Chapter 5

Residues

Part 1 Veterinary Medicines Directorate (VMD) National Surveillance Scheme
Part 2 Veterinary Medicines Directorate (VMD) Antimicrobial Resistance (AMR) Monitoring Programme
Part 3 Annexes
Part 1 Veterinary Medicines Directorate (VMD) National Surveillance Scheme

Section 1 Overview
Section 2 Sampling
Section 3 Suspect substances, animals and carcases
1. Overview

1.1 Introduction

1.1.1 Statutory requirements
The UK has in place a statutory veterinary residue surveillance scheme in fulfilment of its obligations under Council Directives 96/22/EC and 96/23/EC and (EC) 854/2004, Annex I, Chapter II, F.

This programme helps to ensure that consumers are protected against potentially harmful residues of veterinary medicines.

1.1.2 Co-ordination and collection
The Veterinary Medicines Directorate (VMD) is responsible for the co-ordination and management of the UK programme and for the management and operation of the National Surveillance Scheme (NSS) in GB.

The total number of samples required to fulfil GB’s obligation is determined annually by the VMD, who will then request samples from individual slaughterhouses.

FSS undertakes the collection of samples from licensed slaughterhouses under contract to the VMD.

1.2 Legislation

1.2.1 Applicable legislation
The Animals and Animal Products (Examinations for Residues and Maximum Limits) (England and Scotland) Regulations 2015 SI No. 787 implements the requirements of Council Directives 96/22/EC and 96/23/EC.
The Directives require targeted sampling for veterinary residues by member states. They lay down the frequency of sampling required for substances.

1.2.2 Sampling of suspect animals

The Directives also require sampling to be undertaken where the Official Veterinarian (OV) suspects or has evidence that animals have been treated with unauthorised substances or may contain residues of authorised substances above the maximum residue limits (MRL). Casualty animals without FCI should be considered for testing.

1.2.3 Authorisation

The authorisation certificate brings the FSS staff within the definition of Authorised Officer (AO). FSS staff must not undertake work for which they have not been authorised. If in doubt please consult your Operation Manager (OM) for advice.

1.2.4 Powers of the AO

The Animals and Animal Products (Examination for Residues and Maximum Residue Limits) (England and Scotland) Regulations 2015 give FSS authorised officers:

- the power to detain and inspect animals prior to slaughter
- the power to detain animals for a further examination to be carried out and if necessary samples of tissues/fluids to be taken for analysis
- the power to detain the animal/carcase or group of animals/carcases until the results of the analysis is available

An AO has the power to take a sample from any animal, whether or not intended for human consumption.

1.3 FBO responsibility

1.3.1 Information on origin

Only animals for which full information of the farm submitting for slaughter or source (for example, market or collection centre) is available can be sampled. This information will be essential in tracing the owner, should further action requiring definite identification be necessary.

Slaughterhouse operators are required to keep such records on all animals and it is an offence not to do so.
1.4 FSS role

1.4.1 OV responsibility

The OV must:

- ensure that only authorised FSS staff carry out sampling
- ensure continuity of evidence when samples are collected, prepared, labelled, stored and despatched
- always obtain indisputable evidence for the origin of the animals sampled
- where the farm submitting for slaughter is unknown, determine the most recent origin by giving the name and status of the person supplying the animal to the slaughterhouse

1.4.2 FSS duties

FSS staff must check that the FBO keeps source records according to the requirements of the regulations.


1.4.3 Action if no or inadequate records

The AO must bring to the attention of plant management and the OV if no records of the farm submitting for slaughter are kept, or if the records are deficient.

The OV is to follow the hierarchy of enforcement, and:

- record any discussion with the FBO in the daybook
- confirm the deficiency in writing

Note: a specimen letter (see annex 1) suitable for this purpose is included in this chapter

- send a copy of the letter to FSS Operations with the monthly reports
- keep a copy in the plant file
- enter details onto the ENF 11/5 (Enforcement Programme)
make a further check of records within 28 days of delivery of the above letter
if records are still inadequate, make a Referral for Investigation
Reference: See chapter 7 on ‘Enforcement’ for additional information.
Reference: See chapter 9 on ‘Forms’.

1.4.4 Examples of inadequate records
Here are two examples of inadequate FBO records:

- name and address of producer / last owner not recorded
- FSS records indicate 20 animals were presented for ante-mortem inspection – FBO records only show 18 animals have been delivered.

1.5 Cross contamination of samples

1.5.1 Purpose of National Surveillance Scheme
The aim of the NSS is to detect whether authorised Veterinary Medicinal Products (VMPs) are being used in food producing animals and that the conditions attached to authorised VMPs are being observed. It also detects use of unauthorised substances.

1.5.2 Follow-up action
The Directives and the Animals and Animal Products (Examination of Residues and Maximum Residue Limits) (Scotland) Regulations 2015 require follow-up action to be taken where:

- samples are found to contain residues of veterinary medicinal products above the permitted maximum residue limit, or
- where residues of unauthorised substances have been detected

This could involve legal proceedings and consequently it is important that the instructions given in this chapter are followed.

1.5.3 On-farm investigation where a non-compliant test result is recorded
When a sample tests non-compliant for a VMP, a Veterinary Officer from Animal and Plant Health Agency (APHA) visits the farm of origin of the sample to carry out an investigation as to how the residue in the sample may have occurred. As part of this investigation APHA will request details of the Food Chain Information (FCI) submitted to the FBO.
1.5.4 When FSS staff should not act as sampling officers

Laboratory analytical methods are extremely sensitive in identifying and measuring banned substances, down to less than 1 part per billion (the equivalent of a grain of sand in an area the size of an Olympic swimming pool). It is because of this sensitivity that sampling officers, who may have been exposed to certain medicinal products taken by them, by members of their family or by pets, should not take samples during the course of the treatment.

A list of those compounds that are, potentially, the most likely to cause problems is shown in the following table; some of these substances can also be prescribed to companion animals.

**Sampling officers should not carry out any sampling during the treatment period. If the sampling officers are unsure please contact the VMD for advice.**

<table>
<thead>
<tr>
<th>Type of Medication</th>
<th>Active Ingredients</th>
<th>May be used in the treatment of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhaler (containing beta-agonists)</td>
<td>• Formoterol</td>
<td>Asthma</td>
</tr>
<tr>
<td></td>
<td>• Salbutamol</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Salmeterol</td>
<td></td>
</tr>
<tr>
<td>Skin creams (containing steroids)</td>
<td>• Betamethasone</td>
<td>Skin conditions, such as dermatitis</td>
</tr>
<tr>
<td></td>
<td>• Hydrocortisone</td>
<td></td>
</tr>
<tr>
<td>Non-steroidal anti-inflammatory gels</td>
<td>• Ibuprofen</td>
<td>Pain relief, headaches, arthritis, fever</td>
</tr>
<tr>
<td>Other topical preparations</td>
<td>• Antibiotic or anti-inflammatory eye drops</td>
<td>Bacterial eye infections</td>
</tr>
<tr>
<td></td>
<td>• Chloramphenicol eye ointment</td>
<td></td>
</tr>
<tr>
<td>Tablets</td>
<td>• Steroids</td>
<td>Joint disease, autoimmune disease</td>
</tr>
</tbody>
</table>
2. Sampling

2.1 Sampling programme

2.2 Sampling equipment

2.3 Red meat: Collecting samples

2.4 Red meat: Collecting blood

2.5 Red meat: Collecting blood for serum analysis

2.6 Red meat: Packing blood samples for despatch

2.7 Poultry meat samples

2.8 Poultry meat: Collecting blood for serum analysis

2.9 Poultry meat: Packing blood samples for despatch

2.10 Game samples

2.11 Completing the RIM form

2.12 Tamperproof bags

2.13 Storage of samples

2.14 Packing and despatch of samples

2.1 Sampling programme

2.1.1 Sampling requests

Establishments will receive requests each quarter from VMD to collect samples from cattle, sheep, goats, pigs, horses, poultry and game for residue analysis. The RIM 1 form is the Primary Sample Request form and contains pre-printed information on animals to be selected for sampling.

VMD will send RIM 1 forms to individual plants, unless a base plant has been designated by prior agreement.

Note: Samples must be collected exactly as described in the month specified on the RIM 1.

The animal(s) selected for sampling must fit the information on the RIM 1.

Reference: See Annex 2 for a sample RIM 1 form.
2.1.2 When to collect

Samples required for a specified month must be collected during the month stated, spread as evenly as possible throughout the month and not collected on the same day.

Avoid collecting multiple samples from a single producer; collect only one sample for a specified residue from animals from the same farm submitted for slaughter, on the same day.

2.1.3 RIM 1 reference number

Each RIM 1 form has a unique Sample Reference Number (RIM No), which must not be altered. The number must be quoted in any correspondence about the sample.

2.1.4 RIM labels

Each RIM 1 form is accompanied by an adhesive label printed with:

- the sample description
- sample reference number (RIM No) and bar-code

2.1.5 Samples from animals intended for human consumption

Samples must only be taken from animals, poultry or game intended for human consumption, and not from cull schemes.

2.1.6 Selection criteria

Animals must be selected taking into account the criteria that appear on the RIM 1 form and the criteria below:

- species, sex, age and farming system
- information about the producer
- indication of the use of pharmacologically active substances
- normal use of pharmacologically active substances in the particular production system
- other factors which may make it appropriate to ‘target’ certain animals for sampling; for example:
  - animals selected for hormonal growth promoters should be well muscled and a good size for their age
  - animals that are small for their age may be appropriate for sampling for antimicrobials since illness could affect their growth, and therefore they are more likely to have been treated
Instructions on the sampling of ‘suspect’ animals can be found in section 3 on ‘Suspect substances, animals and carcases’ in part 1.

2.1.7 Identification of animals

Animals suitable for sampling are to be individually identified and clearly marked before slaughter. The identification of the animal must be preserved at flaying by using one of the following methods:

- attach a talisman tag
- apply a cut mark
- attach a detained tag
- note the slap mark/tattoo

**Note:** In the case of poultry, it is sufficient to identify the batch from which the sample(s) are to be taken.

2.1.8 Exception to identification of animals pre-slaughter

Where an animal selected in the lairage from the specific group of sheep fails to produce the required quantity of urine, the sampling officer may select another animal which has a full bladder from the same group of animals.

The sampling officer must ensure that the animal can be traced back to the farm or market of origin.

2.1.9 Sample security and continuity of evidence

The results of analyses for all substances could lead to legal proceedings. It is important that there is **continuity of evidence**; therefore, samples must be accurately identified and secured in a FSS freezer.

The names of all AOs involved in collecting or handling samples must be recorded in the daybook. The name and signature of the sampling officer must be the same as that on the RIM 1 form and the tamperproof bag.

2.1.10 Completing the summary worksheet

Record the following information on the Summary Worksheet:

- date of collection
- date of despatch
- consignment note number
2.1.11 Sampling not possible

Where a sample collection fails due to insufficient material or where sampling is not possible (for example, due to plant closure, killing pattern or availability of species requested), the OV is to:

- complete the RIM 1 form remarks box, giving the reasons why the sample cannot be taken
- return RIM 1 form to:
  Veterinary Medicines Directorate
  Residue Section
  Woodham Lane
  New Haw
  Surrey
  KT15 3LS

Send an email to the SLA and Contracts Team (operations@fss.scot) explaining why the sample was not collected (access contact details in chapter 1 on ‘Introduction’).

Note: Due to health and safety considerations, poultry serum samples are not to be taken from un-stunned birds in Halal establishments. The remarks box of the RIM 1 should be completed accordingly in the event that any such sampling requests are received by a plant.

2.2 Sampling equipment

2.2.1 Use of containers

It is important that only the specified sampling containers are used, as failure to do so may result in the sample being rejected by the laboratory as un-assayable.

2.2.2 Supplies

VMD will supply:

- RIM 1 forms
- adhesive labels
- summary worksheets
- sampling equipment
- tamperproof bags
Maintain sufficient supplies of polystyrene boxes, outer cartons and Freezella packs at the slaughterhouse.

**Note:** The laboratory will return RIM boxes after use to Top Speed Top Speed for one to one exchange on the next collection.

If a replacement box is not left at the point of collection, please contact rim@Top Speedcouriers.co.uk, 0800 856 2464. Top Speed directly to arrange delivery of the required equipment (copying in operations@fss.scot).

2.2.3 **Sampling equipment orders**

Sampling equipment can be re-ordered by contacting:

residues@vmd.defra.gsi.gov.uk;

Or by calling 01932 338329

2.3 **Red meat: Collecting samples**

2.3.1 **Samples to collect**

Kidney, kidney fat, liver, muscle, blood and urine must be collected from the identified, marked carcasses that have been inspected and passed as fit for human consumption. The quantity of material collected from each species must be that specified as in the table below.

The AO who collects the sample is to record the sample collection into the FSS IT system under “sample request”.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Species</th>
<th>Where to collect</th>
<th>Amount</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td>Sheep/ goats</td>
<td>At the post-mortem inspection point</td>
<td>A pair of kidneys</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td></td>
<td>Pigs</td>
<td>At the post-mortem inspection point</td>
<td>One whole kidney</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td></td>
<td>Cattle/ horses</td>
<td>At the post-mortem inspection point</td>
<td>A portion of kidney; at least 100g taken from one pole so as to exclude pelvic tissue</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td></td>
<td>Calves</td>
<td>At the post-mortem inspection point</td>
<td>A pair of kidneys</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Kidney fat</td>
<td>Cattle/sheep/goats/pigs</td>
<td>At the post-mortem inspection point</td>
<td>At least 50g of kidney fat</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>-------------------------------------</td>
<td>---------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Liver</td>
<td>Cattle/sheep/goats/pigs/horses</td>
<td>At the post-mortem inspection point</td>
<td>At least 100g of liver</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Muscle</td>
<td>Cattle/sheep/goats/pigs/horses</td>
<td>At the carcase inspection point</td>
<td>At least 200g of muscle from the diaphragm region of the animal</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Urine</td>
<td>Cattle/sheep/pigs</td>
<td>After removal from carcase by incision into the bladder</td>
<td>At least 50ml</td>
<td>100ml pot then sealable plastic bag</td>
</tr>
</tbody>
</table>

2.3.2 After sampling

Immediately after collection, the container or bag must be correctly sealed to avoid leakage, and placed into a tamperproof bag with the absorbent pad.

**Reference:** See the topic ‘Tamperproof bags’ in this section for additional information.

2.4 Red meat: Collecting blood

2.4.1 When and where to collect

Collect blood for serum samples and plasma analysis from the identified, marked carcase. This should be done directly at the sticking point, into the plastic vending cup provided and after the initial flow of blood has slowed.

2.4.2 Alternative collection site

Where collection at the sticking point poses a potential risk to the AO, for example, from carcase kicking, blood should be taken from the heart on the pluck line into the plastic vending cup provided.

A small incision can be made into one of the four chambers of the heart and blood carefully poured into the cup.
2.4.3 Sample handling

These samples must be:

- packaged according to the instructions in this topic
- despatched separately from other samples
- despatched on the same day of collection for bovine animals not requiring a BSE test

**Reference:** See topic 2.14 on ‘Packaging and despatch of samples’ in part 1 for additional information.

**Note:** This will require that the courier is booked prior to taking the sample.

**Caution:**

- Samples can be refrigerated or kept in a cool dark place until collected by Top Speed.
- Samples must not be frozen.
- Please ensure that you place 2 unfrozen Freezella packs in the box. The polystyrene casing may be chilled before use.
- Keep box out of direct sunlight.
- Despatch Monday to Thursday only.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Species</th>
<th>Where to collect</th>
<th>Amount</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood (serum)</td>
<td>Cattle/ horses</td>
<td>At the sticking point or pluck point (heart)</td>
<td>At least 30ml</td>
<td>3 x Sarstedt blood tubes then into absorbent wallet, keeping tubes upright</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Reference:</strong> See topic 2.5 on ‘Collecting blood for serum analysis’ in part 1 for additional information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood (plasma)</td>
<td>Cattle/ horses</td>
<td>at the sticking point or pluck point (heart)</td>
<td>At least 75ml</td>
<td>2 x Li-heparin LH/25ml monovette then absorbent wallet, keeping tubes upright</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Reference:</strong> See topic 2.5 on ‘Collecting blood for plasma analysis’ in part 1 for additional information</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.5 Red meat: Collecting blood for serum and plasma analysis

2.5.1 Serum analysis

You must follow the correct procedure for collection of blood for serum analysis as described in the table below:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collect at least 50ml of blood into the plastic vending cup provided for immediate transfer into 3 x 10ml serum tubes.</td>
</tr>
<tr>
<td>2</td>
<td>Remove the screw cap on the top of the serum tube ensuring that the beads are in the bottom of the tube.</td>
</tr>
</tbody>
</table>
| 3    | Pour the blood into the tubes, filling to the line below the threaded top.  
**Caution:** Do not overfill or some beads may float to the top and be lost. The beads are coated in a substance that acts as a clotting activator to ensure that the blood clots and the serum becomes separated. |
| 4    | Replace the screw cap on each tube. |
| 5    | Invert each tube **gently** 4-5 times to ensure the blood is mixed with the beads.  
**Note:** **THE TUBE SHOULD NOT BE VIOLENTLY SHAKEN**; doing so may cause haemolysis and the sample would therefore be deemed unassayable by the laboratory. |
| 6    | Write the RIM numbers on each tube in the space marked ‘Ref No’. Keep the test tubes stored upright in the four bay absorbent wallets and in a cool place (preferably in a refrigerator) prior to despatch. (Each wallet can accommodate one sample of three tubes). |
| 7    | At point of sampling place the wallet inside the tamperproof bag and seal ready for despatch.(NB never place the form inside the bag) |
| 8    | Fold the tamperproof bag over so that the signatures and barcode label are folded in on themselves. Place the tamperproof bag securely inside the polystyrene box.  
**Note:** Do not tape the tamperproof bag to the inside of the polystyrene box. |
2.2.6 Red meat: Packing blood samples for despatch

2.6.1 Packing serum samples for despatch

Samples are to be packed for despatch as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Place the tamperproof bag containing the samples securely into the polystyrene box.</td>
</tr>
<tr>
<td>2</td>
<td>Seal the polystyrene box.</td>
</tr>
<tr>
<td>3</td>
<td>Place the top two copies of RIM 1 form on top of the polystyrene lid.</td>
</tr>
<tr>
<td>4</td>
<td>Place polystyrene box in cardboard outer carton.</td>
</tr>
<tr>
<td>5</td>
<td>Apply the adhesive address label provided by the carrier to the outer carton across the box flaps. Ensure all other labels on the carton are removed.</td>
</tr>
<tr>
<td>6</td>
<td>Mark the box with ‘This Way Up’ to ensure careful handling.</td>
</tr>
</tbody>
</table>

Caution: RIM 1 form must not be sent separately from the samples to which they relate.

2.7 Poultry meat samples

2.7.1 Samples to collect

Samples of liver and muscle must be taken from identified birds that have been inspected and passed as fit for human consumption.

The AO who collects the sample is to record the sample collection in the FSS IT system under “sample request”

The following table gives details of the types of samples and the quantity required.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Species</th>
<th>Where to collect</th>
<th>Amount</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td>Chickens and ducks</td>
<td>Evisceration inspection point</td>
<td>50g pooled from at least 6 birds</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Liver</td>
<td>Turkeys</td>
<td>Evisceration inspection point</td>
<td>50g pooled from at least 2 birds</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Breast muscle</td>
<td>Chickens, ducks and geese</td>
<td>Taken off line to enable muscle to be cut off</td>
<td>200g from 1 bird</td>
<td>Sealable plastic bag</td>
</tr>
</tbody>
</table>
2.7.4 After sampling

Tissue samples must be placed immediately into the sealable plastic bag provided, then into a tamperproof bag.

2.8 Poultry meat: Collecting blood for serum analysis

2.8.1 When and where to collect

Collect blood for serum analysis from at least six birds from the same flock. Only sample birds from single sheds, do not sample birds from mixed sheds. This should be done shortly after neck cutting, into the plastic vending cup provided.

2.8.2 Sample handling

These samples must be:

- packaged according to the instructions in this topic
- despatched separately from other samples
- despatched on the same day of collection

Reference: See topic 2.14 on ‘Packaging and despatch of samples’ in part 1 for additional information.

Note: This will require that the courier is booked prior to taking the sample.

Caution:

- Samples should be refrigerated but must not be frozen.
- Please ensure that you place 2 unfrozen Freezella packs in the box.
- The polystyrene box may be chilled before use.
- Keep box out of direct sunlight.
Despatch Monday to Thursday only.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Species</th>
<th>Where to collect</th>
<th>Amount from at least 6 birds</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood (serum)</td>
<td>Chickens, ducks and turkeys</td>
<td>Shortly after cutting point</td>
<td></td>
<td>3 x Sarstedt blood tubes</td>
</tr>
</tbody>
</table>

**2.8.3 Serum analysis**

Follow the procedure for the collection of blood for serum analysis as described in the table below.

Blood can be safely collected once birds have ceased swinging after cutting.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Using the plastic vending cup provided, collect at least 30ml of blood from at least six birds in the same group. <strong>Note:</strong> Blood can coagulate quickly so collect enough for one tube at a time.</td>
</tr>
<tr>
<td>2</td>
<td>Remove the screw caps from the tops of the three Sarstedt serum tubes ensuring that the beads are in the bottom of the tube. <strong>Note:</strong> These beads are coated in a substance that acts as a clotting activator to ensure the blood clots and the serum becomes separated.</td>
</tr>
<tr>
<td>3</td>
<td>Pour the blood into each tube, filling to the line below the threaded top. <strong>Caution:</strong> Do not overfill or some beads may float to the top and be lost.</td>
</tr>
<tr>
<td>4</td>
<td>Replace the screw cap on each tube.</td>
</tr>
<tr>
<td>5</td>
<td>Invert each tube gently 4-5 times to ensure the blood is mixed with the beads. <strong>Note:</strong> THE TUBE SHOULD NOT BE VIOLENTLY SHAKEN; doing so may cause haemolysis making the sample unassayable.</td>
</tr>
<tr>
<td>6</td>
<td>Write the RIM number on each tube in the space marked ‘Ref No’. Keep the tubes stored upright in the four-bay absorbent wallet and in a cool place (a dark place or refrigerator) prior to despatch. Each wallet should contain one sample only. One sample = 3 tubes from</td>
</tr>
</tbody>
</table>
2.9 Poultry meat: Packing blood samples for despatch

2.9.1 Packing serum samples for despatch

Samples are to be packed for despatch following the steps detailed below:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Place the tamperproof bag securely inside of the polystyrene box ensuring the tubes are not free to move around.  
**Note:** Fold the tamperproof bag over so that the signatures and barcode label are folded in on themselves. |
| 2    | Seal the polystyrene box. |
| 3    | Place the two copies of the RIM 1 form on top of the polystyrene lid.  
**Caution:** RIM 1 form must **not** be sent separately from the samples to which they relate. |
| 4    | Place polystyrene box in cardboard outer carton. |
| 5    | Apply the adhesive address label provided by the carrier to the outer carton across the box flaps. Ensure all other labels on the carton are removed. |
| 6    | Mark the box with ‘This Way Up’ to ensure careful handling. |

2.10 Game samples

2.10.1 Definition of farmed game

Farmed game is animals which are not domestic but have been reared within a restricted area.
2.10.2 Farmed game samples

Samples will be requested from deer, partridge, pheasant, red grouse, quail and wild boar. These will be requested from slaughterhouses approved to handle the species.

2.10.3 Definition of wild game

Wild game is animals that are hunted and shot in the wild for human consumption.

For more information on wild game please consult the Wild Game Guide at http://www.foodstandards.gov.scot/wild-game-guides-and-haccp

2.10.4 Wild game samples

Samples will be requested from deer. These will be requested from Game Handling Establishments.

2.10.5 Large game samples to collect

Samples of kidney, kidney fat, liver and muscle must be taken from deer carcases which have been passed fit for human consumption and for which the origin or source can be identified.

The AO who collects the sample is to record the sample collection into the FSS IT system under “sample request”.

2.10.6 Small game samples to collect

Samples of muscle consist of an entire oven ready carcase of a bird and must be taken from a batch of birds which have been passed as fit for human consumption and for which the origin or source can be identified.

The AO who collects the sample is to record the sample collection into the FSS IT system under “sample request”.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Species</th>
<th>Where to collect</th>
<th>Amount</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td>Deer</td>
<td>After post-mortem inspection</td>
<td>A whole kidney</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Kidney Fat</td>
<td>Deer</td>
<td>After post-mortem inspection</td>
<td>At least 50g of kidney fat</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Liver</td>
<td>Deer, partridge, pheasant, red grouse</td>
<td>After post-mortem inspection</td>
<td>At least 100g liver</td>
<td>Sealable plastic bag</td>
</tr>
<tr>
<td>Muscle</td>
<td>Deer</td>
<td>After post-mortem</td>
<td>At least 50g of diaphragm</td>
<td>Sealable plastic bag</td>
</tr>
</tbody>
</table>
2.10.7 After sampling
Tissue samples must be placed immediately into the sealable plastic bag provided, and then into a completed tamperproof bag.

2.11 Completing the RIM form

2.11.1 Details to record

The following details must be fully recorded on the RIM 1 form:

- sex and age of animal sampled
- identification of the animal sampled; this enables the AO to cross check with the slaughter records to establish the source of the animal – types of identification:
  - ear tag number for cattle, sheep and goats
  - slap mark, ear tag or tattoo for pigs
  - farm address for poultry
  - hunter’s declaration and address of the forestry for wild game
- for cattle- the breed of animal sampled (including cross breeds)
- whether the animal is from organic production obtain from the slaughterhouse or game handling establishment records: the farm submitting for slaughter, or if unavailable, the source of animals sampled such as market and lot number, and the name and status of the person supplying the animal to the slaughterhouse any extra information, for example, kill numbers, which may help in any subsequent tracing
- the date of collection of the sample
- the date of despatch of the sample
- name and designation of collecting officer; this must be the same as on the tamperproof bag
- carrier consignment reference number
Note: If you make an error when recording any of the above data on the RIM 1 form, or anything is unclear that might need going over again, cross through the entry and enter the correct details, then initial the change. Any necessary amendments must be made before the copies of the RIM 1 form are separated. Do not use correction fluid. The original ‘incorrect’ entry must be legible.

If replacement sampling kit or paperwork is required, email VMD with details of your request to residues@vmd.defra.gsi.gov.uk (copying in operations@fss.scot), stating your requirements.

2.12 Tamperproof bags

2.12.1 Use of tamperproof bags

Tamperproof bags are an important stage in maintaining continuity of evidence, since the detection of residues in a sample may result in an investigation and potential legal proceedings.

2.12.2 Sealing

Tamperproof bags should be sealed:

- remove the blue strip
- press the orange strip down over the glue firmly
- check the bag is sealed properly before labelling
- check the bag has been signed by the sampling officer and witnessed by the FBO representative

Note: The sampling officer must be the same person that signed the RIM 1 form.

Wherever possible this should be done in the presence of the FBO or person responsible for the source of the sample.

2.12.3 How to label tamperproof bags

Labelling must be carried out immediately after each sample is taken. As far as reasonably possible, completion of labelling should be done in the continued presence of the FBO or person responsible for the source of the sample.
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Attach the white bar-coded sample label to the front of the bag in the marked space before putting the sample in the tamperproof bag.  
**Caution:** Ensure that the bar code label is not creased or otherwise damaged whilst sticking it to the bag. |
| 2    | Sign and date in the space provided (must be the same person that signed the RIM 1 form).  
**Note:** Use only ballpoint to write on the bag. |
| 3    | The owner or person responsible should also sign and date the tamperproof bag, confirming that the information recorded on it is correct.  
**Note:** Refusal to sign should be noted on the front of the bag. |
| 4    | Place the sample in the tamperproof bag and seal by removing the blue strip. |
| 5    | Once sealed, the bag must not be opened until the sample has reached the laboratory. |
| 6    | Record the names of all authorised staff involved in collecting samples in the daybook. |

2.13 Storage of samples

2.13.1 Chilling and freezing

Once the sample has been sealed in the tamperproof bag and the bag has been labelled, samples must be kept chilled from the time of collection and during preparation. With the exception of blood collected for serum and plasma analysis, samples should then be hard frozen on the day of collection.

**Note:** If necessary, samples must be kept cool by means of insulated containers containing frozen Freezella packs/ Biotherm dry ice shippers.

Samples must be frozen for a minimum of 48 hours in a lockable freezer. Maintain the samples hard frozen until despatch.

**Note:** The freezer compartment of a domestic refrigerator is not adequate for hard freezing samples.
2.13.2 Freezing of samples prior to despatch

When freezing samples:

- in large chest freezers:
  place samples in the polystyrene box
  leave the lid off the polystyrene box and freeze the whole box containing samples
  OR

- in small freezers:
  leave samples in freezer until ready for despatch, then place in polystyrene box
  To avoid samples defrosting prior to testing do not over fill the box, and send two boxes if necessary.

2.13.3 Storage

With exception of serum and plasma, all prepared samples must be stored prior to despatch:

- in secure, dedicated FSS freezers
- at a temperature between -15°C and -20°C
  Samples must not be allowed to thaw once frozen.

2.14 Packing despatch of samples

2.14.1 Packing samples for despatch

**Note:** These instructions apply to all surveillance samples except serum and plasma.

**Reference:** See topics 2.5 and 2.8 on ‘Collecting blood for serum analysis’ and 2.6 and 2.9 on ‘Collecting blood for plasma analysis’ in part 1 for additional information.

Samples are to be packed for despatch as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Place a frozen Freezella pack / Biotherm dry ice shipper at the base of the polystyrene box.</td>
</tr>
<tr>
<td>2</td>
<td>Place the frozen samples in the box.</td>
</tr>
</tbody>
</table>
3. Place the second Freezella pack / Biotherm dry ice shippers on top of samples.

4. Seal the polystyrene box.

5. Place the top two copies of RIM 1 form on top of the polystyrene lid.

6. Place polystyrene box in cardboard outer carton.

**Note:** To prevent movement, small samples should be wrapped with the Freezella pack / Biotherm dry ice shipper in insulating material before being placed into a polystyrene box.

In periods of hot weather, add an extra Freezella pack / Biotherm dry ice shipper to avoid thawing.

---

**2.14.2 Labelling cardboard outer cartons**

Boxes are to be labelled as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apply the adhesive address label provided by the carrier to the outer carton across the box flaps.</td>
</tr>
<tr>
<td>2</td>
<td>Mark the box with ‘this way up’ to ensure careful handling.</td>
</tr>
</tbody>
</table>

**2.14.3 Despatching samples**

Samples are to be despatched to the laboratory after a minimum of 48 hours hard freezing. **Despatch must be no more than five working days after collection**, including the day of collection, as this can lead to sample deterioration, and delay the on-farm investigation of non-compliant samples that may result.

The online courier despatch process is detailed in Annex 18.

**Note:** Serum and plasma samples from bovine animals not requiring a BSE test must be despatched on the same day as collection.

**Note:** Samples must not be sent on Fridays or on days preceding public holidays.

**2.14.4 Despatch of all residue samples**

FSS officers at slaughterhouses must send all red meat, poultry meat, game meat and suspect samples to:

Residues Statutory Programme
Fera Science Ltd
Room 50G30, Sand Hutton, York, YO41 1LZ
2.14.5 Despatch failure

Should despatch fail, you must make an attempt to rearrange despatch:

- ensure the samples have not thawed
- follow points 1 to 3 in sub-topic 2.14.3 on ‘Despatching samples’ in part 1, explaining the reasons behind the failure

Then telephone VMD (01932 338329) to explain the failure and what follow up action has been taken.

2.14.6 Retention of documents

After completion of each month’s sampling, the completed Summary Worksheet and RIM 1 form should be retained in plant for 1 year.

2.14.7 Complaints procedure

Should Top Speed fail to collect samples within the agreed timeframe, contact the SLA team by emailing operations@fss.scot, which will escalate the failure to Top Speed headquarters.
3. Suspect substances, animals and carcases

3.1 Suspicion of unauthorised substances
3.2 Suspect live animals
3.3 Suspect carcases
3.4 Sampling and despatch procedures for suspect live animals and suspect carcases
3.5 Results: Live animals
3.6 Results: Suspect carcases

3.1 Suspicion of unauthorised substances:

Suspected use of authorised veterinary medicines above the maximum residue limit and contaminants

3.1.1 Sampling of suspect animals

The Directive requires sampling to be undertaken where the OV suspects or has evidence that animals have been treated with unauthorised substances or may contain residues of authorised substances above the MRL.

3.1.2 Procedures

This topic covers the action to be taken when there are grounds to suspect that a carcase or live animal contains:

- prohibited substances
- unauthorised substances
- residues of an authorised substance at concentrations above the maximum residue limit (MRL)
- a contaminant above the threshold level (see annex 20) for signs that would give rise to suspicion)
### Term used | Meaning
--- | ---
**Prohibited substance** | Means any beta-agonist, hormonal or thyrostatic substance, and those specified in Table 2 to Commission Regulation (EU) No 37/2010.

**Unauthorised substance** | Means any substance not included in Table 1 to Commission Regulation (EU) 37/2010.

**Authorised substance** | Means a substance specified in Table 1 to Commission Regulation (EU) No 37/2010.

The following table contains a list of those substances contained in Table 2 of Commission Regulation (EU) 37/2010.

### Annex IV Substances

- *Aristolochia ssp* and preparations thereof
- Chloramphenicol
- Chloroform
- Chlorpromazine
- Colchicine
- Dapsone
- Dimetridazole
- Metronidazole
- Nitrofurans (including Furazolidone)
- Ronidazole

### 3.2 Suspect live animals

#### 3.2.1 Inspection of animals under Regulation 20

Under the Residues Regulations, AOs have the power to detain an animal or group of animals for inspection to ascertain whether they have been treated with an unauthorised substance.

**Regulation:** The Animals and Animal Products (Examinations for Residues and Maximum Limits) (Scotland) Regulations 2015 SI No. 787 Regulation 20.
3.2.2 Suspicion of illegal substances

If the AO suspects that an animal has been illegally treated with an unauthorised substance you must notify the OV immediately of your suspicions.

The OV should serve a *Form E* notice if the FBO or slaughterhouse staff do not co-operate in allowing the inspection to take place.

**Reference:** See Annex 9 for a sample *Form E* notice.

3.2.3 Signs of hormone growth promoters: live animal

The following signs in a live animal may indicate the illegal use of hormone growth promoters:

- secondary sexual characteristics
- crest development
- teat development
- restlessness; animals do not settle in the lairage, mill around
- behavioural changes
- mounting
- aggression
- an even level of finish in a group of cattle of different breed / types

3.2.4 Signs of beta-agonist: live animal

The following signs in a live animal may indicate the illegal use of beta-agonist growth promoters:

- good conformation with little fat
- hyperaesthesia and tachycardia may be present

3.2.5 Result of inspection

If after carrying out the inspection, the OV is satisfied that the animal has not been treated with an unauthorised substance, you should lift the *Form E* notice by serving a *Form F* notice on the owner or person in charge of the live animals.

**Reference:** See Annex 10 for a sample *Form F* notice.

3.2.6 Examination of animals under Regulation 21

If as a result of the inspection referred to above, the OV still suspects that the animal or group of animals may contain an unauthorised substance, a *Form G* notice should be served on the owner of the animal(s) to detain...
them for further examination. This notice will remain in place until the results of the examination, including analysis of samples, are known.

**Reference:** See Annex 11 for a sample **Form G** notice.

The OV should make a detailed examination of the animals, taking account of appropriate H&S practicalities. This must include checking for evidence of implants and other signs which could indicate the use of unauthorised substances.

### 3.2.7 Samples to take

- Where an implant is not found but the OV is suspicious of the illegal use of other prohibited substances, you should take the following samples taking into consideration H&S and practicalities:
  - hormones – take blood and either urine or faeces
  - beta-agonists – take urine

If other unauthorised substances are suspected then advice should be sought from the VMD on 01932 338329 or residues@vmd.defra.gsi.gov.uk on the appropriate samples to be collected.

### 3.2.8 Slaughter of detained animals

Animals must not be held in the lairage for more than 48 hours. As it is unlikely that the results of analysis on the sample will be available, the animal should be slaughtered and the carcase and offal detained under Regulation 34(2).

**Reference:** See topic 3.3 on ‘Suspect carcases’ in part 1 for additional information.
3.2.9 Signs of a suspect substance in live animals

Collect samples

Email Topspeed to arrange collection

Complete Suspect RIM1 form

Email VMD & SLA Unit

Note any particular suspicions

Take 3 copies of RIM1

Generate sample reference number

2 copies to Lab
1 copy to keep

Dispatch sample to Lab

Follow procedure for results (link)
3.3 Suspect carcases

3.3.1 Detention under Regulation 34(2)

The OV has the power under Regulation 34(2) of the Residues Regulations to detain and sample any carcase if they suspect the illegal use of unauthorised substances, or if they suspect that an authorised substance in excess of the MRL may be present in the animal concerned.

The OV must serve Form C on the owner or person in charge of carcase(s). This will remain in force until investigations are completed.

Reference: See Annex 7 for a sample Form C notice.

3.3.2 Signs of authorised substances above the MRL

The following signs may raise concerns that a carcase contains authorised substances, such as veterinary medicines, above the MRL:

- signs of recent illness, particularly:
  - mastitis (signs may be seen prior to removal of udder)
  - lameness/ arthritis
  - pleurisy/ pneumonia
  - poor condition
  - metritis (signs may be seen prior to evisceration or during inspection of the offal)

- emergency slaughter animals

- injection sites, particularly:
  - bruising/ discoloration
  - smell (especially with tetracyclines)
  - swellings

Note: For sites with an oily adjuvant, consider illegal hormone treatment.

3.3.3 Signs of hormone abuse: carcases

The following signs may indicate the illegal use of hormones in a carcase:

- presence of implants or pellets
- injection site
- if detected and an oily adjuvant is present, or when the site is in an unusual place, the possibility of the presence of injectable hormones should be considered
3.3.4 Signs of beta-agonists: carcases

The following signs may indicate the illegal use of beta-agonists in a carcase:

- good conformation with little fat
- flaccidity of the trachea

3.3.5 Evidence of implants

If there is evidence of an implant in the ear, you must detain the carcase and submit the whole ear containing the implant for analysis.

If the implant is discovered in any other part of the carcase, then the surrounding tissue should be excised with the implant and submitted for analysis. Do not attempt to dissect the implant out before despatch.

3.3.6 Types of implant

The table below lists the types of hormonal growth promoter implants which may be found:

<table>
<thead>
<tr>
<th>Name of Product</th>
<th>Type of Implant</th>
<th>Active Ingredients</th>
<th>Withdrawal period</th>
<th>Sex of animal used in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compudose 200</td>
<td>Cylinder</td>
<td>17β-oestradiol 24mg</td>
<td>0</td>
<td>Steers</td>
</tr>
<tr>
<td>Compudose 365</td>
<td>Cylinder</td>
<td>17β-oestradiol 45mg</td>
<td>0</td>
<td>Steers</td>
</tr>
<tr>
<td>Finaplix</td>
<td>15 yellow pellets</td>
<td>Trenbolone 140mg</td>
<td>60 days</td>
<td>All</td>
</tr>
<tr>
<td>Forplix*</td>
<td>No description available</td>
<td>Trenbolone 140mg, Zeranol 36mg</td>
<td>Never licensed in the UK</td>
<td>*</td>
</tr>
<tr>
<td>Implixa BF</td>
<td>10 white pellets</td>
<td>Testosterone 200mg, oestradiol 20mg</td>
<td>90 days</td>
<td>Females</td>
</tr>
<tr>
<td>Implixa BM</td>
<td>10 white pellets</td>
<td>Progesterone 200mg, oestradiol 20mg</td>
<td>90 days</td>
<td>Males</td>
</tr>
<tr>
<td>Ralgro</td>
<td>3 white pellets</td>
<td>Zeranol 36mg</td>
<td>70 days</td>
<td>All</td>
</tr>
<tr>
<td>Name of Product</td>
<td>Type of Implant</td>
<td>Active Ingredients</td>
<td>Withdrawal period</td>
<td>Sex of animal used in</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Revlor</td>
<td>8 yellow pellets</td>
<td>Trenbolone 140mg oestradiol 20mg</td>
<td>60 days</td>
<td>Steers, male and female veal calves</td>
</tr>
<tr>
<td>Synovex C</td>
<td>4 yellow pellets</td>
<td>Progesterone 100mg oestradiol benzoate 10mg</td>
<td>0</td>
<td>Males</td>
</tr>
<tr>
<td>Synovex H</td>
<td>8 white pellets</td>
<td>Testosterone 200mg oestradiol 20mg</td>
<td>0</td>
<td>Females</td>
</tr>
<tr>
<td>Synovex S</td>
<td>8 yellow pellets</td>
<td>Progesterone 200mg oestradiol 20mg</td>
<td>0</td>
<td>Males</td>
</tr>
</tbody>
</table>

### 3.4 Sampling and despatch procedures for suspect live animals and suspect carcases

#### 3.4.1 Sampling equipment

If an animal needs to be tested as a suspect, use the sampling kit provided by VMD for routine requests and replenish by emailing FSS Operations Mailbox Operations@fss.scot

A consolidated order will be sent to VMD each Friday and the kit will be despatched to the specified plant.

#### 3.4.2 Suspect RIM1 form

Complete the RIM 1 form marked ‘SUSPECT’ which is provided at Annex 15. If a particular hormone or substance is suspected note it on the form:

- Take two copies of the completed form:
  - two for despatch to the laboratory
  - one to be retained in the plant file for 12 months from the date of sampling
### 3.4.3 Sample reference number to use

The OV should generate their own sample reference number using the following:

- slaughterhouse approval number
- the last two digits of the year
- a sequential number (approval/year/number)

One sample number per sample sent must be generated.

**Note:** Record the numbers used in the daybook.

### 3.4.4 Reporting suspicious cases

When animals or carcases are detained and sampled under the Residues Regulations, an on-farm investigation may be required. As a result, the OV must inform:

- the VMD via email using the following address: residues@vmd.defra.gsi.gov.uk
- the FSS SLA team via email operations@fss.scot
- The relevant VM for the area

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Detain animal/ carcase for examination.  
**Note:** All samples MUST be collected, prepared and despatched in accordance with the procedures covered previously in this chapter. A suspect sample should be sent on the same day as collection. |
| 2    | Collect samples as detailed in section 2 on ‘Sampling’ of part 1 with the exception of hard freezing. |
| 3    | Arrange collection by Top Speed using the process at Annex 18. |
| 4    | Complete SUSPECT RIM 1 documentation. |
| 5    | Email VMD and operations. They will alert the laboratory and ensure that the sample is analysed as soon as possible after arrival. |
| 6    | Despatch sample to the laboratory – Residues Statutory Programme,  
Fera Science Ltd.  
Room 50G30  
Sand Hutton, York  
YO41 1LZ |
3.4.5 **Samples required**

A list of the types of analyses and the samples required is given in the following table. For advice on the type of sample to collect for authorised substances not listed, you should contact the Veterinary Advisor – FORM a (Residues).

**Example:** For antimicrobial or sulphonamide analysis, a kidney sample should be collected.
<table>
<thead>
<tr>
<th>Analyses</th>
<th>Species</th>
<th>Sample Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimicrobials</td>
<td>Cattle, sheep, pigs, horses, deer</td>
<td>Kidney</td>
</tr>
<tr>
<td>Antimicrobials</td>
<td>Poultry</td>
<td>Muscle</td>
</tr>
<tr>
<td>Table 2**</td>
<td>Cattle, sheep, pigs, deer</td>
<td>Kidney</td>
</tr>
<tr>
<td>Table 2**</td>
<td>Pheasant, partridge, poultry, deer</td>
<td>Muscle</td>
</tr>
<tr>
<td>Sulphonamides</td>
<td>Cattle, sheep, pigs, horses</td>
<td>Kidney</td>
</tr>
<tr>
<td>Sulphonamides</td>
<td>Poultry</td>
<td>Muscle</td>
</tr>
<tr>
<td>Quinolones/fluoroquinolones</td>
<td>Poultry</td>
<td>Muscle</td>
</tr>
<tr>
<td>Tetracyclines</td>
<td>Poultry</td>
<td>Muscle</td>
</tr>
<tr>
<td>Thiamphenicol</td>
<td>Poultry</td>
<td>Muscle</td>
</tr>
<tr>
<td>Altrenogest</td>
<td>Pigs</td>
<td>Kidney fat</td>
</tr>
<tr>
<td>Metals</td>
<td>Cattle, sheep, pigs, horses</td>
<td>Kidney</td>
</tr>
<tr>
<td>Metals</td>
<td>Poultry</td>
<td>Liver</td>
</tr>
<tr>
<td>Metals</td>
<td>Pheasant, partridge, deer</td>
<td>Muscle</td>
</tr>
<tr>
<td>Anti-endoparasitic substances</td>
<td>Cattle, sheep, pigs, poultry, deer</td>
<td>Liver</td>
</tr>
<tr>
<td>Nicarbazin, lasalocid and ionophores</td>
<td>Poultry, deer, Cattle, sheep</td>
<td>Liver</td>
</tr>
<tr>
<td>Sedatives / beta-blockers</td>
<td>Cattle, sheep, pigs, horses</td>
<td>Liver</td>
</tr>
<tr>
<td>NSAIDS</td>
<td>Cattle, sheep, pigs, horses</td>
<td>Kidney</td>
</tr>
<tr>
<td>NSAIDS</td>
<td>Poultry</td>
<td>Liver</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>Poultry</td>
<td>Liver</td>
</tr>
<tr>
<td>Pyrethroids</td>
<td>Cattle, sheep, pigs, poultry, deer</td>
<td>Liver</td>
</tr>
<tr>
<td>Carbamates</td>
<td>Poultry, deer</td>
<td>Liver</td>
</tr>
<tr>
<td>Beta-agonists</td>
<td>Cattle, sheep, pigs, poultry, deer</td>
<td>Liver</td>
</tr>
<tr>
<td>Synthetic hormones</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Synthetic hormones</td>
<td>Poultry</td>
<td>Liver</td>
</tr>
</tbody>
</table>
### Samples from carcases

<table>
<thead>
<tr>
<th>Analyses</th>
<th>Species</th>
<th>Sample Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thyrostats</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Thyrostats</td>
<td>Poultry</td>
<td>Liver</td>
</tr>
<tr>
<td>OCs, PCBs and OPs</td>
<td>Cattle, sheep, pigs</td>
<td>Kidney fat</td>
</tr>
<tr>
<td>OCs, PCBs and OPs</td>
<td>Poultry, deer</td>
<td>Liver</td>
</tr>
<tr>
<td>Dexamethazone/β-methazone</td>
<td>Pigs</td>
<td>Liver</td>
</tr>
<tr>
<td>Carbadox</td>
<td>Pigs</td>
<td>Kidney</td>
</tr>
<tr>
<td>Gestagens</td>
<td>Cattle, sheep, pigs</td>
<td>Kidney fat</td>
</tr>
<tr>
<td>Natural hormones</td>
<td>Cattle</td>
<td>Serum</td>
</tr>
<tr>
<td>Natural hormones</td>
<td>Poultry</td>
<td>Liver</td>
</tr>
<tr>
<td>Methyl-testosterone</td>
<td>Pigs, sheep</td>
<td>Urine</td>
</tr>
<tr>
<td>Nortestosterone</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Synthetic hormones</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Zeranol</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Nortestosterone</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Natural hormones</td>
<td>Cattle, sheep, pigs</td>
<td>Serum</td>
</tr>
<tr>
<td>Thyrostats</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Beta-agonists</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
<tr>
<td>Gestagenic substances</td>
<td>Cattle, sheep, pigs</td>
<td>Urine</td>
</tr>
</tbody>
</table>

### 3.5 Results: live animals

#### 3.5.1 Notification of results

The VMD will inform the OV by telephone of the results or via email as soon as they are available, followed by written confirmation.

**Reference:** See Annex 12 for a sample **Form H** notice.
3.5.2 Non-compliant results
In the event of non-compliant results, further action depends on the type of substance found; the VMD will issue specific instructions for each case.

3.5.3 Prohibited substances found
If prohibited substances are found the VMD will request that the OV serve a Form I notice on the owner or person in charge of the animal(s). This notice gives conditions and the time within which the animal(s) must be disposed of as a Category 1 Animal By-Product.

Reference: See Annex 13 for a sample Form I notice.

3.5.4 Failure to comply
If the owner or person in charge of the animal(s) fails to comply with Form I you should serve a Form J notice and make arrangements for the disposal of the animal(s). The costs of such action will be recovered from the owner or person in charge of the animals.

Reference: See Annex 14 for a sample Form J notice.

3.5.5 Investigation
The detection of residues of unauthorised substances will be immediately investigated.

3.6 Results: Suspect carcases
3.6.1 Results
The OV will be notified by telephone as soon as the result is available or via email, followed by written confirmation.

3.6.2 OV action on receipt of non-compliant results
If the results are positive, the OV who was responsible for sending the sample(s) will be sent Form A and Form B and a copy of the original RIM 1 form by the laboratory.

Reference: See Annex 5 on ‘Form A’ and Annex 6 on ‘Form B’ for samples. The OV is to:

- give the forms to the owner or person in charge of the carcase
- declare the meat unfit for human consumption
- request voluntary surrender of the carcase
If the FBO refuses to surrender the carcase, you must put in writing the reason why the meat is being formally declared as unfit for human consumption in accordance with Regulation (EC) 854/2004, Annex I, Section II, Chapter V, Paragraph 1(i) or (j).

**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 in chapter 2.8 on ‘Animal by-products’.

**Reference:** See chapter 7 on ‘Enforcement’ for additional information.

**Caution:** If the result is non-compliant (for an authorised substance above legal limits, or a presence of unauthorised substance), the OV will be contacted by the VMD and given further specific instructions.

The limits can be found in the COMMISSION REGULATION (EU) No 37/2010:


### 3.6.3 Compliant results

If the result is compliant, complete Form D and release the carcase for processing.

**Reference:** See Annex 8 for a sample Form D.

### 3.6.4 Follow-up investigation

A follow-up investigation will be carried out and may also be considered for further action.
Results non-compliant?

**NO**

- Complete FORM D
- Carcase released for processing

**YES**

- Lab sends FORM A and B and RIM 1
- Investigation by Defra

- OV gives forms to owner or person in charge
- Declare the meat unfit for human consumption
- Animal/ carcase rejected for HC disposed of as ABP
Part 2 Antimicrobial Resistance (AMR) Monitoring Programme

Section 1 Overview
Section 2 Sampling
1. Overview

1.1 Introduction

1.2 Legislation

1.3 FSS role

1.4 Minimising the risk of sample contamination

1.1 Introduction

1.1.1 Survey overview

The Veterinary Medicines Directorate (VMD) is funding a surveillance programme to monitor antimicrobial resistance (AMR) in *Campylobacter jejuni* and commensal *Escherichia coli* isolated from fattening turkeys and fattening pigs at slaughter.

1.1.2 Co-ordination and collection

VMD is responsible for the co-ordination and management of this GB monitoring project.

The AMR surveillance programme is funded by the Veterinary Medicines Directorate, and managed by the Antimicrobial Resistance Team:

Email: k.healey@vmd.defra.gsi.gov.uk

The contractors for the monitoring programme are the Animal and Plant Health Agency (APHA). APHA will be responsible for the testing of samples submitted and determining the total number of samples required from selected abattoirs. APHA will send sampling schedules and kits to participating establishments.

FSS OV s will undertake the collection of samples from approved slaughterhouses participating in the monitoring programme.

The survey requires the collection of samples from 345 different slaughtered batches/ producers for each species.

Samples will be collected on the following annual basis:
1.2 Legislation

1.2.1 Applicable legislation

The sampling programme is designed to meet new EU requirements on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria as outlined in Commission Decision 2013/652/EU.

The Commission Decision requires the monitoring and reporting of AMR in zoonotic and commensal indicator organisms, isolated from pig, and turkey caecal samples at slaughter, on a biennial basis for each species.

1.3 FSS role

1.3.1 Target population

Fattening turkeys and fattening pigs.

1.3.2 OV requirements

The OV must:

- ensure continuity of evidence when samples are collected, prepared, labelled, stored and despatched, and
- always obtain evidence for the origin of the samples collected
- ensure the data collection forms, AMR1 (for Turkeys) and AMR2 (for Pigs) is fully completed, and two copies are taken (see Annex 16 and 17 for examples of the forms)
- ensure one copy of the AMR form is sent with the samples, while the other copy is retained
1.3.3 Relevant establishments
These instructions apply to FSS staff at plants participating in the *Campylobacter* and *E.coli* in turkeys and pigs surveillance programme.

1.3.4 Time coding
All work undertaken as part of this survey in the collection, storage, packaging and despatch of samples is to be coded in the FSS IT system as:

**Activity = Corporate**  
**Sub Activity = VMD.**

1.4 Minimising the risk of sample contamination

1.4.1 Caeca sample contamination
The main objective is to collect the caeca whilst minimising any external contamination.

For turkey samples, 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.

One pair of caeca should be taken per turkey and put into a labelled honey jar. Each honey jar should then be sealed securely and placed into a small pathoseal absorbent bag (one pot per bag).

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

For pig samples, this is best achieved by careful piercing of the caecum so that caecal contents can be collected in the sampling pots (honey jars).

Caecal content should be collected per fattening pig and put into a labelled honey jar. Each honey jar should then be sealed securely and placed into a small pathoseal absorbent bag.

**Note:** Caeca from different fattening pigs should not be placed in the same pot.
2. **Sampling**

2.1 **Sampling programme**

2.2 **Sampling equipment**

2.3 **Turkeys: collecting samples**

2.4 **Pigs: Collecting samples**

2.5 **Completing the AMR form**

2.6 **Storage, packing and despatch of samples**

### 2.1 Sampling programme

#### 2.1.1 Sampling requests

FSS OVs in plants will receive a sampling schedule prepared by APHA, from the SLA Team, which will list the number of batches that need to be sampled during the sampling period (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.

Please note that 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 turkeys)
- the sequence of slaughtered animals (for pigs)

For example, ID batch 2 would be the second batch of turkeys slaughtered on the given sampling day or the second pig killed on the slaughter line on the given sampling day.

#### 2.1.2 Monitoring definitions

A ‘slaughter batch’ is defined as, a quantity of turkeys which have been raised on the same farm premises, in the same house, and delivered to the abattoir in the same vehicle.
Pig Kill Number is the actual pig kill number of the sampled pig at the start of the slaughter line on that particular day of sampling.

2.1.3 Exclusion criteria

Slaughter batches/loads from more than one house or from more than one farm (mixed batches) are to be excluded from the monitoring programme.

2.1.4 Selection of slaughter batches

To avoid bias, slaughter batches must be randomly selected for sampling.

When collecting turkey samples, 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 of turkeys 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, AMR1. Example:

<table>
<thead>
<tr>
<th>Allocated sampling days</th>
<th>ID of batch to sample</th>
<th>ID batch (1\textsuperscript{st} reserve)</th>
<th>ID batch (2\textsuperscript{nd} reserve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/11/12</td>
<td>5</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>13/11/12</td>
<td>2</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>13/11/12</td>
<td>3</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>05/12/12</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

When collecting pig samples, if the selected animal on the schedule is from a mixed batch/load or from more than one farm, select a pig from a single producer and sample. The ID (kill number) of the pig sampled should be marked clearly on the data collection form AMR2.

Sampling for the surveillance programme will only be carried out Monday to Thursday. If you do not slaughter turkeys or pigs on the specified sampling day, please sample the same ID batch number allocated but on the next processing day.

The revised sampling date and the ID of the batch sampled should be marked clearly on the data collection forms, AMR1 or AMR2.

Reference: See Annex 16 for a sample copy of form AMR1 and Annex 17 for a sample copy of form AMR2.
Note: If you cannot despatch the samples on the same day as collection, or if you have any questions on the sampling schedule, contact the SLA Team.

2.1.5 Selection process

The following table outlines the slaughter batch selection process:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If the batch identified for sampling is not eligible (it is not from a single house or cannot be sampled, sample the 1st reserve batch for turkeys or select a suitable animal to sample from for pigs.</td>
</tr>
<tr>
<td>2</td>
<td>If the 1st reserve batch is not eligible or cannot be sampled, sample the 2nd reserve batch (Note: for turkey sampling only).</td>
</tr>
<tr>
<td>3</td>
<td>If the 2nd reserve batch is not eligible or cannot be sampled, sample the next available eligible batch on the same processing day (Note: for turkeys only).</td>
</tr>
<tr>
<td>4</td>
<td>Mark the sampled ID batch number on the AMR1 or AMR2 form</td>
</tr>
<tr>
<td>5</td>
<td>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 AMR1 or AMR2 form).</td>
</tr>
</tbody>
</table>

2.2 Sampling equipment

2.2.1 Introduction

PHA will provide the relevant establishments with sampling kits and the data collection forms (AMR1 or AMR2). The SLA Team will contact FSS staff at the establishments to inform them of delivery arrangements for sampling kits.

2.2.2 Non-delivery of sample kits

Sampling kits and forms should be received at least four days before sampling begins. If you do not receive the kit and form, or if any of the equipment listed below is missing, contact the SLA Team.

2.2.3 Sampling kit contents

Turkey kit: for sampling 1 caeca per slaughter batch:

- 1 x Biotherm shipping box
- 3-4 sample pots/ honey jars
A4 Pathoseal absorbent bags for sample pots/ honey jars
sterile gloves
grip-seal bags
AMR1 form
bubble wrap
Biochills
polystyrene spacer
security seal
UN3373 label

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

**Pig kit:** for sampling 1 caeca per fattening pig:

1 x Biotherm shipping box
1 x honey jars
disposable scalpel
A4 Pathoseal absorbent bag (with absorbent lining)
sterile gloves
grip-seal bags
AMR2 form
bubble wrap
4x Biochills
security seal
UN3373 label

**Note:** Only 2 Biochill packs must be completely frozen when packed in the sampling box, ensuring they are placed at the top of the sampling box. The Biochills must be placed in a freezer at least 48 hours before sampling. The remaining two Biochill packs must be chilled and placed either side of the sample within the box.
2.3 Turkey: Collecting samples

2.3.1 Caeca samples

1 pair of full and intact caeca will be sampled at the evisceration point from one bird per slaughter batch. The pair of caeca will be put into a honey jar.

Turkey 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.

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.

2.3.2 Sample handling

Samples must:

- be packaged according to the instructions in this topic
- be despatched, on the same day of collection (where possible)
- arrive at APHA Weybridge within 48 hours of sampling

Reference: See topic 2.6 on ‘Storage, packaging and despatch of samples’ in part 2 for additional information.

Caution:

- Samples must be kept in a cool dark place until collected by Top Speed.
- Samples must not be frozen.
- Keep box out of direct sunlight.
- Despatch Monday to Thursday only.

2.4 Pig: Collecting samples

2.4.1 Caeca samples

5g’s of caecal content will be sampled at the green offal inspection point from one fattening pig. The caeca will be put into a honey jar.

Pig sampling is to be carried out at the Green Offal Inspection Point. Pigs are to be sampled from the selected kill number identified at the evisceration point. Depending on the facilities available in each establishment, the caeca
taken from each pig can be separated from the eviscerated intestines either at the inspection point on the slaughter line, or alternatively the whole offal can be removed and carried in a tray or similar receptacle to separate area before removing the caeca.

**Note:** It is important that 5g of caeca are collected.

### 2.4.2 Sample handling

Samples must:

- be packaged according to the instructions in this topic
- be despatched, on the same day of collection (where possible)
- arrive at APHA Weybridge within 48 hours of sampling

**Reference:** See topic 2.6 on ‘Storage, packaging and despatch of samples’ in part 2 for additional information.

**Caution:**

- Samples must be kept in a cool dark place until collected by Top Speed.
- Samples must not be frozen.
- Keep box out of direct sunlight.
- Despatch Monday to Thursday only.

### 2.5 Completing the AMR forms

#### 2.5.1 Details to record

The following details must be fully recorded on the AMR1 and 2 forms:

- abattoir details
- sampling details including the name of the sampler and the date and time of collection
- confirmation of the type of animal slaughtered, for example, fattening turkey or fattening pig

On the AMR1 form, the following details must also be fully recorded:

- producer details, for example, farm name, address, CPH number
- batch details including the number of birds in the batch slaughtered, the number of birds in the house, the shed/ house number, age of the birds and the average weight of the birds

On the AMR2 form, the following details must also be fully recorded:
• producer details, for example, farm name, address, CPH number
• animal details including the slapmark number and the weight of the carcase

Note: If you make an error when recording any of the above data on the AMR form, or anything is unclear that might need going over again, cross through the entry and enter the correct details then initial the change. Any necessary amendments must be made before the copies of the AMR form despatch with the sample.

2.6 Storage, packaging and despatch of samples

2.6.1 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 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.

2.6.2 Specimen collection and handling

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.

2.6.3 Packing

Packing in line with the following procedures:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure that the APHA reference number at the top of the data collection form AMR1 / AMR2 matches the number on the sample honey jar.</td>
</tr>
<tr>
<td>2</td>
<td>Place polystyrene spacer on top of the samples (for turkey samples only).</td>
</tr>
<tr>
<td>3</td>
<td>Biochills packs should be removed from the freezer and placed on top of the polystyrene divider (for turkey sampling) or 2 chilled Biochill packs placed either side of the samples (top and bottom) and then two frozen Biochill packs on the top of these (for pig samples). All frozen Biochill packs provided in the sampling kit should be used. Care must be taken not to place these in direct...</td>
</tr>
</tbody>
</table>
contact with the specimen pots (honey jars).

4 Slide the completed form into the plastic document pouch to protect from any leakages that may occur and place into the sampling kit.

5 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.

2.6.4 Labelling cardboard outer cartons
Apply the adhesive address label provided by the carrier to the outer carton across the box flaps.

2.6.5 Despatching samples
Samples are to be despatched to APHA using the Top Speed next day service:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arrange collection by Top Speed using the process at Annex 18</td>
</tr>
</tbody>
</table>
| 2    | Provide Top Speed with the following information:  
|      | - 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 in the plant day book. Top Speed to collect as arranged |

2.6.6 Despatch of all samples
Samples are to be sent to:

Luke Randall / Fabrizio Lemma  
Bacteriology  
Building 17  
APHA  
Woodham Lane  
New Haw  
Addlestone  
Surrey  
KT15 3NB
2.6.7 Despatch failure

Should despatch fail, you must contact Top Speed and make an attempt to rearrange despatch, and notify APHA Weybridge by email to advise them of the despatch failure: amrsurvey@pha.gsi.gov.uk.

2.6.8 Complaints procedure

Should Top Speed fail to collect samples within the agreed timeframe, contact the operations team (using the email address operations@fss.scot) who will escalate the failure to Top Speed headquarters.
Part 3 Annexes

Annex 1 Specimen OV letter
Annex 2 RIM 1 form
Annex 3 How to complete a RIM 1 form
Annex 4 How to complete a tamperproof bag
Annex 5 Form A: Primary Analysis Certificate
Annex 6 Form B: Reference Analysis Certificate
Annex 7 Form C: Notice
Annex 8 Form D: Notice
Annex 9 Form E: Notice
Annex 10 Form F: Notice
Annex 11 Form G: Notice
Annex 12 Form H: Notice
Annex 13 Form I: Notice
Annex 14 Form J: Notice
Annex 15 RIM 1 Suspect form
Annex 16 AMR 1
Annex 17 AMR 2
Annex 18 Despatch process
Annex 19 VMD Residues Sample Collection
Annex 20 Data for Statutory Planning Purpose