

Chapter 2.4

Post-Mortem, Health and Identification Marking

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1. Introduction

1.1 Overview

1.2 Legislation

1.1 Overview

1.1.1 Purpose

The principal purpose of post-mortem inspection is to supplement ante-mortem inspection and to detect:

- diseases of public health significance
- diseases of animal health significance
- residues or contaminants in excess of the levels allowed by legislation
- the risk of non-visible contamination
- other factors which might require the meat to be declared unfit for human consumption or restrictions to be placed on its use
- visible lesions that are relevant to animal welfare such as beating or long standing untreated injuries

1.2 Legislation

1.2.1 Regulations

Regulation (EC) 854/2004 details:

- the purpose of post-mortem inspection
- the post-mortem inspection procedures
- the decisions to be taken concerning meat

Regulation (EC) 853/2004 details the standards that the Food Business Operator (FBO) should provide and achieve for post-mortem inspection.

Regulation (EU) 219/2014 amends Annex I of (EC) 854/2004 as regards the specific requirements for post-mortem inspection of domestic swine to be carried out from 1 June 2014

Reference: Further details are provided in the Meat Industry Guide (MIG).

1.2.2 Post-Mortem inspection requirements

Specific requirements for each species are listed in (EC) 854/2004, Annex I, Section IV.

Reference: See Annex 1 for a summary of post-mortem inspection requirements.

2. FSS role

- 2.1 Introduction to post-mortem Inspection
- 2.2 FSS duties
- 2.3 OV checks after post-mortem inspection
- 2.4 Post-mortem inspection guidelines
- 2.5 Decisions concerning meat
- 2.6 Recording of contamination presented for inspection on cattle, sheep and pig carcasses

2.1 Introduction to post-mortem inspection

2.1.1 Key principles

Post-mortem inspection should:

- take into account ante-mortem inspection results
- view all external surfaces
- pay particular attention to the detection of zoonotic and notifiable diseases
- take into account FCI or trained hunter's declaration
- take place without delay after slaughter
- include carcasses and accompanying offal

2.1.2 Contamination during inspection

During inspection, precautions must be taken to ensure that contamination of the meat by actions such as palpation, cutting or incision is kept to a minimum. Minimal handling of the carcass and offal should take place.

In relation to pig meat, the European Food Safety Authority (EFSA) adopted a Scientific Opinion which concluded that palpation or incisions in carcass and offal at post-mortem inspection should be omitted for pigs subjected to routine slaughter, because the risk of microbial cross-contamination being higher than the risk associated with potentially reduced detection of conditions targeted by those techniques.

The use of palpation and / or incision should be limited to suspect pigs (see sub-topics 2.4.1 to 2.4.3 for further information).

2.1.3 Accuracy

The speed of the slaughter line and the number of inspection staff present must ensure proper inspection is completed and records maintained.

FBO to maintain robust system to ensure correlation of carcasses and accompanying offal and OV to follow hierarchy of enforcement when applicable.

Regulation: (EC) 854/2004, Annex I, Section I, Chapter II, D1.

(EC) 853/2004, Annex III, Section I, Chapter IV, 13 (a)

MHI post-mortem inspection is for defect detection. OV post-mortem inspection is for disease diagnosis.

2.1.4 Additional examinations and tests

Where it is thought necessary, additional examinations are to take place such as palpation and incision of the carcass and offal and laboratory tests to:

- reach a definitive diagnosis
- detect the presence of:
 - an animal disease
 - residues or contaminants in excess of the levels allowed by community legislation
 - non-compliance with microbiological criteria
 - other factors that might require the meat to be declared unfit for human consumption or restrictions to be placed on its use

Note: Special attention should be taken in the case of animals having undergone emergency slaughter – assess whether animal welfare is being compromised

2.1.5 OV presence

The OV need not be present at all times during post-mortem inspection if:

- an MHI carries out post-mortem inspection and puts aside abnormal meat with uncommonly occurring conditions and all other meat from the same animal

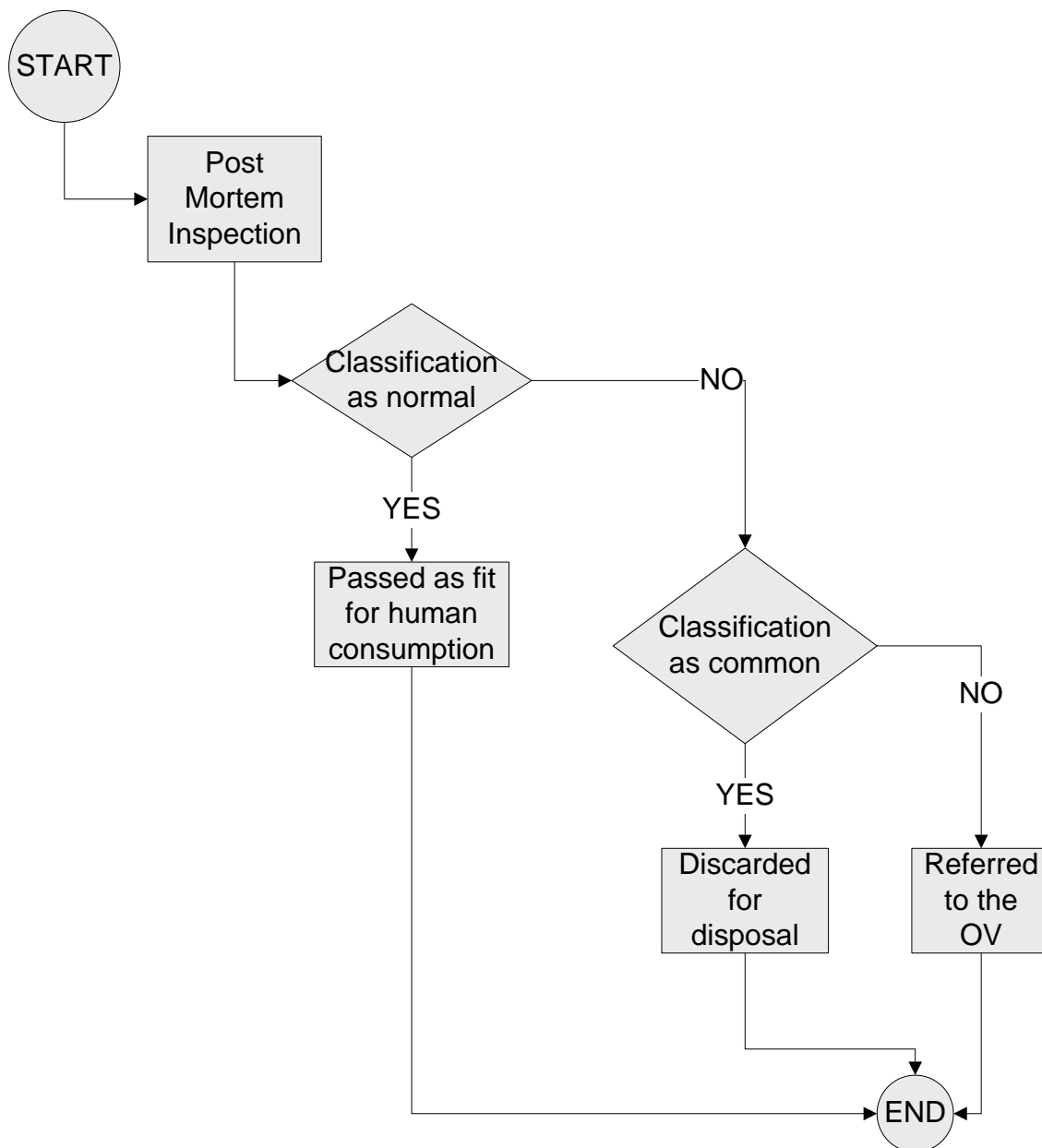
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- the MHI documents their procedures and findings in a manner that allows the OV to be satisfied that standards are being met
- the OV subsequently inspects all such meat

The MHI may discard meat from poultry and rabbits with abnormalities and the OV need not systematically inspect all such meat.

Regulation: (EC) 854/2004, Annex I, Section III, Chapter II, 2.

2.1.6 MHI post-mortem decision tree



2.1.7 Abnormal meat

To consider an abnormal carcase meat/offal as 'uncommon', we could take into consideration different aspects such as:

- prevalence of the condition in the area
- prevalence of the condition in the flock/herd (degree of infection or infestation)
- the possible human health implications of the condition (such as zoonoses)

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- the possible animal health implications of the condition (such as lesions which may indicate a possible notifiable disease such as classical swine fever, foot and mouth disease)
- possible animal welfare problems on farm, during transport or in the lairage
- the need to refer it to the veterinarian to do a differential diagnosis
- economic importance of the condition for the farming industry (degree of infestation)

Based on all the above, the MHI will need to make a judgement and notify the OV of the findings.

2.1.8 Examples of abnormal conditions that can be classified as common or uncommon

The table below outlines abnormal conditions and their classification.

Abnormal condition	Comments	Occurrence
Broilers septicaemia/ toxaemia	Very prevalent condition.	Common
Mastitis in older cattle	Common condition in all species, especially cows. No need to inform the OV as the farmer is already aware and will receive notification when he is informed about the post-mortem inspection records.	Common
Sheep caseous lymphadenitis	Is becoming more common but the OV needs to be made aware because of the economic importance of the disease (responsible for 1% of condemnations at meat inspection). The veterinarian doing a differential diagnosis.	Uncommon
Cattle (30 month or younger) fascioliasis	Common in ungulates. The OV does not need to be informed. The disease is of great economic importance because of liver condemnations. The farmer will be informed when he receives notification of the post-mortem inspection findings.	Common
Pigs pleurisy/ pneumonia	Inflammation of the pleurae is a common meat inspection lesion in pigs. It requires the stripping of the pleura or removal of the rib cage but carcass condemnation is not normally necessary. There is positive correlation between the number of carcasses requiring lung condemnation and	Common

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	the number of those requiring pleura stripping. The OV does not need to be informed.	
Sheep anthrax	Normally identified at ante-mortem inspection if a suspect animal is found dead in the lairage. It is a notifiable disease and it is a zoonosis. The OV must be informed and should immediately inform the APHA Duty Veterinarian.	Uncommon
Broilers mechanical damage	This is normally the result of poor functioning of the poultry plant machinery. The FBO has to be informed by the MHI if he has not already identified the problem.	Common
Cattle sarcocystis	The incidence is higher in older cattle but is an uncommon condition. Depending on the degree of infestation, the carcass and viscera have to be rejected. The OV should be informed.	Uncommon
Pigs ascariasis (milk spot)	The second most recorded condition at post-mortem in pigs (17% of total rejections in 2004). It is mainly identified in livers ('milk spot') which are unfit for human consumption. The farmer will be informed when he receives the post-mortem inspection report. The OV does not need to be informed.	Common

2.2 FSS duties

2.2.1 Outline

The following table outlines the duties of the FSS Operations Group with regard to post-mortem inspection.

Role	By	Frequency
Carry out post-mortem inspection	An OV or MHI appropriately authorised under Regulation (EC) 854/2004 (or appropriately authorised slaughterhouse staff (PIA) in poultry or rabbit slaughterhouses) working under the supervision of an OV See Chapter 10 on PIA guidance	All carcasses and accompanying offal without delay after slaughter

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	for more information	
Carry out post-mortem inspection for animals subject to emergency slaughter outside the slaughterhouse	An OV only; this cannot be delegated to a MHI	All carcasses and offal as soon as possible. Note: where an animal has been subject to emergency slaughter outside the normal operational hours, cold post-mortem inspection is permissible. In these cases, the establishment does not need specific approval to carry out cold inspection of emergency slaughter carcasses only.
Carry out PM for animals accompanied by a farmers declaration	OV or MHI	All carcasses and offal as soon as possible
Record post-mortem inspection results	OV or MHI (or PIA)	At the time of post-mortem inspection
Apply Health Mark (HM)	The Health Mark must be applied under the supervision of the OV Reference: Regulation (EC) No. 854/2004, Annex I, Section I, Chapter III, 1.	Immediately after post-mortem inspection (this may be prior to results of any examination for <i>Trichinella</i> being available, if OV satisfied meat will only be placed on market if results are satisfactory) See section 5 of this chapter for health marking <i>Trichinella</i> tested pigs See chapter 2.6 on 'TSE testing' for health marking BSE

		tested cattle
Disease sampling / testing	OV or MHI	When disease is suspected
Monitoring sampling / testing	OV or MHI or specifically trained plant staff	When monitoring of disease is required, for example, TSE, <i>Trichinella</i>
Verification of post-mortem inspection	OV	Daily verification of a sample of inspected carcasses and offal of each species processed
Welfare surveillance/evidence gathering and reporting	OV and MHI/PIA	When welfare cases identified at post-mortem See Chapter 2.3 “Animal Welfare” sections 1 and 3 for more information

2.3 OV checks after post-mortem inspection

2.3.1 Verification of post-mortem inspection

On an on-going basis, the OV will verify the post-mortem inspection of a sample of carcasses and offal that has been health marked (inspected, in the case of poultry).

The verification checks in both red and white meat establishments should reflect the full range of species and age/ type of animal being processed.

Note: Post-mortem procedures described for bovine and ovine animals, domestic swine and poultry are to be applied to the corresponding species of farmed game.

2.3.2 Verification checks: white meat

In white meat establishments, carcass checks on free range, organic birds and spent hens as well as broilers should be carried out where applicable. The verification checks for poultry should encompass the additional legislative requirements, namely there should be:

- a daily inspection of the viscera and body cavities of a representative sample of birds

- a detailed inspection of a random sample, from each batch of birds having the same origin, of birds or part of birds which have been declared as unfit for human consumption following post-mortem inspection

Reference: Regulation (EC) 854/2004, Section IV, Chapter V

Note: In poultry establishments with a hybrid PM inspection system (where OV also undertakes PM inspection along with OAs or PIAs), the VM must conduct quarterly recorded verification visits.

See: PIA performance verification procedures (FSS IT module) and daily PMI-1 form reference – Chapter 9 &10

2.3.3 Verification checks: red meat

In red meat establishments, verification checks should include lambs, adult sheep, goats, sows, boars and pigs, horses, calves and older cattle.

Check to be recorded in the PM verification module.

2.3.4 Frequency of verification checks

In red meat slaughterhouses which operate on four or five days per week, verification must be carried out on three days per week.

In poultry slaughterhouses, verification must be carried out on each day of processing.

In red meat slaughterhouses which operate on fewer than four days per week, verification must be carried out on all operating days.

All species processed must be subject to verification.

Note: In the case of smaller red meat plants where there is OV only attendance, see sub-topic 2.3.11 on 'Exceptions'.

2.3.5 Where to conduct the checks

The following production stages should be selected for carrying out the checks:

- online, before the chiller
- immediately after inspection points - to ensure real time checks
- in the chiller
- in poultry plants, checks should be conducted immediately after the EV (evisceration) inspection point, taking into account that minor contamination instances and trailing entrails might be dealt with by further FBO HACCP based controls following the actual inspection. These small contamination

instances should not be added as a failure of the inspection process. OV discretion and knowledge of the plant's HACCP system are required for adequate judgement of these instances.

Note: As contamination can be difficult to see on chilled carcasses due to vaporised moisture, it is recommended that the checks should be conducted online before chilling.

2.3.6 Sample size: white meat establishments

The sample size depends on throughput. The following table details the quantity of birds to be checked. Note that the checks should be spread across each day of production, ensuring that there is a daily inspection of the viscera and body cavities of a representative sample of birds and a detailed inspection of a random sample from each batch of birds having the same origin (if possible), of birds or part of birds which have been declared as unfit for human consumption following post-mortem inspection:

Weekly throughput	Weekly total of carcasses to check
>250,000	3000
100,000 – 250,000	1500
50,000 – 100,000	900
<50,000	600

In plants with very low throughput, where 600 carcasses/week is not realistic, as a minimum, 5% of the carcasses should be checked. E.g.: if a plant only operates one day/week and slaughters 1500 birds, the OV should ensure that minimum 75 carcasses are verified.

2.3.7 Sample size: red meat establishments

The sample size depends on throughput. The following table details the quantity of carcasses and offal to be checked:

Weekly throughput	Weekly total of carcasses and offal to check
>1000	60 carcasses and 60 sets of offal (20 carcasses and 20 sets of offal per species per day, 3 days per week)
<1000	30 carcasses and 30 sets of offal (10 carcasses and 10 sets of offal per species per day, 3 days per week)

2.3.8 Verification checks to be carried out

The OV will carry out the following checks on carcasses and offal:

- **Pathology** Verify that the meat is free from all pathological conditions that would render it unfit for human consumption.
- **Statutory requirements verify** that post-mortem inspection has been carried out in accordance with the requirements set out in Annex 1 to this chapter.
- **Contamination** Verify that the meat is free from contamination.
- **Health Marking** Verify that the meat is correctly and legibly health marked.
- **Other** Record any identified deficiency (such as tonsils, stick wounds, SRM).

Note: Verification of offal includes parts that are fit for human consumption at the inspection point (such as liver, heart, skirt). Others intended as edible co-products which require further processing prior to being eaten (such as tripe, casings) should also be included in the verification checks.

2.3.9 Post-mortem verification electronic form

Results are to be recorded on the post-mortem verification module on the FSS IT system.

The results should be recorded online, on a daily basis.

If recorded first on paper, the paper forms do not need to be retained once the information has been recorded online.

2.3.10 Recording of deficiencies

Only deficiencies identified during the verification checks are to be recorded in the electronic module (exception recording).

Details of the identified deficiency and corrective action taken are to be recorded in the space provided.

2.3.11 Exceptions

In smaller red meat plants where there is OV only attendance, there is no requirement to conduct PMI verification checks.

Note: The VM will identify any issues observed during the course of their scheduled management visits, and will address such issues accordingly.

2.3.12 Assessing PMI verification results

PMI verification is a tool to measure our effectiveness as an inspection service.

PMI verification results should be assessed by the OV / VM to monitor team and individual performance.

Variables in each establishment should be considered if concerns are raised following PMI findings; for example lighting, available inspection time and space, FBO performance, plant layout.

Note: The OV/ VM should maintain realistic expectations during the checks when assessing team performance from the PM Verification results, as minor incidents of contamination become more evident post-chilling, particularly with pig hair and wool.

2.4 Post-mortem inspection guidelines

2.4.1 Options in post-mortem inspection

Specific requirements for all species are listed in (EC) 854/2004, Annex I, Section IV.

2.4.2 Splitting carcasses

The OV is to require carcasses of horses, bovine over six months old, and pigs over four weeks old to be submitted for post-mortem inspection split lengthways down the spinal column.

Regulation: (EC) 854/2004, Annex I, Section I, Chapter II, D, 3.

However, if the OV authorises, to take account of particular market requirements, technological developments or specific sanitary situations, the carcasses may be submitted for the inspection not split in half as it is current situation with pig carcasses.

Regulation: (EC) 854/2004, Annex I, Section I, Chapter II, D, 3.

The OV may also require any head or any carcass to be split lengthways if the inspection so necessitates.

Caution: Splitting the head of cattle carries a health and safety risk, and if the animal is required to be sampled for BSE it may only take place after the sample has been taken.

2.4.3 Minimal handling by inspectors

During inspection, precautions must be taken to ensure that contamination of the meat by actions such as palpation, cutting or incision is kept to a minimum.

Note: Whilst still allowing for adequate post-mortem inspection care must be taken not to de-value the carcass or offal when making post-mortem incisions.

Note: see Professional Standard guidance regarding PPE/GHP on My Workplace – Operations on Saltire

2.4.4 Visual only inspection

Carcases and offal of pigs of all ages are to undergo visual inspection procedures. Further Inspection Procedures (palpation and/ or incision) can be carried out when one of the following indicates a risk to public health, animal health or animal welfare:

- checks on the FCI
- checks on any other data from the holding of provenance
- ante-mortem or post-mortem findings

Note: Further inspection can also be carried out if gathering of evidence is required for enforcement purposes (for example, welfare investigation).

Regulation: (EU) 219/2014 amending Annex I of (EC) 854/2004 (Section IV, Chapter IV).

2.4.5 Examples of conditions found in pigs at ante-mortem that might justify further inspection procedures at post-mortem

For the majority of the conditions listed on the current ante mortem inspection sheet there would be no need for pigs to be marked to undergo further inspection procedures (FIP) at post-mortem.

However, the following may justify FIP:

- mastitis (if associated with general signs)
- moribund / recumbent
- orchitis (marked to consider *Brucella*, occupational zoonoses)
- suspect emaciation, poor condition
- suspect fever
- slaughtered in lairage

Note: the OV is not limited to these conditions and should use their professional judgement.

2.4.6 Examples of conditions found in pigs at post-mortem that might justify further inspection procedures

For localised conditions on pig carcasses, further inspection procedures are not normally justified unless a generalised and-or septic condition is also observed/ suspected.

The following localised conditions may justify detaining the carcass for FIP at post-mortem:

- multiple abscesses
- TB like lesions (in cases of enlarged lymph nodes).

When the OV/ MHI suspects a generalised condition, in some cases the appropriate decision about the fitness of the meat for human consumption cannot be made without further examinations.

If any of the following conditions is observed/ suspected, this **may** justify detaining the carcass or offal for FIP at post-mortem inspection:

- anaemia (may be part of other generalised condition)
- badly bled (may mask some other post-mortem signs)
- contamination gut content (may mask other conditions)
- emaciation / generalised oedema
- erysipelas
- generalised TB, tumours, melanosis
- jaundice
- machine damage (if may mask other conditions)
- poly-arthritis
- septic peritonitis
- septic pleurisy
- suspect pyaemia / multiple abscesses-tail bite-other
- suspect uraemia / abnormal odour
- suspect fever / septicaemia
- suspect residues.

Note: The OV/ MHI are not limited to these conditions and should use their professional judgement.

2.4.7 Protocols and Procedures for VIP and FIP in Pig Establishments

The OV should, in collaboration with the FSS Team and FBO, establish clear, documented plant specific procedures describing the **who, what and how etc.** with regards to:

- Live animal delivery and lairaging

- Identification, marking and communication of abnormal animals and segregation if necessary
- Marking and communication of carcasses that require FIP e.g. Pencils, tags, walkie-talkies, verbal etc.
- FIP carried out (e.g. on moving line or detention line etc.)
- *Salmonella* testing
- *Trichinella* testing
- Any other relevant information considered important

The documented protocols and procedures should be retained on Sharepoint and be readily accessible.

The documented protocols and procedures shall be reviewed regularly and in any case, where the production operation, resource or line layout changes

Note: See Annex 9 for a template Protocol

2.5 Decisions concerning meat

2.5.1 Animal carcasses for which a 'suspect animal card' was completed

The OV must have a suitable system in place to inform the person(s) performing the post-mortem inspection of any condition that may help in the post-mortem judgement for that carcass. This includes any animals for which a 'Suspect Animal Card' has been completed and also pigs identified at ante mortem inspection as requiring further post-mortem inspection procedures other than visual inspection.

2.5.2 Possible outcomes

After the inspection, the OV/MHI can:

- pass the meat as fit for human consumption
- declare the meat unfit for human consumption
- detain the meat for further examination following rectification.

2.5.3 Reasons for declaring meat unfit

Meat may be declared unfit for human consumption if it:

- derives from animals that have not undergone ante-mortem inspection, except for hunted wild game

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- derives from animals the offal of which has not undergone post-mortem inspection, unless otherwise permitted under Regulation 853/2004 or Regulation 854/2004
- derives from animals which are dead before slaughter, stillborn, unborn or slaughtered under the age of seven days
- results from the trimming of sticking points
- derives from animals affected by animal diseases for which animal health rules are laid down in Annex I to Council Directive 2002/99/EC except if it is obtained in conformity with the specific requirements provided for in that legislation, unless otherwise provided for in Section IV (**Reference:** Regulation (EC) No 854/2004, Annex I, Section II, Chapter V, 1(e))
- derives from animals affected by a generalised disease, such as generalised septicaemia, pyaemia, toxæmia or viraemia
- is not in conformity with microbiological criteria laid down under community legislation to determine whether food may be placed on the market
- exhibits parasitic infestation, unless otherwise provided for in Section IV
- contains residues or contaminants in excess of the levels laid down in community legislation; any overshooting of the relevant level should lead to additional analyses whenever appropriate
- without prejudice to more specific community legislation, derives from animals or carcasses containing residues of forbidden substances or from animals that have been treated with forbidden substances
- consists of the liver and kidneys of animals more than two years old from regions where implementation of plans approved in accordance with Article 5 of Directive 96/23/EC has revealed the generalised presence of heavy metals in the environment
- has been treated illegally with decontaminating substances
- has been treated illegally with ionising or UV-rays
- contains foreign bodies (except, in the case of wild game, material used to hunt the animal)
- exceeds the maximum permitted radioactivity levels laid down under community legislation
- indicates patho-physiological changes, anomalies in consistency, insufficient bleeding (except for wild game) or organoleptic anomalies, in particular a pronounced sexual odour
- derives from emaciated animals

- contains specified risk material, except as provided for under community legislation
- shows soiling, faecal or other contamination
- consists of blood that may constitute a risk to public or animal health owing to the health status of any animal from which it derives or contamination arising during the slaughter process
- in the opinion of the official veterinarian, after examination of all the relevant information, it may constitute a risk to public or animal health or is for any other reason not suitable for human consumption

Where there is total rejection the whole carcase, offal and blood and the rest of body parts must be disposed of as an animal by-product.

Regulation: (EC) 854/2004 Annex I Section II Chapter V 1.

2.5.4 Reference link to pathological conditions

Access to the Cornell University photographic library of pathology can be obtained using the following link:

<http://w3.vet.cornell.edu/nst/nst.asp>

For poultry, consult the poultry condition cards found on My Workplace – Operations on Saltire

2.5.5 Meat declared unfit

Where the OV is not satisfied that the meat is fit for human consumption, the health mark/ identification mark must not be applied. The FBO should be asked to voluntarily surrender meat rejected as unfit for human consumption. Where surrender is not forthcoming, the OV should put in writing the reasons why they are formally declaring the meat unfit for human consumption in accordance with Regulation (EC) 854/2004, Annex I, Section II, Chapter V, paragraph 1.

Note: Where the FBO continues to refuse to dispose of meat that has been declared unfit, follow the ABP provisions relating to the treatment of meat declared unfit for human consumption. See chapter 2.8 on 'Animal by-products'.

2.5.6 Further inspection required

If the OV/ MHI consider that the carcase and offal require further inspection, the carcase and the associated offal must be detained and kept under control of the OV pending the inspection.

Note: For details on Food Detention powers please refer to chapter 7 on Enforcement

2.5.7 When partial rejection may be appropriate

Partial rejection of the meat or offal may be appropriate where only part of the carcass or a single organ is affected. Reject only the affected carcass part or offal and the tissue immediately surrounding it as an animal by-product.

2.5.8 Detention procedure

When detaining a carcass for further inspection it is important to maintain correlation of the detained carcass and all relevant parts until post-mortem inspection has been completed and any additional examinations have taken place.

The detention method and any other examinations that are carried out must be done in a manner that prevents the risk of cross-contamination with meat intended for human consumption, for example, prevention of contact between carcasses.

Note: It is inappropriate to detain meat that has been declared unfit for human consumption with a formal food detention notice, as the product becomes an ABP and no provision exists to detain an ABP.

2.5.9 Rectification - FBO responsibility

It is the responsibility of the FBO to present carcasses and offal to the FSS for final inspection free from contamination by faeces, gut content, hair, wool, bile and any other pollutants in accordance with the FBO's procedures based on HACCP principles.

Any visible contamination must be removed without delay by trimming or alternative means having an equivalent effect. (ref. EC 853/2004).

- **Guidance on the use of steam vacuum to remove contamination**

Microbiological tests show that the use of steam vacuum for removal of visible contamination results in lower aerobic bacterial counts and lower numbers of positive *E. coli* than those achieved by use of knife cutting. The use of vacuum steam appears to be at the very least as effective as traditional trimming. Therefore, provided the conditions described below are followed, it will be an accepted method as an alternative to traditional trimming.

It can therefore be used, in red meat slaughterhouses in Scotland, as a tool to remove minor visible contamination, dirt and hair from relatively smooth carcass surfaces provided that it is used sensibly and:

- Is only used to rectify **accidental** contamination of carcasses and not as a substitute for good hygiene or inadequate dressing practices;
- The food business operator (FBO) maintains the responsibility for rectifying carcasses prior to post-mortem inspection (PMI) - i.e. the FBO should either rectify contaminated carcasses while on the dressing line or divert them onto a rectification rail;
- The steam used for direct contact with meat must be generated from potable water and the potable water outlet used to feed the steam supply must be included in the sampling programme;
- The steam vacuum device in contact with the carcass is sterilized after every use, and
- Is assessed on a plant-by-plant basis and fully incorporated in the food safety management system.

The vacuuming process will not remove colour tracks (e.g. bile or in depth contamination) which will need to be rectified by traditional knife trimming techniques.

The use of steam vacuum after PMI for cosmetic reasons is not subject to the above requirements. Once the carcasses have passed official inspection, it is the FBO's responsibility to make sure that no further contamination occurs.

2.5.10 FSS Operations group responsibilities

FSS Operations Group staff should have regard to the following:

- FSS no trim policy which includes:
 - No trimming or rectification work on any aspect of contamination - FSS staff should only record and detain, it is the responsibility of the FBO to rectify and represent.
 - No rectification work, for quality reasons, as this is also the responsibility of the FBO.
- carcasses showing signs of pathology or contamination must not be health marked and should be detained for rectification by the FBO
- where contamination on a series of carcasses is persistent and represents a failure in the FBOs hygienic procedures, the OV should immediately be informed, to establish the cause and rectify the problem. This may involve the OV stopping the line to resolve the issue.

Note: All line stoppages should be recorded in the day book and in the enforcement programme form ENF 11-5

- the OV and MHI should continually monitor the activities of FBOs on line trimmers
- the OV must discuss the dressing procedures and HACCP based plan with the FBO where persistent deficiencies are identified

Note: Deficiencies in carcase dressing should be recorded using the AUD 9/1, AUD 9/2 (by the OV) and AUD 9/3 forms (by the FSS auditors)

2.5.11 Use of scabbards by FSS staff

Scabbards should only be used to transport knives to and from the post-mortem inspection stations. Once at the post-mortem inspection station, the preferred option for FSS staff would be to use the nearest sterilizer to store knives when not in use.

2.6 Recording of visible contamination presented for inspection on cattle, sheep and pig carcasses

2.6.1 Legislation

Regulation (EC) 852/2004, Chapter 1, Article 2, 1(f) defines contamination as *'the presence or introduction of a hazard'*.

Regulation (EC) 178/2002, Chapter 1, Article 3, 14 defines a hazard as *'a biological, chemical or physical agent in, or condition of, food or feed with the potential to cause an adverse health effect'*.

2.6.2 Background

It is the responsibility of the FBO to present carcasses and offal for inspection free from visible contamination. It is very important that all carcasses and offal presented for post-mortem inspection showing signs of contamination are recorded as such. Recording of visible contamination such as faeces, gut contents, bile or hair can provide the OV with objective information in the form of numbers, percentages, categorisation of incidents and graphs to reveal trends in the effectiveness of the FBO's HACCP based procedures.

Note: Immediate action will be required in any situation indicating that FBO control over contamination has been lost.

2.6.3 Faecal contamination

It is recognised that despite good slaughter practices, contamination of carcasses can nevertheless occur. However, the regulatory zero tolerance for faecal contamination will always remain. FSS must therefore maintain a valid control strategy to regulate the FBO's non-compliance in an effective and proportionate fashion. To assist in this process, FSS staff in all cattle, sheep and pig slaughterhouses must carry out the procedures detailed below for carcass monitoring.

2.6.4 Online inspection recording

During on line inspection duties, FSS staff will record the number of carcasses* presented showing visible contamination by faeces/ gut content, bile, hair, wool, or other contaminants such as grease.

*The definition of a carcass for the purposes of this process is 2 beef sides, 2 sheep sides or 2 pig sides.

2.6.5 Actions regarding offal

Offal is not included in the grading process and should be recorded as per the existing recording system. All contamination data is to be recorded daily via the FSS contamination module

2.6.6 Contamination already identified by FBO

Contamination issues already identified by the FBO, such as clearly marked carcasses for further rectification, are **not** to be added to the FSS contamination data recording sheet (or equivalent) as this is a corrective action of the FBO HACCP system.

However, excessive carcasses being removed from the processing line is a significant issue and appropriate OV action should be taken regardless of whether the FBO has identified these. Detention logs and rejected meat records will provide appropriate evidence to utilise.

Reference: See Annex 5 to this chapter for the contamination data recording sheet.

2.6.7 Categorisation of contamination

In order to achieve consistency, the following categories of contamination are to be used when recording carcass incidents:

- a defect of up to 0.5 cm in any direction is assessed as an instance of minor contamination indicating FBO controls are broadly within control; such defects must be recorded as '**Broadly within Control**'

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- a defect exceeding 0.5 cm in any direction should have been clearly visible and managed by the FBO prior to presentation and indicates that FBO controls are inadequate; such defects must be recorded as '**Controls Inadequate**'
- more than one defect incident per carcass is to be counted as one incident, but must be categorised as '**Controls Inadequate**' if the accumulated defects fall within the higher category. In the event that more than one contaminant is found, priority must be given to recording of faecal, hair or wool contaminants before bile and other.

Categorisation of Contamination				
Contamination type	Cattle	Sheep	Pigs	Categorisation
Hair	1-10 hairs	1-10 hairs	1-5 clusters*	Broadly within control
	>10 hairs	>10 hairs	>5 clusters	Controls inadequate
Wool		1-3 clusters		Broadly within control
		>3 clusters		Controls inadequate
Faeces, gut contents, bile, hide or skin, other	<0.5cm			Broadly within control
	>0.5cm			Controls inadequate

*Pig hair clusters should be measured at the root positioning to establish diameter of defect

2.6.8 Defect recording

A carcass contamination data recording sheet or an equivalent system shall be utilised by FSS staff on the production line for all red meat species processed. This will provide the contamination information required to aid completion of the online contamination system. A suitable alternative to the manual recording sheet provided may be utilised at plant level, provided that this emulates the information requested on the recording sheet.

Tally counters may be considered to assist in gathering information at the carcass inspection points.

Using the data collected on the line, the number of contamination incidents should be entered on a daily basis on the online system.

Note: Be aware that contamination data can only be entered in the system once throughput data is recorded for that species.

2.6.9 PMI verification results

Findings from the PMI verification of carcasses in chillers **should not** be added to the graph charts.

See topic 2.3 on 'OV checks after post-mortem inspection' in this chapter.

2.6.10 Results shown by contamination records

Data entered into the contamination system will generate graphs showing whether the FBO controls are inadequate or broadly within control. These results will determine what follow up action is required - see following sub topics.

Contamination graphics will be generated based on daily data entered via the contamination module. It is not a requirement to generate and print out graphics daily. Graphics should be used to verify overall FBO compliance/ trend analysis and be discussed with the FBO whenever necessary.

2.6.11 Contamination Graphics

The graphs generated on the contamination records will automatically calculate a daily percentage for controls. This information will give an indication of confidence in management and level of current compliance within a production method.

The data collection at plant level will **assist the OV in defining reasonable expectations of operating standards**. Contamination levels (highest and lowest are to be entered on the FBO-FSS monthly meeting form).

Note: FBO Meeting Minutes template can be found in Annex 10.

Plant trend analysis and professional judgement from the OV is required for appropriate action. The VM will assist OV decisions by providing the SDP with guidance on levels of contamination. This will assist in compliance decisions and achieve consistency of approach.

The OV should review the graphs on a daily and weekly basis and take the appropriate action, as detailed in the following sub-topics.

2.6.12 Broadly within control

Where FSS monitoring through use of the contamination record system shows that FBO actions fall within the 'Broadly within Control' category, the OV should discuss the findings with the FBO during routine meetings and relate the FSS's findings to the FBO's own records made under their HACCP based procedures.

Cross-referencing to the results of any carcass microbiological monitoring may be useful in achieving on-going improvements in production.

Where results show FBO actions are 'Broadly within Control' but the trend indicates an increasing frequency of incidents, the OV should discuss with the FBO remedial actions that will bring the trend back within acceptable limits.

Note: Even where results show that contamination levels are 'Broadly within Control', the aim must always be to further reduce levels - the ultimate goal being zero contamination.

2.6.13 Controls inadequate

Results showing frequent incidents of contamination within the 'Controls Inadequate' category indicate an unacceptable breakdown in the FBO's food safety management systems. The OV must agree corrective action with the FBO to significantly reduce instances of contamination – whilst simultaneously proceeding through the enforcement hierarchy as outlined in chapter 7 on 'Enforcement'.

2.6.14 Controls inadequate: Authorised Officer actions

Where an establishment's contamination levels fall within the 'Controls Inadequate' category, the OV and VM will agree an action plan with the FBO while the team and operational colleagues work towards gathering sufficient evidence to support escalation of action, following the hierarchy of enforcement.

The data and graphs should be discussed with the FBO during routine meetings, or at a specific meeting where serious deficiencies indicating inadequate FBO controls are highlighted and urgent action is required, for example, where high levels of all contamination are being recorded or incidents of contamination measuring in excess of 0.5 cm are occurring regularly.

The data should be related to the effectiveness of the FBO's HACCP based systems, and during the meeting, changing trends in hygiene levels during production over a period of time should be examined.

2.6.15 FBO to monitor own standards

The emphasis of this recording system is to ensure the responsibility for HACCP controls stays firmly with the FBO to continually monitor their own standards and not rely on the regulatory body to do this for them.

Contamination on carcasses that is being trimmed by FBO prior to FSS inspection is not always being recorded in their monitoring systems in line with their HACCP based plan.

Under the Hygiene Regulations, FBOs have a duty to identify and monitor hazards for their prevention, elimination or reduction to acceptable levels.

Regulation: (EC) 852/2004 Chapter 2 Article 5.

2.6.16 Short term use of additional local systems

This system of carcase recording will not identify specific areas of the carcase which would direct the FBO to problem line positions. The establishing of local systems to provide further detailed information to the FBO may therefore be appropriate.

Any such local system must be established in conjunction with the VM, as a **short term** solution to resolve specific issues, such as production process steps out of control, but should not be utilised for longer than necessary.

3. FBO responsibility

3.1 Presentation for post-mortem inspection

3.1 Responsibility

3.1.1 Responsibility

It is the responsibility of the FBO to produce safe meat. FSS Operations inspectors confirm FBO actions and identify any specific risks.

3.1.2 Timelines

Stunning, bleeding, skinning, evisceration and further dressing are carried out without undue delay and in a manner that avoids contaminating the meat.

3.1.3 FSS facilities

The FBO follows the instructions of the OV to ensure that post-mortem inspection of all slaughtered animals is carried out under suitable conditions.

Regulation: (EC) 853/2004, Annex II, Section I, Chapter IV, 12

(EC) 853/2004, Annex II, Section II, Chapter IV, 6

3.1.4 FBO facilities

Until post-mortem inspection is completed all parts of a slaughtered animal:

- must remain identifiable as belonging to a given carcass.
- must not come into contact with any other carcass, offal or viscera
- must not be washed

The FBO must ensure that:

- slaughtered animals are dressed and treated in such a manner as not to prevent or hinder inspection
- no carcasses are cut up
- no action is taken to destroy or alter evidence of disease
- no part, except the hide or skin, is removed from the establishment until post-mortem inspection is completed and any required samples are taken

Exceptions

- **for all species:** the penis, if not intended for human consumption
- **for sheep and goats:** the head, if no part of it is intended for human consumption.

Regulation: (EC) 854/2004, Annex I, Section IV, Chapter II, 1.

Any visible contamination must be removed without delay.

Regulation: (EC) 853/2004 Annex III, Section I, Chapter IV.

3.1.5 Skinning

All carcasses and other parts of the body intended for human consumption must undergo complete skinning, except for:

- porcine animals
- feet of sheep, goats and bovines
- heads of ovine and caprine animals and calves
- the muzzle and lips of bovine animals

Un-skinned parts must be handled so as to avoid contamination of other meat.

Note: When destined for further handling, and before leaving the slaughtering establishment, heads and feet of all species mentioned above must be skinned or scalded and depilated.

Regulation: (EC) 853/2004 Annex III, Section I, Chapter IV, 18.

3.1.6 Spleens

Spleens must be removed completely and, wherever possible, whole. The operator must present spleens correlated to carcasses for inspection. Spleens are SRM in sheep and goats of all ages.

3.1.7 Delayed uteri removal

For the grading and classification of female bovines as heifers or cows the uteri may be left attached to the carcass until the grading is completed.

MLC officers are being advised to speak to the FBO where they have a need for the uteri to be retained for grading purposes. The OV must be satisfied that a suitable system can be adopted before the procedure can start.

3.1.8 Uteri removal: FBO responsibility

In order to facilitate the process the FBO must have a suitable system in place. The procedure must:

- be agreed between the FBO and the OV
- ensure that post-mortem inspection is completed and that no carcass is released for human consumption until the uteri has been completely removed and the carcass found fit for human consumption
- in addition, the uteri should be hygienically removed as soon as is practical following classification / grading

3.1.9 Uteri removal: OV responsibility

The OV must be satisfied that:

- suitable procedure can be adopted to ensure that hygienic production is maintained, for example, correlation is maintained between the uteri and the carcass without a risk of cross contamination
- health marks are not applied until the carcasses have had the uteri removed and have passed post-mortem inspection

3.1.10 Storage facilities

There are lockable facilities for the refrigerated storage of detained meat and separate lockable facilities for the storage of meat declared unfit for human consumption. Detention protocols should be established between FBO and OV in each plant and made available to the FSS team.

3.1.11 After post-mortem inspection

Regulation (EC) 853/2004, Annex III, Section I, Chapter IV, 16 states:

- the tonsils of bovine animals, porcine animals and solipeds must be removed hygienically
- meat declared unfit for human consumption must be removed as soon as possible from the clean sector of the establishment
- meat detained or declared unfit for human consumption and inedible by-products must not come into contact with meat and offal declared fit for human consumption

4. Guidance on conditions

- 4.1 Judgements at red meat post-mortem inspection
- 4.2 Transmissible spongiform encephalopathy
- 4.3 Glanders
- 4.4 Brucellosis
- 4.5 *Cysticercus bovis*
- 4.6 Tuberculosis
- 4.7 Arthritis
- 4.8 Tumours in bovines
- 4.9 Aujeszky's disease
- 4.10 *Cysticercus ovis*

4.1 Judgements at red meat post-mortem inspection

4.1.1 Introduction

It is the duty of the OV, or the MHI acting under their authority, during post-mortem inspection to make a judgement based on the specific case presented and the requirements of Regulation (EC) 854/2004, Annex I, Section I, Chapter II, D.

4.1.2 Legislation

Regulation (EC) 854/2004, Annex I, Section IV, Chapter IX lays down six specific hazards:

- TSE
- Cysticercosis
- Glanders
- Tuberculosis
- Brucellosis
- Trichinosis

4.1.3 Guidance

There follows guidance on the following specific topics:

- TSE
- Glanders
- Brucellosis
- *Cysticercus bovis*
- Arthritis
- Tumours in bovines
- *Trichinella*
- Aujeszky's Disease
- *Cysticercus ovis*

4.2 Transmissible spongiform encephalopathy

4.2.1 Guidance on TSE

Official controls carried out in relation to TSE are to take account of the requirements of (EC) No 999/2001 and other relevant community legislation.

Reference: See chapter 2.6 on 'TSE testing' for additional information.

4.3 Glanders

4.3.1 Guidance on Glanders

Where appropriate, solipeds are to be examined for glanders. Examination for glanders in solipeds is to include a careful examination of mucous membranes from the trachea, larynx, nasal cavities and sinuses and their ramifications, after splitting the head in the median plane and excising the nasal septum.

Meat from horses in which glanders has been diagnosed are to be declared unfit for human consumption.

Regulation: (EC) 854/2004, Annex I, Section IV, Chapter IX, D.

4.4 Brucellosis

4.4.1 Guidance on Brucellosis

When animals have reacted positively or inconclusively to a brucellosis test, or there are other grounds for suspecting infection, they are to be slaughtered separately from other animals, taking precautions to avoid the risk of contamination of other carcasses, the slaughter line and staff present in the slaughterhouse.

Meat from animals in which post-mortem inspection has revealed lesions suggestive of acute infection with brucellosis is to be declared unfit for human consumption. In the case of animals reacting positively or inconclusively to a brucellosis test, the udder, genital tract and blood must be declared unfit for human consumption even if no such lesion is found.

Regulation: (EC) 854/2004, Annex I, Section IV, Chapter IX, F.

Note: All FSS staff should be aware that, when dealing with brucellosis suspects, they must always wear eye protection, disposable masks and gloves.

4.5 *Cysticercus bovis*

4.5.1 Introduction

Meat infected with *Cysticercus* is to be declared unfit for human consumption. However, when the animal is not generally infected with *Cysticercus*, the parts not infected may be declared fit for human consumption after having undergone a cold treatment.

Regulation: (EC) 854/2004, Annex I, Section IV, Chapter IX, B.

4.5.2 Guidance on *C. bovis*

Use the table below as a guide to judgement when cases of *C.bovis* are detected.

Post-mortem findings			Judgement
Number	Location	Status	
One cyst	Localised*	Viable	Reject the affected organ or carcase part
		Non-viable (caseous/ calcified)	Require cold storage for remainder
More than one cyst	Localised*	Viable	Reject the affected organ or carcase part
		Non-viable (caseous/ calcified)	Require cold storage for remainder
	Generalised**	Viable	Reject the carcase and offal
		Non-viable (caseous/ calcified)	Reject the affected organ(s) or carcase(s) part Require cold storage for remainder

* only one area or part affected (such as heart **or** diaphragm)

** more than one area or part affected (such as heart **and** diaphragm)

4.5.3 Cold storage of carcasses and offal with a localised *C. bovis* infestation

After rejection of the relevant carcase part or offal, the remainder of the carcase and offal must undergo a 'cold treatment' as follows:

Temperature	Minimum time (weeks)
not exceeding -7°C	not less than 3 weeks
not exceeding -10°C	not less than 2 weeks

It is acceptable for the carcase to be boned-out prior to the commencement of the cold treatment, provided boning takes place under supervision of the AO and that the identity of the meat can be maintained throughout boning, packaging and storage.

4.5.4 Permitted destinations for cold storage

If cold storage facilities are not available at the slaughterhouse, the meat can be transported to a suitably equipped approved establishment for cold treatment. This arrangement should be done by the FBO with agreement from the OV.

4.5.5 Transport to an approved establishment

Where the meat is to be consigned to another approved establishment with cold storage facilities:

- the packaged meat should be labelled with *Cysticercus bovis* detention labels, or if part carcasses use talisman seals
- part 1 of the transfer permit must be completed at the slaughterhouse, the original to go with the consignment and a copy to be retained at the slaughterhouse
- part 2 of the transfer permit should be completed at the receiving establishment by the FBO

Reference: See chapter 9 on 'Forms', for sample copies of the PMI 4/15 *Cysticercus bovis* detention label and the Transfer Permit PMI 4/16.

4.5.6 Releasing the meat

An AO should visit the destination cold store to check and release the meat. A charge will normally be made for this.

If the AO is satisfied the treatment of the meat has been done satisfactorily and has no cause for concern then the meat can be ID marked at the cold store and released.

The AO should complete part 3 of the transfer permit and send it back to the FSS office at the originating slaughterhouse.

Once the transfer permit is returned to the originating slaughterhouse it should be kept on file for a minimum of 12 months.

Note: The AO can be an OV, MHI or LA Inspector.

4.6 Tuberculosis

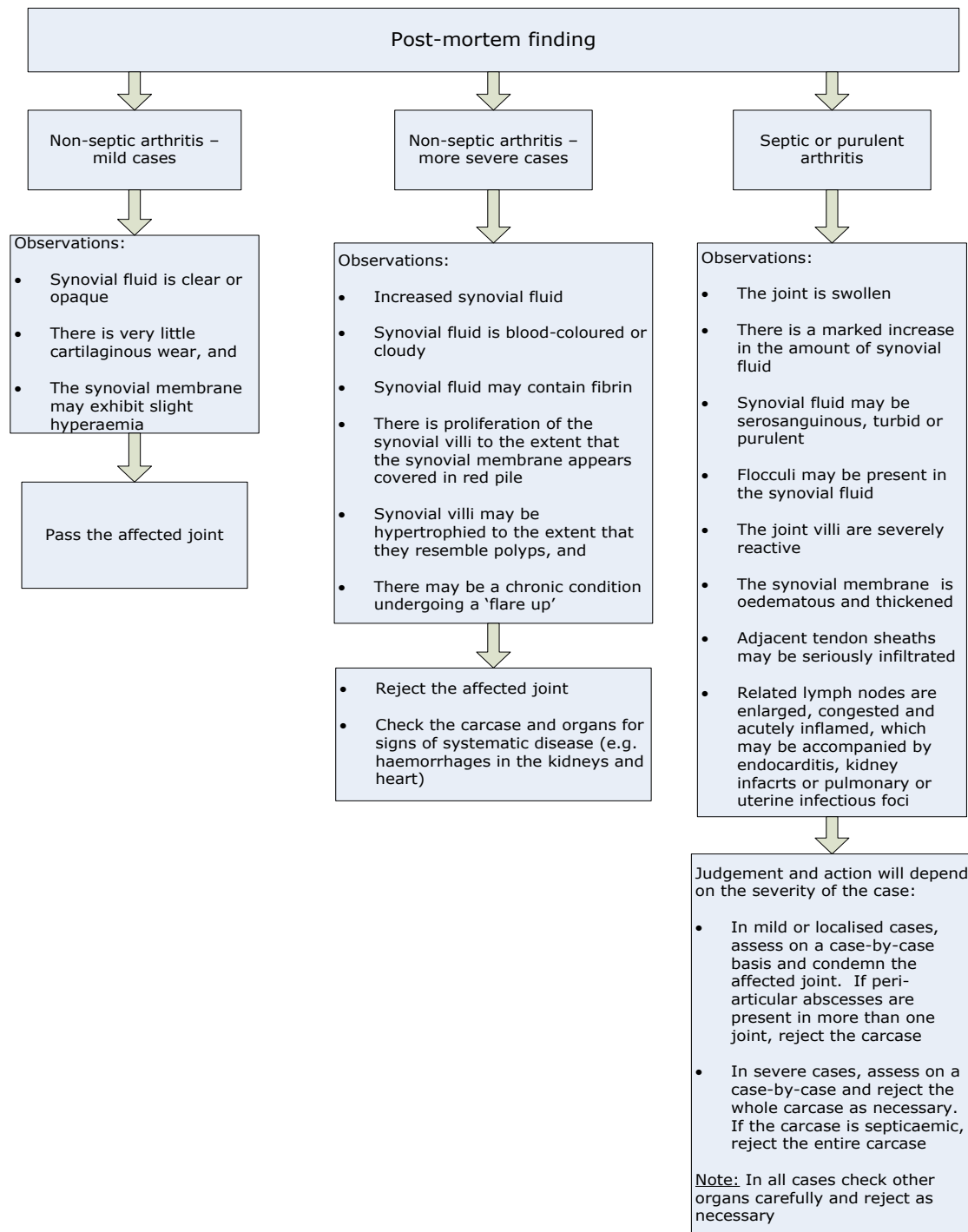
4.6.1 Guidance on tuberculosis

Full instructions on tuberculosis are now contained within chapter 6 on 'Notifiable diseases', section 7.

4.7 Arthritis

4.7.1 Guidance on arthritis

Arthritis is an inflammatory condition of the joint, synovial membrane and articular surfaces. It is a routine and common cause of partial and total rejection of carcasses. The flowchart below lists the post-mortem findings and guidance on the judgement of arthritic conditions:



4.8 Tumours in bovines

4.8.1 Guidance on tumours in bovines

Where tumours are encountered in the carcasses or offal of bovines, Enzootic Bovine Leukosis must be a consideration.

The OV must inform APHA.

Samples from the carcass might be required.

Before contacting APHA, the OV should gather all possible information about the animal, including date of birth and number of permanent incisors erupted.

Reference: See chapter 6 on 'Notifiable Diseases' EBL for additional information.

4.9 Aujeszky's disease: National Serum Survey

4.9.1 Purpose

To demonstrate continuing freedom from Aujeszky's disease a serum sample must be submitted for serological examination from every slaughtered breeding boar. All culled breeding boars (**excluding those exported from Northern Ireland** for slaughter which are uniquely slap marked for identification) are serologically tested as part of the National Serum Survey.

4.9.2 Who collects samples

The OV is responsible for collecting samples, or delegating the task to a suitably trained MHI.

4.9.3 Restocking of sampling equipment

Sampling equipment can be obtained from the SLA and Contracts team at operations@fss.scot. The equipment for this survey includes ELISA discs, plastic bags, address labels and photographic slide magazines used to dry the discs.

4.9.4 Method for collecting serum samples on ELISA discs

Samples must be obtained from carcasses at a sufficient distance from the point of kill when there is no risk from post slaughter carcass movement and from FBO activities. Where possible this should be done at the post-mortem inspection site.

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Caution: Avoid contaminating the disc with water or dirt.

The disc should be grasped by the body of the disc and not by the peripheral discs. Dry the saturated discs in the photographic slide magazines provided, ensuring effective separation between discs to prevent cross contamination.

Wash, rinse and dry the photographic slide magazines between uses.

Note: The 'Clotted blood' method of sampling is no longer to be used.

Step	Action
1	Use one <i>ELISA</i> disc for each boar. Pre-number the discs.
2	Each peripheral disc must be saturated with blood. Partially-saturated peripheral discs are of no use.
3	Place saturated discs in a clearly identified photographic slide magazine. Place discs in every second compartment of the slide magazine to allow effective separation while they dry.
4	Note sufficient information on the sample submission form to identify the owner of each boar.
5	Drying: Discs should be allowed to dry at room temperature, out of direct sunlight, for at least 12 hours. Discs must be completely dry before despatch to the laboratory.
6	Punch out a central hole in each disc once dry. Thread the discs onto file tags in a sequence that corresponds with the submission sheet and place into plastic bags for despatch to the laboratory with the completed submission form.

4.9.5 Storage prior to despatch

Prepared *ELISA disc* samples should be stored at 4°C until posted.

4.9.6 Posting and packaging details

The following points are to be observed:

- Samples may be batched and posted weekly (no more than 14 days from sampling to posting).
- 1st class post must be used.
- Each batch of samples must be accompanied by a completed submission form.
- The package must be marked AD SURVEY SAMPLES.
- Avoid posting samples on a Friday as they may be delayed in transit over a weekend.

4.9.7 Submission address

Serum samples from all slaughterhouses must be sent to:

APHA Weybridge
Woodham Lane
New Haw
Addlestone
Surrey
KT15 3NB

4.9.8 Sample submission form

Each sample submission form must provide sufficient information to identify the person who was the owner of each boar at the time that it was consigned to or purchased by the slaughterhouse.

The sample submission form must be completed and printed to go with the samples to APHA.

Retain a copy of each submission form for at least 1 year.

Reference: See Annex 2 for a sample copy of the sample submission form.

4.9.9 Sample recording

Record of samples submitted for the Aujeszky's disease survey should be entered into the FSS Sample Request online application – choose "Aujeszky's disease" from drop-down menu.

4.9.10 Notification

Notification by email to APHA is no longer required. The form should be printed to accompany the samples to APHA Weybridge.

4.9.11 Results

Results are reported to Defra and SLA and Contracts team. The SLA team will correlate the results and cascade them.

4.10 *Cysticercus ovis* in sheep carcasses

4.10.1 Overview

Cysticercus ovis in sheep is a parasitic infestation (the intermediate larval stage of the canid tapeworm, *Taenia ovis*).

In the EU regulations there are no specific provisions for this parasite (unlike requirements for *Cysticercus bovis* which is zoonotic) even though there is a general requirement for meat which exhibits parasitic infestation to be declared unfit (**Regulation** (EC) 854/2004, Annex I, Section II, Chapter V, 1 (h)). Since *C. ovis* is not a zoonosis countries have adopted their own policies in dealing with this.

FSS has adopted an inspection procedure and decision process as follows:

4.10.2 Post-mortem inspection procedures and criteria for decision on fitness

Where, on routine inspection, the presence of a *C. ovis* cyst is discovered a detailed inspection of the carcass and head (where present) must be carried out.

- If there are no visible lesions on the epicardium the heart should be incised through the intraventricular septum to expose both ventricles.
- The inspection of the carcass must consist of a careful examination by palpation of the muscles of the diaphragm together with visual examination of the muscles exposed during dressing such as the ventral muscles of the neck (freeing them from tissue to expose the muscle if needed), the brisket and the medial muscles of the leg.
- The psoas muscles should be freed from the renal fat (leaving the latter in situ if possible so as not to reduce carcass weight) to visually examine the muscles.
- A cut should be made through the adductor muscle down to the aitch bone to expose the muscle for further examination.
- A small incision should be made into the pockets of the shoulder to allow palpation with a finger of the triceps on either side.

Other incisions into the musculature are not required as a routine procedure, but may be made in exceptional instances if considered essential for making a final decision.

4.10.3 Decision on fitness

- Viscera with cysts (e.g. head, heart) need to be rejected. Other viscera (e.g. green offal, pluck) may either be rejected or retained until completion of post-mortem inspection; they can then either be passed if the carcass is deemed fit, or rejected if the carcass is deemed unfit for human consumption; ideally this should be agreed in advance with the FBO.
- The carcass should be deemed unfit for human consumption and rejected where there are cysts of **C ovis in three or more different anatomical locations, irrespective of the number of cysts in a single location** (e.g. the carcass and unaffected offal may be passed as fit if cysts are only identified in the heart and in the oesophagus, even if there were many cysts there).

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- When cysts that do not warrant total rejection are identified in the carcase they should be trimmed with partial rejection of affected tissues only.

Reference: Further guidance with photographs can be found on TEC Files issue 86

5. Trichinella

1. Introduction
2. Cold treatment methods
3. Collecting samples
4. Packaging and despatch of samples
5. Courier collection services and procedures
6. Consumables
7. Use of on-site labs
8. Test results

5.1 Introduction

5.1.1 Background

Trichinellosis is an infestation of the muscles of animals and man with the larvae of *Trichinella spiralis*. Infection occurs through the eating of raw or undercooked meat.

Meat from animals infected with Trichinae is declared unfit for human consumption.

5.1.2 Legislation

Regulation (EC) 854/2004 Annex I, Section IV, Chapter IX, C, requires the carcasses of swine (domestic, farmed game and wild game), solipeds and other susceptible species to be examined for trichinosis.

Regulation: Commission Implementing Regulation (EU) 2015/1375 laying down specific rules on official controls for *Trichinella* in meat repeals Regulation 2075/2005 and 216/2014, and sets out requirements for *Trichinella* testing, derogations and conditions for controlled housing.

5.1.3 FSS role

Trichinella testing is an official control. The OV is to ensure that sampling takes place and samples are appropriately identified, handled and sent for testing to an accredited laboratory.

Regulation: (EC) 854/2004, Annex I, Section I, Chapter II, F.

Sampling and preparation of samples can be carried out by the OV or a MHI.

However, slaughter staffs that have received training can, under the supervision of the OV, carry out sampling and testing tasks.

Regulation: (EC) 854/2004, Annex I, Section III, Chapter III, B.

5.1.4 Sampling of carcasses (including exemptions)

Under regulation (EU) 2015/1375, samples must be collected from carcasses of the following animals:

- breeding domestic swine (sows and boars)
- wild boar (any age, whether wild or farmed)
- solipeds (any age)
- all pigs that have not been reared in controlled housing conditions (this information will be captured on the FCI accompanying the pigs to the slaughterhouse)

Meat from domestic swine that has been subject to a freezing treatment under official control is exempt from testing.

5.1.5 Retention of parts for human consumption

Carcasses, and parts from carcasses sampled for *Trichinella* testing must not leave the establishment before the examination has been found negative.

Similarly, other parts of the animal intended for human consumption containing striated muscle must be retained until a negative result is received.

Parts of the animal not containing striated muscle are not subject to any restrictions and can leave the slaughterhouse. In that case, care must be taken to prevent pieces of striated muscle, such as diaphragm or sphincters being left attached.

5.1.6 Controlled housing conditions

‘Controlled housing conditions’ are defined in Regulation (EU) 2015/1375, Annex IV, Chapter I and include a range of measures that reduce the risk of the pigs being infected with *Trichinella*. Importantly, the definition does not exclude pigs that have outdoor access, provided that the outdoor access does not present a risk of introducing *Trichinella* into the holding.

Republic of Ireland (RoI) has, to date, not put in place a mechanism whereby housing can be deemed to meet the conditions specified in Article 1 and

Annex IV of Regulation (EC) No 2075/2005. Therefore, all pigs born and reared in RoI, which are slaughtered in slaughterhouses in Scotland, shall be tested for *Trichinella*, regardless of the housing system recorded on the FCI.

5.1.7 Retention of animal by-products

Animal by-products containing striated muscle and intended for animal consumption (Category 3 by-products) must not leave the establishment before the examination has been found negative.

There is no need to retain:

- animal by-products that do not contain striated muscle
- animal by products that contain striated muscle but that are not intended for animal consumption (Category 2 by-products)

5.1.8 Health marking carcasses

Where a procedure is in place in the slaughterhouse to ensure that no part of carcasses examined leaves the establishment until the result of the *Trichinella* examination is found to be negative and the procedure is formally approved by the OV, the health mark may be applied before the results of the *Trichinella* examination are available.

The FBO must have in place a written procedure agreed with the OV.

Where such system is not in place, the health mark must not be applied until a negative test result has been received.

5.1.9 Cutting of carcasses

Pending the results of the *Trichinella* examination, such carcasses may be cut up into a maximum of six parts in a slaughterhouse or in a co-located cutting plant.

If the test result is positive and correlation between carcass parts lost, the whole batch of cuts must be disposed of as a by-product.

5.2 Cold treatment methods

5.2.1 Cold treatment for pig meat

Cold treatment may be used as an alternative to *Trichinella* testing for domestic pig meat. The storage temperatures specified for cold treatment are significantly lower than those for the normal storage of frozen meat.

The following conditions must be followed when the cold treatment method is used:

- meat brought in already frozen must be kept in this condition
- the technical equipment and energy supply of the refrigerating room must be such as to ensure that the required temperature is reached very rapidly and maintained in all parts of the room and of the meat
- insulated packaging should be removed before freezing, except for meat which has already reached throughout the required temperature when it is brought into the refrigeration room
- consignments in the refrigeration room must be kept separately and under lock
- the date and time when each consignment is brought into the refrigeration room must be recorded

5.2.2 Time and temperature for cold treatment

The time/ temperature combination for cold treatment is dependent upon the thickness of the pieces of meat. These combinations are summarized in the table below:

Method	Maximum thickness of the pieces of meat	Maximum temperature of the storage room	Minimum consecutive time for cold treatment
1	Up to 15 cm (6 ")	- 15°C	20 days
	Up to 15 cm (6 ")	-23°C	10 days
	Up to 15 cm (6 ")	-29°C	6 days
2	15 - 50 cm (6" - 20")	-15°C	30 days
	15 - 50 cm (6" - 20")	-25°C	20 days
	15 - 50 cm (6" - 20")	-29°C	12 days
3	Up to 25 cm (10 ")	- 25°C	10 days
	25 - 50 cm (10" - 20")	-25°C	20 days

5.2.3 Specified times when core temperature is monitored

The following time/ temperature combinations are permissible providing the core temperature of the meat is monitored:

Maximum core temperature of the meat	Minimum consecutive time period for the cold treatment
-18°C	106 hours
-21°C	82 hours
-23½°C	63 hours
-26°C	48 hours
-29°C	35 hours
-32°C	22 hours
-35°C	8 hours
-37°C	½ hour

5.2.4 Cold treatment in other species

Cold treatment is not an alternative for the testing of wild boar or solipeds.

5.3 Collecting samples

5.3.1 Sampling responsibility

The OV must ensure that sampling takes place and samples are correctly identified and handled, and sent for testing to:

Biobest Laboratories Ltd
6 Charles Darwin House
The Edinburgh Technopole
Milton Bridge
Nr. Penicuik
Midlothian
EH26 0PY

Telephone: 0131 440 2628

Fax: 0131 440 9587

Email: enquiry@biobest.co.uk

Website: www.biobest.co.uk

Collection and handling of samples and testing tasks may be carried out by an MHI or delegated to plant staff if they have received specific training and the OV is satisfied that the sampling procedure is carried out correctly. For self-testing abattoirs see topic 5.7 on 'Use of on-site labs'.

The sample must be collected using a clean knife and disposable forceps.

5.3.2 Sample description

A sample of the size specified below must be collected from the described sampling site.

Note: Take samples as a single piece of meat.

If this preferred sample site is not available then the alternative sample must be collected.

The weight of meat specimens refers to a meat sample free of all fat and fascia. Particular attention should be made collecting muscle samples from the tongue to avoid sample contamination with the superficial layer of the tongue, which is indigestible and can prevent reading of the sediment.

Animal Categories	Sample size	Sampling site	Alternative sample
Boars and Sows	Between 2g and 4g	Pillar of the diaphragm at the transition to the sinewy part	4g, to be taken from the rib part or the breastbone part of the diaphragm, from the jaw muscle, tongue or the abdominal muscles
Solipeds	Between 10g and 11.5g	Lingual or jaw muscle	Larger size specimen from the diaphragm pillar at the transition to the sinewy part
Wild Boar	Between 10g and 11.5g	Foreleg, tongue or diaphragm	None

5.3.3 Sample size guide

Use the scales provided to ensure the correct weight.

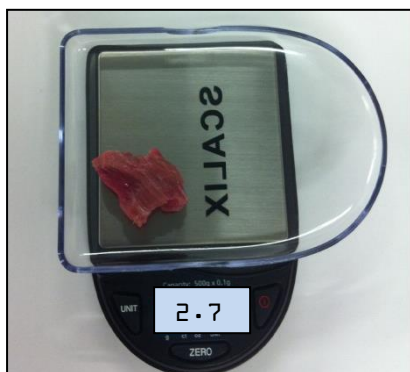
Each specimen must consist of a single piece of meat free of fat or fascia and be of the correct weight.

Picture of the sample to be taken showing the weight on the scales (as shown below)

Large samples reduce the pooling ability in the lab and result in increased cost to the FSS.

Underweight samples will be rejected by the lab and not tested.

Note: New plants must request scales from FSS Operations (access contact details in chapter 1 'Introduction').



2-4g boars and sows



10-11.5g wild boars and solipeds

5.3.4 Sampling point

Samples may be collected at any point during dressing or chilling providing the identity of the carcase can be ascertained.

5.3.5 Pooling of samples

Up to 100g of samples from different animals can be pooled as a single batch for testing. The number of samples in a batch will depend on the animal category, as the sample size is different, for example, 50 sows and boars, 10 solipeds.

You can pool samples from different producers.

Reference: See sub-topic 5.3.2 on 'Sample description' for additional information.

However, samples from different animal categories, such as domestic pigs and wild boars, must not be pooled in the same batch as digestion times may be different.

5.3.6 Sampling procedure

The following procedure must be followed when collecting samples for testing:

Step	Action
1	Open the small sealable Liquitite Pathoseal bag
2	Collect the samples of meat as appropriate for the species and category of animal sampled.
3	Pool the samples up to 100g in the small Liquitite Pathoseal bag

4	Close the small Liquitite Pathoseal bag. Stick barcode label to the bag and insert into the larger Pathoseal bag with the absorbent pad
5	Place two squares of Techni-Ice into the large Pathoseal bag
6	Stick the corresponding barcode to the PMI 4/18 form
7	Complete the PMI 4/17 form

5.3.7 Completion of PMI 4/17 form

Carcases must be identifiable to their farm of origin until a test result has been received so a farm investigation can be carried out if the result is positive.

PMI 4/17 (*Trichinella* Sampling form) must be completed when the samples are collected. The identity of each sampled carcass must be recorded in a way that allows the farm of origin to be identified, for example, by recording the slap number or the County Parish Holding number (CPH) obtained from the Animal Movement Licence.

Individual carcass identification when a farm supplies several animals is not required, as in the event of a positive all carcasses in the batch will be re-tested.

To keep correlation with the sample and PMI 4/18, (*Trichinella* Testing Submission Form), the serial number of the barcode label used to identify those must be inserted in the Reference Number box.

5.3.8 Completion of PMI 4/18 form

PMI 4/18 (*Trichinella* Testing Submission Form) must be completed by FSS staff and accompany the sample to the lab.

One form with **one** barcode must be completed for **every batch** of up to 100g of samples. Make sure the number of samples correlates with the number of animals entered on the form so Biobest Laboratories do not report incorrect number of samples supplied.

Note: An email address must be supplied to the lab for notification of the test result and a mobile phone number for text notification that results are available.

Affix the barcode label correlated to the sample bag to the PMI 4/18.

Send the original to the lab in a clean sealed A4 bag and keep a photocopy on file.

5.4 Packaging and despatch of samples

5.4.1 Transport containers

Samples are transported in Pathoshield packaging. The courier Topspeed collects for next day delivery to Biobest Laboratories.

5.4.2 Chilling

Samples are kept chilled by two squares of Techni Ice. The techni ice squares must be held frozen until use.

5.4.3 Pathoshield packaging procedure

The table below lists the steps that must be followed using a Pathoshield box to despatch samples:

Step	Action
1	Attach the Biobest Laboratories barcode to the small pathoseal bag and attach the corresponding barcode onto a <i>Trichinella</i> testing submission form (PMI 4/18).
2	Place the small bag into the larger pathoseal bag, placing 2 Techni Ice squares between the bags
3	Complete form PMI 4/17 to record the samples and which barcodes they were submitted with
4	Place sample into the Pathoshield outer box. Affix the peel-off barcode sticker onto the duplicate copy of the page.
5	Put completed forms PMI 4/17 and PMI 4/18 in a plastic bag before placing them in the box ready for despatch to the laboratory.
6	<p>If sending a single box: affix pre-printed Biobest Laboratories address label to box and seal the box using the blue security seal provided.</p> <p>If sending multiple boxes: Re-package into a larger box and attach address label and consignment note to outer box.</p>
7	Place the Pathoshield box in a plastic refuse bag to protect the surface of the box from contamination while carrying it through the slaughterhouse and during storage.
8	Close the plastic refuse bag with a cable tie or other secure means.
9	Remove from the plastic bag prior to despatch.

5.4.4 Storage pending despatch

On completion of sampling, place the Pathoshield box in the detained chiller until transferring them to the collection point. Topspeed will collect at the agreed collection time for delivery to Biobest Laboratories.

5.4.5 Notify lab of Saturday testing

If testing is required on a Saturday, FSS staff needs to telephone Biobest Laboratories on the Thursday beforehand to advise them that *Trichinella* samples are being sent for Saturday morning delivery:

Biobest Laboratories – 0131 440 2628

Topspeed need to be informed that the sample needs to arrive before 9am on Saturday in order to be tested.

No notification is required for samples dispatched for Monday to Friday testing.

5.4.6 Despatch from base plants

When, for practical reasons, samples cannot be despatched from the plant where the animals are slaughtered, they can be taken to a different plant to be despatched from there.

However, when completing the PMI forms, the sampling plant details must be entered.

In that case all the original documentation must be filed in the plant where the sample was taken as soon as practical.

5.4.7 Sample recording

A record of samples submitted for *Trichinella* testing should be entered into the FSS IT Sample Request application – choose “*Trichinella*” from drop-down menu.

5.5 Courier collection services and procedures

5.5.1 Next day before noon service

Trichinella samples should be despatched using the Topspeed ‘Next Day Service’.

Note: Topspeed will only collect samples between 09:00 – 17:00 unless out of hours arrangements have been agreed.

5.5.2 Saturday service

In addition to the standard service, Topspeed provide a 'Saturday Service'. This service may only be requested if prior permission is obtained from the SLA and Contracts team as it incurs increased costs and Biobest must be informed on the preceding Thursday that samples will be arriving at the lab for testing.

This service is only to be used for samples that need to be tested on a Saturday.

Test results for Saturday testing will be received on the same day.

5.5.3 Booking sample collection

The following steps should be taken when booking sample collection:

Step	Action
1	Go to http://www.topspeedcouriers.co.uk/ and complete the online booking form. See Annex 8 for information on completing the online booking form.
2	Provide Topspeed with the following information: <ul style="list-style-type: none">• number of items (boxes) in consignment• kill date and time• the name of person making the booking
3	Write the barcode numbers as reference for the collection; Topspeed to collect as arranged

5.5.4 Sample collection point

Immediately prior to the agreed collection time the Pathoshield box containing the sample(s) should be removed from the plastic refuse bag and placed at the agreed collection point.

5.5.5 Despatch failure

Should Topspeed fail to collect samples within the agreed timeframe, contact Topspeed to arrange collection immediately and inform the SLA and Contracts team.

5.6 Consumables

5.6.1 Ordering consumables

To request stocks of consumables contact FSS Operations at operations@fss.scot.

The minimum order is 1 box of the following options:

- **Pathoshield P7 kit x 12 for *Trichinella* testing - recommended for plants processing small number of animals for testing**
 - bespoke Pathoshield 7 comprising
 - A5 Pathoseal
 - 200ml Absorbent
 - A6 Liquitite
 - Techni Ice x 24 squares
 - Forceps
 - Security Seal
 - Outer compliant box
- **Pathoshield P3 kit x 10 for *Trichinella* testing - recommended for plants processing larger number of animals for testing**
 - bespoke Pathoshield 3 comprising
 - A4 Pathoseal
 - 200ml Absorbent
 - A5 Liquitite
 - Techni Ice x 20 squares
 - Forceps
 - Security Seal
 - Outer compliant box

Note: Allow 5 days lead time for delivery of the consumables.

Reference: The *Trichinella* Sampling Kit Order Request Form can be found on Annex 6 of this chapter

5.6.2 Barcodes

The barcodes can be obtained from FSS Operations.

5.7 Use of on-site labs

5.7.1 Background

Slaughterhouses that have facilities and trained staff available for the collection and testing of *Trichinella* samples may use their own arrangements instead of having the samples dispatched to Biobest Laboratories.

Where these arrangements are in place, the lab will operate as a supplier providing a service to the FSS Operations.

5.7.2 Requirements for on-site labs

Any plant that wishes to start *Trichinella* testing in an 'on site' laboratory must be assessed by the UK National Reference Laboratory (UKNRL) and be permitted by FSS to undertake testing.

The NRL will arrange for an on-site inspection and produce a report which will either recommend approval for self-testing or highlight areas that need to be addressed prior to recommendation for approval being issued.

The NRL offer training to staff under the VetQAS scheme to ensure Sampling Officers have the relevant skills and knowledge to undertake testing.

FSS Operations will issue a designated lab status letter once the above criteria have been satisfied to ensure compliance with Regulation (EU) 2015/1375.

5.7.3 Responsibilities of the lab operator

Once contracted by the FSS Operations Group to carry out *Trichinella* testing, the lab operator is responsible for:

- the collection and identification of the samples
- the identification and correlation of sampled carcasses
- the supply of equipment and disposables
- the operation of the lab
- the examination of the digested samples
- the maintenance of all records
- the training of staff

5.7.4 Quality assurance

All laboratories undertaking testing must take part in the quarterly QA scheme organised by the UKNRL. All laboratories must take action to rectify any deficiencies noted either in the assessment or following a QA test. Failure to do so will result in the removal of designated lab status.

The OV will receive a copy of the QA report and will be responsible for ensuring the results are returned within the specified timescale and that any deficiencies identified are addressed.

5.7.5 Non-compliance with SOP

Where the OV/VM is not satisfied that the lab operator is complying with the Standard Operating Procedure (SOP) agreed with FSS Operations, advice must be given to rectify the breach.

Failure to comply with the SOP is a breach of the terms of the contract and if the deficiency is not rectified, the OV must inform the SLA and Contracts team. FSS Operations can then suspend the SOP.

When the SOP is suspended, FSS Operations will collect the samples and dispatch them to Biobest Laboratories.

The health mark must not be applied to any carcass when there are no guarantees that the result of the testing is reliable.

5.8 Test results

5.8.1 Receipt of test results

Trichinella testing is an official control and the FSS Operations is responsible for obtaining the test result.

By default, a laboratory report containing results will be sent by e-mail to the address specified on the submission form.

Biobest Laboratories also offer the option of using a web-based portal for registered users to access results and obtain live updates of testing progress. Details of how to register for this service and obtain results can be downloaded from the Biobest website:

http://www.biobest.co.uk/assets/files/online_services/registration-guidelines.pdf

Biobest Laboratories currently offer SMS reporting of results for other tests and aims to add this option for *Trichinella*. To register interest in this service, contact Biobest Laboratories on 0131 440 2628.

5.8.2 Negative results

On receipt of a negative result, the health mark and identification mark can be applied.

Animal by-products containing striated muscle that were being retained can be released.

5.8.3 Positive or doubtful results

If the initial result received from the laboratory is positive or doubtful, Biobest Laboratories will contact the SLA and Contracts team, who will immediately contact the OV to advice on the procedure for despatching samples to APHA Bury St Edmunds for re-test. The OV must also advise the local APHA office.

Commission Regulation (EU) No 2015/1375 requires positive or doubtful results to be confirmed, collecting samples from the suspect carcasses and digesting them in smaller pools.

5.8.4 Re-sampling carcasses with positive or doubtful results

The SLA and Contracts team will contact the OV/ VM to request samples for re-testing.

These samples must be of the correct weight and from the correct sample site for the species concerned. A PMI 4-18 must be completed per pool and be sent to APHA Bury St Edmunds.

The SLA and Contracts team will confirm which courier service should be used.

Samples for re-test should be sent to:

Trichinella National Reference Laboratory
APHA Bury St Edmunds
Rougham Hill
Bury St Edmunds
Suffolk
IP33 2RX

The carcasses and all body parts must remain detained, pending the outcome of the re-testing.

5.8.5 Traceability report

Pending the result of the re-test, the OV should obtain the FCI to create a traceability report for the detained carcasses, to identify the farm of origin should a positive result be confirmed.

5.8.6 Notification of positive results

The SLA and Contracts team will notify the OV/ VM and APHA if a positive result is confirmed.

On receiving confirmation of a positive result, the OV should email their traceability report to the SLA and Contracts team on Operations@fss.scot.

If the positive result has been confirmed by APHA Bury St Edmunds, the positive carcass and all body parts must be disposed of as a Category 2 animal by-product and confirmation of action emailed to the SLA and Contracts team.

For pigs from RoI, positive results shall be reported by FSS to the Department of Agriculture, Food and the Marine (DAFM), the RoI competent authority. This will activate the RoI contingency plan with regard to the investigation of the source of infestation and any associated spread among other pigs or other susceptible species.

6. Poultry post-mortem inspection

- 6.1. Correlation and Inspection
- 6.2. Poultry feet for human consumption
- 6.3. General contamination
- 6.4. Guidelines on trimming poultry

6.1 Correlation and inspection

6.1.1 Inspection requirements

The inspector is required to inspect the external surface of all carcasses and accompanying offal.

6.1.2 Whole bird inspection point

Inspection of the whole bodies of birds is recommended so that diseased birds can be identified and removed early in the process and this should be included in the HACCP. In most plants front surfaces of carcasses are inspected at that stage and back surfaces at the EV inspection point). It is acceptable in small plants that there may be no whole bird inspection point but such decision should be always consulted with the VM.

6.1.3 Evisceration line inspection

Correlated carcasses and offal either attached or detached are inspected.

6.1.4 Carcase presented for post-mortem inspection without offal

If poultry carcasses are presented without offal at the post-mortem inspection point as a result of the accidental removal of all or part of the offal they do not need to be rejected. They should be inspected and if the carcasses pass post-mortem inspection, they can be considered fit for human consumption. However, such cases should be judged according to the merits of each case.

This scenario is not intended to cover inadequate presentation/ correlation of offal due to malfunctioning evisceration equipment or inadequate manual evisceration practices.

Offal and viscera that have not undergone PM inspection should be disposed of as Category 2 ABP.

6.1.5 Delayed evisceration

Regulation (EC) 853/2004 Annex III, Section II, Chapter IV, 7 (c) states 'viscera or parts of viscera remaining in the carcass, except for the kidneys, must be removed entirely, if possible, and as soon as possible, unless otherwise authorised by the competent authority.'

Requests for authorisation of delayed evisceration at the place of production may be granted if requested by the FBO. The OV will need to consider the FBO's proposed method of operation and if this is considered acceptable can recommend to the VM that authorisation be given.

If authorisation is granted, the Approvals and Certification team should inform the FBO in writing and send confirmation to the OV and VM

6.2 Poultry feet for human consumption

6.2.1 Inspection requirements

Feet harvested for human consumption must be inspected.

Feet that are not separately identifiable, such as feet belonging to carcasses rejected at evisceration, must not be released for human consumption.

Feet can be exported under an agreed health certificate signed by a Local Veterinary Inspector.

6.3 General contamination

6.3.1 Meat that is unfit for human consumption

Meat, carcasses and/ or offal affected with general contamination by faecal material, bile, grease, crop content or disinfectants should be considered unfit for human consumption.

6.3.2 Contamination from the alimentary tract and faecal material

A hygienic trimming system must be in place if the FBO decides to trim contaminated carcasses.

Any part of the carcass or offal affected with bile staining should be trimmed. Where plucking machines break the skin of poultry the underlying musculature should be considered to be contaminated and trimmed from the carcass.

6.3.3 Meat falling from the line/ conveyor

The FBO should have a system in place to deal with carcasses or offal that fall on the floor. This could include the provision of a meat tray off the floor at 'weak points' in the line and trimming affected parts. The OV/ MHI should verify that the FBO has a system in place to ensure meat contaminated after post-mortem inspection is not released for human consumption.

6.4 Guidelines on trimming poultry

6.4.1 Trimming supervision

Rectification resulting from post-mortem findings must be carried out under the responsibility of the FSS team (supervision of trimming may be carried out by a PIA). Plant operatives should carry out removal of unfit meat identified at post-mortem inspection. Identification of unfit meat for trimming must not be delegated to untrained individuals.

6.4.2 Location of trimming point

Trimming of minor blemishes such as bruising is at the discretion of the FBO - preferably completed following evisceration, to minimise the risk of contamination of exposed meat.

Removal of more significant quantities of meat is usually impracticable with high line speeds, and in these cases an adjacent trimming area should be provided.

6.4.3 Trimming after chilling

Trimming of carcasses may be delayed until after chilling, providing that:

- there is no risk of contamination to other carcasses
- for example, faecal contamination has to be trimmed before chilling
- arrangements are in place for the trimming to be done under the supervision of the OV/ MHI at regular times

Note: The OV and the FBO should agree recognised methods (marking and identification of parts to be trimmed) to ensure that trimming is effectively completed by plant staff.

7. Judgements at poultry post-mortem inspection

- 7.1 Poultry condition cards
- 7.2 Introduction
- 7.3 Breast blisters
- 7.4 Avian Tuberculosis and Erysipelas

7.1 Poultry condition cards

These can be assessed on My Workplace – Operations on Saltire

Abnormal colour (septicaemia – toxæmia)

AM rejects (cull / runts)

Ascites – oedema

Bruising – fractures

Cellulitis

Contamination

DOA / DIL

Dead other than slaughter (uncut–badly bled)

Dermatitis

Emaciation

Hepatitis

Joint lesions

Machine damage

Overscald

Pericarditis

Perihepatitis / peritonitis

Respiratory disease (airsacculitis)

Salpingitis

Tumours

Other factory (processing)

Other farm (for example, jaundice, oregon, white muscle)
Wooden breast
Footpad dermatitis

7.2 Introduction

7.2.1 Post-mortem judgements in poultry

Twenty three poultry condition cards have been developed to achieve standardisation of post-mortem findings in poultry slaughterhouses in the UK.

These condition cards are to be used as a guidance which inspection teams must follow.

Notwithstanding, the professional expertise of the OV, based on local knowledge and the FCI received for each flock, may result in judgements differing from the advice provided in the condition cards for specific flocks of birds.

7.2.2 Trimming

Where the OV considers the entire carcass is not unfit, the affected parts of the carcass may be removed and the rest of the carcass may be allowed to enter the food chain. This is to be carried out by plant operatives.

The OV must be content that the FBO has developed a system and trimming is carried out in such a manner that all affected parts are removed to the OV's entire satisfaction.

7.3 Breast blisters

7.3.1 Breast blisters

Judgement:

Infected, haemorrhagic or enlarged breast blisters should be trimmed. The affected tissue may be adherent to the keel bone and when this happens part of the bone will have to be removed with the affected tissues. Trimming of small, uninfected, non-haemorrhagic blisters may be deferred until after chilling, when a proportion of them will have disappeared.

Note: The OV needs to consider that breast blisters might be the result of poor husbandry on the farm. If appropriate, the local APHA office should be informed.

7.4 Avian Tuberculosis and Erysipelas

7.4.1 Avian tuberculosis

Avian tuberculosis usually affects older birds with lesions seen most commonly in:

- the liver
- kidneys
- intestinal tract
- bone marrow

The lesions are irregular shaped greyish-white nodules varying in size from that of a pin's head to large masses. The tubercles can be shelled out from the surrounding tissue. When cut through, the nodules are firm with a dry, cheesy, appearance. If the long bones are split lengthwise, small spherical nodules may be found in the bone marrow.

Confirmation can be made by microscopic examination for the causal organism.

Judgement: Carcasses and offal should be considered unfit.

7.4.2 Erysipelas

Erysipelas is primarily a disease of turkeys and the affected birds are listless with, rarely, a swelling of the snood. Mature domestic fowl may also be affected.

Where possible, affected birds should be rejected by the pre-slaughter health inspection but if they inadvertently reach the post-mortem inspection station they will show signs typical of septicaemia.

- the liver is often enlarged, congested, friable and sometimes light brown in colour
- the intestines are commonly congested and there may be catarrhal enteritis
- a valvular endocarditis may be present in more chronic cases

Judgement: Carcasses and offal should be considered unfit.

8. Wild game post-mortem inspection

- 8.1 Introduction
- 8.2 Trained hunters
- 8.3 Carcase handling
- 8.4 FSS role
- 8.5 Inspection of deer
- 8.6 Processing of in fur/in feather (IFIF) carcasses
- 8.7 Recording of inspection results

8.1 Introduction

8.1.1 Purpose

This section provides guidance on how to carry out official controls at approved game-handling establishments (AGHEs).

Regulation: (EC) 853/2004 overview, (22).

8.1.2 Attendance

Either an MHI or OV, but not both, is required for post-mortem inspection, except that OV presence throughout such inspection is required in specified cases

Additional OV visits are required where the MHI has put aside meat with abnormalities for inspection by the OV, meaning visits for the purpose of inspection of such meat

For establishments with conditional approval, the OV will be required to visit at least once every 5 operational days until full approval is granted.

For establishments with full approval, the OV will be required to visit at least once a month

Operating hour's agreements will need to be obtained with each AGHE; however, due to the nature of the business this may prove difficult – AGHEs are obliged to inform FSS when they are operating in order that FSS attendance can be arranged, if required

Note: PIAs are no longer permitted in AGHEs and should not be performing post-mortem inspections.

Additional information on Assessment on Veterinary Attendance (AVA) is available in the 'Policy and Procedure for Flexible Attendance at Slaughterhouses and Game Handling Establishments'.

8.1.3 Chilling

Carcases have to be collected and transferred to the AGHE, which may be remote from the hunting area; therefore some delay in chilling may occur.

However, the chilling must begin within a reasonable period of time after killing and achieve a temperature throughout the meat of not more than 7°C in the case of large wild game and 4°C in the case of small wild game. This does not preclude completion of dressing in the AGHE before these temperatures have been achieved.

Regulation: (EC) 853/2004, Annex III, Section IV, Chapter II, 5 and (EC) 853/2004 EC, Annex III, Section IV, Chapter III, Point 4.

8.1.4 Separation of different types of game

In establishments that are approved for the handling of wild game, precautions are to be taken to prevent cross-contamination between species by separation either in time or in space of operations carried out on the different species.

In premises that are approved for the processing of both wild and farmed game, separate facilities for the reception and storage of carcasses of farmed game slaughtered at the farm, and for wild game, must be available.

In-fur and in-feather (IFIF) wild game may be stored in separate parts of the same larder/ chiller, although separate larder/ chillers are preferable.

8.2 Trained hunters

8.2.1 Trained hunter's examination

A trained person must carry out an examination of the body and, in the case of large wild game, of any viscera removed, to identify any characteristics which may indicate that the meat presents a health risk. The examination must take place as soon as possible after killing.

Reference: Regulation (EC) No 853/2004 Annex III, Section IV, Chapter II (Large Wild Game) and Chapter III (Small Wild Game).

8.2.2 Trained hunter's declaration: large wild game

Following the examination referred to above, large wild game carcasses eviscerated in the field require a declaration from a trained person. This must bear the date, time and place of killing and carry a declaration that based on an examination of the carcass and viscera:

- there is no suspicion of environmental contamination
- no abnormal behaviour was observed before killing
- no abnormal characteristics were found during the examination

The declaration must be numbered and should be attached to the carcass, unless it covers more than one animal body. The declaration may cover more than one animal body, provided that a clear link between the animal bodies and the declaration is established and guaranteed. In these circumstances, the declaration would make reference to a group of numbered carcasses and each carcass would be clearly identified with numbered tags or firmly attached labels.

Note: If abnormal characteristics are found during the examination, abnormal behaviour was observed before killing, or environmental contamination is suspected, the trained person must inform the competent authority.

8.2.3 Head and viscera

Where the trained hunter's declaration is provided stating that no abnormalities were found, the head and the viscera need not accompany the body, except in the case of species susceptible to trichinosis, whose head (except for tusks) and diaphragm must accompany the body. The exception to this is that if the head is required for further use as a trophy, it may be sent to an ABP processing plant that has been approved for the production of trophies. In these circumstances, the head may be dispatched pending a satisfactory *Trichinella* test, provided that the identification of the head is maintained throughout the process.

Regulation: (EC) 853/2004, Annex III, Section IV, Chapter II, 4 (a).

8.2.4 Acceptance in AGHE

Carcasses not accompanied by the head and viscera must be the subject of a declaration signed by the trained hunter.

If there is no signed declaration, such carcasses must not be accepted in Approved Game Handling Establishments, and are not eligible for human consumption.

Unskinned large wild game may be received by a game handling establishment from another Member State only if it is accompanied by a certificate issued and signed by an official veterinarian. A template of this certificate can be found in Annex 7.

Reference: Regulation (EC) No 853/2004, Annex III, Section IV, Chapter II, 4 (c).

8.2.5 Trained person unexpectedly unavailable

In the event that the trained person is unexpectedly unavailable, carcasses accompanied by the head and all the viscera (with the exception of the stomach and intestines) may be accepted into an AGHE without the declaration from a trained person.

8.2.6 Offal

In the case of carcass and offal presented without the trained hunter's declaration, (as in the circumstances detailed above), they cannot be accepted unless clear identification and correlation marks between carcass and offal are present.

Where the carcass has a hunter's declaration stating no abnormalities were identified, in most cases the offal will not be present. In the event that the offal is present, it must be clearly correlated to the carcass; if it is not, then the offal cannot be used for human consumption.

Where the carcass has a hunter's declaration stating that abnormalities were found, then the offal must accompany the carcass and must be correlated to it.

(As an example of correlation, the hunter's declaration is often made on a tie-on label attached to the hock of the carcass; a duplicate label can be tied to the offal where present.)

Reference: Regulation (EC) No 853/2004, Annex III, Section IV, Chapter II, 3.

8.2.7 Specimen trained hunter's declarations

Specimen declarations for wild game animals may be found in the 'Wild Game Guide' at:

www.foodstandards.gov.scot/wild-game-guides-and-haccp

8.2.8 Small wild game

In the case of small wild game, a trained hunter's declaration is not a legal requirement. However, if abnormal characteristics are found during the

examination, abnormal behaviour was observed before killing, or environmental contamination is suspected, the trained person must inform the competent authority. The declaration may be attached to trays or cartons to inform the competent authority of any abnormal characteristics, behaviour or environmental contamination.

In general, if small game exhibits abnormal behaviour, they should not be considered to be fit for human consumption.

Regulation: (EC) No 853/2004 Annex III, Section IV, Chapter III, 2.

8.3 Carcase handling

8.3.1 Transport of carcases with hunter's declarations

There are no provisions under (EC) 854/2004 permitting anybody to convey this information on behalf of the trained person instead of a declaration being provided.

Declarations attached to carcases (of large wild game) must not be removed before delivery to the AGHE where it will be processed, as otherwise the carcase may be disposed as ABP. Similarly, if identification marks which link to a declaration covering several animals are removed or destroyed, those unidentified carcases will be disposed of as ABP.

8.3.2 Skinning

Unskinned large wild game:

- may be skinned and placed on the market only if:
 - before skinning, it is stored and handled separately from other food and not frozen, and
 - after skinning, it undergoes a final inspection in accordance with Regulation (EC) No. 854/2004
- may be sent to a game handling establishment in another Member State only if, during transport to that game handling establishment, it is accompanied by a certificate issued and signed by an official veterinarian; a template of this certificate can be found in Annex 7

Regulation: (EC) 853/2004, Annex III, Section IV, Chapter II, 8.

8.4 FSS role

8.4.1 Receipt of carcasses and timing of inspection

The inspector (MHI or OV) shall perform the post-mortem inspection activities. It is not essential that there is inspection of carcasses prior to the beginning of processing (that is, before skinning), but it is good practice.

Where applicable or practical the FBO may segregate unprocessed carcasses that they intend to reject and present them to the inspector prior to disposing of them, for example:

- carcasses show signs consistent with death other than by hunting (for example, by road accident)
- carcasses are so contaminated that entry would jeopardise operational hygiene or that show evidence of advanced or generalised decomposition

If the FBO decides to proceed with skinning and/ or dressing the inspection needs to take place soon after skinning/ dressing and/ or evisceration.

FBO rejection of carcasses before presentation for inspection is often part of the plant HACCP. Inspectors should be aware of this control and audit it in the same way as other plant controls, particularly the evidence, and extent, of corrective action. Discrepancies in intake records and controls should be noted in the plant day book for future reference.

8.4.2 Read declaration

The inspector is to take account of the declaration or information that the trained person involved in hunting the animal has provided in accordance with (EC) 853/2004. If the correct documentation is not received the carcass must be disposed of as an animal by product.

Reference: see MIG chapter 15 on 'Meat processing'

Where the declaration makes reference to tuberculosis, the carcass and offal lymph nodes should be examined in detail and appropriate records made, using form TB50 as a template. The incidence and significance of TB varies in different parts of the UK. The advice of APHA should therefore be sought on what further action to take in relation to wild deer where TB infection is suspected.

8.4.3 Inspections

During post-mortem inspection, the inspector is to carry out a visual examination of the carcass, its cavities and, where appropriate, organs with a view to:

- detecting any abnormalities not resulting from the hunting process; for this purpose, the diagnosis must take account of any information that the trained person has provided concerning the behaviour of the animal before killing
- checking that death was not caused by reasons other than hunting, for example, road traffic accident, disease, injury

The inspection of large game should pay particular attention to contamination associated with gralloching (green offal removal), around the pelvis sternum and cut flanks. In carcasses that have not been head shot, contamination may be extensive and may result in rejection of the whole carcass – although pre inspection checks by the FBO should normally identify such carcasses.

If an assessment cannot be made on the basis of visual examination alone, further palpation and cuts of relevant parts of body may be undertaken and, if necessary, a more extensive inspection must be carried out in a laboratory.

Regulation: (EC) 854/2004, Annex I, Section IV, Chapter VIII, 3.

8.4.4 Small wild game contamination

The carcasses of small wild game may be contaminated during plucking and evisceration. Where exposed meat, breasts or carcasses are contaminated with feathers, down or gut contents they must be rejected.

The use of cloths or paper towels to wipe contamination from carcasses is not acceptable. Clean paper towels may be used **once** to remove feather debris and blood from the vent after evisceration.

Breast meat can only be removed from plucked carcasses or in circumstances when the plucked breast has been protected from contamination from other feathers. The removal of breast meat without associated plucking is not acceptable.

It has been recognised that in some plants in order to meet customer requirements, small wild game, such as grouse and duck, is being dispatched from the premises to the customers partially plucked (i.e. wings or legs still in feather) for identification purposes. Such partial plucking is not prohibited in AGHEs. With regard to cross contamination concerns, it is not considered there is an increased risk of contamination for the product but this may potentially arise if the skin has been damaged in the plucking process, however if the skin remains intact the risk of cross contamination should be low.

The FBO has a legal obligation to ensure that primary products are protected against contamination, having regard to any processing that primary

products will subsequently undergo and, at all stages of production, the FBO is to ensure that food is to be protected against any contamination.

FSS staff must be satisfied there are robust controls in place to avoid contamination such as good hygiene practices, adequate separation and storage both in the plant and during transport.

8.4.5 Sample inspection of small wild game

Setting the size of the sample is a decision for the inspector taking into account:

- information supplied by the trained hunter (if available)
- species of animal/ bird presented for inspection
- general impression gained of the wild game presented for inspection (including uniformity of the sample and signs of decomposition)
- previous history of the source, such as the pattern of disease and proportion of decomposed and contaminated carcasses in previous batches
- prevailing climatic conditions
- FBO's procedures based on HACCP principles and acceptance of birds from hunters

Provided the batch of carcasses is relatively uniform, is made up of the same species and came from the same source on the same day, **a minimum of 5% of the (in fur/ in feather) carcasses must be examined.** Batches of less than 20 carcasses should be subject to 100% inspection.

The source/batch to be considered is the small game which arrives at an AGHE from either one hunter or one estate per species per day.

Should issues be suspected following the initial inspection then:

1. The rest of the batch should also be inspected in fur or in feather.
2. The Authorised Officer should consider further post mortem examination of cavities and viscera (if present) using professional judgement to ascertain what is reasonably required using existing MOC guidance in this regard.

8.4.6 No FSS daily attendance

Where there is no daily FSS attendance, the OV may arrange with the FBO a day for the inspection of 5% of each batch present and due to be processed. If they pass inspection, the FBO may proceed to the processing of those batches without the need for several FSS visits. Similarly if 5% of a batch is retained for inspection, the remainder could be processed and held pending a satisfactory inspection of the 5%, with rejection of the whole batch if the inspection is unsatisfactory.

8.4.7 Other checks and factors to determine the proportion of inspection

In agreeing to inspect a proportion of carcasses from a batch, the inspector is making an assessment of the FBO's competence to recognise unfit or contaminated meat and to take appropriate corrective action. The proportion of a batch to be inspected should reflect the competence of the FBO and evidence of effective processing and hygiene management during uninspected and unattended processing periods.

As with conventional red meat and poultry inspection, decisions must be based on overall hygiene during the dressing process and particularly evidence of cross contamination or contamination associated with dressing procedures.

To this regard, small game processing must be witnessed on a regular basis by Authorised Officers and OV's/auditors should liaise with FBOs to ensure that processing can be seen during visits. This should include all activities completed at each GHE, for example, the hygiene of waxing, de-breasting, preparation of oven ready birds or lagomorphs.

Where GHEs are approved for meat preparations and meat products activities, they should be assessed and arrangements made to verify the hygiene of these operations.

In addition, targeted, intelligence led UAIs will be made to verify hygiene of small game operations.

When birds/ animals are presented for FSS inspection **after** the other part of the batch has been processed, the AO should consider if the levels of rejection are comparable with those for the previously processed birds/ animals from that batch. Poor dressing and sanitising procedures noticed during FSS inspections will provide little confidence in the FBO FSMS and in that the remainder of the batch was dressed hygienically or that appropriate corrective action and rejections were made during dressing.

The proportion of a batch to be inspected may therefore be larger than 5%, but it must never be less than this.

8.4.8 FBO records

The inspector's checks should address the following aspects of the FBO records:

- Are there accurate intake records showing numbers of rejections and reasons for rejections?
- Are there records of rejections during processing and are they categorised?
- Can these records be reconciled with ABP records?
- Are there appropriate records of corrective actions?

8.4.9 Wild boar

Wild boar are susceptible to the same diseases as domestic pigs and thus it can be expected that a range of lesions similar to that found in farmed pigs will be encountered.

Note: *Trichinella* testing is required in wild boar. If the head is required for further use as a trophy, it may be sent to an ABP processing plant that has been approved for the production of trophies. The head may be dispatched pending a satisfactory *Trichinella* test, provided that the identification of the head is maintained throughout the process.

8.5 Inspection of deer

8.5.1 When to inspect

The carcasses of deer should be inspected after skinning in conjunction with the available correlated red offal, where available.

Note: Red offal will only be presented for inspection where the trained person has noted an abnormality or where they are unexpectedly unavailable.

Regulation: (EC) 853/2004, Annex III, Section IV, Chapter II, Paragraph 4 (a)-(c).

8.5.2 Minimum post-mortem requirements

Post-mortem inspection must consist of a visual examination of the carcass, its cavities and accompanying offal. In most cases, offal will not be available and in these circumstances, if a declaration from a trained person is not attached to the carcass or it is not identified to a declaration, it must be disposed of as ABP.

8.5.3 Bullet wounds

Carcasses with damage caused by the entry of the bullet will require trimming of any bruised or contaminated meat.

Carcasses where the bullet entered through the shoulder or the anterior thorax may have shattered bones and muscle damage requiring extensive trimming and rejection of the shoulder or quarter.

Where the bullet has entered through the abdomen, bruising, bone damage and contamination can be extensive and may warrant rejection of the entire carcass.

8.5.4 Contamination

Some damage to the heart, liver and lungs may occur as a result of shooting. Decomposition and contamination are common findings. As a consequence of rupture of the abdominal organs following shooting, or as a consequence of poor gralloching, leakage of gut contents into the abdominal cavity may occur.

The carcase may also become contaminated as a result of poor handling in the field or during transportation to the processing establishment. Any part of the carcase with visible contamination must be trimmed and rejected.

The retention of heavily contaminated meat in close proximity to potentially fit carcasses should be avoided. In those circumstances, where trimming precedes inspection, and to minimise potential contamination, trimmed meat should be hygienically retained so that a decision can be made based on the condition of the whole of the carcase. It may not be possible to make a decision if all parts of the carcase have not been retained and identified.

8.5.5 Total rejection

When carcasses have been stored under unacceptable conditions (such as high ambient temperatures or exposed to pests) conditions such as generalised decomposition or blowfly infestation will be encountered, and total rejection is necessary.

8.6 Processing in fur/ in feather (IFIF) carcasses

8.6.1 IFIF trade

Approved premises, such as red or white meat cutting plants, cannot be regarded as a local retailer and therefore cannot receive exempt game or game meat directly from local producers or hunters.

If game is not supplied under any of the exemptions listed in the wild game guide, it must ultimately be processed and inspected in an AGHE.

AGHEs can sell on unprocessed game that has not been subject to an inspection but only to another AGHE either here or elsewhere in the EU. An identification mark should be applied to small wild game if it has been handled in some way in an AGHE before it is sent on to another AGHE.

Temperature requirements apply (4°C small wild game and 7°C large wild game)

Regulation: (EC) 853/2004, Article 1, 3 (c) and (e).

8.6.2 Trade of unplucked / unskinned and uneviscerated small wild game

FSS staff shall be aware that where small wild game is to be traded unskinned / unplucked and uneviscerated they:

- may be frozen or deep frozen
- should be stored separately from fresh meat, poultry meat, and other wild game already skinned and plucked
- can be traded only to another AGHE; sealed boxes and uneviscerated wild game cannot be factored by approved cutting plants even though the packaging is not opened

Note: Smithfield Market is not an AGHE.

Regulation: (EC) 853/2004, Annex III, Section II, Chapter V 1 (c).

8.6.3 FBO duties

Where the FBO intends to trade small game un-skinned/ un-plucked and un-eviscerated they must inform FSS staff for monitoring and verification of this activity during the plant audit.

They should have procedures in place to ensure that there is no undue extra food risk in transporting the uneviscerated animals, for example, FBO presented procedures in place to ensure that chill chain is maintained when the viscera are still within the body cavity.

8.6.4 Inspection of small wild game to be traded

Where the FBO intends to trade small wild game which is un-skinned/ unplucked and un-eviscerated, the FSS staff must monitor and verify this activity as part of the establishment audit. Post-mortem inspection will take place at the receiving AGHE.

8.6.5 ID marking of small wild game to be traded

An identification mark should be applied to un-skinned/ un-plucked and un-eviscerated small wild game, if it has been handled or graded in some way in a AGHE before it is sent on to another AGHE.

8.6.6 Intra-community trade

In-skin, in-feather and processed wild game can be consigned to and received from other Member States, subject to any animal health restrictions, and subject to the appropriate export/ import certification being in place. If you are unclear as to whether exports or imports may take place during outbreaks of notifiable disease, contact APHA.

All game intended for export or import must have been examined by a trained person (where applicable) immediately after shooting and the game must be handled and transported hygienically in refrigerated transport. The Regulations place a responsibility on the supplier of such game to ensure that it is only consigned to approved premises and transported in hygienic conditions. Un-skinned large wild game may be sent to a game handling establishment in another Member State only if it is accompanied by a certificate issued and signed by an official veterinarian. A copy of the certificate can be found in Annex 7.

8.7 Recording of inspection results

8.7.1 Duty of FSS Operations

If inspections reveal the presence of any disease or condition that might affect public or animal health or indicate that animal welfare has been compromised the OV is to inform the FBO.

Where lesions suggestive of tuberculosis (TB) are recorded on the trained person's declaration, the OV or MHI should confirm that this information has been passed to APHA. APHA should also be contacted if potential TB lesions are found during the inspection of large wild game carcasses.

Where the OV is not present the MHI shall contact the OV as soon as possible and discuss necessary action. In certain cases this may require attendance of the OV at the AGHE.

Where the problem arose during primary production, the OV shall gather all the information and cascade it to APHA where appropriate.

8.7.2 FBO's trained hunter's declaration and inspection record

The FBO must have a system in place to file the trained person's declarations (including trained person's inspection records) in such a way that the declarations can be identified clearly to the individual carcasses or batch of carcasses.

For large game, the declaration or a number repeated on and relating to the declaration must be attached to the carcass when it is presented for inspection. Carcasses without an attached hunter's declaration label or link to a declaration must be disposed of as ABP (unless presented with the head and all the viscera except for the stomach and intestines).

8.7.3 Post-mortem inspection results and recording of data

Results of post-mortem inspection should be recorded in the FSS IT PM Inspection online system.

The FSS and FBO must have a system in place to ensure that the results of post-mortem inspections are recorded accurately and can be identified clearly to the batch of animals, or in some cases to the individual animal. The OV must be satisfied with the system for collecting the data at all points.

9. Health and identification marking

9.1 Health marking

9.2 Identification marking

9.1 Health marking

9.1.1. Overview

The health mark indicates that the animals and the resulting carcase have undergone ante and post-mortem inspection in accordance with (EC) 854/2004 and there are no grounds for declaring the meat unfit for human consumption.

Reference: See the topic 9.2 on 'Identification marking' in this section for additional information.

9.1.2 Responsibility and health marking

The OV is responsible for ensuring the correct application of the health mark. The actual application of the health mark may be delegated to an MHI or to an FBO member of staff, but only under the effective supervision of the OV.

The health mark shall be applied when official controls have not identified any deficiencies that would make the meat unfit for human consumption and, where appropriate, TSE testing has been carried out with negative results.

9.1.3 Meat that should be health marked

The health mark is only applied to carcasses and wholesale cuts of:

- cattle, including buffalo and bison
- sheep, goats and pigs
- horses
- camelids
- ratites
- farmed deer and wild boar
- large wild game, deer and wild boar

Regulation: (EC) 854/2004, Article 5 (2).

9.1.4 Application

Health marks should be applied in the slaughterhouse or game-handling establishment so that if carcasses are cut into half or quarters or half carcasses are cut into 3 pieces each bears such a health mark. The FBO should inform the AO how many pieces the carcase will be cut into if they wish the minimum number of marks to be applied.

9.1.5 Wild game

Meat from wild game can only bear a health mark if it is skinned in a game handling establishment, has undergone post-mortem inspection and been found fit for human consumption.

Regulation: (EC) 854/2004, Annex I, Section I, Chapter III, 8.

9.1.6 Application at inspection

A system should be in place so that the line speed and inspection facilities allow the health mark to be applied to the carcase at the time of post-mortem inspection.

9.1.7 Blurring

Blurred health marks are unacceptable and, if this is a problem, a system should be arranged so that:

- one health mark is applied if the carcase is fit at the time of inspection
- health marking is completed once the carcase has dried (in the chiller)

9.1.8 Health mark and trichinosis

Where a procedure is in place in the slaughterhouse to ensure that no part of carcasses examined leaves the premises until the result of the *Trichinella* examination is found to be negative and the procedure is formally approved by the OV, the health mark may be applied before the results of the *Trichinella* examination are available.

The operator must have a written procedure agreed with the OV in place.

Where such system is not in place, the health mark must not be applied until a negative test result has been received.

9.1.9 Withheld health mark

The health mark can only be applied to the carcase of animals which have undergone ante and post-mortem inspections in accordance with (EC) 854/2004 and there are no grounds for declaring the meat unfit for human consumption. Examples of where the health mark should be withheld are:

- failure of ante-mortem and / or post-mortem inspection
- presence of SRM (except Vertebral Column of over 30 month bovines)
- carcasses presented for inspection with evidence of visible contamination or gross pathology
- where residues or contaminants are suspected
- carcasses produced in a slaughterhouse where the water supply is found to have been contaminated and a risk to public health exists
- where adequate facilities for inspection are not available and there is a risk that carcasses with visible contamination or gross pathology could be inadvertently health marked (that is it has not been possible to perform adequate inspection)
- carcasses from animals suffering from a notifiable disease
- meat declared by the OV to be unfit for human consumption

9.1.10 Recording marks used

To prevent fraudulent use of health marks and other stamps all members of the FSS team must record in the daybook:

- the time of issue
- the number of the health mark
- the time stamps are returned to secure storage

9.1.11 Security of the health mark

The security of the health mark is the responsibility of the officer to whom it was issued.

- The health mark must be kept in secure lockable facilities when not in use.
- The OV must be able to demonstrate the security of health marking equipment.
- Anyone possessing or using health marking equipment, without the authority of the OV is committing an offence.

9.1.12 Reporting missing stamps

If a health mark stamp is stolen or lost, there is potential that it can be used for fraudulent activities and used for illegally killed animals. Missing stamps whether lost or stolen must be reported immediately by completing the 'Missing Stamp Investigation Report' and emailing it to the Approvals Team at Approvals@fss.scot

This report should also be used for damaged stamps in plants to register them as no longer in use.

Reference: Template Investigation report can be found in Annex 11.

9.1.13 Meat not health marked

Unmarked meat that is required to be health marked cannot be sold for human consumption. The FBO is responsible for disposing of the meat in compliance with the animal by-products regulations.

Reference: Regulation (EC) 853/2004, Article 5

9.1.14 Health mark labels

For the health marking of lamb, kid and piglet carcasses the hygiene regulations no longer permit the use of health marks in the form of a label or tag instead of ink / hot branding as was permitted under the previous legislation.

Reference: Regulation (EC) No 2076/2005, Article 5.

9.2 Identification marking

9.2.1 Requirements

Carcasses and wholesale cuts of red meat species, farmed game mammals (other than lagomorphs) and large wild game that have passed official controls at a game handling establishment should all be health marked. Other products of animal origin only require an identification mark.

9.2.2 Application

Identification marks are applied by the FBO. The FSS is required to verify compliance with the application of identification marks.

Reference: See the MIG for additional information.

10. *Campylobacter* in broilers monitoring programme

- 10.1 Introduction
- 10.2 FSS role
- 10.3 Sampling programme
- 10.4 Sampling equipment
- 10.5 Collecting samples
- 10.6 Minimising the risk of sample contamination
- 10.7 Storage, packing and despatch of samples

10.1 Introduction

10.1.1 Survey overview

FSS is working in partnership with the FSA on the UK strategy to reduce *Campylobacter* contamination of broiler carcasses at slaughter, in order to support work to reduce the number of human *Campylobacter* cases as part of the UK Acting on *Campylobacter* (ACT) Strategy.

The FSS Strategy to 2021 “Shaping Scotland’s Food Future” includes the outcome that ‘Food is safe’. A main priority for this is to reduce foodborne disease using a targeted approach, and tackling *Campylobacter* in chicken as a priority.

FSS is developing a Foodborne Illness Strategy for Scotland and is generating programmes to reduce the risks of *Campylobacter* in Scottish produced chicken, and monitoring the impact on the profile of *Campylobacter* infection in Scotland, supporting the FSA *Campylobacter* reduction programme. This target is to reduce the percentage of the most heavily contaminated chickens at the end of the slaughter process from 27% to 10%; it is estimated that achieving this could reduce the number of cases of food poisoning by up to 30% (approximately 90,000 cases per year).

Information can be located at:

<http://www.foodstandards.gov.scot/news/latest-campylobacter-results-continue-show-improvement>

10.1.2 Target population

Broiler chickens, including conventionally reared, free-range and organic broilers. Spent hens and broiler breeders are excluded from the survey.

10.1.3 Survey requirements

FSS are required to sample a whole chilled carcass and, when specified, full and intact caeca from the same slaughter batch and despatch to APHA Weybridge for testing.

10.1.4 Relevant establishments

These instructions apply to FSS staff at plants participating in the *Campylobacter* monitoring programme. A list of participating establishments is held by SLA team.

10.1.5 Co-ordination and collection

APHA is responsible for the co-ordination and management of this UK monitoring project and for the operation of the scheme in GB, under contract with FSS.

The total number of samples required from selected slaughterhouses is determined by FSS. APHA will then send sampling kits and request samples from participating establishments.

FSS Operations staff will undertake the collection of samples from approved slaughterhouses participating in the monitoring programme.

10.2 FSS role

10.2.1 FSS requirements

The OV must ensure:

- that only authorised FSS staff carry out the sampling
- the correct number of samples are collected per slaughter batch sampled
- continuity of evidence when samples are collected, prepared, labelled, stored and despatched
- evidence of the origin of the broilers sampled is obtained

- the data collection form, APHA1 is fully completed, and two copies are taken; see Annex 3 for an example of the form
- one copy of the APHA1 form is sent with the samples, the second copy is given to the named FBO contact (which will be supplied by SLA team) and the third copy is retained

Note: Samples to be recorded in the FSS IT Sample Request application under “*Campylobacter*”.

10.2.2 Time coding

All work undertaken as part of this survey in the collection, storage, packaging and despatch of samples is to be coded on the online system as Corporate activity, sub-activity Campylobacter.

Comments to be added if necessary.

10.3 Sampling programme

10.3.1 Sampling requests

FSS staff in plant will receive a sampling schedule prepared by APHA, from the FSS SLA team, which will list the number of batches that need to be sampled during the sampling period (a reminder of the schedule will be sent in advance either monthly or quarterly, as appropriate). The schedule will provide details on the date of sampling, the number of batches that need to be sampled on a given day and the ID of the batch to sample.

As the sampling schedule is weighted according to plant throughput, larger processing plants will sample more regularly than smaller processing plants.

Note: The ID batch number refers to the sequence of slaughter batches going through the abattoir on the day of sampling. For example, ID batch 2 would be the second batch slaughtered on the given sampling day.

Example:

Allocated sampling days	ID of batch to sample	ID batch (1 st reserve)	ID batch (2 nd reserve)
08/11/12	5	7	15
13/11/12	2	6	24
13/11/12	3	9	17
05/12/12	7	2	5

10.3.2 Monitoring definitions

A 'slaughter batch' is defined as a quantity of broilers which has been raised on the same farm premises, in the same house, and delivered to the abattoir in the same vehicle.

10.3.3 Exclusion criteria

Slaughter batches from more than one house or from more than one farm are to be excluded from the monitoring programme.

10.3.4 Selection of slaughter batches

To avoid bias, slaughter batches must be randomly selected for sampling. Therefore, beside each allocated sampling day on the schedule there are three numbers per sampling batch labelled 'ID of batch to sample', 'ID batch (1st reserve)' and 'ID batch (2nd reserve)'. These are random numbers generated using the average number of batches processed during the abattoir's working day, and represent the particular batch that must be identified and sampled.

Batches from mixed houses or from more than one farm must be excluded. Therefore, if the selected batch is from a mixed house or from more than one farm, then the reserve batch should be sampled if that is not a mixed batch. The ID of the batch sampled should be marked clearly on the data collection form, APHA1.

Sampling for the monitoring programme will only be carried out Monday to Thursday. If you do not slaughter broilers on the specified sampling day, please sample the same ID batch number allocated but on the next processing day. For example, if the plant only slaughters broilers on Monday-Wednesday and the schedule includes a Thursday, please sample on the following Monday. If the plant operates on Tuesday, Wednesday and Friday and the scheduled sampling date is a Thursday, please sample on the following Tuesday.

The revised sampling date and the ID of the batch sampled should be marked clearly on the data collection form, APHA1.

If you are unable to collect a sample from a requested ID batch (es) or from the first or second reserve, please contact operations@fss.scot who will then notify APHA and a new sampling ID and date for collection will be generated.

If you collect the samples and you cannot despatch them on the same day, please contact the SLA team.

Reference: See Annex 3 for a sample copy of the APHA1 form.

Note: If you have any questions on the sampling schedule, contact the SLA and Contracts team.

10.3.5 Selection process

The following table outlines the slaughter batch selection process:

Step	Description
1	If the batch identified for sampling is not eligible, it is not from a single house or cannot be sampled, sample the 1 st reserve batch
2	If the 1 st reserve batch is not eligible or cannot be sampled, sample the 2 nd reserve batch
3	If the 2 nd reserve batch is not eligible or cannot be sampled, sample the next available eligible batch on the same processing day (and mark the batch number clearly on the APHA 1 form)
4	If there are no more eligible batches processed on the same day, sample the first available eligible batch on the next processing day (and mark the date and batch number clearly on the APHA 1 form).

10.3.6 Sample size per batch

There are 2 levels of sampling within this monitoring programme; **carcass only** and **carcass and caeca** sampling. The information on which to carry out will be provided by APHA in advance, on the sampling schedule:

Carcass sampling:

A single chilled broiler carcass from the selected slaughter batch will be collected and placed into one of the large labelled self-seal bags, sealed and then placed into the second large labelled bag and sealed. The carcass will be packed into the sample box and sent to APHA for testing.

Carcass and caeca sampling:

10 pairs of full and intact caeca will be sampled at the evisceration point from within the same slaughter batch from which the carcass is to be collected and each pair put into a separate screw-cap pot.

A single chilled broiler carcass from within the same slaughter batch from which the caeca was sampled is also to be collected and then placed into one of the large labelled self-seal bags, sealed and then placed into the second large labelled bag and sealed. Both caeca and carcass are to be packed into the sample box and sent to APHA for testing.

10.4 Sampling equipment

10.4.1 Introduction

APHA will provide the relevant establishments with sampling kits and the data collection form (APHA1). The SLA team will contact FSS staff at the establishments to inform them of delivery arrangements for sampling kits.

Note: please ensure the kit used bears the same unique code as the sampling form.

Note: APHA1 form - to be completed in block letters in BLACK ink. Any errors to be single crossed, corrected and initials inserted.

10.4.2 Non-delivery of sample kits

Sampling kits and form APHA1 should be received at least four days before sampling commences. If you do not receive the kit and form, or if any of the equipment listed below is missing, contact operations@fss.scot

10.4.3 Sampling kit contents

Carcase sampling kit – for sampling a whole chilled carcase includes:

- 1 x Biotherm 25 insulated shipping box
- 1 x document pouch
- 1 x data collection form
- gel freezer pack system (these must be kept away from direct contact with the samples using the polystyrene divider)
- 2 x large, labelled, sealable Pathoseal Liquitite bags for the whole chilled carcase
- 2 pair of gloves –for collection of the carcase (one spare pair provided)
- bubble wrap to stabilise the sample pots around the carcase.

Carcase and caeca kit– for sampling 10 caeca per slaughter batch and 1 whole chilled carcase includes:

- 1 x Biotherm 25 insulated shipping box
- a carcase sampling kit as described above plus
- 10 x 80ml screw-cap pots
- 5 x small Pathoseal absorbent bags for sample pots.

Note: Gel freezer packs **must** be completely frozen when packed in the sampling box; therefore, ensure that they are placed in a freezer at least 48 hours before sampling.

10.5 Collecting samples

10.5.1 Carcase samples

One whole carcase per slaughter batch should be collected immediately after chilling but before further processing such as freezing, cutting or packaging.

If this is not possible, then a carcase should be collected as close as possible to chilling and chilled separately to below 5°C.

In the carcase + caeca sampling, the carcase **must** be from the same slaughter batch that was sampled for caeca.

For all samples, please avoid sampling from the first part of the batch and select a carcase with a neck skin flap still attached.

10.5.2 Caeca samples

Sampling is to be carried out at the time of evisceration. Birds are to be sampled at random during the selected batch avoiding the first part of the batch. Consecutive birds must not be sampled.

Depending on the line speed, and facilities available in each establishment, the paired caeca taken from each bird can be separated from the eviscerated intestines either on the slaughter line, or alternatively the whole offal can be removed and carried in a tray or similar receptacle to a separate area before removing the caeca.

Note: It is important that full and intact caeca are collected.

10.5.3 Sample handling

Samples must:

- be packaged according to the instructions in this topic
- be despatched separately from other samples, on the same day of collection
- arrive at APHA Weybridge no later than 24 hours after they have been collected

Reference: See topic 10.7 on 'Sampling, packing and despatch of samples' in this section for additional information.

10.6 Minimising the risk of sample contamination

10.6.1 Carcase sample contamination

Gloves supplied in the kit should be used to collect the carcase. Immediately after collection, the carcase should be placed into one of the large labelled self-seal bags from the kit, sealed and then placed into the second large labelled bag and sealed. Cross contamination with other chicken carcasses, caeca and abattoir surfaces should be avoided at all times.

10.6.2 Caeca sample contamination

The main objective is to collect the caeca whilst minimising any external contamination from caecal or intestinal content.

This is best achieved by careful manual traction to the portion of intestine either side of the caeca so that both caeca are removed intact with a short length of intestine. The sampler needs to verify that the caeca are intact and full. If they are not, the paired caeca should be disregarded and a new bird selected instead.

Each pair of caeca should be taken per broiler and put into a labelled pot. Each pot should then be sealed securely and placed into a small Pathoseal absorbent bag (two pots per bag).

Note: Caeca from different broilers should not be placed in the same pot.

10.7 Storage, packaging and despatch of samples

10.7.1 Chilling

Samples must be kept chilled (not frozen) from the time of sampling until delivery to APHA. Please place the closed sampling kit in a cool area (or refrigerator if available in the FSS office) and away from direct heat until the courier arrives. If a cool room is available the entire sampling kit can be stored here until despatch to APHA Weybridge

Note: Samples must be kept cool by storing them inside the insulated shipping box containing the frozen gel packs.

10.7.2 Specimen collection and handling

Campylobacter analysis can be affected by the growth of other bacteria. Therefore, care must be taken to ensure that samples are taken

appropriately, chilled as described and transported to APHA Weybridge as quickly as possible.

Extreme temperatures must be avoided.

10.7.3 Packing

Step	Action
1	Pack the double bagged chilled carcase in the box and use the bubble wrap to secure the carcase in the box.
2	For 'Carcase + Caeca sampling kit', pack the bagged sample pots around the carcase and secure using the bubble wrap provided.
3	Ensure that the APHA reference number at the top of the data collection form APHA1 matches the number on the sample pots and carcase bag.
4	Place polystyrene divider on top of the carcase and samples.
5	Freezer gel packs should be removed from the freezer and placed on top of the polystyrene divider. All 3 freezer packs provided in the sampling kit should be used; however, if the lid cannot be closed, 1 freezer pack is to be discarded ensuring the lid is fitting tightly). Care must be taken not to place these in direct contact with the specimen pots or the bagged carcase.
6	Slide the completed form, copies of the FCI and transport ticket into the plastic document pouch to protect from any leakages that may occur and place into the sampling kit.
7	The sample box must be closed securely without delay. It is important that the pack should not be left open (or closed without freezer packs) for any length of time as this may damage the samples and the carcase.

10.7.4 Labelling cardboard outer cartons

Apply the adhesive address label provided by the carrier to the outer carton across the box flaps.

Seal the edge of the box with seal label provided.

Apply the Topspeed unique bar code to the outer box.

10.7.5 Despatching samples

Samples are to be despatched to APHA using the Topspeed next day service.

Step	Action
1	Go to http://www.topspeedcouriers.co.uk/ and complete the online booking form - courier is to be pre-booked prior to taking the sample. See Annex 8 for information on completing the online booking form.
2	Provide Topspeed with the following information: <ul style="list-style-type: none">• number of items (boxes) in consignment• kill date and time• name of person making the booking
3	Write the barcode nos. as reference for the collection. Topspeed to collect as arranged.

10.7.6 Despatch of all samples

Carcases and caeca samples are to be sent to:

FS241051 *Campylobacter* Monitoring Research Project
Bacteriology (*Campylobacter* Laboratory) Building 17
Animal Plant and Health Authority
Woodham Lane
New Haw
Addlestone
Surrey
KT15 3NB

10.7.7 Despatch failure

Should despatch fail, you must contact Topspeed and make an attempt to rearrange despatch, and then notify APHA Weybridge by email to advise them of the despatch failure: campymonitoring@apha.gsi.gov.uk

10.7.8 Complaints procedure

Should Topspeed fail to collect samples within the agreed timeframe, contact the SLA and Contracts team on operations@fss.scot, which will escalate the failure to Topspeed headquarters.

11. Edible co-products

11.1 Definition

11.2 Feet for human consumption

11.3 FBO responsibility

11.4 FSS responsibility

11.1 Definition

Edible co-products are parts of slaughtered animals unsuitable for human consumption at the time of production in the slaughter house, but which can later be processed for use in human food.

Examples of edible co-products include:

- rendered animal fat and greaves
- treated stomachs bladders and intestines
- gelatine
- collagen

Regulation: (EC) 853/2004, Annex III, Sections XII, XIII, XIV and XV.

Detailed guidance is contained in the Industry Guide on Edible Co-products and Animal By-products. This document can be found in Volume 2 of the SMOC and at:

<http://www.foodstandards.gov.scot/sites/default/files/ediblecoprod.pdf>

11.2 Feet for human consumption

Feet intended for human consumption are treated as edible offal. All feet intended for human consumption must be inspected.

11.2.1 Feet processed on site:

PMI can be done before or after further treatment (such as de-hairing) on an individual basis or in batches. If PMI takes place before treatment, a further spot check will be needed to ensure that these feet are free from any pathology.

11.2.2 Feet processed at a different approved site:

PMI can be done before or after cleaning (washing) on an individual basis or in batches. If PMI takes place before cleaning, a further spot check will be needed to ensure that these feet are visibly clean before shipping for further processing.

In both cases a full correlation system must be implemented by the FBO to ensure that if a carcass is condemned, the correlated feet of the entire batch are disposed of as unfit for human consumption. FBOs may assist the inspection process and set aside feet with identified abnormalities.

Feet which have not been inspected, are not visibly clean or have not been processed cannot be despatched from the establishment as intended for human consumption.

11.3 FBO responsibility

The FBO should identify handle, process, store and despatch edible co-products in accordance with the guidance contained in the meat industry guide.

Co-products should be stored and despatched to appropriate destinations separate from animal by-products, in accordance with the guidance.

Co-products should be despatched with the correct documentation, containing the information outlined in the specimen documents in the co-products guidance.

11.4 FSS responsibility

The OV is to check that:

- the FBO handles the co-products in accordance with the FSS guidance having due regard to hygienic processing, separation, storage and temperature requirements
- that the edible co-products are consigned to appropriate premises
- that adequate separation from ABP's is maintained, such as cattle hides intended for the production of gelatine for human consumption are stored and despatched with adequate separation from all other hides
- that a control system is in place for hides from bovines that require BSE testing, pending a negative test result

12. Annexes

- Annex 1 Post-mortem inspection requirements summary
- Annex 2 Sample: Aujeszky's disease - National Serum Survey submission form
- Annex 3 Sample: APHA1 data collection form
- Annex 4 Void
- Annex 5 Contamination data recording sheet
- Annex 6 Trichinella sampling kit order request form
- Annex 7 Model document: Health certificate for the trade of unskinned large wild game
- Annex 8 Topspeed sample dispatch process
- Annex 9 VIP Establishment specific protocols
- Annex 10 FBO meeting minutes
- Annex 11 Missing Heath Mark reporting template