Animal &
Plant Health
Agency

Guidance

Code of practice for the control of Salmonella in animal feed in Great Britain

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Applies to England, Scotland and Wales

Contents

This publication is available at https://www.gov.uk/government/publications/salmonella-how-to-reduce-the-risk-from-animal-feed/code-of-practice-for-the-control-of-salmonella-in-animal-feed-in-great-britain

Introduction

Salmonellae are bacteria which are widely distributed in the environment and can cause illness in humans and animals.

Salmonella is consistently the second most commonly confirmed cause of bacterial gastrointestinal illness in humans in England and Wales. It is estimated that for each laboratory confirmed case there may be up to 5 additional community cases. S. Enteritidis and S. Typhimurium are the most common non-typhoidal salmonella serotypes of importance to human health.

Salmonella organisms may occur in the environment and each link in the food chain, from producers to consumers, has a part to play in reducing the risk of animal and human infections caused by Salmonella. They survive well in the environment and can withstand both dry and freezing conditions. Animal feed is acknowledged to be one of many routes by which Salmonella can enter the food chain.

Conditions for growth

Like most bacteria, Salmonella require warmth, moisture and nutrients to grow and reproduce. Typically, Salmonella can grow within a temperature range of 10 to 45C, with or without oxygen, where moisture and nutrients are present. Feed and dust containing protein are particularly prone to colonisation by Salmonella. The accumulation of dust, moisture and feed residues could be a reservoir for bacteria and therefore must be minimised since they could form a breeding ground for Salmonella and can also attract pests (which can also carry Salmonella).

Salmonella are also known to show high resistance to disinfectants, detergents and other chemicals such as acids.

Legislation

Control of Salmonella

References to EU legislations throughout this Code of Practice are references to those as assimilated in UK law, published on

legislation.gov.uk (https://www.legislation.gov.uk/).

The legal basis for the control of Salmonella is laid down in the following assimilated law:

- Control of Salmonella Regulation (EC) 2160/2003 (https://www.legislation.gov.uk/eur/2003/2160)

and

- Statutory instruments implementing the above:

UK
- The Zoonotic Disease Eradication and Control (Amendment) (EU Exit) Regulations 2019 (S.I. 2019/740)

GB
- The Zoonoses Order 1989

England
- The Zoonoses (Monitoring) (England) Regulations 2007
- The Zoonoses (Amendment) (England) Order 2021

Scotland
- The Zoonoses (Monitoring) (Scotland) Regulations 2007

Wales
- The Zoonoses (Monitoring) (Wales) Regulations 2007

Animal Feed

England
- The Animal Feed (Hygiene, sampling etc, and enforcement) (England) Regulations (https://www.legislation.gov.uk/uksi/2015/454/contents) 2015
- The Animal Feed (Composition, Marketing and Use) (England) Regulations 2015

Scotland
- The Animal Feed (Scotland) Regulations 2010 (https://www.legislation.gov.uk/ssi/2010/373/contents)
- The Feed (Hygiene and Enforcement) (Scotland) Regulations 2005
- The Feed (Sampling and Analysis and Specified Undesirable Substances) (Scotland) Regulations 2010

- The Feed (Transfer of Functions) (Miscellaneous Amendments) (Scotland) Regulations 2020

Wales

- The Animal Feed (Hygiene, Sampling etc. and Enforcement) (Wales) Regulations 2016 (https://www.legislation.gov.uk/wsi/2016/387/contents)
- The Animal Feed (Composition, Marketing and Use) (Wales) Regulations 2016

Purpose and scope of the code

To ensure that compound feed, premixtures, feed materials and additives for food producing animals and equines are of a satisfactory bacteriological quality throughout the feed supply chain.

This code of practice provides non-statutory guidelines for feed business operators supplying feed for food producing animals and equines for establishing good operational practices to minimise the risk of Salmonella contamination.

The code should be used by all businesses engaged in the production, storage and transport of feed, including compound feed, premixtures, feed materials and feed additives.

This code of practice is a collaborative publication produced and supported by:

- Department for Environment, Food and Rural Affairs (Defra)
- Animal and Plant Health Agency (APHA)
- Welsh Government
- Scottish Government
- Food Standards Agency (FSA)
- National Agriculture Panel (NAP)
- Agricultural Industries Confederation (AIC)
- Noble Foods Ltd
- Food Standards Scotland (FSS)
- British Egg Industry Council

You can provide feedback on this code of practice by contacting us at: feedcodeofpractice@apha.gov.uk.

The document will be subject to review as science and regulations move forward.

Legal requirements

Annex II of Regulation (EC) 183/2005 requires feed business operators (with a few exceptions) to comply with detailed standards concerning facilities and equipment, personnel, storage, transport and record-keeping.

Hazard Analysis Critical Control Point (HACCP) systems

There should be a comprehensive system designed, documented, recorded, implemented and controlled, so as to provide assurance that the product will be consistently safe. The techniques of Hazard Analysis Critical Control Point (HACCP) must be applied as required by the Feed Hygiene Regulation (EC) 183/2005.

The principles of HACCP are defined in the Codex Alimentarius Commission Code of Practice – General Principles of Food Hygiene (https://www.fao.org/fao-who-codexalimentarius/sh-proxy/it/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B1-1969%252FCXC_001e.pdf).

These principles are:

- there must be a defined scope for the HACCP study
- there must be a HACCP team
- there must a process flow diagram
- the HACCP team must carry out a hazard analysis identifying as a minimum chemical, physical and microbial risks as appropriate
- the HACCP team must identify control measures that can be applied for each identified hazard
- the HACCP team must establish critical control points where appropriate and define critical limits
- there must establish a monitoring system for all critical control points and defined corrective actions for when critical limits have been exceeded
- there must be documentation to detail the controls and monitoring of hazards identified in the HACCP study

- the HACCP team should carry out a review of the HACCP study at least every 12 months or more frequently if there are any changes that could affect feed safety or changes to the scope
- the HACCP risk assessment process must consider the potential contamination from other materials during processing, storage or transportation. The purposes of the bacteriological monitoring provided for in the annexes in this code of practice are to provide an indication that bacteriological quality criteria are being met. Corrective actions are defined in the event that these criteria are not met

Premises

Principle

To help prevent the spread of disease, buildings should be located, designed, constructed, adapted and maintained to suit the operations carried out within them.

Building construction and layout

Buildings should be soundly constructed of durable materials.

Buildings should be fully enclosed or otherwise proofed against weather, vermin and other pests, especially around entry points for conveyors or other services.

Buildings should be effectively lit and ventilated, with air control facilities appropriate to both the operations undertaken within them and to the external environment.

Plant layout should avoid creating uncleanable recesses. In order to avoid dust containing Salmonella from contaminating the product, the intake to the processing area and any dust extraction should be physically separated from areas used to cool, store and despatch the product.

Steps should be taken to ensure that air used to cool heat-treated product is suitable for that purpose and is not a potential source of contamination.

Floors

The construction and surface finish of floors should be appropriate for the process carried out. They should be maintained in a clean and good state of repair.

Walls and ceilings
Walls and ceilings should be clean and maintained in a good state of repair. Horizontal surfaces that can accumulate dust should be minimised, where possible.

Doors
Doors should be soundly constructed, close fitting and, where at all possible kept closed other than for personnel entry or for the inward or outward movement of feed.

If it is necessary for ventilation purposes to open doors then suitable precautions should be taken to ensure this does not increase the risk of vermin and wild birds gaining entry, or entry of dust into post-conditioning areas.

Feed contact surfaces
Surfaces which may come into contact with feed (including floors and walls) should have surfaces which are readily cleanable.

Outside areas

There should be sufficient clean hard standing at entrances and exits to minimise the tracking in of mud, effluent and other wet material by vehicles or personnel.

The site should be well drained to minimise puddling of rainwater.

Drains should be of adequate size and should be laid in accordance with the requirements of the local authority or other authorities having jurisdiction.

They should have adequate trapped gullies and be properly ventilated.

The operator should ensure that appropriate and proportionate security measures are planned and implemented to monitor and prevent unauthorised access to those parts of the participant’s operations wherever this is deemed necessary to maintain the microbiological safety of feed.

Personnel and visitors

The operator should have controls on eating, drinking and smoking on site. If necessary, separate facilities should be provided.

Employees, contractors and visitors should be made aware of controls on eating, drinking and smoking in areas where these activities may adversely affect feed safety.

In areas where there is a risk of contamination caused by eating, drinking and smoking, these activities must not be permitted.

In areas where there is a risk of contamination of feed, all personnel must wear protective garments. The garments must be maintained in a hygienic condition and cleaned as necessary.

In areas where there is a risk of contamination of feed, visitors to those areas (including contractors) must be informed of hygiene requirements and must wear clean and hygienic protective garments.

Suitable washing facilities and toilets must be provided, separate from production and storage areas.

Washing and toilet facilities must be maintained in a hygienic condition.

Employees, contractors and visitors (including vehicle drivers) known to be suffering from a communicable enteric disease must not be allowed to enter the premises if they may come into contact with feed.

Personnel

All personnel must be competent in the tasks that they may be asked to undertake relevant to feed safety and the requirements of this code. All personnel must have received training in feed safety relevant to their role(s).

The responsibility for all programs including but not limited to sampling, cleaning and pest control programmes should be clearly defined including where these are carried out by external contractor(s).

All personnel should wear overalls or other appropriate garments. These should be regularly and frequently cleaned. Movement of personnel between livestock enterprises and production and storage areas should be minimised.

All personnel entering production and storage areas from a livestock enterprise should sanitise their hands and put on clean overalls and footwear when entering.

Eating and drinking should only be permitted within designated areas of the facility.

Employees, contractors and visitors (including vehicle drivers) known to be suffering from a communicable enteric disease must not be allowed to enter the premises if they may come into contact with feed.

Pest control

Feed should be produced and stored in facilities which protect against the entry and harbouring of wild, domestic, and feral vertebrates and invertebrates and safe control measures should be regularly applied to exclude them. Proactive prevention is more effective than corrective action.

There must be an effective pest control programme. This must include:

- actions taken to exclude or deter pests by non-toxic means, and monitoring of their effectiveness
- a plan of the site including locations of all bait stations
- details of frequency of checks for signs of pests and ‘bait-take’, with records of findings and actions
- details of any toxic baits or chemicals used including Product Safety Data Sheets and justification for their use

The business should employ a suitably qualified person on site, for example holding a British Pest Control Association (BPCA) or equivalent qualification, or have a vermin control contract with a BPCA registered company (or equivalent) or follow Agricultural and Horticultural Development Board (AHDB) cereals guidance as appropriate. Management should periodically verify the effectiveness of the pest control programme. The control measures must ensure that poison baits cannot contaminate the feed. This may include:

- using dummy baits to help assess rodent activity
- using non-grain baits
- securing enclosed bait points to avoid accidental contamination

Where practical, baits should be outside the actual production and storage areas unless there is a current pest problem in these areas. Where shooting is undertaken, non-toxic ammunition must be used.

The areas surrounding the buildings should be free from harbourage (for example waste and scrap materials, old pallets, overgrowth of vegetation or other materials) for pests.

The areas surrounding the buildings should as far as practical be free from food sources which could encourage pests. In particular, feed spills should

be promptly removed.

Proactive prevention is more effective than corrective action.

Birds should be denied perching, roosting and feeding opportunities as far as practical. In particular entrances and exits (for example intakes, outloading areas) should be maintained in a clean, tidy state, with bird access to beams, ledges or other perching areas prevented. Falconry can be used as a deterrent where regular problems occur.

Production and storage of feeds on livestock units

Where the production and storage facility is located on the same premises as a livestock enterprise the production and storage area, including loading and unloading areas must be secure and clearly separate from the livestock enterprise and must not share a common enclosed airspace with the livestock.

Vehicle access must be regularly cleaned or otherwise kept free as far as practicable from any material which has come into contact with farm animals and from livestock faeces, manure and effluent. A separate access to the production facility may be necessary.

Livestock buildings must not drain onto the production or storage facilities or onto their access.

Buildings, vehicles and equipment previously used to house animals or store their waste must first have been thoroughly cleaned to remove all organic material, disinfected and dried, prior to use for feed.

Special attention should be paid to control access by wildlife, pests, pets, feral animals or poultry into feed production, handling or storage areas.

Processing and storage operations

The factory site, processing areas, laboratories, stores and personnel areas should be maintained in a clean and tidy condition and be free from accumulated waste.

Waste material should be collected in suitable covered receptacles for removal to collection points away from the production areas. It should be disposed of at frequent intervals.

Whenever possible, operational areas should not be used as a general right of way for personnel or materials passing through to other parts of the premises.

The operations carried out in any particular area of the premises should be such as to minimise the risk of contamination of one feed, or one product by another.

The risk of contamination of feed from other activities carried out on site must be controlled to protect the feed.

Storage areas

There should be a documented system to ensure all production and storage areas and equipment are effectively cleaned to maintain feed safety.

A programme should be drawn up to ensure that all storage facilities are completely emptied and cleaned regularly and according to the type and condition of product stored. Where appropriate, storage areas should enable goods to be stored to allow their maintenance in a clean, dry and orderly condition.

Cleaning methods should minimise the risk of contamination, and wherever possible not introduce moisture nor generate dust. Vacuum cleaning is a preferred method.

Keeping the products (except moist products) dry is important since Salmonella needs moisture to multiply. Possibilities for movement of dust between storage compartments should be minimised.

Products which have been rejected, recalled or returned should be placed in separate and adequately segregated storage to preclude contamination of other materials and products.

Any store facilities and equipment which have been linked with a Salmonella isolation must be decontaminated before use for other products.

Storage bays, bins, silos and areas should be organised to permit suitable and effective separation and identification of the various products.

Equipment

Any equipment used to process, load, unload or otherwise handle products or other materials should be suitable for the purpose for which it is being used and should be maintained in a clean condition.

Any equipment used to handle products which are known to be contaminated, or other materials which could be a source of contamination, should be thoroughly cleaned, sanitised and dried before being used to handle other products.

Equipment which generates dust that could be contaminated by Salmonella should be segregated as far as possible to minimise wider dissemination of dust that could affect other processing areas, especially coolers.

Condensation associated with loss of heat between conditioning, pelleting and cooling should be minimised by use of appropriate conditioning temperatures and times and insulation of conveyors and coolers.

Where possible, coolers should be located in a separate enclosed area and be fitted with effective air filters.

See Annex 1 for guidelines on the use of vehicles.

Cleaning

There must be a documented system to ensure all production and storage areas and equipment are effectively cleaned to maintain feed safety.

The accumulation of dust, moisture and feed residues could be a reservoir for bacteria and therefore must be minimised since they could form a breeding ground for Salmonella, and can also attract pests.

There must be a planned cleaning programme, based on risk analysis, including methods, frequency and times of the cleaning and identifying who should carry out the cleaning. This programme should pay particular attention to parts of the plant which have been identified in the HACCP study as high risk, including areas where dust and stale products might accumulate.

The chemicals used for cleaning product contact surfaces must be suitable for this purpose, especially regarding activity against Salmonella, and used in accordance with the manufacturer's instructions. Products which are on the Defra-approved disinfectant list (https://www.gov.uk/guidance/defra-approved-disinfectant-when-and-how-to-use-it) for General Orders at the General Orders dilution rate and also permitted for food contact surfaces will meet these criteria.

Equipment and machinery which comes into contact with dry product, if subject to wet cleaning, must be dry before use.

Wet cleaning is often undesirable and should only be used where shown to be necessary as part of the HACCP plan and may include appropriate disinfection.

Cleaning activities must be recorded.

Bacteriological monitoring

The aim of the monitoring is to:

- check on the environmental hygiene of the premises and equipment
- follow up positive samples and if necessary, to take corrective action
- to verify the outputs and recommendations of the HACCP plan

Appropriate monitoring for the presence of Salmonella should be carried out in or on:

- the buildings
- environment
- plant and equipment (including vehicles)
- incoming and outgoing product

Sampling schedules should take account of:

- the intended use
- inherent bacteriological risks
- nature and sources of feed
- past results and national surveillance data for the type of feed

Sampling frequency

Samples should be taken according to a schedule based on risk assessment. The schedule should be planned and reviewed on a regular basis, in the light of results obtained and changes to risk including as identified in the HACCP review

Sampling

Samples should only be taken by operatives trained to take hygienic samples.

Sampling equipment (including the sample bag or container) must be clean.

No contact must be made between the sample and the skin.

The use of new inverted plastic sampling bags and new disposable gloves is recommended.

Contamination between individual samples must be avoided.

Samples (including composites) must be fully identifiable to allow full traceability in the case of isolation of Salmonella. Information on the type of material, country of origin and species for which the product is intended should be recorded on the submission form supplied to the testing laboratory.

Dry samples should be stored and transported in cool, dark, dry conditions and should ideally be tested as soon as possible and in any case within a maximum of 8 days of sampling. Moist swab or scrapings samples should be tested with minimal delay.

In general, dust samples are more sensitive than swabs or scrapings for screening purposes, but swabs or scrapings may be more useful when following up a suspicion of contamination in a plant in order to precisely identify the location of resident contamination within equipment. The areas identified in section 7.4 below aim to identify critical sites for sampling programmes, but should not necessarily be regarded as either prescriptive or exhaustive, and may need to be adapted for individual circumstances.

Routine monitoring

Incoming products
Raw material, feed materials, premixture and additive deliveries – the frequency should be based on high, medium and low risk – composite samples are acceptable by product type. Consider whether the data is already available from the supplier.

Buildings

Samples from ledges, walls and floors – either dust or large pre-moistened fabric swab samples. Samples from dust units and vacuum cleaners may also be included.

Equipment
Loading equipment, elevators, conveyors, dust spillages from beneath specific items of equipment, dust filters, sieves, intake and loading areas in stores – either dust or swab samples.

Intake, grinding, weighing, hand addition, mixing, conditioning, pelleting, cooling, crumbling, sieving, conveying and packing areas in manufacturing plants as appropriate to process type and risk – either dust, material or large pre-moistened fabric swab samples.

Storage areas
Storage bay walls and floors – dust or large pre-moistened fabric swab samples.

Storage bin tops (inside and outside), auger spills and beams or ledges in outloading areas – dust or large pre-moistened fabric swab samples.

Outgoing products
Manufactured products by product or process type (for example meal, pellet, monogastric, ruminant, production line)– composite samples are acceptable – frequency based on high medium and low risk. Where composite samples are used, traceability of individual samples should be maintained.

Vehicles
Sheets, internal bodies, foot-wells, wheel arches, feed pipes, rear door or hatch and blower units of bulk vehicles – dust or swab samples.

Buckets and vehicle bodies of loading shovels (tyres or wheel arches when operating in flat stores) – dust or large pre-moistened fabric swab samples.

Any findings of Salmonella should be further investigated, particularly if the same serovar is repeatedly found in cooler areas, pellet shakers, vacuum cleaners, or dust aspiration.

Bacterial examination

Samples, where appropriate must be collected, handled, and tested in accordance with approved methods laid down in Commission Regulation (EC) 152/2009 of 27 January 2009 laying down the methods of sampling and analysis for the official control of feed.

- ISO 6579-1:2017/Amd 1:2020 - Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp. (https://www.iso.org/standard/76671.html)
- ISO - ISO/TS 6579-2:2012 - Microbiology of food and animal feed — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 2: Enumeration by a miniaturized most probable number technique (https://www.iso.org/standard/56713.html)
- Testing should be conducted at a laboratory approved to carry out this test under ISO/EIC 17025:2017. ISO - ISO/IEC 17025:2017 - General requirements for the competence of testing and calibration laboratories (https://www.iso.org/standard/66912.html).

Referring to the above standards, it is recommended that the most sensitive method of Salmonella detection is used. This ensures optimal detection of what could be small numbers of organisms and is important to the protection of human and animal health.

At the time of document publication, bacterial culture methods which include the use of MSRV are the most sensitive and appropriate method of Salmonella detection in this type of sample. If the most sensitive method is not being routinely used as part of the monitoring of Critical Control Points (CCPs) then it is recommended that a duplicate sample using the most sensitive method is run at specified intervals (suggest quarterly or as indicated by the HACCP plan) or in response to a contamination incident. If Salmonella is detected, the most sensitive method should be used for the duration of investigations.

If Salmonella is detected:

- The isolation of Salmonella spp. must be reported as set out in Annex 1. The isolating laboratory should inform APHA and forward the isolate in a timely manner, accompanied by the appropriate ZO2 (feed) submission form (https://www.gov.uk/government/publications/animal-feed-and-abp-report-suspected-salmonella-zo2-feed) with all required information supplied.
- Salmonella isolates from feed production must be characterised by approved serotyping reference methods in an accredited laboratory. APHA Salmonella national reference laboratory in Weybridge will carry out full Salmonella characterisation free-of-charge to the submitter.

Further testing following positive isolations

The following list indicates where additional follow up samples should be taken from production or storage areas and vehicles in order to effectively

identify the origin of contamination problems with ingredients or post-processing contamination. Serotype information can also be useful for this. Dust or scrapings should be collected before cleaning the sampled area. Where dust is sparse, large pre-moistened fabric swabs can be used.

- dust from ingredient pit augers – usually taken from auger system below or behind the intake pits
- dust from ledges inside tops of ingredient bins, or dust from ingredient sieves or spillage from ingredient bin augers if bins are inaccessible or do not accumulate dust – but dust within bins is a better sample. To facilitate dust sampling, a retractable plate could be attached to bin lids
- dust from within the main air aspiration system cyclone system – unless this is not accessible when the less sensitive option of vacuumed or swept dust could be used
- dust from inside coolers, cooler cyclones, and associated pipework or ducting – taken below coolers or on associated framework, ledges etc
- dust from pellet shakers (or, for meal ration lines, take dust from finished product bins or augers)
- dust from ledges near to feed discharge points in out-loading gantries
- resample vehicle areas identified above

Records

Suitable records should be maintained and kept for a minimum period of two years, or as otherwise required by legislation or other applicable codes of practice. The records should include full traceability and show:

- details of movements of ingredients and products into, through and out of the facility
- details of all relevant vehicle movements
- details of samples taken (including the constituent parts of composite samples) and dates of sampling and testing
- details of all Salmonella test results including
  - all negative results
  - serotypes where Salmonella is isolated
- details of actions taken following any Salmonella isolation

Definitions

Additives (Regulation (EC) No 1831/2003) are substances, micro-organisms or preparations, other than feed materials and premixtures, which are intentionally added to feed or water in order to perform, in particular, one or more of the following functions:

- favourably affect the characteristics of feed
- favourably affect the characteristics of animal products
- favourably affect the colour of ornamental fish and birds
- satisfy the nutritional needs of animals
- favourably affect the environmental consequences of animal production
- favourably affect animal production, performance or welfare, particularly by affecting the gastro-intestinal flora or digestibility of feedingstuffs
- have a coccidiostatic or histomonostatic effect

Compound feedingstuffs in this code means mixtures of feed materials, whether or not containing additives, for oral animal feeding in the form of complete or complementary feedingstuffs (Regulation (EC) No 767/2009).

Decontamination in this code refers to physical cleaning (wet or dry as appropriate), followed by use of appropriate use of biocides or disinfectants.

Feed (or feedingstuff) in this code means any substance or product, including additives, whether processed, partially processed or unprocessed, intended to be used for oral feeding to animals (Regulation (EC) 178/2002).

Feed materials in this code means products of vegetable or animal origin, whose principal purpose is to meet animals' nutritional needs, in their natural state, fresh or preserved, and products derived from the industrial processing thereof, and organic or inorganic substances, whether or not containing feed additives, which are intended for use in oral animal-feeding either directly as such, or after processing, or in the preparation of compound feed, or as carrier of premixtures (Regulation (EC) No 178/2002).

Manufacture or production in this code means all operations including receipt of materials, production, packaging, repackaging, labelling, re-labelling, control, release, storage, and distribution of compound feedingstuffs, premixtures, additives and feed materials where appropriate and the related controls

Premixtures in this code means mixtures of feed additives or mixtures of one or more feed additives with feed materials or water used as carriers, not intended for direct feeding to animals (Regulation (EC) 1831/2003).

Product means for the purposes of this code compound feeds, additives, premixtures and feed materials where appropriate.

Processing aid means any substance not consumed as a feeding stuff by itself, intentionally used in the processing of feeding stuffs or feed ingredients to fulfil a technological purpose during treatment or processing which may result in the unintentional but technologically unavoidable presence of residues of the substance or its derivatives in the final product, provided that these residues do not have an adverse effect on animal health, human health or the environment and do not have any technological effects on the finished feed. (Regulation (EC) 1831/2003).

Annex 1: The storage and transport of feed materials, feed additives, premixtures and compound feeds

The purpose of this annex is to ensure that the bacteriological quality of feeds is maintained during storage and transport and to minimise the risk of Salmonella contamination. It is the responsibility of all feed business operators involved in storage and transport to meet the requirements of this code.

Store operations

The stores should be maintained in a clean and tidy condition and be free from accumulated waste.

Waste material should be collected in suitable covered receptacles for removal to collection points away from the storage areas. It should be disposed of at frequent intervals.

Whenever possible, storage areas should not be used as a general right of way for personnel or materials passing through to other parts of the premises.

The operations carried out in any particular area of the premises should be such as to minimise the risk of contamination of one product by another.

Storage areas

A programme should be drawn up to ensure that all storage facilities are completely emptied and cleaned regularly and according to the type and condition of product stored. Where appropriate, storage areas should enable products to be stored to allow their maintenance in a clean, dry and orderly condition. Keeping products dry is important since Salmonella needs moisture to multiply.

Products or other materials which have been rejected, recalled or returned should be placed in separate and adequately segregated storage to preclude contamination of other materials and products.

Any store which has been used to contain products or other materials contaminated with Salmonella must be decontaminated before use for other products.

Storage bays and areas should be organised to permit suitable and effective separation and identification of the various products.

Vehicles

All vehicles and containers, to be used for carrying dry products, including those operated by third parties, should be inspected at the time of loading and found to be clean and dry, in accordance with written procedures, before being used for the transport of products.

All vehicles and containers to be used for carrying moist and liquid products, including those operated by third parties, should be inspected at the time of loading and found to be clean and in an appropriate condition for the product concerned in accordance with written procedures.

All vehicles and containers (as above) used for transport of products should be subjected to a risk based cleaning and sanitising programme to ensure they are maintained in a clean state with no build up of waste material. Ideally, separate vehicles or containers should be designated specifically for products covered by this code but it is recognised that resources may not allow this. Therefore, if vehicles or containers are used for the carriage of other materials, they must be appropriately cleaned, sanitised and dried before being used to transport products covered by this code.

Products must be protected from contamination during transport. The vehicle or trailer should be covered or sheeted at all times except during

loading, unloading and sampling. Any cover so used must be maintained in a clean and sound condition and must be appropriately cleaned, sanitised and dried before use if it has been used to cover other materials.

Action to be taken following isolation of Salmonella

The action to be taken following the isolation of Salmonella will depend on the circumstances of the isolation. The following should be considered:

Quarantine

Any potentially contaminated product should be quarantined until a full investigation and risk assessment has been conducted.

Notification

In all cases the following should be informed of isolations of Salmonella:

- Defra, appropriate devolved administrations – The Zoonoses Order 1989 requires laboratories to report all isolations of Salmonella from animal or poultry feedstuffs and ingredients to APHA; Feed business operators should ensure that their contracted labs are aware of this requirement.
- Outgoing products: where contaminated feed may have been placed on the market, the feed business operator shall inform their component authority (which is their local authority for feed) as per the requirements of Regulation (EC) 178/2002, Article 20.
- Incoming products: the feed business operator from whom the incoming contaminated material was sourced should be informed, this business is then responsible for notifying their local authority as per the requirements of Regulation (EC) 178/2002, Article 20.
- Anyone whom the feed business operator has a contractual obligation to inform.

Withdrawal and product recall

If a feed business operator considers or has reason to believe that a feed which it has imported, produced, processed, manufactured or distributed does not satisfy the feed safety requirements, it shall immediately initiate procedures to withdraw the feed in question from the market and inform the local authority as detailed in the notification section above. In these circumstances the feed shall be destroyed, unless following an appropriate risk assessment the competent authority is satisfied otherwise.

The feed business operator shall accurately inform users of the feed in a timely manner of the reason for its withdrawal, and if necessary, recall from them products already supplied when other measures are not sufficient to achieve a high level of health protection.

Incoming products

- vehicle cleaning and decontamination (whether own vehicles or third party)
- additional cleaning and decontamination (where applicable) of equipment
- testing of any feed produced using the contaminated raw material
- review test frequency and test results on:
  - the source of the positive material
  - outgoing loads
  - the environment
  - equipment

Outgoing products

- carry out traceability to identify the source of contamination
- additional cleaning and decontamination (where applicable) of storage and vehicles (where appropriate)
- additional cleaning and decontamination (where applicable) of plant and equipment
- review outgoing materials and environment test frequency and results

Environment

- additional cleaning and decontamination (where applicable) of affected storage area, plant equipment or vehicles
- environmental screening follow up
- review environmental test frequency

Annex 2: During the production of feed materials, premixtures, feed additives and compound feedingstuffs

The purpose of this annex is to ensure that feed materials, premixtures, additives and compound feedingstuffs are of a satisfactory bacteriological quality and to minimise the risk of Salmonella contamination.

Good production practice

a) Where appropriate all production processes should be clearly defined in writing and be capable of achieving the desired results. Procedures should be subject to regular and critical review to ensure that they continue to be effective.

b) All necessary facilities should be provided, including:

- appropriately trained personnel
- individual written procedures, particularly those concerned with the minimisation of contamination
- suitable storage and transport as defined in these codes

c) Adequate records should be maintained to assist the investigation of any test that is positive for Salmonella.

Sampling guidance

Different sample types should be considered against the individual plant HACCP plan and sampling at each Critical Control Point is essential.

Example sample types may include but are not limited to:

- individual feed component; quality of and suitability of ingredients
- dust; environmental monitoring, important as an indicator plant hygiene and potential source of product contamination
- fabric swab; environmental monitoring, may be used to sample large surface area
- stick swab; environmental monitoring, allow sampling of hard to access areas and crevice's
- composite feed; final product quality and suitability

Laboratory requirements

A laboratory accredited for the detection of Salmonella by culture from environmental and feed samples must be used. These laboratories must be accredited by UKAS for this test method, for the test quality standards and must send the isolate for further characterisation at APHA. See the list of Defra approved laboratories for testing of Salmonella in poultry, broilers and turkeys (https://www.gov.uk/government/publications/salmonella-in-poultry-testing-laboratories-in-the-uk).

The recommended method for detection of Salmonella where there may be small numbers of organisms includes the use of MSRV.

Action to be taken following isolation of Salmonella

The action to be taken following the isolation of Salmonella will depend on the circumstances of the isolation. The following should be considered by the manufacturer:

Quarantine
Any potentially contaminated product should be quarantined until a full investigation and risk assessment has been conducted.

Notification
In all cases the following should be informed of isolations of Salmonella:

- Defra, appropriate devolved administrations –The Zoonoses Order 1989 requires laboratories to report all isolations of Salmonella from animal or poultry feedstuffs and ingredients to APHA using the ZO2 (feed) submission form (https://www.gov.uk/government/publications/animal-feed-and-abp-report-suspected-salmonella-zo2-feed); Feed business operators should ensure that their contracted labs are aware of this requirement.

- Outgoing products: where contaminated feed may have been placed on the market, the feed business operator shall inform their local authority as per the requirements of Regulation (EC) 178/2002, Article 20.
- Incoming products: the feed business operator from whom the incoming contaminated material was sourced should be informed, this business is then responsible for notifying their local authority as per the requirements of retained Regulation (EC) 178/2002, Article 20.
- Anyone whom the feed business operator has a contractual obligation to inform.

Withdrawal and product recall
If a feed business operator considers or has reason to believe that a feed which it has imported, produced, processed, manufactured or distributed does not satisfy the feed safety requirements, it shall immediately initiate procedures to withdraw the feed in question from the market and inform the local authority as detailed in Notification section, paragraph b above. In these circumstances the feed shall be destroyed, unless following an appropriate risk assessment the competent authority is satisfied otherwise.

The feed business operator shall accurately inform users of the feed in a timely manner of the reason for its withdrawal, and if necessary, recall from them products already supplied when other measures are not sufficient to achieve a high level of health protection.

Incoming materials
- clean and flush intake, routes and storage
- vehicle cleaning (whether own vehicles or third party)
- additional cleaning of plant and equipment
- review test frequency and finished product test results

Finished products
- carry out traceability to identify the source of contamination
- additional cleaning of storage and vehicles (where appropriate)
- additional cleaning of plant and equipment
- review finished product and environment test frequency and results

Environment
- additional cleaning of plant and equipment
- environmental screening follow up
- review environmental test frequency