- Use and disposal from food businesses
- Using derived products & products of animal origin in farm animal feed
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Use of oils and fats in farm animal feed

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- Safe Use of FFV and Glycerine in farm animal feed

Background

This guidance is produced as an adjunct to the Control Regulation to clarify key points for use of oils and fats in farm animal feed.

Used Cooking Oil (UCO) is a term normally used by industry to refer to oil sourced from catering sources such as restaurants, kitchens and catering establishments. UCO from such sources is considered to be catering waste. UCO cannot be used in farm animal feed, but is used for the production of biodiesel.

Businesses supplying blended oil products for use in farm animal feed use oils from the human food manufacturing industry i.e. Food Factory Vegetable Oils (FFV) or virgin vegetable oils or distillates from those, such as imported palm fatty acid distillate. The different oils are blended together in heated tanks to form blends of the right composition of fatty acids for the feed business wishing to purchase it. FFV has been sourced and used in the last few years from purely vegetable sources, such as chip or crisp manufacturers and from flash fryers of chicken and fish products. The minimum filter size currently used by industry is 200 microns, which is often employed at out loading. This size filter can in some cases lead to very long vehicle loading times. Final product destined for use in ruminant feed is normally used to coat feed pellets, whereas final product destined for poultry feed is incorporated into the feed mix.

Animal Health and Veterinary Laboratories Agency (AHVLA) has identified the presence of muscle fibres in blends of FFV, which have been in contact with animal proteins e.g. businesses flash frying meat and fish products and in glycerol fractions derived from biodiesel production. The blends (not the glycerol fraction) were intended for use in both ruminant and non-ruminant feed. The finding of muscle fibres in feed materials destined for ruminant feed use breaches the TSE Regulations and if destined for farm animal feed use breaches the Control Regulations, as the muscle fibres constitute an animal by-product (ABP).

The Implementing Regulations include a method for the production of biodiesel from animal by-products (ABPs). For more information see our Biodiesel page. Glycerine, a derived product, can be used in farm animal feed, providing the source material is a category 3 ABP and is not UCO (catering waste).
Processed fats and oils such as poultry fat and fish oil are also used in farm animal feed, as well as tallow.

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What are the key points in the legislation?

The Control and Implementing Regulation and Domestic ABP Regulations combine with Regulation (EC) No.999/2001 (the EU TSE Regulation) and the Domestic TSE Regulations to prevent the use of most animal proteins in farm animal feed. This is in order to control the risk of spreading exotic notifiable diseases such as:

- Foot and Mouth Disease
- Swine Fever
- Avian Influenza and Transmissible Spongiform Encephalopathies (TSE) such as BSE.

The Control Regulation and the Domestic ABP Regulations prevent the use in farm animal feed of:

- catering waste and UCO from catering sources
- animal by-products (ABPs), such as meat or fish tissues.

The exception being certain foodstuffs, no longer intended for human consumption, containing certain ABPs as minor constituents and includes some bakery and confectionary waste. For more information see our International-catering-waste page.

The EU and domestic TSE regulations prevent the use of:

- animal proteins in ruminant feed with exceptions, such as milk and eggs sourced and used according to the ABP Regulations

- processed animal proteins (PAP) and ruminant gelatine in all farm animal feed with exceptions such as proteins restricted to use in non-ruminant feed, e.g. fishmeal.

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What recommendations are AHVLA and policymakers making?

The following guidance is provided:

- UCO from catering sources cannot be used for feeding to farmed animals. A definition of what is meant by farmed animal can be found on our International-catering-waste page
- if UCO originates from catering sources, then glycerine, a derived product from the production of biodiesel, cannot be used for feeding to farm animals. This applies even if the glycerine from catering sources has been produced in an ABP approved biodiesel plant
- FFV, which has come into contact with products of animal origin, may only be supplied for feeding to farmed animals, providing the production process takes place in an approved ABP processing plant and ensures that the final product for placing on the market 'does not contain animal protein'
- glycerine derived from an ABP approved biodiesel process, may only be supplied for feeding to farm animals if:
  a) the source material is category 3 ABP
  b) the source material is not from catering sources
  c) the production process ensures that the final product for does not contain animal protein.

- if foodstuffs, no longer intended for human consumption, containing ABPs (including FFV, which has been in contact with products of animal origin) are used to make biodiesel then the plant making the biodiesel needs to be approved under the Control and Implementing Regulations. For more information see our Biodiesel page.
  • fish oil and tallow processed according to the ABP Regulations can be used in farm animal feed, but must not contain animal protein i.e. animal tissues, such as muscle fibres and bone fragments, must be absent on Microscopic Analysis Testing (MAT)
  • rendered fats derived from ruminant animals must be purified in such a way that the maximum level of total insoluble impurities does not exceed 0.15%
  • fat (dripping) from kitchens, catering establishments, restaurants and rotisseries at supermarkets is considered as catering waste and is ineligible for farm animal feed
  • any fish oil, fat, lard, or dripping sourced from a human food factory can be used in farm animal feed providing it has been:

  a) produced in accordance with Sections VIII or XII of Annex III to Regulation (EC) No. 853/2004 (the "Food Hygiene Regulations")
  b) rendered in an ABP approved processing plant
  c) animal proteins are not present on MAT.

The following table summarises the position:

Source material	Biodiesel ABP plant approval required	ABP rendering plant approval required	Final product can be used in animal feed (Yes/ No)
UCO and fats from kitchens and catering establishments such as restaurants, fast food & supermarket rotisseries	No	No	No
FFV (following flash frying of meat/ fish or extruded from foods no longer intended for human consumption)	No	Yes	Yes, providing contains no animal proteins
FFV (vegetable frying only)	No	No	Yes
Virgin vegetable oil or distillate	No	No	Yes
Glycerine from UCO from catering sources	No	No	No
Glycerine from FFV following flash frying of meat/ fish or extruded from foods no longer intended for human consumption)	Yes	Yes (pre – biodiesel production)	Yes, providing contains no animal proteins
Glycerine from FFV (vegetable frying only)	No	No	Yes
Category 3 fats and fish oil.	Yes, if for biodiesel production. Will not need pre-processing through an ABP processing plant, if from a human food factory & satisfies the requirements of the Food Hygiene Regulations	Yes, if destined for farm animal feed use. Will not need processing through an ABP processing plant, if from a human food factory & satisfies the requirements of the Food Hygiene Regulations.	Yes, providing contains no animal proteins and ruminant derived fats have max. level of insoluble impurities of 0.15%.

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What are the requirements for approval for businesses sourcing FFV, which has been in contact with animal protein?

Businesses sourcing FFV, which has been in contact with animal proteins i.e. flash frying products of animal origin, or sourcing foodstuffs no longer intended for human consumption to extract the oil, will require to be approved by Animal Health as ABP rendering/ processing plants.

If the flash frying meat were mammalian in origin method 1 pressure sterilisation (as set out in chapter III of Annex IV of EC Regulation No. 142/2011) would be needed. If the meat is poultry or fish, then methods 1-5 or 7 (as set out in the Regulation quoted) or in the case of fish, in addition, method 6 may be used.

Plants rendering ABPs using processing methods 1-5 are likely to reach sufficient temperatures for a sufficient time to inactivate the major notifiable disease viruses. According to OIE technical data:

Disease	Temperatures required to inactivate virus
Foot and Mouth Disease Disease	Heating animal products to a minimum core temperature of 70ºC for at least 30 minutes
Classical Swine Fever	Heating meat to 65.5ºC for 30 minutes or 71ºC for 1 minute
African Swine Fever	Heat inactivated by 56ºC for 70 minutes; 60ºC for 20 minutes
Highly Pathogenic Avian Influenza	Inactivated in meat by cooking when reaching a core temp. of 70ºC for 3.5 secs
Swine Vesicular Disease	Inactivated by 56ºC for 1 hour

Processing method 7 is any method authorised by GB, where the following have been demonstrated by the operator:

- the identification of relevant hazards in the starting material, in view of the origin of the material, and of the potential risks in view of the animal health status of GB
- the capacity of the processing method to reduce those hazards to a level which does not significantly pose any risk to public and animal health
- the sampling of the final product complies with certain microbiological standards.

The hazards in the starting material, relating to the presence of exotic notifiable disease viruses, such as those described in the table above, are some of the hazards to consider in the risk assessment. GB authorities confirm that their understanding of part (b) means, because of the potential of these viruses to enter GB and not be immediately identified, that in order to reduce the hazard to a level which does not significantly pose any risk to public and animal health, the operator will need to be able to demonstrate the method inactivates these viruses in addition to any other identifiable hazards.

In the case of FFV from flash frying it could be accepted under a method 7 application that the starting material had reached a sufficiently high temperature for sufficient time to kill notifiable disease viruses.

In TSE risk terms, the hazard to be identified is presence of animal proteins. 'Does not contain animal protein' means demonstrating in this case the absence of animal tissues on Microscopic Analysis Testing (MAT) carried out at the National Reference Laboratory, the AHVLA Newcastle. AHVLA contact details can be found here.

However, final product must also be able to comply with microbiological standards. The business will need to consider the hazard/ risks of recontamination of product with bacteria following flash frying, during transport and storage and whether any additional heat treatment is required over and above normal storage temperatures."

Approximately 200mls of oil is required for private analysis by the laboratory, sampled where possible from the bottom portion of any batch, following decanting or following mixing/ stirring.

The full cost of any sampling and analysis required will be borne by the operator.

Muscle fibres from farm animals appear generally to be in the range of 10-100 microns in diameter depending on species, age, breed and sex of the animal concerned. There are significant commercial challenges to overcome in order to establish that a processing method will achieve absence of muscle fibres, including:

- most of the decent commercially available filters with a mesh size of below 50 microns are likely to struggle to have a commercially available flow rate
- filtration can fail due to defects occurring in filter bags or breakdown of plate-and-frame filter aid layers. How would the operator identify failure in the process?
- normal commercial centrifuges would require to pull sufficient G-forces to remove small particles with a very small difference in specific gravity
- a supervised protocol will be needed for establishing that the process satisfactorily complies involving consignments of FFV known to contain muscle fibres
- a protocol will be needed for ongoing supervised sampling.

This will require the operator to provide a written summary of the proposed process to the:

AHVLA Lead Veterinary Officer for the National Feed Audit,
West Midlands Regional AHVLA Office,
Beacon House,
Staffordshire Technology Park,
Dyson Way,
Stafford,
ST18 0AR.

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What happens if muscle fibres are identified in consignments of oils or blended oils?

In such circumstances:

- remaining product cannot be sent for use in farm animal feeding, without reprocessing and affected businesses would be required to recall any product on the market at their expense. Farm animal feeds containing contaminated product may also be restricted and tested
- based on the likely negligible risk of BSE cases resulting, identified in the risk assessment already completed for a contaminated oil blend and on the low levels of contamination likely in finished feed, it is unlikely that ruminant animals would be restricted or that equipment would required to cleaned and disinfected, but this cannot be ruled out altogether depending on the nature of the incident
- the ABP approval for the processing plant supplying the contaminated material would be temporarily suspended pending investigation and outcome of the incident
- any business found to be responsible for deliberately supplying oil products or glycerine, which are likely to be contaminated with animal proteins for use in farm animal feed after June 1st 2011, may be subject to further enforcement action by the Local Authority.

Interim position

Currently an interim position has been adopted where final product, which may contain muscle fibres is allowed for non-ruminant feed use only. This interim position will be maintained until September 30th 2011, to enable industry to be able to design and incorporate appropriate processes to comply with the new guidance. Following this date it will be expected that industry will be able to comply and no more final product containing animal protein will be considered acceptable for use in any farm animal feed.

Separation

AHVLA recognises that at some businesses a number of activities may be taking place, at the same time which may include sourcing:

- from catering sources for biodiesel production only
- FFV from vegetable only fryers for use in animal feed
- FFV from flash fryers of meat and fish for use in animal feed
- virgin oils or distillates for use in animal feed.

Multiple activities on site may require adequate separation of oils from different sources to avoid contamination. e.g. UCO from catering sources kept separate from oils for animal feeding, and FFV from a flash fryer of meat kept separate until after processing from FFV from a crisp manufacturer (for which there is no processing requirement). If this is the case a written protocol must be produced outlining 'streaming' procedures and records kept, which can be used to audit the process.

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Safe Use of FFV and Glycerine in farm animal feed

Feed business establishments, which supply, store, collect or use foodstuffs no longer intended for human consumption for animal feed use, must comply with the requirements of Regulation EC No.183/2005 (the "Feed Hygiene Regulation"). This includes blenders of FFV and biodiesel processors who wish to supply blended oil products or glycerine for farm animal feed use.

To comply with the Feed Hygiene Regulation, feed businesses must observe a range of requirements relating to facilities and equipment, quality control, storage, transport and record-keeping and apply the principles of Hazard Analysis Critical Control Points (HACCP). They must also be registered with their local authority. Further information on the requirements of the Regulation is available from the Food Standards Agency website.

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