as the route by which BSE is transmitted. There is no evidence that the disease can be transmitted by other means, such as from cow to cow or cow to calf. The ruminant feed ban, introduced in July 1988, has worked well and the incidence of BSE is not falling rapidly. Unfortunately, there continue to be a number of cases of BSE in cattle born after the feed ban, suggesting that it has not been completely effective. There are a number of simple steps which you can take now to eliminate this risk. 600

2.548 Dr Render was informed the next day that Mrs Browning was content with the draft Advisory Note, subject to the inclusion of a paragraph on the consequences of not complying with the rules, pointing out that it was in the industry’s best interests to comply. 601

2.549 It appears that the Advisory Note was overtaken by subsequent events and were not issued until September 1996. By this time, the mammalian meat and bone meal ban had been implemented (see paragraphs 2.554–2.557), so the section on avoidance of cross-contamination of feed on farm was not included in the Advisory Note. 602

First round of results from ELISA testing in feedmills

2.550 On 1 March 1996 Mr Eddy briefed Mr Hogg on the first round of results from the testing of ruminant feed for mammalian protein. Out of 54 samples from 25 mills, three had tested positive for porcine material, each from separate mills. Each mill produced pig and poultry rations and did not have separate lines for their ruminant feed production. MAFF did not intend to prosecute. Instead, the companies involved would be informed and further samples would be taken to ensure they investigated and remedied the source of cross-contamination. Mr Eddy concluded:

The other issue which arises is the question of informing Parliament. These are preliminary results from the first set of samples in the testing regime and
although we clearly need to provide this information at the right time I would recommend that we did not put the information forward in response to an inspired PQ until we have completed a more representative amount of testing. That would point to an inspired PQ in late March. The alternative would be to include the test results in the May Progress Report to Parliament. Although we clearly should mention this in that report we could be open to criticism if we did not make the results known before then in an inspired PQ.603

2.551 On 5 March 1996 the private secretary to Mrs Browning minuted Mr Hogg, stating that:

Mrs Browning is most concerned that these tests have thrown up positive results, and feels that the industry should be told in no uncertain terms that this is unacceptable and that we expect 100% compliance with the rules. She has suggested, subject to the Minister’s views, that she should meet the companies concerned to reinforce this point.604

2.552 Mr Hogg’s response on 7 March 1990 was that it was a good idea, but ‘we might find it impossible to achieve total avoidance of contamination’.605

2.553 Dr Render subsequently advised Mrs Browning that cross-contamination had now been detected in four feedmills – there had been another positive result since Mr Eddy’s minute on 1 March 1996. In each case, contamination was with porcine material. He suggested that since the companies concerned were unlikely to attend a joint meeting, Mrs Browning might consider meeting UKASTA instead. Dr Render continued:

The State Veterinary Service is currently investigating with the plant owners the reason for the positive results. These are not likely to have resulted from deliberate flouting of controls, nor from gross negligence, but rather from relatively minor technical problems with the manufacturing process. These could take some time to track down. It would be useful to have details of the sorts of problems which have been found in feedmills and the steps that can be taken to rectify them prior to any meeting with UKASTA as this would give the Parliamentary Secretary a constructive and positive message to get across as well as stressing the need for full compliance. We would therefore further recommend that any meeting with UKASTA is set up for after Easter to allow time for these investigations to be finalised.606

Mammalian meat and bone meal ban is implemented

2.554 During its 27th meeting on 16 March 1996, SEAC considered a total ban on the use of MBM on farms, as part of its response to its conclusion that a new form of CJD, possibly linked to BSE, had been discovered (see vol. 6: Human Health, 1989–96). The minutes of the meeting record:

The epidemiological evidence of the born after the ban cases suggested that there had been appreciable exposure of cattle to BSE infectivity after the
ruminant feed ban and the most likely explanation of this was cross-contamination from other feed and then inadvertent feeding of that contaminated feed to cattle. Also the results of the rendering experiments suggested that complete inactivation, certainly of the scrapie agent, by conventional rendering methods was not practical. Finally, the recent findings of cross-contamination in feedmills suggested that this would be difficult to avoid. A ban on the use of all meat and bone meal of mammalian origin in farm animal feed would remove the possibility of new infection of cattle in the future and so bring the BSE epidemic to a close as quickly as possible. This would solve the animal health problem and by doing so, reduce any risk to public health . . . The Committee agreed to recommend that the use of mammalian meat and bone meal in feed for farm animals should be prohibited.607

2.555 This recommendation was made public in a statement on 20 March 1996.608 The next day UKASTA announced that it would act immediately to ‘eliminate mammalian meat and bone meal from all UK farm animal feeds’ in anticipation of legislation being implemented at a future date.609

2.556 The anticipated ban was given regulatory effect on 29 March 1996, when The Bovine Spongiform Encephalopathy (Amendment) Order 1996 came into force. Article 2 of the Order amended the Bovine Spongiform Encephalopathy Order 1991:

After article 12 there shall be added the following article –

Mammalian meat and bone meal

12A – (1) No person shall –

(a) knowingly sell or supply for feeding to livestock, fish or equine animals any feedingstuff in which he knows or has reason to suspect any mammalian meat and bone meal has been incorporated;

(b) after 4th April 1996 feed to livestock, fish or equine animals any feedingstuff in which he knows or has reason to suspect that any mammalian meat and bone meal has been incorporated.

. . .

(3) No person shall use any mammalian meat and bone meal in the preparation of any feedingstuff for livestock, fish or equine animals.

(4) No person shall use any mammalian meat and bone meal in the preparation of feedingstuff for any animal in premises where feedingstuff for livestock, fish or equine animals is prepared.610

2.557 ‘Livestock’ was defined as ‘any creature kept for the production of food, wool, skin or fur or for use in the farming of land’. Mammalian meat and bone meal
meant ‘proteinaceous material derived from the whole or part of any dead mammal by a process of crushing, cooking, and grinding’.

Discussion

Introduction

The scheme of the ruminant feed ban

2.558 The terms of the Bovine Spongiform Encephalopathy Order 1988 (the 1988 Order) which imposed the ruminant feed ban, are set out at paragraph 2.3. They prohibited a person from selling or supply for feeding to ruminants, any feedstuff ‘in which he knows or has reason to suspect that any [ruminant] protein has been incorporated.’ This wording was appropriate to prevent the deliberate use of ruminant protein as an ingredient of ruminant feed. This was, we believe, what the 1988 Order was intended to achieve.

2.559 The scheme of the 1988 Order contrasts with that adopted by regulations under the Agriculture Act 1970, designed to ensure that feedstuffs do not contain deleterious ingredients. Under that Act a feed compounder or merchant commits an offence if it is proved by sample that feedstuffs on their premises contain the proscribed ingredient – see section 73 of the Agriculture Act 1970. In contrast to the 1988 Order, knowledge is not required to be proved – the offence is absolute. There is, however, under section 82 of the 1970 Act a ‘due diligence’ defence if a person charged can prove:

That he took all reasonable precautions and exercised all due diligence to avoid the commission of such an offence by himself or any person under his control.

2.560 This may be compared with the RFB. Both the 1988 Order and its successor, the Bovine Spongiform Encephalopathy (No. 2) Order 1990, adopted the wording we have quoted in paragraph 2.558. It was suggested by UKASTA in November 1994 that commission of an offence if there were ‘reason to suspect’ meant that the industry would be liable should ruminant protein be found in ruminant feed, subject to a ‘due diligence defence’. It is possible that UKASTA proceeded upon this basis more generally. The concept that their members could be liable if they were not able to show due diligence may have been useful when negotiating with MAFF, but we do not think it was an accurate description of the RFB. This ban did not involve any need to invoke a defence of ‘due diligence’ as defined by the 1970 Act.

2.561 The scheme of the 1970 Act makes appropriate provision for regulations designed to prevent accidental cross-contamination of feed with deleterious matter. The wording of the 1988 Order was not appropriate to achieve that object. It was not the intention of those responsible for its drafting that it should. As we have explained in vol. 3: The Early Years, 1986–88 cross-contamination in the feedmills was not considered to be a problem when the 1988 Order was drawn up. This was
because of a failure to focus on the possibility that a small amount of infectious material might suffice to transmit BSE. This failure was to influence almost everything that followed.

2.562 MAFF officials expected those who manufactured animal feed, and those who fed it to their animals, to recognise the importance of the RFB and to comply with it of their own volition. Thus, in a written statement, Mr Kevin Taylor explained to us:

Meetings were held to publicise the ban and explain the reasons for it. There was, however, no practical way in which the ban could be enforced since there was no test which could identify rendered ruminant protein in animal feed . . . Effectiveness therefore depended on the industry recognising the importance of the ban and complying with it.613

2.563 Once existing stocks of ruminant feed were disposed of, it was reasonable to expect that feed compounders would comply with the 1988 Order and cease to incorporate ruminant protein in ruminant feed. Alternative sources of protein were available and there was very little financial motive for flouting the law. We are not aware of any evidence of deliberate breach by feed compounders of the ruminant feed ban after existing stocks had been disposed of.

2.564 Equally it was reasonable to expect that farmers, once warned of the danger of incorporating ruminant protein in ruminant feed, would not deliberately continue to run that risk.

2.565 It was not reasonable to expect all feedmills and farmers to anticipate that cross-contamination of ruminant feed with traces of feed for monogastric animals would render the ruminant feed potentially infective unless specifically warned of this danger. No such warnings were given. It seems likely that UKASTA initially assumed that cross-contamination was not a problem. As we view the evidence, UKASTA’s concerns in November 1990 about cross-contamination were not that this would render feed unfit for cattle, but that, if detected, it would render their members liable to successful prosecution unless they could establish a due diligence defence.

2.566 For nearly three years MAFF officials proceeded on the assumption that, unless there was maternal or horizontal transmission of BSE, the ruminant feed ban would result in the eradication of the disease. The BABs that were identified from March 1992 onwards did not, initially, disturb this illusion. They were attributed to carry-over of existing stocks after the 1988 Order took effect. As animals born later and later after the ban were diagnosed with BSE, the perceived extent of this carry-over stretched elastically. In June 1992 a three-month time lag in the effect of the ban was considered likely (see paragraph 2.139). By November this period had stretched to six months (see paragraph 2.190). If any thought was given to the possibility of cross-contamination, it was assumed that this would not have been a problem once the animal SBO ban had come into force in September 1990.

2.567 Mr John Wilesmith began to become concerned about the possibility of cross-contamination towards the end of 1993 (see paragraph 2.224). It was not, however, until early 1994, when a handful of BABs were confirmed that had been
born after the animal SBO ban came into force, that it dawned on MAFF officials that there was a dual problem which was resulting in SBOs first contaminating MBM produced for incorporation in animal feed with the secondary consequence that this feed cross-contaminated feed being prepared for cattle.

2.568 This situation was of concern both to MAFF and to UKASTA. As we have seen, they worked in close consultation in considering how to address the problem. The following options received consideration:

i. A prohibition, voluntary or statutory, on the use of MBM in any animal feed;

ii. A requirement that feedmills use separate facilities for the production of ruminant and non-ruminant feed;

iii. Sampling the output of feedmills in order to detect any contamination of ruminant feed with ruminant protein.

2.569 We propose to consider each in turn.

Prohibition on the use of MBM in any animal feed

MAFF’s attitude to this solution

2.570 We have seen that, from the moment that the Southwood Working Party appeared to be condemning the practice of feeding animal protein to animals, MAFF had been concerned to ensure that this practice should continue. This attitude changed not one whit in the face of evidence that the continuance of this practice was resulting in the contamination of cattle feed with BSE infective material.

Mr Richard Packer was asked:

Would it be right to say that the Ministry encouraged the use of ruminant protein other than that derived from SBOs in non-ruminant feed?

He replied:

No I don’t think it would.614

2.571 Despite this answer, we are in no doubt that MAFF officials were not prepared to contemplate the cessation of the use of animal protein in animal feed as the solution to the problem of cross-contamination that was occurring.

2.572 When, on 7 October 1994, Mr James Reed put forward as one option that there should be a stop to using ruminant meal in all feed, he understood that Mr Packer’s inclination was to give the feed industry the reassurances it wanted in order to prevent an MBM ban if this was ‘remotely possible’ (see paragraph 2.353). Mr Packer’s report of the meeting to Mr Waldegrave suggests that Mr Reed correctly interpreted Mr Packer’s attitude. He commented:

All of this is very unwelcome. Feed manufacturers could switch relatively easily to other raw materials but a decision to stop using ruminant meal would have serious implications for the livestock industry on top of all the

614 T83 pp.111–112
BSE and ferry-related blows. Moreover, such a move would undoubtedly generate further public concern about the safety of beef.

It seems to me, at first sight, that there are two possible courses of action. First, we could look to see whether we can legitimately reconstruct our investigations so as to give less worry to the feed industry. Secondly, we could see what other assurances we can give, perhaps about our new rendering rules. 615

2.573 Over a year later, in a paper prepared for Mr Hogg, Mr Keith Meldrum set out the options for dealing with the problem of cross-contamination of cattle feed. He commented:

A second alternative would be to prohibit the use of mammalian MBM in animal food. This would prevent it being fed to pigs or poultry and remove any risk of cross contamination. The economic consequences would be devastating: the rendering industry would become a waste disposal operation, producing only tallow as a useable product. 616

2.574 If in the autumn Mr Meldrum had privately thought this course might be desirable (see paragraphs 2.508–2.509), he had changed his mind by December.

2.575 The recognition in March 1996 that BSE was transmissible to humans led to an immediate ban on feeding animal protein to animals. We do not, however, consider that this was a course that MAFF should have adopted as a reaction to the discovery that ruminant protein was contaminating ruminant feed. The economic consequences of a total ban on the use of animal protein in animal feed were indeed severe. To have adopted this measure simply to prevent further cross-contamination of cattle feed would have been an admission of defeat. Other, less drastic, viable options were open and MAFF officials and their Ministers acted reasonably in looking to these rather than to a total ban on MBM in feed.

**UKASTA’s attitude**

2.576 UKASTA were repeatedly threatening that their members would have to cease using MBM in animal feed. UKASTA have disclosed to us a confidential paper that had been circulated to their National Executive Council on 24 August 1995. This set out UKASTA’s policy aims as follows:

These have been consistent, although unstated except in FEC discussions, since at least 1989:

- To minimise the risk of farmers’ claims for compensation from feed compounders.
- To minimise the potential damage to compound feed markets through adverse publicity.
- To maximise freedom of action for feed compounders, notably by maintaining the availability of meat and bone meal as a raw material.
in animal feeds, and ensuring time is available to make any changes which may be required.617

2.577 The paper went on to cite as one of the successful examples of the strategy:

UKASTA pressure dissuaded MAFF from publicly linking voluntary ELISA tests on feed on farms with BABs to (possibly compulsory) tests at compounders’ premises in June/July 1994.618

2.578 Looking to the future, the paper concluded:

Tests may show that ruminant feeds have been sold which contain illegal traces of ruminant protein. More likely, a few positive test results will turn up but proof that a particular feed mill knowingly supplied it to a particular farm will be difficult if not impossible.

The threat remains real and it will be some years before feed compounders are free of it. The longer we can avoid any direct linkage between feed milling practices and actual BSE cases, the more likely it is that serious damage can be avoided. In issue management terms, the aims and the strategy remain valid, but must be kept under review in the light of further events.619

2.579 It is apparent that UKASTA were as anxious as MAFF that MBM should continue to be used as an ingredient of animal feed. They were naturally anxious, however, to do their best to protect their members from the risk of prosecution or litigation.

2.580 MAFF officials were not prepared to countenance giving UKASTA any assurance that the law would not be enforced, nor to provide by way of comfort any statement suggesting that cross-contamination with ruminant feed would carry no risk of infection. They were, however, able to provide UKASTA with the statement referred to at paragraph 2.383 which led to UKASTA dropping the threat to introduce a voluntary ban on the use of MBM.

Dedicated facilities

2.581 The suggestion that there might be a prohibition on mills using the same facilities to manufacture ruminant and monogastric feeds did not commend itself to Mr Packer when he considered it in October 1994 (see paragraph 2.352). The following month, however, Mrs Browning expressed the view that the correct course would be to move to a situation in which separate production lines would have to be used for ruminant and non-ruminant feed (see paragraph 2.381). She accepted however, Mr Packer’s advice that this was not necessary. Furthermore, this was not, it seems, a practical possibility. Some mills were voluntarily introducing separate facilities, but the smaller feedmills were not able to do this.

2.582 The position had not changed a year later when Mr Meldrum explained the practical difficulties to Mr Hogg. The minute describing the meeting recorded:
The Minister noted that it would not be feasible to require all establishments to have in each factory different lines for different feed, although some large companies had already moved in that direction. 620

2.583 In his paper for Mr Hogg of 8 December 1995 Mr Meldrum advised:

A third, almost equally unpalatable, approach would be action in feedmills: at its most extreme insisting that no ruminant feed is produced in premises which use MBM for any other purpose. Again there would be immense financial and practical difficulties, and the action would be difficult to defend in the light of the results of ELISA testing which, in the past year, have failed to find any evidence of ruminant protein in animal feed . . .

At the present time I would not recommend introducing legislation to require that cattle feed is produced in a dedicated mixing line to reduce the risk of cross-contamination because of the various steps that are now in place to prevent infectivity entering meat and bone meal and the measures that we have in hand to further reduce the risk of cross contamination in feedmills. 621

2.584 We have considered whether, on the facts known to MAFF officials in 1994 and 1995, they should have sought to impose, either by voluntary agreement or by Order, a ban on using common facilities to produce both ruminant and non-ruminant feed. The primary measures that MAFF took in order to prevent contamination of cattle feed consisted of tightening up the implementation and enforcement of the animal SBO ban (see Chapter 4).

2.585 On 5 April 1995, in addition to approving recommendations on tightening the animal SBO ban, Mr Waldegrave asked whether the results of the attack rate study meant that more needed to be done to ensure the cleaning of feed lines which once carried contaminated feed. Mr Meldrum’s reply, quoted at paragraph 2.424, ended:

There is no action I can recommend that we should take at this time except to continue to intensify the controls on the disposal of the SBOs. 622

2.586 In fact, at this time, MAFF officials were taking action, which we shall shortly consider, aimed at reducing cross-contamination in feedmills which used common facilities to process ruminant and non-ruminant feed.

2.587 If defects in the implementation of the SBO ban could be remedied, infectivity of MBM entering the feedmills for incorporation in monogastric feed should have been minimal. Effective steps were being taken to tighten up the implementation of the SBO ban, including a requirement that SBOs should be processed in dedicated facilities – see Chapter 4. We consider that it was reasonable for MAFF officials and Ministers to conclude that it was not necessary to require feedmills to undertake, in parallel with the renderers, the expense of installing duplicate lines.

620 YB95/11.1/1.2
621 YB95/12.8/4.4
622 YB95/4.19/2.1
2.588 In reaching this conclusion we have borne in mind that MAFF officials could reasonably assume that the steps already taken would have reduced the scale of infection to a fraction of that at the height of the epidemic. Figure 2.1 gives an indication of the extent to which they had been successful in controlling the disease before the additional measures taken in 1994 and 1995.
Figure 2.1: Confirmed cases of BSE with known dates of birth, plotted by month of birth

Data valid to January 2000. The inset shows 1993 to 1995 on a larger scale as 1994 and 1995 cases do not show on the scale used in larger scale.
2.589 We are now in a position to judge the efficacy of those steps. As at 1 June 2000, 1,010 BABs have been confirmed which were born in 1994. The number for 1995 is only 179 and for 1996 only 1 BAB has been confirmed, born in January of that year. While further cases can be expected to be identified in the years to come, it seems clear that these are likely to be no more than a very small trickle.

Sampling

2.590 An effective ruminant feed ban would have coupled a legal power to enter feedmills and to take samples of feedstuff with an effective test of whether the samples taken contained ruminant protein.

Right of entry

2.591 In his witness statement to us, Mr Meldrum commented:

On 18th July 1995 Commission Decision 95/287/EC came into effect requiring the monitoring of feedmills on a routine basis to identify any incorporation of ruminant protein into ruminant feed. This overcame the problem of right of access to feedmills which had not been overcome in the meantime.  

2.592 This chapter includes some of the confused and conflicting advice provided to officials by MAFF lawyers in relation to right of access to feedmills, the right to take samples of feedstuffs, the right to inspect records, and the manner in which samples had to be analysed. This is not a matter for criticism: the lawyers were being asked to solve a problem which the legislation had not been designed to meet. We suspect that there was probably more than one pathway through the regulatory maze that would have enabled compulsory sampling of animal feed, if only a reliable sampling technique had been established. One approach would have been an appropriate addition to the Feedingstuffs Regulations under the Agriculture Act 1970. The problem was the unreliability of the ELISA test.

The ELISA test

2.593 A separate report could be devoted to the history of the attempts to produce a successful ELISA test. We shall simply pick out a few incidents from the account given in this chapter.

- Mr Ansfield’s project proposal of April 1989 anticipated, if we understand it correctly, that the major work in preparing the test would be completed by the end of the year (paragraph 2.54).
- On 24 May 1990 Mr Ansfield predicted that validation would take at least to the end of the year (paragraph 2.71).
- On 1 November 1990 Mr Ansfield said that he was confident that validation would be carried out by the end of the year and the test would then be available for use (paragraph 2.88).
Up to this point the test had only been applied to processed MBM. When it was applied to compound feed it was found that in the majority of cases it produced positive results even without the inclusion of MBM (paragraph 2.105).

By September 1991 progress had been made towards resolving this problem (paragraph 2.118).

In August 1992 Mr Ansfield reported that detection of bovine and ovine protein in MBM was now possible down to one part in 6,400 and in compound feed to one part in 200. High standards of laboratory expertise and a composite range of equipment were, however, required to carry out the test, which would take three days (paragraphs 2.155–2.156).

In March 1993 it was reported that development of the test was halted by relocation of Worcester VIC to Luddington (paragraph 2.208).

By March 1994, when consideration was being given to a voluntary sampling scheme, Luddington had capacity to test only 20 samples a week (paragraph 2.263).

In July 1994 Luddington were refusing to release details of their sampling techniques as the test was to be patented (paragraph 2.297).

By October 1994 the sensitivity of the test was such that a 5 per cent carry-over of a feed with a 5 per cent ruminant MBM content would be necessary for the threshold of detection to be reached (paragraph 2.348).

On 30 November 1994 UKASTA were told that the test had been validated (paragraph 2.385).

By February 1995 the validity of the test had been put in doubt because of experience of both false positives and false negatives (paragraphs 2.413–2.414).

On 5 June 1995 it was reported that a number of vegetable products gave positive reactions (paragraph 2.453).

In December 1995 Mr Ansfield advised that further work on the test was necessary because appropriate controls had not been used for compound feeds (paragraph 2.536).

In February 1996 the first round of mandatory sampling of feedstuffs at mills took place.

2.594 These incidents take the story up to the end of the period that falls within our terms of reference, and up to the point at which, after events leading up to 20 March 1996, all animal protein was banned from animal feed. We were told in a statement from Dr Matthews, however, that difficulties in validating the test had persisted. He summarised the position as follows:

While expectations of the test have been exaggerated, it is true to say that it provides an opportunity to seriously question quality control measures in feedmills. There are still difficulties to resolve, not least because of the complexity of the legislation. The test detects protein – not meat and bone meal. Some protein can be legitimately included in ruminant and non-ruminant rations. Consequently a positive test result is not in itself sufficient
evidence of a contravention. Further investigations are essential in every case, and it is these rather than prosecutions that produce serious review of working practices in affected plants.\textsuperscript{624}

2.595 We have no criticism to make of Mr Ansfield. He worked diligently at attempting to perfect the ELISA test and it is clear that he has met with considerable technical difficulties. Development of the test was not, however, treated as a matter of urgent priority. Mr Meldrum decided that it should be developed ‘in house’ rather than in collaboration with the Agriculture and Food Research Council (AFRC), explaining that this was due to ‘redundancies at AFRC and other difficulties’ (see paragraph 2.53). In his statement to us, Mr Ansfield spoke of eagerness of the AFRC Institute of Food Research, Bristol, to become involved in test production, and commented, ‘For reasons of which I am unaware this particular direction of test development was not followed up’.\textsuperscript{625}

2.596 Mr Ansfield also commented in his statement:

With hindsight there are always ways to consider how a test could have been developed more quickly. On the evidence available at that time it is my opinion that the considerable resources available to the State Veterinary Service (which included a wealth of expertise at the Central Veterinary Laboratory at Weybridge and numerous contacts with commercial and research establishments) was the appropriate option to take at that time.

In respect of the speed of developments, it is possible that involving a team of experts working full-time rather than having one person based at one laboratory liaising with other experts, (usually those based at the Central Veterinary Laboratory at Weybridge and with commercial companies involved with protein separation) may have speeded up the development of the test. Having said this, development can only be achieved if there is some form of breakthrough and this occurred early on in the test development with the removal of gelatine and the concentration of remaining proteins for testing.\textsuperscript{626}

2.597 Mr Ansfield was not told that development of the test was a matter of urgency (see paragraph 2.59). We do not believe that in 1989 it was seen as a matter of urgency. This was not unreasonable, if the only purpose of the ban was to prohibit the deliberate inclusion of ruminant protein in ruminant feed. A reliable test only became a matter of urgency when it was appreciated that there was a need to ensure that ruminant feed was not subject to accidental cross-contamination.

2.598 On 20 July 1993 Mr Kevin Taylor, in a minute to Dr Peter Dawson, commented:

As I understand it the development of the test at Worcester and now Luddington VICs has largely been a consequence of their existing expertise in species testing of meats, and has not been identified as an area requiring major R&D funding.\textsuperscript{627}
2.599 He added:

I fear that we will be vulnerable to criticism if we are not able to test feed intended for ruminant animals fairly soon.628 (See paragraph 2.214.)

2.600 In May 1994 Mr Bradley commented that there seemed to have been inordinate delay in getting testing established (see paragraph 2.280).

2.601 We consider that the delay was primarily due to the failure, when the ruminant feed ban was introduced, to appreciate the possibility that the amount of infective material necessary to transmit the disease might be very small, so that the problem of cross-contamination needed to be addressed (see vol. 3: The Early Years, 1986–88, Chapter 4).

2.602 If the importance of a reliable test had been foreseen in 1988, it might well be that an alternative approach to achieving this would have been adopted, which would have been successful by 1994. As it is, MAFF officials found themselves in a position where the test was not sufficiently reliable to demonstrate the presence of ruminant protein to the standard required for criminal proceedings.

2.603 The latter part of the period with which this Inquiry is concerned saw the ELISA test used on farms, with the consent of farmers, in order to check on recent supplies from feedmills. On at least two occasions, follow-up to mills had beneficial results (see paragraph 2.409). At the same time many feedmills submitted samples for testing as part of their own due diligence to check that their products were free of contamination.

2.604 It does not seem to us that UKASTA showed any enthusiasm for the programme of unannounced mandatory checks on mills that MAFF proposed to initiate in order to comply with the Commission decision – and this should occasion no surprise – their primary duty was to their members who had nothing to gain from the proposal. However, one round of tests was carried out in February 1996. This identified four mills out of the 25 sampled where feed was contaminated with animal protein.

2.605 An interesting feature of the sampling operation was the fact that MAFF staff carried this out themselves without involving the Trading Standards Officers of the County Councils who had statutory authority for enforcing the regulations. In December 1993 Mr Taylor had received a somewhat bizarre suggestion from Mr Howard that it would be ‘an extremely risky business’ to allow Local Authorities to carry out sampling because the results would not remain confidential. Mr Taylor had understandably responded that test results could hardly be suppressed and that he did not see that it mattered much whether MAFF or the Local Authorities collected samples (see paragraphs 2.237–2.238).

2.606 In May 1994 Mr Eddy, in a submission which had been approved by Mr Meldrum, Mr Haddon, Mr Taylor and Dr Cawthorne, sought and obtained Mr Soames’s approval to MAFF introducing the new test under MAFF’s control. The submission suggested that some Local Authorities could not be trusted to ‘treat the existence of this test in a prudent way’, and that it was better for MAFF to keep the test capacity in-house so as to be able to monitor the situation.
2.607 It seems to us that, whatever may have motivated this course, the limitations of the ELISA test made it desirable for MAFF to retain overall control of the sampling exercise, rather than to hand this over to individual Local Authorities.

**Guidance to the feed industry and farmers**

2.608 Sampling was not the only means open to MAFF officials by which to seek to reduce cross-contamination of ruminant feed. When MAFF officials realised that cross-contamination was probably responsible for BABs, and when they later learned that one gram of infective material would suffice to infect, the question arose of the steps that should be taken to bring these matters to the attention of all feed compounders. The need to do so was underlined by the report from a VO of the sources of cross-contamination that he had identified in a mill that he had visited (see paragraphs 2.307–2.308).

2.609 That report led Dr Matthews to suggest to Mr Taylor that the SVS should carry out an inspection of feed plants (see paragraph 2.305). His manuscript note of 14 July warned that while some companies were aware of the risks and were taking steps to avoid cross-contamination, others were not. Mr Bradley gave a similar message a week later, when he wrote to Mr Taylor stating that several mills in East Anglia were wise to the problem and taking steps to deal with it, and emphasising the need to see that all the loopholes were plugged (see paragraph 2.306). This led Mr Eddy to draw Mr Taylor’s attention to the desirability of sending out guidance to farmers and to the feed industry (see paragraph 2.311).

2.610 These suggestions do not appear to have resulted in immediate action. On 15 May Mr Fleetwood put up to Mr Taylor and Dr Cawthorne a suggestion, agreed by him with colleagues, that the SVS should carry out advisory visits to feedmills to help them to avoid cross-contamination.

2.611 Dr Cawthorne’s response, on the assumption that all UKASTA members would have carried out a self-audit, suggested that attention should be focused on the small mills, who ‘were unlikely to be aware of cross-contamination problems’. He drew attention to the staffing problems that a more ambitious programme would raise (see paragraph 2.440).

2.612 It was soon discovered that the assumption that all UKASTA members would have carried out a self-audit was unjustified. UKASTA had not kept all their members aware of MAFF’s concerns about cross-contamination. Furthermore, non-UKASTA members were not aware that the attack rate experiment had shown that a single gram of infective material sufficed to transmit the disease. It was decided to send a letter of guidance to all mills. Dr Matthews commented that visits to mixed species mills should follow, and were more important (see paragraph 2.462).

2.613 UKASTA’s cooperation was sought. They assisted in the preparation of a leaflet designed to be sent to feedmills and to farmers who mixed their own feed (see paragraph 2.489). This was a useful leaflet, but bland in tone. We find it surprising that it did not emphasise the finding that a very small quantity of infective material would suffice to transmit the disease. The leaflet was sent out on 10 August 1995.
2.614 A programme of SVS visits was planned, giving priority to mills producing feed for both ruminants and pigs and poultry (see paragraph 2.491).

2.615 Later in 1995 steps were taken to send out a letter to farmers, giving specific guidance on how to avoid cross-contamination which was much more detailed than that which had been included in the joint leaflet to feedmills and farmers. It was thought necessary that this should be approved both by SEAC and by the Parliamentary Secretary. SEAC approved it, with some suggested improvements, on 23 November 1995. It reached Mrs Browning on 6 February 1996 and received her immediate approval, but had not been sent out by 20 March.

2.616 The course of events described above suggest that in some respects there was a lack of urgency in the response of both MAFF officials and UKASTA to the facts that emerged in 1994.

2.617 The discovery that cross-contamination in feedmills was probably resulting in the infection of cattle came as a surprise. So did the result of the attack rate experiment. In the absence of countervailing reasons, we would have expected that the immediate reaction of UKASTA would have been to warn their members of this problem, and of the result of the attack rate experiment, and to give advice on how to minimise the risk of cross-contamination. Equally we would have expected MAFF officials to ensure that this was done, and to warn all feedmills that were not members of UKASTA in the same way, providing them with suitable guidance on avoiding cross-contamination. It appears to have taken 12 months for such action to be put in place.

2.618 We have noted earlier in this chapter (paragraph 2.584) that the primary measures that MAFF took in order to prevent contamination of cattle feed consisted of tightening up the implementation and enforcement of the animal SBO ban (see Chapter 4). It was reasonable for MAFF to give priority to those measures. So far as cross-contamination at feedmills was concerned, two factors should be borne in mind. First, it was reasonable for MAFF to seek to advance the development of the ELISA test. The perfection of this test, along with the tightening up of the animal SBO ban, would have diminished the dangers of cross-contamination considerably. Second, MAFF officials were anxious to avoid precipitating a waste disposal crisis if the industry reacted by refusing to use MBM in animal feed generally. UKASTA were clearly alive to this concern on the part of MAFF. In these circumstances we do not think that the failure by MAFF and UKASTA to move faster on additional measures in relation to cross-contamination of ruminant feed is a matter for criticism.

Tallow and gelatine

2.619 Before leaving this topic, we should draw attention to two further potential sources of BSE infection in cattle feed.

Tallow

2.620 Tallow was an ingredient of both ruminant and non-ruminant feed. The ruminant feed ban applied to ruminant protein. At the time that the ban was introduced it was considered that tallow that was extracted in the course of the
rendering process did not contain protein, so that the ban did not preclude tallow’s continued incorporation in animal feed. Thus UKASTA advised their members through Feed Circular 412 that:

The Order does not cover fishmeal, poultry meal, poultry offal or tallow. 629

2.621 In 1991 approximately 5,000 tonnes of tallow was used in cattle and calf rations. 630

2.622 By 1994 MAFF officials had made the following discoveries:

i. Much of the tallow being used in the production of animal feed was derived from SBOs.

ii. Tallow might include between 0.1 and 0.3 per cent protein.

iii. Distillation residues which settled as sediment in tank bottoms were sold for animal feed. Dr Taylor of NPU considered the distillation process and advised that it was likely to inactivate the BSE agent.

2.623 SEAC were not concerned at the use of tallow in cattle feed provided that it was not derived from SBOs. In these circumstances MAFF officials recommended that a ‘technical amendment’ be made to the 1991 Order to allow minimum quantities of ruminant protein to be fed to ruminants. Mr Gummer rejected this suggestion for presentational reasons, but indicated that he was content that tallow, other than that derived from SBOs, should continue to be incorporated in animal feed. 631 There is scope for argument as to whether this constituted turning a Ministerial blind eye to the possibility of technical infringements of the law. 632 Having regard to SEAC’s risk assessment we do not think it involved significant risk to animal health.

2.624 In accordance with SEAC’s advice, the animal SBO ban was subsequently extended to include tallow derived from SBOs. 633 It must be possible that prior to this extension the occasional BAB was infected as a result of the incorporation in cattle feed of tallow derived from SBOs. Having regard to the probable inactivating effect of the distillation process, we do not consider that this is likely to have been a significant source of infection.

**Gelatine**

2.625 The bones from which gelatine was produced included, on occasion, the skulls of cattle. Although under the SBO ban the brain should have been removed from any skull used for this purpose, traces of brain will often have remained. Equally, spinal column used in the manufacture of gelatine may, on occasions, have included segments of spinal cord. The processes involved in the manufacture of gelatine may not always have resulted in the inactivation of such infectious matter. Waste food, containing gelatine, was commonly incorporated in animal feed. This, then, was a further potential source of infection of cattle feed, although once

629 YB88/6.3/3.1
630 SEAC 7 tab 2 p. 3
631 S326 Soames paras 48, 54
632 No offence would be committed unless a feedmill knew that tallow contained ruminant protein by the Specified Bovine Offal Order 1995 – L2 tab 13
again we do not consider that the scale of any transmission by this route can have
been significant.