



**PROPOSALS TO REDUCE BSE TESTING OF CATTLE  
SLAUGHTERED FOR FOOD -  
IMPACT ON RISK TO HUMAN HEALTH**

**ISSUE**

1. The Food Standards Agency (FSA) has asked SEAC to consider and advise on a risk analysis, prepared by the Veterinary Laboratories Agency (VLA), that provides estimates of the impact on the bovine spongiform encephalopathy (BSE) risk to the food supply of proposed changes to the European Union (EU) requirements for BSE surveillance.

**BACKGROUND**

2. The EU TSE Regulation (Regulation (EC) No 999/2001) requires all Member States (MS) to carry out an annual programme for monitoring TSEs. In relation to cattle, the annual monitoring programme in all MS must include the testing of:
  - all cattle aged over 24 months sent for emergency slaughter or showing clinical signs at ante mortem inspection;
  - all cattle aged over 24 months which have died or been killed other than for human consumption (fallen stock);
  - all cattle aged over 30 months slaughtered normally for human consumption.
3. The TSE Roadmap adopted by the Commission in July 2005 (and endorsed by both the European Parliament and the Council) states that amendments to certain TSE measures could be envisaged, without endangering the health of the consumer and the policy of eradicating BSE, provided the downward trend in the BSE epidemic continues and the amendments are scientifically justified. One of the Roadmap's strategic goals is to reduce the numbers of tests of cattle while continuing to measure the effectiveness of the BSE controls in place, by better targeting of surveillance activity. One option the Roadmap specifies for moving towards this goal is a gradual increase in the age of animals for which testing is required, starting with healthy slaughtered animals and fallen stock.

4. Following extensive consultation on the Roadmap, the Commission published an objectives paper in November 2006. This paper committed the Commission to discussing with MS the conditions that would allow a review of the BSE monitoring programme, taking account of the epidemiological differences between MS.
5. An amendment to the TSE Regulation<sup>1</sup> which came into force in January 2007 allows MS to apply to revise their BSE monitoring programmes. The applicant MS must be able to demonstrate an improvement in their epidemiological situation. They must also provide proof of their capability to determine the effectiveness of the measures in place and ensure the protection of human and animal health, based on a comprehensive risk analysis. In particular, the MS must demonstrate a declining or low prevalence of BSE and that they have implemented the EU BSE surveillance programme and the EU feed ban for at least six years. For this reason the option is unlikely to be available to newer MS.
6. Detailed rules for applications by MS to apply a revised surveillance programme will be set out in further Commission legislation which was agreed by MS in February 2008, but is subject to further scrutiny before adoption. The agreed proposal requires that MS' applications shall include *inter alia*:

*“the result of a comprehensive risk analysis showing that the revised BSE monitoring programme will ensure the protection of human and animal health. This risk analysis shall include a birth cohort analysis or other relevant studies aiming to demonstrate that the TSE risk reducing measures, including the feeding prohibitions ....., have been implemented in an efficient way.”*
7. MS will be able to submit their applications once the detailed rules have been adopted, which is expected to be in July 2008. The Commission has however decided that, in order to avoid a divergence in the monitoring programmes being applied across the EU, the reduction in BSE monitoring in eligible MS will be applied in a uniform way. Based on EU surveillance data, the Commission has stated a preference for raising the age above which testing is required in eligible MS from 30 to 42 months for healthy slaughtered cattle and from 24 to 36 months for “risk” cattle (fallen stock/emergency slaughtered), subject to a favourable opinion from the European Food Safety Authority (EFSA). The Commission has however asked EFSA to assess a range of options for

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<sup>1</sup> made by Regulation (EC) No 1923/2006 of the European Council and of the Parliament

increasing the age limits for testing<sup>2</sup> and could therefore take a different view on the most appropriate “harmonised” age thresholds for testing in the light of EFSA’s assessment.

8. The UK would wish to submit an application to revise the BSE monitoring programme in the UK, subject to agreement by the FSA Board that any additional risk to consumers that could result from reducing the current testing of cattle slaughtered for human consumption would be acceptable. Once the Commission has reached a final view on what the harmonised testing requirement in eligible MS should be, FSA officials propose to use the output from the VLA’s BSE control model as a basis for advising the Board on the impact on the BSE risk to the food supply of operating the changed requirement in the UK.
9. Passive surveillance for BSE in cattle of all ages will continue. Epidemiological advice is that the proposed changes to the testing age limits of cattle slaughtered for human consumption will have no impact on BSE surveillance and that there is scope for more efficient active surveillance in “risk” animals.

## **THE VLA BSE CONTROL MODEL**

10. SEAC commented on the VLA BSE control model (Version 3.0) at its meeting of December 2006 (in accordance with SEAC’s Code of Practice, the item was discussed in a reserved business session, as it involved consideration of unpublished work, Annex 1). SEAC generally accepted the methodology and data used and made suggestions for refinements to the model. It was noted that the model could be updated as new information becomes available. Once further refined, the model would provide a very useful tool to analyse the effect of potential changes to BSE controls. The model has since been refined and updated accordingly (Version 5.0).
11. The BSE control model can output the number of expected cases missed given changes in the monitoring requirements and estimate the consequent impact on the amount of infectivity entering the food supply (in terms of Bovine Oral ID<sub>50</sub> units). Annex 2 describes the analysis carried out by the VLA using the model to assess the

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<sup>2</sup> In summary, EFSA is requested to provide an assessment of significant additional risks to public or animal health from:

(i) raising the test limit for "healthy slaughtered" from 30 to 36, 42, 48, 54 or 60 months.

"Healthy Slaughtered" means healthy slaughtered for human consumption

(ii) raising the test limit for "risk animals" from 24 to 30, 36, 42, 48, 54 or 60 months.

"Risk Cattle" includes fallen stock, emergency slaughtered, problem at ante-mortem

impact in GB in terms of numbers of cases missed and effect on infectivity entering food supply of the options for change in surveillance being considered by EFSA. The analysis assumes that the other current BSE controls are unchanged, except that the age at which vertebral column must be removed as specified risk material (SRM) is taken to be 30 months for 2008/9, as opposed to the current 24 months, to reflect an imminent change in the SRM controls.

12. The VLA analysis indicates that, under the current requirement to test healthy slaughtered cattle aged over 30 months (OTM), over 550,000 cattle (from the population born after 31 July 1996 that is eligible for human consumption) would be expected to be tested in each of the years 2008 and 2009. Of these, the mean number expected to test positive for BSE in the two-year period 2008-09 would not much exceed 1 animal (with a minimum of 0.08 and a maximum of 5.27). The cattle that have tested positive for BSE in Great Britain since November 2005, when testing of OTM cattle slaughtered for human consumption began in the UK, are listed in Annex 3.
13. The VLA also estimate that, for all of the options for raising the age of testing healthy slaughtered OTM cattle being considered by EFSA, the number of test positive animals that would be *missed* in the two year period 2008-09 would be considerably less than one. As a result, none of the EFSA options would greatly change the estimate of the number of test positives expected (the mean value of which would remain at just over 1 for all options). Consequently, the impact of the changes on the level of infectivity entering the food supply is estimated to be minimal.
14. In addition, the VLA have for illustrative purposes provided estimates of the total amount of infectivity consumed by humans in 2008 and 2009 if up to 10 BSE test-positive animals were not detected and allowed to enter the food supply (with the SRM removed). These estimates indicate that, for each test-positive animal missed, there would be a very small incremental increase in the total amount of infectivity consumed in each year and that overall these amounts would remain extremely small in comparison with the amounts consumed in the past.
15. The model's output in terms of bovine oral ID<sub>50</sub> doses does not take into account the bovine-human species barrier which has been estimated to be considerable.

## **ADVICE SOUGHT FROM THE COMMITTEE**

16. The Committee is asked to assess the validity of the analysis carried out to evaluate the effect on risk to consumers from exposure to BSE (including H- and L-type BSE) for the given options for changes to BSE surveillance and to comment on the values produced.
17. To aid discussion the VLA will give a presentation describing the results obtained from the modelling of different BSE surveillance options.

## VLA MODELLING AND ANALYSIS

### Modelling EFSA proposed options for GB BSE surveillance

VLA modellers and risk analysts have developed models that can estimate the impact of different BSE surveillance options, and the impact of risk mitigating controls. The key models are the back calculation model developed by Arnold and Wilesmith (2003) and the risk assessment termed the “BSE-Control Model” (Adkin et al., 2007). Both models can output the number of expected cases missed given a change in surveillance controls. The BSE Control Model can also estimate the impact of variations in Specified Risk Material (SRM) removal and the total amount of infectivity entering the food chain, given that cases are missed.

The BSE Control Model uses the same input data as the back calculation model and some of its outputs, together with information on the processing of carcasses in abattoirs. The approach taken is a stochastic assessment based on individual infected animals where uncertainty and variability are modelled separately.

Version 4 of the assessment (Adkin et al., 2007) was further developed in late 2007 so that both age at slaughter related control measures and date of birth measures could be investigated. In addition, the model can estimate the number of future test positives in 2008 and 2009 given assumptions regarding prevalence estimates and the slaughter/death population during those years. In this minute, the results from the BSE Control Model Version 5 (Adkin et al., in preparation) are provided for the following control options:

Stream	Control options											
	A	B	C	D	E	F	G	H	I	J	K	L
HS*	30	36	42	48	54	60	30	30	30	30	30	30
ES/FS*	24	24	24	24	24	24	30	36	42	48	54	60

\*HS=Healthy slaughter, ES=Emergency slaughter, FS=Fallen stock

These options aim to mirror those put forward in the Commission’s mandate to EFSA in which EFSA is invited to consider age options between 30 and 60 months (with 6 months intervals) for BSE testing of healthy slaughtered cattle and between 24 and 60 months (with 6 months intervals) for testing of at risk cattle. Option A is the currently implemented control measure in Great Britain. It is assumed that for each of these control measures, in terms of removal of SRM, vertebral column is removed at 30 months of age and brain and spinal cord are removed 12 months of age. This is in-line with SRM removal procedures expected to be implemented later this month.

The population of interest considered by the BSE Control Model Version 5 is those animals eligible for the food chain and born after 31 July 1996. The model considers the number of animals testing positive by surveillance year from 2005 to 2009. However, in this minute, only those results for 2008 and 2009 are considered. Two classifications of results can be obtained from Version 5 of the BSE control model. The first is regarding estimation of the expected number of test positive animals and the second is the total annual amount of infectivity entering the food chain. Both categories of results are described below.

## **Results**

### **Number of animals tested and test positive**

Given the above options and assumptions regarding the slaughter/death population born after 31 July 1996 (Adkin et al., in prep), the expected number of animals tested is provided in Table 1.

**Table 1: Comparison of Options by the estimated number of animals tested by year**

Options	Number of animals tested							
	Healthy slaughter		Emergency slaughter		Fallen stock		Total (all streams)	
	2008	2009	2008	2009	2008	2009	2008	2009
A	556,758	556,788	5,336	5,968	188,425	192,330	750,519	755,086
B	494,122	494,152	5,336	5,968	188,425	192,330	687,883	692,450
C	450,187	450,217	5,336	5,968	188,425	192,330	643,948	648,515
D	413,957	413,987	5,336	5,968	188,425	192,330	607,718	612,285
E	375,374	375,404	5,336	5,968	188,425	192,330	569,135	573,702
F	338,302	338,332	5,336	5,968	188,425	192,330	532,063	536,630
G	556,758	556,788	4,660	5,292	175,549	179,454	739,967	741,534
H	556,758	556,788	4,198	4,831	162,317	166,222	723,273	727,841
I	556,758	556,788	3,902	4,532	149,253	153,158	709,913	714,478
J	556,758	556,788	3,621	4,248	136,999	140,904	697,378	701,940
K	556,758	556,788	3,355	3,977	125,238	129,143	685,351	689,908
L	556,758	556,788	3,104	3,720	113,923	117,828	673,785	678,336

The estimated number of test positive animals missed during 2008 and 2009 combined for each option as compared to a 100% testing is outlined in Table 2. Table 3 displays the percentage of test positive animals missed per option during 2008 and 2009 combined. The results in both tables are based on a conservative assumption that the prevalence of BSE in Great Britain will remain constant for cattle born from July 2001 (estimates show a declining prevalence for cattle born from July 1996 to July 2001 – see Annex 4). Both variability and uncertainty are considered in the model and this is represented by 5<sup>th</sup> and 95<sup>th</sup> percentiles within parentheses, which indicate the range within which 90% of the results lie.

**Table 2: Comparison of Options by the estimated number of test positive animals missed during 2008 and 2009 assuming flat prevalence of BSE from July 2001**

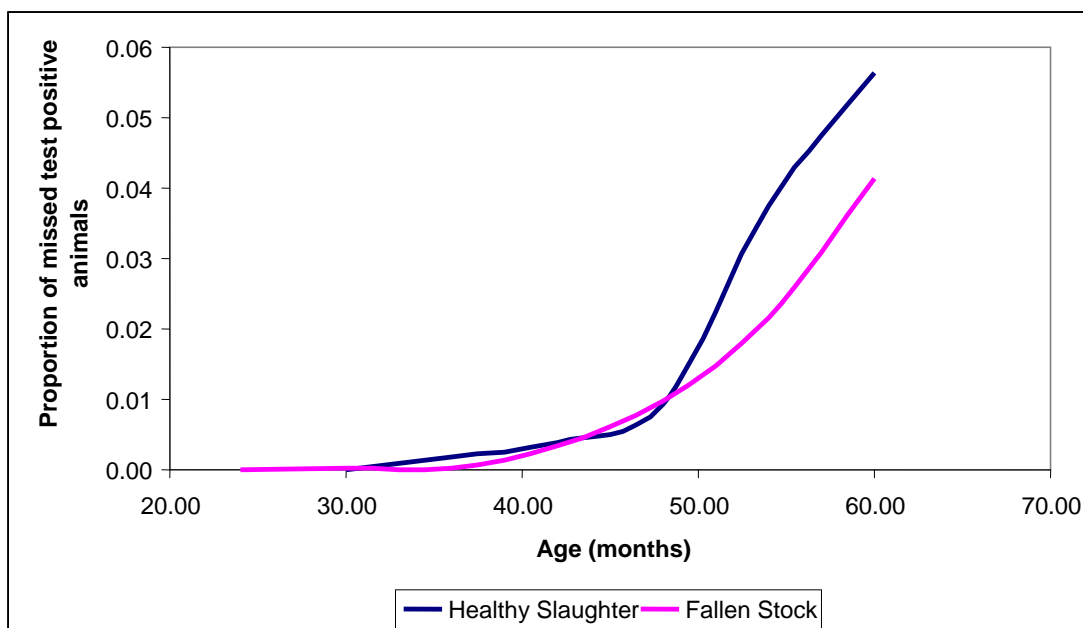
Control option	Number of test positive animals missed (mean, min, max)		
	Healthy slaughter	Emergency slaughter	Fallen stock
A	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
B	$2.3 \times 10^{-3}$ ( $2.1 \times 10^{-4}$ , $1.0 \times 10^{-2}$ )	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
C	$4.7 \times 10^{-3}$ ( $4.3 \times 10^{-4}$ , $2.0 \times 10^{-2}$ )	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
D	$1.1 \times 10^{-2}$ ( $9.3 \times 10^{-4}$ , $5.0 \times 10^{-2}$ )	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
E	$4.5 \times 10^{-2}$ ( $3.1 \times 10^{-3}$ , $2.0 \times 10^{-1}$ )	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
F	$6.7 \times 10^{-2}$ ( $4.7 \times 10^{-3}$ , $3.0 \times 10^{-1}$ )	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
G	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 ( $2.1 \times 10^{-4}$ , $1.0 \times 10^{-2}$ )
H	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 ( $2.1 \times 10^{-4}$ , $1.0 \times 10^{-2}$ )
I	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	$1.5 \times 10^{-2}$ ( $1.8 \times 10^{-3}$ , $1.3 \times 10^{-1}$ )
J	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	$4.2 \times 10^{-2}$ ( $5.0 \times 10^{-3}$ , $3.6 \times 10^{-1}$ )
K	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	$9.2 \times 10^{-2}$ ( $1.1 \times 10^{-2}$ , $7.9 \times 10^{-1}$ )
L	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	$1.7 \times 10^{-1}$ ( $2.1 \times 10^{-2}$ , $1.5 \times 10^0$ )

**Table 3: Comparison of Options by the average percentage test positive animals missed during 2008 and 2009 assuming flat prevalence of BSE from July 2001**

Control option	Percentage of missed test positive animals by stream (mean)		
	Healthy slaughter	Emergency slaughter	Fallen stock
A (current)	0.0%	0.0%	0.0%
B	0.19%	0.0%	0.0%
C	0.38%	0.0%	0.0%
D	0.94%	0.0%	0.0%
E	3.75%	0.0%	0.0%
F	5.63%	0.0%	0.0%
G	0.0%	0.0%	0.03%
H	0.0%	0.0%	0.03%
I	0.0%	0.0%	0.35%
J	0.0%	0.0%	0.98%
K	0.0%	0.0%	2.17%
L	0.0%	0.0%	4.13%

It can be seen from Tables 2 and 3 that the number and percentage of test positive animals missed in the Emergency Slaughter stream is always zero. For the Healthy Slaughter stream, the number of test positive animals missed during 2008 and 2009 combined is low and below one for all strategies; for the current strategy it is estimated that no test positive animals are missed. Similarly, for the Fallen Stock stream, the number of test positive animals missed during 2008 and 2009 is low and below one for all strategies considered.

The results in Table 3 are illustrated graphically in Figure 1; as Emergency slaughter is always 0.0%, these are not included in the Figure.



**Figure 1: Illustration of the mean proportion of missed test positive animals within the healthy slaughter and fallen stock streams for 2008 and 2009**

The number of test positive animals expected to be detected with the current strategy (Strategy A) and the other Options are outlined in Table 4.

**Table 4: Comparison of total number of test positives expected to be detected during 2008 and 2009 by Option assuming flat prevalence of BSE from July 2001**

Stream	Control option	Number of test positive animals expected by stream (mean, min and max)
Healthy slaughter	30 months (A)	1.19 (0.08, 5.27)
	36 months (B)	1.18 (0.08, 5.26)
	42 months (C)	1.18 (0.08, 5.25)
	48 months (D)	1.18 (0.08, 5.22)
	54 months (E)	1.14 (0.08, 5.07)
	60 months (F)	1.12 (0.08, 4.97)
Emergency slaughter	24 months (A)	0.08 (0.006, 0.37)
	30 -60 months (G-L)	0.0002 (0.0002, 0.01)
Fallen stock	24 months (A)	8.23 (0.57, 36.43)
	30 months (G)	8.23 (0.57, 36.42)
	36 months (H)	8.23 (0.57, 36.42)
	42 months (I)	8.20 (0.56, 36.30)
	48 months (J)	8.15 (0.56, 36.07)
	54 months (K)	8.05 (0.56, 36.64)
	60 months (L)	7.89 (0.55, 34.93)

### **Annual total infectivity**

To estimate the annual total infectivity, Model 1 of the BSE Control Model Version 5 has been run which provides an estimate the annual number of animals infected and the mean amount of infectivity per infected animal. The latter is described in Bovine Oral ID<sub>50</sub> doses. These results are inputted into

an Annual Extension model (Model 2) to provide an estimate of the total amount of infectivity entering the food chain per year. The units for this are also Bovine Oral ID<sub>50</sub> doses and not human oral doses.

Given the assumptions, data and modelling approaches outlined within Adkin et al., (2007), the number of animals by-passing controls annually, and the distribution of infectivity of those animals per year, the total amount of infectivity consumed by humans annually are shown in Table 5. These results are for the current control strategy (i.e. Strategy A). It should be noted that only animals destined for the food chain are included in Table 5 (e.g. Fallen Stock animals are not included).

**Table 5: Total infectivity consumed by humans per year (Bovine oral ID<sub>50</sub> per year)**

Year	Total infectivity consumed per year (Bovine oral ID <sub>50</sub> per year)
2008	96.95 (1.10, 257.35)
2009	34.29 (1.8x10 <sup>-3</sup> , 96.5)

It can be seen that from Tables 1 to 3 the number of missed test positive animals per Option is very low and less than 1 for 2008 and 2009. As such, there is minimal impact on the total annual amount of infectivity entering the food chain as the testing decreases for the Options outlined above. Given this, it was considered more useful to provide an estimate of the total amount of infectivity consumed by humans per year if 1, 2, up to 10 test positive animals were not detected and entered the food chain. In this circumstance, it is assumed that the SRM is removed as per current procedures. The results from this analysis are outlined in Table 6.

**Table 6: Total amount of infectivity consumed (BO ID<sub>50</sub>) per year if 1, 2, up to 10 test positive animals were missed**

Number of animals missed	Total infectivity consumed per year	
	2008	2009
1	98.4 (2.3, 258.1)	34.6 (2.2x10 <sup>-3</sup> , 96.9)
2	99.2 (2.8, 259.4)	34.8 (2.3x10 <sup>-3</sup> , 97.1)
3	99.9 (3.6, 260.2)	35.2 (2.6x10 <sup>-3</sup> , 97.3)
4	100.8 (4.5, 261.4)	35.5 (3.1x10 <sup>-3</sup> , 97.6)
5	101.6 (5.5, 262.5)	35.8 (3.6x10 <sup>-3</sup> , 98.0)
6	102.4 (6.1, 263.8)	36.1 (4.8x10 <sup>-3</sup> , 98.3)
7	103.2 (6.5, 264.4)	36.4 (0.1, 98.9)
8	104.1 (7.3, 265.9)	36.7 (0.4, 99.5)
9	104.9 (8.0, 266.9)	37.0 (0.7, 99.7)
10	105.8 (8.7, 267.3)	37.3 (0.9, 100.2)

It can be seen from Table 6 that the increased amount of total infectivity entering the food chain if 10 test positive animals were missed is 8.8 (7.6, 9.9) and 3.03 (0.97, 3.7) for 2008 and 2009 respectively. This latter amount is in

contrast to the 11 million Bovine Oral ID50 doses which Comer & Huntly (2004) estimated entered the food chain in 1993.

### **Overall conclusions**

The number of test positive animals missed for each of the proposed EFSA strategies is extremely low for both 2008 and 2009. Indeed, less than one test positive animal is missed for both healthy slaughter and fallen stock streams. It is for this reason that there is minimal impact on the total amount of annual infectivity entering the food chain if the age of testing is increased in line with the proposed strategies.

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8 April 2008**

### **References:**

Adkin, A., Nicholls, V., Arnold, M., Wells, G., and Matthews, D. (2007) BSE Control Model. Centre for Epidemiology and Risk Analysis. Veterinary Laboratories Agency. Version 4.0 dated 30<sup>th</sup> March 2007.

Adkin, A., Nicholls, V., Arnold, M., Wells, G., and Matthews, D. (in preparation) BSE Control Model. Centre for Epidemiology and Risk Analysis. Veterinary Laboratories Agency. Version 5.0 due for completion 31<sup>st</sup> March 2008.

Arnold, M., and Wilesmith, J. W. (2003) Modelling studies on BSE occurrence to assist in the review of the over 30 months rule in Great Britain. Proceedings of the Royal Society 270: 2141-2145.

Comer, P. and Huntly, P. (2004). Exposure of the human population to BSE infectivity over the course of the BSE epidemic in Great Britain and the impact of changes to the Over Thirty Month Rule. Journal of Veterinary Research 7 (5): 523-543.

## SEAC 100/4 ANNEX 3

### BSE test positive results in OTM cattle slaughtered for human consumption in Great Britain since November 2005<sup>3</sup>

	Date of birth	Date of death	Age at death (months)	Sex	Final result
1.	18/02/1997	28/07/2006	113	Female	Positive
2.	10/09/1999	01/09/2006	83	Female	Positive
3.	12/08/2002	06/09/2006	48	Female	Positive
4.	27/07/2000	27/04/2007	81	Female	Positive
5.	05/04/1999	28/06/2007	98	Male	Positive
6.	21/09/1998	04/09/2007	107	Female	Positive
7.	30/09/1997	04/02/2008	124	Female	Positive

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<sup>3</sup> There has been one BSE positive in an OTM bovine slaughtered for human consumption since November 2005 in Northern Ireland, of unknown age

**Estimate of prevalence of BSE infection in birth cohorts born after July 1996**

**Table 1** shows the maximum likelihood estimates of the prevalence of BSE infection in GB birth cohorts, provided by VLA's back-calculation model. (Arnold & Wilesmith, 2003). The model uses BSE surveillance and cattle demographic data. The maximum likelihood estimates are of the number of BSE-infected cattle per million born with a 95% confidence interval (CIs). The estimates for the older birth cohorts are more reliable and show a declining trend.

**Table 2** shows the actual number (i.e. the incidence) of BSE cases in GB birth cohorts born after July 1996, as at 31 December 2007. The incidence shows a declining trend.

The figures in Tables 1 and 2 are not directly comparable because Table 1 provides estimates of the number of BSE-infected animals per million cattle born, whereas Table 2 provides an absolute number of BSE cases detected at the end of 2007. The number of BSE cases detected is expected to be less than actual number infected as a proportion of BSE-infected cattle die before they develop detectable disease (either clinically or with rapid post-mortem tests).

**Patrick Burke,  
Defra**

Reference

Arnold, M.E. & Wilesmith, J.W. (2003) Modelling studies on bovine spongiform encephalopathy occurrence to assist in the review of the over thirty months rule in Great Britain. *Proc. R. Soc. Lond. B* 270, 2141-2145  
<http://journals.royalsociety.org/content/twj4ljm35ubnr01e/>

**Table 1: maximum likelihood estimates of prevalence of BSE (number infected per million born with 95% CIs) in BARB birth cohorts by date of estimate.**

Date of Estimate	GB Birth Cohort						
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
June 05	130 (80-180)	70 (40-100)	40 (20-70)	40 (20-70)	0 (0-24)	Not done	Not done
Sept 06	131 (81-181)	80 (50-110)	54 (30-80)	31 (17-51)	14 (4-33)	Not done	Not done
June 07	110 (74-156)	64 (43-91)	50 (33-72)	30 (17-49)	8 (1-21)	Not done	Not done
Feb 08	109 (73-155)	65 (44-92)	51 (34-72)	30 (17-48)	9 (2-21)	15 (5-33)	5.4 (0.3-24)

**Table 2: *actual* numbers (incidence) of BSE cases in BARB birth cohorts to 31 December 2007**

	GB Birth Cohort						
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Incidence of BSE to end 2007	50	42	32	17	6	5	2