



QUESTION TO SEAC REGARDING MAMMALIAN MEAT AND BONE MEAL AS FERTILISER ON AGRICULTURAL LAND

Issue

1. Defra has asked SEAC to comment on the scientific validity of the methodology used and assumptions made in the release assessment of rendered category 3 animal by-products as fertiliser.

Background

2. The use of mammalian meat and bone meal (MMBM) in all farmed livestock feed was banned in the UK in 1996 as a BSE control measure. At the same time, in an attempt to cut off all possible routes by which livestock could have access to MMBM, the use of MMBM as fertiliser on agricultural land was also banned. The ban did not extend to blood or catering waste, or MMBM derived from them.
3. In 2002, new EU-wide legislation was introduced which controls the use and disposal of animal by-products (animal carcasses, parts of animal carcasses and other products of animal origin which are not intended for human consumption). This legislation, the Animal By-Products Regulation (EC) No 1774/2002 categorises animal by-products as follows –
 - Category 1 (the highest risk material) animals with a suspected or confirmed TSE, Specified Risk Material, zoo animals, etc.
 - Category 2 condemned meat, diseased animals, etc.
 - Category 3 low risk material (most of which is fit for human consumption but not intended for human consumption).
4. The EU Regulation specifies the permitted outlets for each category of material. Category 1 material must be destroyed,

either by incineration or by rendering¹ followed by incineration or landfill.

5. Category 2 must be dealt with in the same way, although there are some limited additional uses for rendered material such as use of the tallow in oleochemicals or the meat and bone meal as fertiliser. If meat and bone meal is to be used as fertiliser, it must first have been reduced to a particle size of no more than 50 mm and rendered at a minimum of 133°C and 3 bar pressure for at least 20 minutes (pressure cooking).
6. Category 3 material may also be used as fertiliser (after pressure cooking as for Category 2 material if it is mammalian material) or in petfood. Where the TSE controls permit it (eg fishmeal to non-ruminants) it may also be used in livestock feed after rendering to appropriate standards. EU legislation requires Category 3 processing lines to be in a separate building from Category 1 and 2 lines, and for the processing of fish by-products intended for livestock feed to be carried out in a dedicated plant.

Composting

7. The EU Regulation allows for the treatment of category 3 animal by-products in an approved composting or biogas plant. Such plants may also treat category 2 material which has first been pressure cooked. Category 3 by-products must be reduced in size to 12 mm and treated to 70°C for at least one hour as part of the process of aerobic digestion (composting) or anaerobic digestion (biogas). The treated material can then be applied to land as fertiliser providing the land is not cropped for feedingstuffs or grazed for two months (pigs) or three weeks (other farmed animals). These no-grazing periods were determined on the basis of an independent risk assessment² (Annex 4) and are primarily aimed at minimising the risks from exotic conventional diseases such as Classical Swine Fever, rather than TSEs.

¹ Rendering is a method of cooking large quantities of material. Usually the material is reduced in size and is then heated, possibly with added fat or under pressure. Water is driven off and the resulting material is separated into two streams – the fat fraction (“tallow”) and the proteinaceous fraction (“meat and bone meal”).

² Gale, P. Risk to farm animals from pathogens in composted catering waste containing meat. *Veterinary Record*. 2004; 155:77-82. Commissioned by Defra

New methods

8. EU legislation has recently been agreed which will permit the use of some new methods of treating all three categories of animal by-products and we will shortly be able to approve their use in the UK. These methods include treatment by alkaline hydrolysis (alkali solution with 150°C, 4 bar pressure for 3 hours for mammalian material other than TSE infected carcasses) and the use of tallow to produce biodiesel. Even after processing by these methods, the EU legislation would still require residues from the treatment of category 1 or category 1-derived material to be disposed of by landfill or incineration. However, residues from the treatment by these methods of category 2 or category 3 material could be applied to land, subject to the no-grazing periods described above.

Previous SEAC and European Food Safety Authority (EFSA) consideration

9. Previous SEAC and EFSA advice concerning the use of MMBM in fertiliser is given in Annex 1.

Legislative conflict

10. There is a conflict between the EU legislation and our national (UK) legislation. In contrast to the EU legislation, our national legislation does not permit the use of MMBM as fertiliser on agricultural land, even if it is derived from category 2 or 3 material. Although we are currently permitted to maintain national standards in this area, the Commission intends to seek a scientific opinion with a view to introducing EU wide rules on fertilisers.
11. There is also an anomaly within the national legislation. Category 3 mammalian by-products can be treated in a biogas or composting plant and the treated material applied to land yet if it is treated to a higher standard in a rendering plant (i.e. higher time/temperature/pressure parameters, albeit without the digestion process) it cannot be applied to agricultural land.
12. Defra wish to review the restrictions on the application of MMBM to agricultural land and decide whether to permit the application of residues from the novel treatment systems. The aim is to enable consistent standards to be applied in the UK, and also to inform our negotiating position when the European Commission proposes changes to the EU standards. As part of this review,

Defra will consider whether additional control measures are needed if MMBM is to be applied to land (for example, whether the MMBM should be incorporated into other material to make it unpalatable to livestock or whether its use should only be permitted on premises where no ruminants are kept). As an initial step, Defra wishes to determine whether MMBM can safely be applied to land.

13. Defra commissioned the VLA to conduct a release assessment³ to estimate the TSE related risks associated with the use of rendered Category 3 animal by-products as fertiliser on non-pasture land. This assessment concludes that the level of contamination on grassland where fertiliser has been applied containing MMBM derived from category 3 material is extremely low (a mean result of 2.4×10^{-6} Ovine Oral ID₅₀ per m³ for sheep scrapie and 2.0×10^{-11} Bovine Oral ID₅₀ per m³ for BSE).
14. A summary of the release assessment is at Annex 2. The full assessment is at Annex 3. These papers contain pre-publication scientific information therefore are regarded as confidential and have been circulated to SEAC members, departmental assessors and technical advisers only.
15. For bovine BSE, the mean estimate of the level of fertiliser contamination was lower by one order of magnitude than that assessed for composted catering waste containing meat (see table below and Annex 4)⁴. Although the two models are different, it is logical to assume that if a full risk assessment had been commissioned concerning TSE risks of MMBM application to land, the number of positive cases per year of BSE in cattle would also be below that found for composted catering waste (for further details, please see pages 72 and 73 of Annex 3).

³ A complete risk assessment comprises of release assessment, exposure assessment and consequence assessment, culminating in a risk estimate. Currently, only the first of these steps, the release assessment has been quantitatively assessed.

⁴ Gale, P. Risk to farm animals from pathogens in composted catering waste containing meat. *Veterinary Record*. 2004; 155:77-82. Commissioned by Defra

Results from risk assessments conducted into BSE infectivity from the recycling of animal by-products as soil improvers

Fertiliser product	Estimated mean level of infectivity in soil improver (BO ID ₅₀ /tonne)	Positive cases per year	Reference
Composted catering waste containing meat	1.2×10^4	0.0035	Gale 2004
Rendered C3 animal by-products (mean estimate)	1.2×10^5	Not assessed	Adkin et al., 2005

For sheep scrapie and theoretical ovine BSE, there are no equivalent studies to compare the results of the release assessment to indicate the final level of positive cases per year.

16. In summary, the release assessment suggests that the TSE risks to livestock from land where fertiliser derived from Category 3 MMBM is applied are very low. Providing SEAC are content with the approaches used, and assumptions made, in the release assessment, Defra will consider appropriate changes to the current national legislation to bring the UK more closely into line with the EU Regulation on the use of Category 3-derived material. Defra intends to carry out further release assessments to look at the risks from MMBM derived from category 2 material and from residues from alkaline hydrolysis treatment in the future.

Advice sought from the committee

17. The Committee is asked to comment on the scientific validity of the methodology used, and assumptions made, in the release assessment.

The Committee is asked to comment on the findings of the release assessment.