ADVISORY COMMITTEE ON ANIMAL FEEDINGSTUFFS

50th Meeting of ACAF on 3 June 2010

Discussion Paper

GUIDANCE ON MINIMISATION OF PACKAGING MATERIAL IN ANIMAL FEEDS

Action Required:

The Committee is requested to:

(a) note the information set out in paragraphs 2 -24;

(b) consider the information that could usefully be covered in guidance to the food and feed industry to help them minimise the presence of packaging in material for feed use (paragraphs 25 -47); and

(c) confirm that it wishes guidance to be drawn up, and advise on its scope and format.

Secretariat
May 2010

GUIDANCE ON MINIMISATION OF PACKAGING MATERIAL IN ANIMAL FEEDS

Purpose

1. To provide the Committee with information on the scope, content and form of guidance that might be drawn up to assist food and feed businesses eliminate or minimise the presence of packaging material in feed.

Background

2. EU feed legislation[1] contains a list of materials that are prohibited for use in feeds or as feeds, and includes *' Packaging from the use of products from the agri-food industry, and parts thereof'.* This zero tolerance for the presence of packaging material in feeds (including pet foods) was introduced in the 1990s. It was in response to cases in another Member State, of the deliberate and possibly fraudulent addition of significant quantities of packaging material to feed, in order to add bulk at little or no cost and with no nutritional benefit.

3. In the UK and some other EU Member States, a number of feed businesses process surplus human food, much of which is packaged, for animal feed use. Typically, such businesses collect packaged surplus food from food manufacturers and retailers and use a range of processes to remove the packaging. During its mission to the UK on animal feed law enforcement in June 2009, the Food and Veterinary Office (FVO) of the European Commission visited a processor of surplus human food and found that the zero tolerance for packaging in feed was not being observed. In its response to the FVO's findings, the UK competent authority (FSA) indicated that it would address the issue of minimising amounts of packaging material in feed.

4. There are economic and environmental benefits related to the processing of human food for feed use, e.g. surplus food products may otherwise be sent to landfill. However, it is extremely difficult for businesses to comply with a zero tolerance for packaging material and it is understood that some EU Member States permit a *de minimus* tolerance for residues of packaging in feed. Moreover, the Commission has asked the European Food Safety Authority (EFSA) for an assessment on the safety of packaging material in feed. It is therefore possible that in the longer term, EU feed legislation could be amended to include a tolerance.

5. ACAF has had initial discussions on the possibility of drawing up a guide to best practice. The aim would be to assist businesses that process surplus foods to minimise amounts of packaging material in feeds. At its meeting on 3 March 2010, the Committee agreed that, in order to facilitate further discussion, a draft paper should be drawn-up, which would provide further background on the subject and detail on the areas that such guidance might address.

6. It should be noted that businesses processing surplus food products for feed use must comply with the range of legislation that applies to animal feeds. This

[1] Annex III of EC Regulation 767/2009 on the Marketing and Use of Feed

includes the requirements of EC Regulation 183/2005 on Feed Hygiene, EC Regulation 767/2009 on the Marketing and Use of Feed and EC Directive 2002/32 on Undesirable Substances. There is also TSE feed-related legislation. Food businesses supplying products for feed use must also, as appropriate, comply with this legislation, which is designed to ensure that feeds are produced and marketed safely and can be traced. However, this paper does not consider in detail compliance with this wider legislation and mainly focuses on controls in relation to the presence of food packaging materials in feed.

Industry and its practices

7. To inform the Committee's discussions on this subject, information has been collected on the operations of a number of businesses that process surplus human food for feed use. The Agricultural Industries Confederation (AIC - the organisation representing the feed manufacturing industry) surveyed 15 businesses for information on their activities. These businesses are all members of the Feed Materials Assurance Scheme (FEMAS), which is a voluntary industry assurance scheme and it is thought that this scheme represents 80% of the industry's output.

8. Responses to the AIC questionnaire were received from 14 businesses and these indicated that the amount of material processed is approximately 460,000 tonnes per annum. By way of comparison in 2009, total UK compound feed production was 13.9 million tonnes. In addition, AIC has been provided with information from feed manufacturers that incorporate material from processors of food products in their compound feeds. Also, to inform their consideration of the issues, a number of members of ACAF recently visited a processor engaged in the removal of packaging materials from food products for feed use.

9. The key findings are as set out in the following sections.

Types of food products typically processed

10. Types of food products processed include bakery products, such as bread, cake, biscuits, Yorkshire puddings, and surplus dough. Other products include breakfast cereals, snacks (including crisps and peanuts), sugar, confectionery (including chocolate), flour, and dairy products.

Types of packaging that may be present in food to be processed for feed purposes

11. The AIC survey of businesses indicated that the following packaging material may be present in food delivered to feed businesses and therefore they require systems to remove them: food wrappers of all types, cardboard, pallet wrap, foil, tin, polythene bags, plastic boxes, tote bags, shrink wrap, and bin liners.

Typical level of packaging in incoming food products

12. Responses to the survey indicated that levels of packaging contained in incoming material food products varied, including by the type of product and could

constitute 1-2%, but higher amounts were also quoted of 20%, and 40%. However, these higher amounts may refer to the amount of incoming surplus food that was packaged.

Processes employed to remove packaging

13. Businesses were asked what methods were used to remove packaging, and this revealed that a range of processes were employed varying from business to business. In many cases more than one type of process was used. Processes which were mentioned include the following:

sieving, aeration, manual removal, separator (understood to be equipment which sieves and aerates to remove packaging), bread wrapper strippers, breakers (machinery which chops incoming material prior to material being passed through a separator), crushing machinery, and grinding processes.

14. It is understood that most processes involve breaching the packaging, processing the product to reduce it in size so that it can be sieved and aerated and the above mentioned terminology, except for manual removal, covers these processes.

Internal standards

15. The questionnaire requested information on standards that businesses applied to the presence of packaging, e.g. a quantitative level of packaging residue in the final feed product. Many feed businesses reported that that they had no measurable standard but relied on visual inspection. Quantitative standards reported included levels of 200 mm^2 of packaging/10 litres of feed, and 200 mm^2/20 litres (the latter was developed for FEMAS assessors to use where product with high levels of packaging residue was visually identified).

Particle size of packaging in the final product

16. A number of businesses reported that the size and shape of packaging residues varied. Sizes quoted included 1 x 1 mm, 200 mm x 3 mm, 180 mm x 20 mm, 50mm x 100 mm, and 260 mm x 25 mm.

Systems to assess the presence of packaging in the final product

17. Businesses were asked what systems they had in place to check that excessive amounts of packaging were not present in the processed, final product for feed use. Most (twelve) businesses that responded said that they made visual checks on products. Two businesses said that they carried out quantitative checks. In many cases if products were found to have excessive amounts of packaging they were re-processed to reduce the levels.

End uses of material and problems reported

Products used by compound feed manufacturers

18. Businesses processing food materials generally sell mixtures containing mainly biscuits, breakfast cereals, snacks, confectionery and cakes to feed compounders. Processors often add a feed material such as wheat feed to such mixtures to act as a flow agent to ensure ease of handling, given the sticky nature of many food products. These mixtures are included in compound feeds for all species of animals, although the type of flow agent added may vary between feeds for ruminants and monogastrics.

19. There have been very few physical handling issues reported recently related to the presence of packaging materials at the point of intake by compound feed manufacturers. Over the same time period, there have been only a limited number of complaints from customers of feed compounders linked to the observation of packaging residues in feeds.

Products used by blending plants, i.e. producers of 'loose blends' for ruminants

20. Blending plant operators producing loose blends (a type of compound feed) for ruminants, purchase mixtures of food materials as described in Paragraph 18 from processors and blend them with other materials such as dried distillers' grains with solubles (DDGS), soya pellets, wheatfeed pellets, etc without further grinding or sieving. Thus, a biscuit/bakery/confectionery mix containing larger pieces of plastic (say 5 – 8 cm) is highly visible in a loose blend. In addition, the blending process does not usually include magnets or metal detectors. It is therefore critical that the initial processor of such surplus food materials removes as much packaging as possible and reduces the particle size thereof, as the blender has no ability to modify these. The only health problems recorded over the past ten years have related to metal staples puncturing the gut of ruminants and leading to peritonitis. Such cases are isolated but reinforce the need for removal of exterior packaging.

21. There are also some blending plants producing moist blends including bread and, for example, brewers' grains, liquids such as pot ale syrup, and dry feed materials such as palm kernel and wheat feed to aid flowability.

Processed products sold as mixtures or as feed materials (i.e. single materials) to farms

22. Surplus food processors sell mixtures such as those described in Paragraph 18 above direct to farm. Of these sales, approximately 70% go to ruminant farms for mixing with other feed materials and forages in mixer wagons. The remaining 30% are sold to pig and poultry producers who make their own feed (i.e. home-mixers).

23. Processed bread is the single largest feed material sold by processors or via feed merchants to farm, usually for feeding to ruminants. The bread is stripped of its packaging prior to sale. Virtually all of this bread is sold moist without further drying (dried product would be included in mixtures described in Paragraph 18). Very few pig and poultry home mixers purchase single food materials such as

bread direct from surplus food processors due to insufficient storage bins and/or problems with physical handling.

Surplus food materials sold direct to farm by food manufacturers

24. It is understood that some foodstuffs may be supplied direct to farms by the food industry, and such products do not undergo processing to remove packaging. This includes surplus material from salad packing plants, which may contain plastic forks and packaging material, and uncooked pastry products wrapped in cling film/cardboard. Other products supplied direct to farm would include 'stock feed' products like carrots and potatoes for which, in general, packaging should not be an issue.

Potential areas that could be included in guidance

Arrangements by food business operators prior to despatch of material

25. Food business operators do not regularly remove packaging prior to despatch of former foodstuffs from their premises and it is understood that it is not generally practical for them to do this. One of the established rationales of this trade, is that it is the receiving feed businesses that provides the capability to remove packaging material. **However, guidance could be provided to food business operators to remind them that the surplus material they supply to feed businesses, continues to be part of the food chain (via consumption by livestock) and certain precautions and good practices should be employed.**

26. Such practices could include the use of dedicated skips or containers for the holding of food material prior to supply to feed businesses. It is known that at least one feed operator provides compactors to food manufacturers for the storage and collection of surplus material. Procedures should be employed to ensure that food that is unacceptable for feed use (e.g. mouldy bread) is not supplied and that extraneous items are not included in skips (e.g. wood, glass, metals and plastics). **It is also considered that specifications regarding the type of materials that can be supplied or should not be present in materials supplied, could be specified in contracts between food and feed businesses.**

27. As it is understood that some food manufacturers supply surplus food products directly to farms **guidance could usefully point out that food businesses engaged in this practice should also be aware of the legislation on packaging residues and take steps to comply**.

28. The Food and Drink Federation (FDF), which is a major organisation that represents food manufacturers, has already issued guidance to its members on their responsibilities under feed legislation when they provide material for feed use. It plans to update this guidance, taking into account procedures relating to the supply of packaged material to the feed industry. **If appropriate, a reference to FDF guidance could be made in any guidance ACAF issues (if the FDF can make its guidance readily accessible).**

Arrangements by feed businesses including at intake

29. **Processors of food products for feed use should be aware of the type of food products that are supplied to them by food businesses.** This might be confirmed in agreements or contracts between suppliers and processors. It is understood that one company processing food for feed use requires its suppliers to complete a questionnaire to help the company assess the safety of food products that are to be provided. It also specifies guidelines for food establishments to follow and this includes a requirement that material supplied should avoid the presence of glass, metal, etc.

30. **In addition, guidance could recommend that visual checks should be carried out by operators to ensure that material received is of the type that has been specified in contracts and agreements and that obvious extraneous material is not present or can be removed.**

31. Given the large throughput of material at many establishments, and economic considerations, feed business operators say it is not feasible to remove large amounts of packaging manually. For instance, to remove the wrappers from sugar confectionery (chewy bars, sweets, etc) would be very labour intensive. However**, it is recommended that the manual separation of packaging should be considered for some types of material.** This includes the extraneous material mentioned above (wood, glass, metals, etc) and large pieces of packaging that mechanised systems may not be able to remove adequately or may not be of food quality.

Types and size/level of packaging

32. Much of the packaging (e.g. food wrappers) will be of a food grade. Nevertheless, the provision of a risk assessment (e.g. provided by way of an EFSA opinion) on the types of packaging likely to be present in feed would provide more information and assurances about the safety of residues of packaging present in low quantities. For example, such a risk assessment might cover the safety of printing inks, foil and wire used in packaging.

33. Pending such an assessment, **guidance might indicate that feed business operators should pay special attention to removing non-food grade packaging. This might include outer packaging (e.g. cardboard boxes that contain wrapped products such as chocolate bars).**

34. In relation to size/level of packaging residues in feed, it would be difficult, and perhaps inappropriate to recommend a maximum level, in advance of a detailed risk assessment as indicated in paragraph 32 above. The introduction of a tolerance specified in EU feed legislation may be one of the outcomes following the provision of an EFSA assessment.

35. However, **guidance could point out that businesses that apply good practices can achieve very low levels of packaging of residues in feeds.** For example, one business reported that measured packaging residues in its product were in the order of 0.03 – 0.04 % by weight in material derived from surplus

bread, and 0.02% in biscuit product. Package residue particle sizes were typically 1mm x 1mm which appear to be acceptable to the business's customers.

Mechanical processes to remove packaging

36. As indicated in paragraph 13 above, various mechanical processes are employed to remove packaging from food material. Any guidance drawn up would be too extensive or complicated if it were to recommend particular systems or types of machinery.

37. However, **guidance could generally indicate that operators should only accept material for processing for which they have the equipment and facilities to ensure that packaging can adequately be removed.** Best available techniques, which are economically viable should be used to remove as much packaging as possible. It might be appropriate to indicate in guidance **that feed business operators should be able to demonstrate to enforcement authorities that the mechanical systems they have in place operate effectively, are properly maintained and their effectiveness is regularly monitored.**

38. More specifically, the use of magnets to remove ferrous metals is a common practice at many feed manufacturers and it would appear reasonable to suggest that these are employed by businesses processing food material for use as animal feed, as these could remove material that might be of harm to animals.

39. **Certain practices might be avoided or be carefully controlled.** For instance, it is understood that the rate at which material is passed through mechanical processes may have an influence on the efficacy of packaging removal. **A slower throughput of material may be more effective in achieving significant extraction of packaging.**

40. Moreover, in some cases, after the initial application of mechanical processes to remove packaging from food products, the extracted packaging material may contain significant amounts of food product. In some businesses it is understood that such material ('back sievings') are added to another batch and processed for a second time to remove the packaging and recover the remaining food for feed use. The material processed for a second time inevitably contains a relatively greater percentage of packaging compared to the normal material used. Therefore, care should be taken to ensure that machinery can effectively remove packaging in such quantities.

Application of HACCP

41. EC Regulation 183/2005 on Feed Hygiene requires feed businesses (except most farms) to apply the principles of HACCP. Feed businesses processing surplus food for feed use should ensure their HACCP plans cover operations to remove packaging and related activities. HACCP includes written procedures relating to the identification of hazards and critical control points, monitoring procedures and the establishment of corrective actions that should be carried out to eliminate hazards, etc.

42. It would be inappropriate to prescribe in guidance, the detail of a HACCP plan that should be applied to an establishment that processes food material for feed use. Such a plan depends on an on-the-spot assessment to take account of an establishment's individual processes and systems.

43. Nevertheless, **guidance might indicate the requirement for businesses to have adequate HACCP procedures in place and that these should cover hazards relating to the presence of food packaging in feed.** It would be expected that, as a minimum requirement, the plans should identify the hazards relating to the types and amounts of packaging, how the presence of these is controlled, and appropriate monitoring to ensure control and corrective actions to eliminate hazards when they are identified.

Monitoring and measurement of packaging residues.

44. **It is good practice to make visual checks on processed products to ensure that they do not contain significant amounts of packaging.** However, it appears that mechanical removal processes could result in a quantity of small-sized residues remaining in the product which are not always easy to distinguish or measure by the naked eye. In these cases **it is recommended that more refined methods are applied at regular intervals to measure any residual amounts in the final product.** Such methods may involve sampling a specified volume of feed, weighing it and then separating and weighing any packaging residues. A preliminary assessment suggests that chemical analysis of feeds to determine the amount and type of packaging in feed may not be practical because of the varying make up of reprocessed food and the attendant packaging material present. In addition, paper packaging may be difficult to distinguish from analytes found in feed materials. However, if chemicals likely to be transferred from packaging to feed were identified, it would be possible for appropriate laboratories to analyse feeds for these.

Status of businesses

45. Many businesses engaged in the removal of packaging from food products are members of a feed assurance scheme. Their establishments should also be registered with their local enforcement authority under the requirements of the Feed Hygiene Regulation, and as such will be subject to official checks.

46. **To help ensure that all businesses engaged in processing food for feed use are registered, it might be useful to indicate in guidance that it would be good practice for food businesses, to check that the feed businesses they supply are registered with their local authority.**

Heating processes

47. If processes include heating of food material containing packaging, there is the additional issue of whether packaging is degraded and harmful products released into the food material, which will be subsequently fed to animals. More information on heating processes and the temperatures involved would be required to make recommendations in this area. However, only one UK processor removing packaging from food materials has been identified that heats material.

Form of guidance

48. The information set out in paragraphs 25-47 above covers a wide range of issues that could be included in guidance, and which could be used by various types of establishments. Primarily, this includes businesses processing surplus food for feed use. However, the guidance would also be of interest to: food manufacturers supplying such businesses; food manufacturers providing surplus food direct to farms; and feed manufacturers that incorporate processed food products in their compound feed. It would be particularly important to target businesses engaged in processing surplus foods that may not be members of an industry assurance scheme.

49. It is considered that a short form of guidance (say, two sides of A4) would have more impact than detailed guidelines. Such guidance might cover, by way of bullet points, the main issues and procedures operators should consider when engaged in the removal of packaging from food products and also promote a general awareness of the need to employ appropriate techniques to minimise the presence of packaging. More detailed guidance could be considered if there was a demand for it.

50. Final guidance could be presented in the form of an eye-catching leaflet or laminated card. It could be distributed to food manufacturers and businesses known to be engaged in processing food for feed use. Its existence and availability could be publicised, including by means of an article on the FSA and ACAF websites. This might be supplemented by a poster for display at operators' premises highlighting key messages.

Action Required

51. The Committee is requested to:

(a) note the information set out in paragraphs 2-24 above;

(b) consider the information that could usefully be covered in guidance to the food and feed industry to help them minimise the presence of packaging in material for feed use (paragraphs 25-47); and

(c) confirm that it wishes guidance to be drawn up, and advise on its scope and format.

ACAF Secretariat
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