

ADVISORY COMMITTEE ON ANIMAL FEEDINGSTUFFS

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**PREVENTION AND CONTROL OF SALMONELLA
CONTAMINATION OF ANIMAL FEEDINGSTUFFS**

Secretariat April 2001

PREVENTION AND CONTROL OF SALMONELLA CONTAMINATION OF ANIMAL FEEDINGSTUFFS

Introduction

1. Each link in the food chain has a part to play in reducing the risk of human infection caused by salmonella. This includes the production of animal feedingstuffs. Contamination of animal feed is low in the UK with the two most important serotypes associated with human disease, *S. enteritidis* and *S. typhimurium*, infrequently isolated. In 1999, there were seven confirmed reports of *S. typhimurium* in final feeds and none for *S. enteritidis*.

Salmonella Infection in Feedingstuffs

2. There are a number of potential sources of salmonella in feedingstuffs. These include; raw materials; rodents, birds and fomites in milling and storage areas; contamination of cooling equipment and “caking” of the product; rodents/pests in storage areas of the final product; contaminated lorries and transport; and contamination in farm stores and feeding equipment.
3. Salmonella is monitored at a number of points in the production process and MAFF codes of practice outline the basic measures that need to be applied to prevent and control contamination of feedingstuffs.

Reporting and Monitoring of Salmonella in Feedingstuffs

4. In Great Britain, Section 29 of the Animal Health Act 1981 empowers ministers to make an order designating any organism which constitutes a risk to human health and applying any provision of the Act to that organism. The equivalent provisions for Northern Ireland are contained in Articles 7 and 10 of the Diseases of Animals (Northern Ireland) Act 1981.
5. Accordingly, the Zoonoses Order 1989 designates organisms of the genus salmonella for the purposes of Section 29 and applies certain provisions of the Animal Health Act 1981 with a view to reducing any risk to human health. In Northern Ireland the Zoonoses Order (NI) 1991 similarly designates salmonella organisms.
6. Article 8 of the Zoonoses Order 1989 requires that where the presence of salmonella is identified in a sample taken from an animal or bird, or from the carcass, products or surroundings of an animal or bird or from any feedingstuff, then this fact must be reported to a MAFF veterinary officer by the person in charge of the laboratory where the examination is carried out or the person carrying out the examination where it is conducted other

than in a laboratory. The report must contain specific information detailed at Schedule 2 of the Order including the identity of the organism, the nature of the sample from which it was isolated, details of the premises at which the sample was taken, the species and type of animal or bird from which the sample was taken, the date the sample was examined, name and address of the person submitting the report and signature if the report is written. The MAFF officer must also be provided with a culture of the organism if required. Article 10 of the Zoonoses Order (NI) 1991 makes similar provision in respect of the reporting of salmonella in Northern Ireland.

7. Both the above Orders allow MAFF/DARDNI veterinary staff to enter any premises, take samples and carry out enquiries, examinations and tests to ascertain whether salmonella is or has been present. MAFF/DARDNI veterinary staff are also empowered to serve notices declaring premises to be infected and to detain or prohibit the movement on and off the premises of animals or birds, carcasses, products, feedingstuffs, excreta, equipment, utensils and vehicles, except under licence. Notices may also be served requiring the cleansing and disinfection of premises where salmonella is known to have been present.
8. For animal feeds that contain animal protein there is a structured monitoring system under the Animal By-Products Order 1999 which is discussed in more detail below. For feedingstuffs that do not contain such protein, monitoring takes the form of passive surveillance of samples submitted to laboratories for analysis, either as part of a routine, voluntary programme or because contamination is suspected. MAFF, in consultation with the industry, has issued codes of practice for the control of salmonella in feedingstuffs which recommend testing for salmonella at various critical control points. These are also discussed in more detail below. In 1999, over 50,000 samples were examined for salmonella by the industry.
9. Additionally, in 1992 the Expert Group on Animal Feedingstuffs chaired by Professor Lamming, while recognising that the feed industry was already extensively regulated, made a number of recommendations some of which were specific to salmonella. In particular, the group recommended that laboratories report both positive and negative salmonella results for feedingstuffs and the source of the feedingstuffs to MAFF, and that these results be evaluated. This information is still collected by MAFF and published quarterly and on a cumulative basis as "Salmonella in Animal Feedingstuffs and Ingredients". A copy of the reports for January - December 1999 and January - September 2000 are attached at Annex 1 and 2 along with an explanation of the basis on which the information is collected at Annex 3. It was also recommended that the existing codes of practice be extended to include straight feedingstuffs, that surveillance be conducted into the quality of feed produced on farms and that all data on

salmonella infection/contamination be published in a single document. All of these were accepted by MAFF.

Statutory Controls

10. The feeding of mammalian meat and bone meal to all farmed livestock was made illegal from 29 March 1996.
11. From 1 January 2001, under Decision 2000/766/EC, fishmeal is the only processed animal protein that may be used in livestock feedingstuffs and then only in non-ruminant feedingstuffs. This decision will be reviewed in 6 months.
12. The Animal By-Products Order 1999 (ABPO) requires that animal by-products used in animal feedingstuffs are rendered (except for low risk material which can go direct to pet food manufacturers registered under the Order). Rendered material must comply with the microbiological standards of the Order, which for salmonella require that it be free of the organism.
13. Where rendered material is intended for use in feedingstuffs, other than swill or pet food, then the operator of the rendering plant must send a sample to a laboratory for testing for salmonella on each day that the material is consigned from the premises. Laboratories must be approved under ABPO to carry out testing and must participate in quality control assessments. If the test demonstrates that the rendered material is not free from salmonella, the operator must immediately notify the appropriate Minister and ensure that no further rendered material suspected or known to be contaminated is moved from the premises unless it is not to be used for feedingstuffs, or it has been re-rendered under the supervision of the appropriate Minister and resampled and retested with negative results. The operator must also establish the cause of failure of compliance, increase the rate of sampling and testing of rendered material, and instigate appropriate decontamination and cleaning procedures within the premises.
14. Similarly, under the terms of the Importation of Processed Animal Protein Order 1981, as amended, processed animal protein arriving from third countries is sampled on a random basis for the presence of salmonella at the Border Inspection Post. If a bulk consignment tests positive for salmonella in random sampling, the next consignment from that country is sampled. If positive, further consignments from that country are detained and sampled until samples from six consignments have been negative. Those with positive results are either subject to further treatment, directed to uses other than animal feedingstuff, destroyed or exported. A proportion of consignments of processed animal protein arriving from other Member States are sampled at their destination.

15. The Animal By-Products Order also controls the production of swill from catering waste for use in pig and poultry feed including the registration of premises and regular monitoring by the State Veterinary Service. Catering waste must be heat treated which is considered effective in the elimination of salmonellas.

Non-Statutory Controls

16. Materials other than animal by-products are not subject to similar statutory measures, however, where *S.enteritidis* or *S.typhimurium* is isolated in final feed at facilities producing feed for livestock as a result of non-statutory testing, MAFF will offer advice to the manufacturer. The aim is to minimise the risk that a single contamination incident will lead to persistent contamination of end products by identifying and correcting problems as part of the manufacturer's application of Hazard Analysis and Critical Control Point (HACCP) systems.
17. With the collaboration of the manufacturer, an investigation may be carried out to determine whether the facility is operating in accordance with the MAFF Codes of Practice for the Control of Salmonella in the Production of Final Feed for Livestock, to assess records to establish why the contamination occurred, to ascertain what corrective action has been taken and decide whether further action is necessary, to assess hygiene and microbiological hazards, to determine whether "hot-spots" of contamination are persisting and to collect epidemiological information for analysis.

Codes of Practice

18. Historically, MAFF has worked closely with industry in publishing and promoting voluntary codes of good practice in the control of salmonella during the storage, handling and transport of raw materials intended for incorporation into, or direct use as, animal feed, in the production of final feed for livestock and in the rendering and fishmeal industries. The codes recommend routine monitoring and testing as a means to facilitate risk assessment and enable corrective action to be taken. The application of Hazard Analysis Critical Control Point (HACCP) systems are also encouraged in the codes at all stages in the production of feed for livestock.
19. The relevant codes of practice are listed at Annex 4 and copies are available at the side table.

20. The codes of practice have been widely adopted in Great Britain and have been supplemented by additional codes and schemes introduced by UKASTA and the industry. For example, UKASTA operate a feed assurance scheme whereby approved mills are independently audited for compliance with the UKASTA Code, HACCP and codes issued by MAFF.

**ACAF Secretariat
MAFF
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Annexes

1. Salmonella in Animal Feedingstuffs and Ingredients 1999 (January - December)
2. Salmonella in Animal Feedingstuffs and Ingredients 2000 (January - September)
3. The collection of information on Salmonella in Feedingstuffs
4. MAFF Codes of Practice

ANNEX 3**The Collection and Evaluation of Information on Salmonella in Feedingstuffs**

The 1992 report of the Expert Group on Animal Feedingstuffs, chaired by Professor Eric Lamming, recommended that the Ministry should try to improve the information it collected on salmonella in animal feedingstuffs by collecting and evaluating data on the total number of tests carried out as well as the number which proved positive for salmonella.

Details of positive tests must be reported to MAFF in accordance with the Zoonoses Order 1989 and the Animal By-Products Order 1999 (ABPO). In addition, ABPO requires that laboratories must submit monthly returns to MAFF detailing the total number and results of tests carried out on rendered material.

A large proportion of tests, however, are conducted outside ABPO, usually in accordance with MAFF codes of practice. In response to the recommendations of the Lamming report, the Ministry asked all laboratories testing under Ministry Codes of Practice for the control of salmonella in animal feedingstuffs and their raw materials to report the total number of tests they carried out on different categories of feedingstuffs as well as the number which proved positive for salmonella. These figures are received on a monthly basis. The information is collated and returned to the participating laboratories and other interested organisations normally on a quarterly basis.

ANNEX 4

MAFF Codes of Practice

1. Code of Practice for the control of salmonella during the storage, handling and transport of raw materials intended for incorporation into, or direct use as, animal feedingstuffs
2. Code of Practice for the control of salmonella in the production of final feed for livestock in premises producing over 10,000 tonnes per annum
3. Code of Practice for the control of salmonella in the production of final feed for livestock in premises producing less than 10,000 tonnes per annum
4. Code of Practice for the control of salmonella for the UK Fish Meal Industry
5. Code of Practice for the control of salmonella in the animal by-products rendering industry

MAFF Codes of Practice are available from MAFF Publications, Admail 6000, London SW1A 2XX