



Transmissible Spongiform Encephalopathies (TSEs): **The case for the relaxation of sheep controls**

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THE NATIONAL SHEEP ASSOCIATION

**A NSA REPORT ASSESSING THE CURRENT SITUATION REGARDING
OVINE TSE CONTROLS AND MAKING RECOMMENDATIONS FOR PROGRESS
TOWARDS THE RELAXATION OF RELEVANT REGULATIONS**

TSE Report

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GLOSSARY OF ACRONYMS

AHVLA	ANIMAL HEALTH AND VETERINARY LABORATORIES AGENCY
BSE	BOVINE SPONGIFORM ENCEPHALOPATHY
CJD	CREUTZFELDT-JAKOB DISEASE
EFSA	EUROPEAN FOOD SAFETY AUTHORITY
EU	EUROPEAN UNION
FSA	FOOD STANDARDS AGENCY (UK)
NSA	NATIONAL SHEEP ASSOCIATION
SRM	SPECIFIED RISK MATERIAL
TSE	TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES

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Transmissible Spongiform Encephalopathies (TSEs) are a group of degenerative fatal diseases affecting the brain. TSEs include scrapie in sheep and goats, Bovine Spongiform Encephalopathy (BSE) in cattle and Creutzfeldt-Jakob Disease(CJD) in humans.

Scrapie exists in two similar but unrelated forms: classical and atypical. Classical scrapie is contagious between sheep. Lateral transmission of classical scrapie occurs naturally, possibly through consumption of or exposure to infected placentas. Infection may also be transmitted to lambs through the milk of infected ewes. Classical scrapie is seen most commonly in animals aged between two and five. A typical scrapie (Nor98) is a spontaneously occurring, sporadic, degenerative brain condition of older sheep and goats (generally over five years of age).

Regulations for the monitoring of ovine TSEs were brought in as a related precaution alongside BSE controls following the BSE crisis of the mid-1990s, as it was feared BSE might cross species from cattle to sheep and that BSE may present in sheep in the form of scrapie. The practice of feeding meat and bone meal in ruminant rations, and potentially feeding infected material, was identified as a potential risk to human health. Following the BSE crisis the feeding of mammalian protein to ruminants was prohibited, with strict controls set in place.

In the field, over nine million samples have been taken by 2014 across

all EU member states and not a single case of BSE being transmitted naturally to sheep has ever been found. In laboratory conditions it was found to be possible to infect sheep with BSE, although this was achieved only by feeding fresh infected brains, something never practiced. In addition, BSE infection of sheep achieved under laboratory conditions showed that contamination was not just restricted to Specified Risk Material (SRM) with up to 30% of inactivity distributed through edible parts of the sheep carcass, including in young sheep. Yet TSE controls only require that SRM material be removed from sheep over 12 months of age (as defined by the emergence of the first permanent incisors), suggesting it was accepted that any risk of BSE crossing species naturally was low.

The similarities between BSE and scrapie characteristics led to theories that scrapie could be a risk to human health. Extensive research has shown BSE and scrapie to be unrelated diseases and found **no evidence of a human health risk** from

ovine TSEs. Scrapie is a long standing and naturally occurring disease of sheep that is a challenge for sheep productivity rather than any risk to human health.

On 1st March 2013 the requirement to test healthy slaughtered cattle for BSE ceased for all animals born in EU states (except Romania and Bulgaria). As BSE testing requirements are being relaxed, the rules regarding ovine TSE monitoring, which were originally introduced as a parallel precaution to these requirements, must also be reviewed. These regulatory practices create inconvenience and confusion, are costly to the sheep industry, the government and the national economy, and undermine confidence in sheep farming.

CURRENT OVINE TSE CONTROLS

Removal of Specified Risk Material (SRM)

Regulation (EC) No. 999/2001 of the European Parliament requires the removal of SRM from the carcasses of UK sheep slaughtered for human consumption, in order to prevent this tissue entering the human food chain. Theoretically, SRM includes those tissues which might potentially harbour detectable TSE infectivity. The parts of UK sheep presently specified as SRM vary between sheep aged under 12 months and sheep aged over 12 months (as defined by the emergence of the first permanent incisors).

- For sheep of all ages: the spleen and ileum.
- For sheep aged over 12 months or with a permanent incisor erupted through the gum: the skull (including the brain and eyes), tonsils and spinal cord.

It is an offence in the UK to remove the spinal cord except by splitting the whole vertebral column or removing a section of the whole vertebral column

including the spinal cord. Other EU states only require the removal of as much SRM as possible, while in the UK 100% SRM removal is compulsory; the UK is therefore gold plating European law.

UK TSE Testing Programme

Regulation (EC) No. 999/2001 of the European Parliament requires that EU member states perform active surveillance of TSEs in sheep, goats and cattle. The UK must test the following quotas of sheep annually:

- 10,000 sheep which die or are killed other than for human consumption (fallen stock) aged over 18 months
- 10,000 sheep which are slaughtered for human consumption aged over 18 months

The UK must also test sheep from scrapie infected flocks (see below).

The 10,000 fallen stock samples are obtained from carcasses chosen for testing randomly at animal

by-products plants and on routine inspections by Animal Health and Veterinary Laboratories Agency (AHVLA). The Government arranges and funds the collection, testing and destruction of animals chosen for sampling.

Compulsory Scrapie Flocks Scheme (CSFS)

Regulation (EC) No. 1915/2003 of the European Union imposes compulsory controls on sheep flocks found to be infected with scrapie. In flocks where there is a confirmed case of classical scrapie the following options are available:-

- Genotyping of the flock and killing of sheep with susceptible genotypes
- Whole flock killing (this is an exceptional measure)

The UK Government funds the implementation of the CSFS domestically. In flocks where a case of a typical scrapie is confirmed it is possible to opt for monitoring rather than culling.



A COMPARISON OF CATTLE AND SHEEP CONTROLS

Overview of regulations for cattle

In the UK the requirement to test healthy slaughtered cattle for BSE ended on 1st March 2013. This applies to cattle born in EU Member States (except Bulgaria and Romania)

– see table. Opinion published by the European Food Safety Authority (EFSA) in December 2010 indicates that change to the testing regime is likely to have a minimal impact on the potential for animals with

classical BSE entering the food chain. The Spongiform Encephalopathy Advisory Committee (SEAC) has also advised that in the short-term there is likely to be an insignificant additional risk to human health as a result of making this change.

Clearly it is considered that this relaxation of BSE controls will not present a significant increase in the human health risk associated with BSE.

UK BSE TESTING REQUIREMENTS FOR CATTLE POST 1ST MARCH 2013			
Country of Birth	Age over which all cattle require BSE testing		
	Healthy; fit for human consumption	Emergency slaughtered; fit for human consumption	Fallen stock; not fit for human consumption
UK	No testing required (from 1st March 2014)	48 months	48 months
Most EU Member States	30 months	24 months	24 months
Bulgaria			

Source: <http://www.defra.gov.uk/animal-diseases/a-z/tse/>

Comparison with regulations for sheep

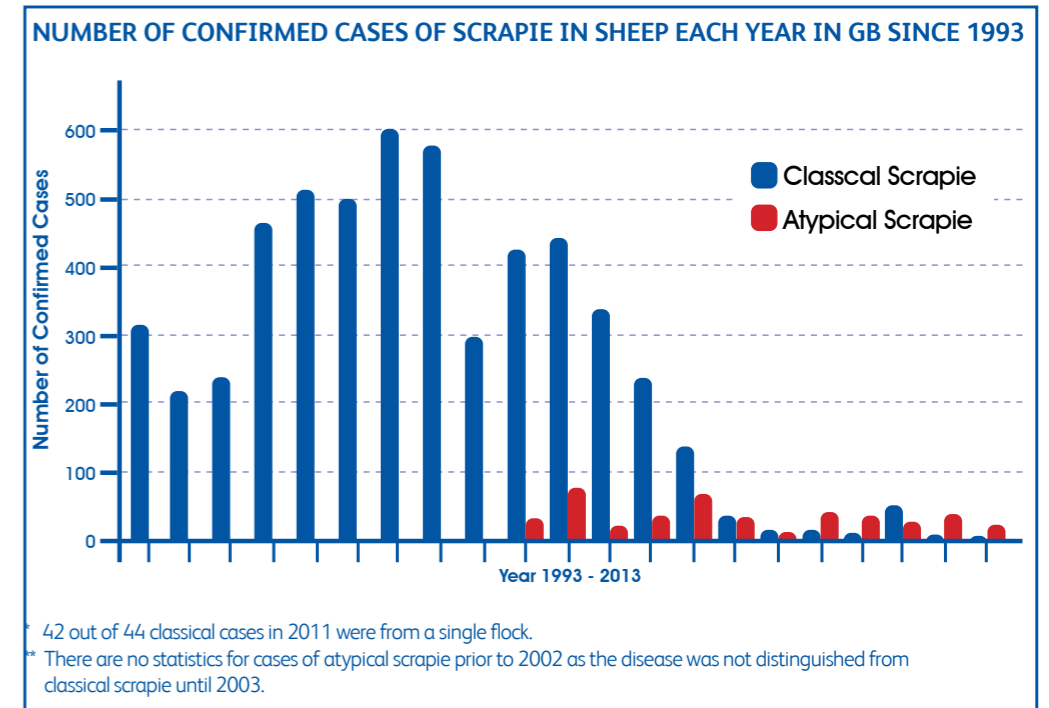
Ovine TSE controls were originally introduced alongside BSE testing regulations as a precautionary measure, due to concern over the potential transfer of BSE to sheep and a possible relation between BSE and scrapie. There

is currently no evidence of the natural occurrence of BSE in sheep or that BSE and scrapie are related. There is also no evidence of a risk to human health from ovine TSEs. Cattle are susceptible to the natural contraction of BSE, the disease strongly linked

to variant CJD in humans. In light of these facts, it is logical that as the relaxation of BSE regulations for cattle is not considered a significant human health risk, a relaxation of ovine TSE controls would constitute an even lesser risk, if any.

The decline in scrapie cases

Confirmed cases of scrapie in the UK have declined substantially over the last decade (see appendix 1). The drop in cases of classical scrapie has been credited to the implementation of a selective breeding programme aimed at reproducing genotypes resistant to classical scrapie and the culling of susceptible genotypes. Although atypical scrapie can be contracted by genotypes resistant to classical scrapie, atypical scrapie is not transmitted naturally between individuals and emerges only sporadically in a flock.



Source: <http://www.defra.gov.uk/ahvla-en/files/pub-tse-stats-sheep.pdf>

COSTS OF PRESENT CONTROLS ON THE INDUSTRY

Costs of carcass splitting

The removal of the spinal cord from sheep aged over 12 months or with a permanent incisor erupted through the gum is currently undertaken in the UK through the process of carcass splitting, in which carcasses are halved length ways down the vertebral column. The costs associated with this, according to information gathered by NSA, include:-

• Slower slaughter line speeds:

Carcass splitting increases the time taken to process an animal on the slaughter line, resulting in slowing slaughter lines by in excess of 50%. Assuming the cost of running an average slaughter line is £700 per hour and the throughput without splitting is 500 lambs per hour, this effect increases the cost of this part of the slaughter process per carcass from £1.40 to over £2.80. The slowing of slaughter lines by splitting leads to an estimated annualised increased cost to processors of approximately **£262,000**. Although this cost is borne by the processor directly, it is passed to farmers through lower carcass values.

• Devaluation of the carcass:

Splitting devalues the carcass, as spinal cord removal represents a clear

identification of a carcass as coming from an older animal. Buyers also prefer 'whole' carcasses as splitting limits butchery options. The consequent devaluation of carcasses through splitting is estimated at 40%, so based on an assumed average un-split carcass value of £80, this is a value reduction of £32 per split carcass. Assuming 14 million lambs are slaughtered each year, and 5% (700,000) of those are split, the annual average lost opportunity cost of carcass splitting is approximately **£22.4 million**. This cost is borne by farmers through lower carcass values. The devaluation of carcasses caused by splitting also limits opportunities for the export of UK sheep meat (see below).

• Checking for teeth in live markets:

There is a cost to live markets of checking for teeth in sheep which pass through them to establish whether they will require splitting. Identifying sheep with visible permanent incisors enables live markets to direct sheep towards suitable buyers. According to Eblex, 2.156 million old season lambs (commonly defined as lambs aged between a year and two years, having no more than one pair of permanent incisors) passed through British auction

markets in 2012. Assuming a cost of checking for teeth of 30p per old season lamb, the total cost to British auction markets of tooth checking in 2012 was **£646,800**.

Without considering its effect on the export potential and domestic competitiveness of UK sheep meat, the estimated total yearly cost of carcass splitting to the UK sheep industry is approximately **£23,308,800**.

Cost to exports by association

Implementation of strict ovine TSE controls diminishes the reputation of UK sheep meat on the export market. The enforcement of stringent rules around scrapie gives the impression to potential importers that UK sheep are not healthy animals that produce safe, high quality meat, thereby reducing international demand for UK sheep meat. This effect is enhanced by the popular association of scrapie with BSE. As mentioned above, the export potential of UK sheep meat is also reduced by the practice of splitting carcasses. It is difficult to put a figure on this disadvantage, however export demand is growing and the UK is not optimising its contribution to export values.

ALTERNATIVES AND POTENTIAL AMENDMENTS TO TSE CONTROLS

Spinal cord removal by suction

Elsewhere in the EU, notably in France, the spinal cord of older sheep is removed by sucking SRM from the carcass, thereby removing the necessity to split the carcass and avoiding the associated devaluation suffered by split carcasses. Removal by suction has costs of its own, however, including:

- 1 The capital cost of the equipment for processors, estimated at £8,000-£12,000 per unit (Source: Eblex, 2012). This cost is likely to prove too great to allow the successful introduction of spinal cord removal by suction in the UK.
- 2 Continued reduction in slaughter line speed. Indications are that alternative systems of spinal cord removal are no quicker than splitting.
- 3 Continued carcass devaluation. The carcass damage involved in removal of the spinal cord by suction can be seen as an indicator of an older animal in the same way as that caused by splitting; although they remain whole, carcasses which have undergone removal by suction therefore continue to suffer devaluation.

In addition, suction equipment is not reliably able to thoroughly remove all the SRM from a carcass so would require an end to the gold plating applied to the current EU legislation by the Food Standards Agency.

Carcass splitting at emergence of the second pair of permanent incisors

Domestic regulations currently require carcasses to be split if the animal is over 12 months old or a single permanent incisor has emerged. Lambs' incisors generally emerge in pairs and the emergence of just a single incisor is unlikely. The eruption of a lamb's first incisors is unpredictable and can occur at varying points in development and so their emergence therefore cannot provide an accurate measure of an animal's age, and an animal aged significantly under 12 months may have its first set of incisors. As the earliest onset form of scrapie does not commonly occur until two years of age, the current splitting of carcasses aged 12 months and potentially younger is unnecessary. Upland farmers grazing some of our most iconic indigenous breeds are particularly badly hit by the 12-month/first incisor rule. The hard terrain of upland areas often results in lambs taking longer to reach killing weights, but grazing this type of sheep in less favoured areas has environmental, social, health and economic benefits that go beyond the direct farming economy and should therefore be supported.

Introducing the splitting of carcasses where a second set of permanent incisors have emerged or the animal has reached 24 months of age would prevent the splitting of carcasses too young to be at risk of scrapie, while ensuring that the spinal cord would still be removed from all sheep of the age commonly susceptible to the disease.

Alternatively, a precedent has already been set with sheep identification rules that the end of June following the year of birth marks the 12-month age for all lambs regardless of when precisely they were born in the year previous. Using the end of June as a cut off-date, after which all carcasses would be split, would reduce the time and cost of checking for teeth. It would also be far more transparent and farmers, markets and abattoirs would all be very clear on where they stood.

* See NSA's The Complementary Role of Sheep in Less Favoured Areas report for the full range of benefits provided by sheep grazing in upland areas of the UK

NSA RECOMMENDATIONS

1 The EU Commission should, with urgency, give its attention to the European Food Safety Authority (FSA) report on Scientific Opinion on BSE/TSE Infectivity in Small Ruminant Tissues published in 2010 and act on the recommendations it contains, including its suggestions for the improvement of data collection and risk assessment in this area. Read the report at www.efsa.europa.eu/en/efsajournal/doc/1875.pdf.

2 TSE controls for sheep should be relaxed and the practice of carcass splitting ended. There is no evidence that BSE can be transferred to sheep in non-laboratory conditions; feed controls no longer allow mammalian protein to be fed to ruminants; and there is no evidence of any link between scrapie and degenerative brain disease in cattle or humans. In spite of this, carcass splitting continues to incur huge costs to the sheep industry and reduce the competitiveness of UK sheep meat domestically and on the world market

3 As an immediate measure we would recommend one of two alternatives be adopted for determining when carcasses have to be split and SRM removed:-

- a) the 12-month age limit for carcass splitting should be interpreted as being the end of June following the year of birth rather than using visible permanent incisor eruption. This would reduce the time and cost of checking for teeth. There is already a precedent for this system of age identification being used for the EID tagging of slaughter lambs;
- b) or the age at which sheep are required to be split should be increased to 24 months or where a second pair of permanent incisors has emerged. As the earliest onset form of scrapie does not commonly occur until two years of age, the current splitting of carcasses aged twelve months and potentially younger is unnecessary

Either alternative would result in a dramatic fall in the number of lambs being split and would take considerable uncertainty away from farmers, as emergence of the first incisors (which almost always erupt as a pair) is unpredictable and can occur at varying ages and points in development, meaning carcasses which are not older animals are therefore sometimes identified as older and unfairly devalued as a result.

4 The Food Standards Agency should cease insisting on 100% SRM removal in UK abattoirs when other EU Member States only require the removal of as much SRM as possible. The UK is gold plating a European requirement and the burden on abattoirs could be reduced without any changes being made to the law.

5 Scrapie testing in sheep should continue in order to further improve the health status and productivity of sheep.





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