# Residues of Veterinary Medicines in Food

# 2012 Surveillance Results

ASSURING THE SAFETY, QUALITY AND EFFICACY
OF VETERINARY MEDICINES

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# Introduction

**This document brings together the results of surveillance for residues of veterinary medicines in food undertaken in the UK in 2012.**

All European Member States have a responsibility to monitor the use of veterinary medicines in their food-producing animals, to ensure that produce from these animals does not contain residues that could be harmful to consumers.

In the England, Scotland and Wales there is a Statutory Surveillance Programme delivered by the Veterinary Medicines Directorate (VMD), an agency of the Department for the Environment, Food and Rural Affairs (Defra). A similar programme is operated in Northern Ireland by the Agri-Food & Biosciences Institute.

The VMD also operates a small-scale non-statutory (not enforced by law) surveillance programme looking for residues of veterinary medicines and prohibited substances in imported foods.

Both these programmes are overseen by an independent Scientific Advisory Committee, the Veterinary Residues Committee (VRC) which advises Defra and the Food Standards Agency (FSA). For more information on the work of the VRC and the residues surveillance programmes please visit the VRC's website: www.vmd.defra.gov/vrc

# The Statutory Surveillance Programme – UK Produce

## Legislation

Council Directive 96/23/EC on measures to monitor certain substances and residues thereof in live animals and animal products establishes that Member States should draft a national residue monitoring plan for the groups of substances detailed in Annex I (set out below). These plans must comply with the sampling rules in Annex IV to the Directive.

Directive 96/23/EC establishes the frequencies and level of sampling and the groups of substances to be controlled for each food commodity. Commission Decision 97/747/EC provides further rules for certain animal products: milk, eggs, honey, rabbits and game meat. Commission Decision 98/179/EC of 23 February 1998 lays down detailed rules for official sampling procedures and official treatment of samples until they reach the laboratory responsible for analysis.

The Commission Decision 2005/34/EC of 11 January 2005 sets harmonized standards for the testing of certain residues in products of animal origin imported from third countries by using MRPLs (Minimum required performance limits) as action limits.

Commission Decision 2002/657 lays down rules for the analytical methods to be used in the testing of official samples taken pursuant to article 15(1), second sentence, of Directive 96/23/EC and specifies common criteria for the interpretation of analytical results of official control laboratories for such samples.

## Substance groups included in the statutory surveillance programme

The following substances are listed in Annex I to Directive 1996/23/EC and these form the basis of the statutory surveillance programme:

**GROUP A - Substances having anabolic effect and unauthorized substances**

(1) Stilbenes, stilbene derivatives, and their salts and esters

(2) Antithyroid agents

(3) Steroids

(4) Resorcylic acid lactones including zeranol

(5) Beta-agonists

(6) Compounds included in Table 2 (prohibited substances) of Regulation 470/2009

**GROUP B - Veterinary drugs[1] and contaminants**

(1) Antibacterial substances, including sulphonomides, quinolones

(2) Other veterinary drugs

- (a) Anthelmintics
- (b) Anticoccidials, including nitroimidazoles
- (c) Carbamates and pyrethroids
- (d) Sedatives
- (e) Non-steroidal anti-inflammatory drugs (NSAIDs)
- (f) Other pharmacologically active substances

(3) Other substances and environmental contaminants

(a) Organochlorine compounds including PcBs

(b) Organophosphorus compounds

(d) Chemical elements

(d) Mycotoxins

(e) Dyes

(f) Others

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[1] *Including unlicensed substances which could be used for veterinary purposes.*

## Section A: Non-compliances
## Details of residues found at or above the Reference Point in 2012

| Sample | Analysed for | Number of samples | Reference point | Samples at or above reference Point[1] | |
|---|---|---|---|---|---|
| | | | | Number found | Concentration |
| Eggs | **Coccidiostats**<br>Diclazuril | 415 | 3.1 (CC a)<br>150 µg/kg (MRL) | 3 | 1.2, 4.3 µg/kg |
| | Lasalocid | | | | 200 µg/kg |
| Salmon Muscle | **Avermectins**<br>Emamectin | 96 | 100 µg/kg (MRL) | 2 | 130, 150 µg/kg |
| Trout Muscle | **Pesticides**<br>PCBs[2] 138 & 153 | 6 | 2 µg/kg (National Level) | 1 | 5.7 µg/kg |
| Salmon Muscle | | 7 | | 1 | 5.1 µg/kg |
| Honey | **Tetracyclines**<br>Oxytetracycline | 25 | 3.9 µg/kg (CC a) | 2 | 1200, 2000 µg/kg |
| Milk | **Anthelmintic**s<br>Triclabendazole sulphone | 438 | Presence | 2 | 20, 32 µg/kg |
| | **NSAIDs**<br>Ibuprofen | 174 | 6.4 µg/kg (CC a) | 1 | 14 µg/kg |
| Calves Kidney | **Antimicrobials**<br>Dihydrostreptomycin | 96 | 1000 µg/kg MRL | 2 | 1200, 11000 µg/kg |
| | Florfenicol | 100 | 300 µg/kg MRL | 4 | 1200, 2500, 3000, 6800 µg/kg |
| | Gamithromycin | 97 | 100 µg/kg (MRL) | 1 | 12000 µg/kg |
| | Sulphamethazine | | 100 µg/kg (MRL) | 1 | 5900 µg/kg |
| Cattle Kidney | **Metals**<br>Cadmium | 77 | 1000 µg/kg MRL | 13 | 1000, 1100, 1168, 1200, 1300, 1309, 1400, 1500, 1543, 1700, 1700, 2300, 4200 |
| | Lead | | 500 µg/kg MRL | 1 | 580 µg/kg |
| Cattle Kidney | **NSAIDS**<br>Ibuprofen | 564 | 4.9 µg/kg (CC a) | 1 | 17 µg/kg |
| Cattle Kidney | **Antimicrobials**<br>Dihydrostreptomycin | 141 | 1000 µg/kg MRL | 1 | 6400 µg/kg |
| Cattle Plasma | **NSAIDS**<br>Phenylbutazone | 209 | 0.11 µ/kg (CC a) | 1 | 0.5 µg/kg |
| Cattle Liver | **Anthelmintics**<br>Amino Flubendazole | 596 | 1.4 µg/kg (Cc a) | 1 | 2.1 µg/kg |
| Cattle Urine | **Steroid Screen**<br>Alpha-Nortestosterone | 1572 | 0.7 µg/kg (National Level) | 7 | 0.5, 0.8, 5.1, 7.4, 7.9, 8.9, 11 µg/kg |
| | Alpha-Boldenone | | 0.20 µg/kg (CC a) | 1 | 3.8 µg/kg |
| Cattle Urine | **Zeranol** | 226 | 0.26 µg/kg (CC a) | 5 | 2.4, 2.44, 2.7, 6.1, 18.3, g/kg |

[1] Samples may include more than one substance above the reference point.
[2] **PCBs** - polychlorinated biphenyls

| | | | | | |
|---|---|---|---|---|---|
| Cattle Urine | **Thyrostats** Thouracil | 173 | 3 µg/kg (CC a) | 1 | 12 µg/kg |
| Fattening Cattle Urine | **Steroid screen** Alpha-boldenone | 1675 | 0.20 µg/kg (CC a) | 5 | 2.4, 3.5, 3.8, 4.5, 6.9 µg/kg |
| | Alpha-Nortestosterone | | 0.7 µg/kg (National Level) | 6 | 5.4, 5.7, 5.7, 7.2, 8, 14 µg/kg |
| Fattening Cattle Urine | **Zeranol** | 178 | 0.26 µg/kg (CC a) | 5 | 2.9, 3.2, 3.3, 3.6, 31 µg/kg |
| Fattening Cattle Urine | **Thyrostats** Thouracil | 269 | 3 µg/kg (CC a) | 5 | 19.4, 23.4, 25, 34, 40 µg/kg |
| Fattening Cattle Serum (Female) | **Testosterone** | 323 | 0.19 µg/kg (CC a) | 2 | 0.55, 2.8 µg/kg |
| Sheep Kidney | **Metals** Lead | 53 | 500 µg/kg (MRL) | 2 | 510, 650 µg/kg |
| Sheep Kidney | **Antimicrobials** Dihydrostreptomycin | 121 | 1000 µg/kg (MRL) | 1 | 12000 µg/kg |
| Sheep Kidney Fat | **Pesticides** Diazinon | 582 | 700 µg/kg (MRL ) | 2 | 1000, 1100 µg/kg |
| Sheep Liver | **Anthelmintics** Oxfendazole & Fenbendazole | 1116 | 500 µg/kg (MRL) | 1 | 1370 µg/kg |
| | Closantel | | 1500 µg/kg (MRL) | 1 | 1882 µg/kg |
| | Nitroxynil | | 23.3 µg/kg (CC a) | 1 | 37.6 µg/kg |
| | Levamisol | | 100 µg/kg (MRL) | 1 | 290 µg/kg |
| | Triclabendazole | | 250 µg/kg (MRL) | 1 | 712 µg/kg |
| Sheep Urine | **Steroid Screen** Alpha-Boldenone | 573 | 0.35 µg/kg (CC a) | 17 | 2, 2.1, 2.2, 2.4, 2.4, 2.4, 2.6, 2.7, 3, 3.1, 3.9, 4.1, 4.3, 4.8, 6.7, 8.7, 11 µg/kg |
| Horse Kidney | **NSAIDS** Phenylbutazone | 92 | 0.72 µg/kg (CC a) | 5 | 4.9, 8.2, 12, 49, 1200 µg/kg |
| | Ibuprofen | | 1.64 µg/kg (CC a) | 1 | 8.6 µg/kg |
| | **Metals** Cadmium | 2 | 1000 µg/kg (MRL) | 2 | 6100, 31000 µg/kg |
| Pigs Liver | **Coccidiostats** Lasalocid | 97 | 50 µg/kg (MRL) | 1 | 230 µg/kg |
| | **Mycotoxins** Ochratoxin A | 59 | Presence | 1 | 3.5 µg/kg |
| Breeding Boar Liver | **Sedatives** Azaperone & Azaperol | 85 | 100 µg/kg (National level) | 1 | 158 µg/kg |
| Farm Game Partridge Muscle | **Coccidiostats** Lasalocid | 6 | | 1 | 600 µg/kg |
| Quail Muscle | | 4 | 5 µg/kg (MRL) | 1 | 29 µg/kg |

| | | | | | |
|---|---|---|---|---|---|
| Deer Kidney Fat | **Pesticides** DDE-pp | 7 | Presence | 1 | 1300 µg/kg |

## Section B: Full details of statutory residues surveillance programme for 2012 by sector

### EGGS

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A6 Annex IV** | | | | | |
| Chloramphenicol | Barn | Eggs | 8 | | |
| | Caged | Eggs | 16 | | |
| | Free Range | Eggs | 111 | | |
| | Organic | Eggs | 11 | | |
| Nitrofurans | Barn | Eggs | 11 | | |
| | Caged | Eggs | 13 | | |
| | Free Range | Eggs | 114 | | |
| | Organic | Eggs | 10 | | |
| Nitroimidazoles | Barn | Eggs | 11 | | |
| | Caged | Eggs | 14 | | |
| | Free Range | Eggs | 116 | | |
| | Organic | Eggs | 10 | | |
| **B1 Antimicrobial** | | | | | |
| AMS1 | Barn | Eggs | 7 | | |
| | Caged | Eggs | 13 | | |
| | Free Range | Eggs | 148 | | |
| | Organic | Eggs | 8 | | |
| AMS2 | Barn | Eggs | 7 | | |
| | Caged | Eggs | 10 | | |
| | Free Range | Eggs | 87 | | |
| | Organic | Eggs | 7 | | |
| AMS3 | Barn | Eggs | 16 | | |
| | Caged | Eggs | 20 | | |
| | Free Range | Eggs | 145 | | |
| | Organic | Eggs | 16 | | |
| **B2B Coccidiostats** | | | | | |
| Coccidiostats | Barn | Eggs | 38 | | |
| | Caged | Eggs | 54 | | |
| | Free Range | Eggs | 415 | 3 | Diclazuril: 1.2, 4.3<br>Lasalocid: 200 µg/kg |
| | Organic | Eggs | 40 | | |
| | | | | | |
| **B3A Pesticide Screen** | | | | | |
| | Barn | Eggs | 6 | | |
| | Caged | Eggs | 7 | | |
| | Free Range | Eggs | 43 | | |
| | Organic | Eggs | 4 | | |

### FISH

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A3 Hormones** | | | | | |
| Methyltestosterone | Trout | Muscle & Skin | 11 | | |
| **A6 Annex IV** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Chloramphenicol | Salmon | Muscle & Skin | 217 | | |
| | Trout | Muscle & Skin | 17 | | |
| Nitrofurans | Bass | Muscle & Skin | 1 | | |
| | Salmon | Muscle & Skin | 107 | | |
| | Trout | Muscle & Skin | 13 | | |
| Nitroimidazoles | Bass | Muscle & Skin | 1 | | |
| | Salmon | Muscle & Skin | 188 | | |
| | Trout | Muscle & Skin | 14 | | |
| **B1 Antimicrobial** | | | | | |
| AMS1 | Salmon | Muscle & Skin | 88 | | |
| | Trout | Muscle & Skin | 9 | | |
| AMS2 | Salmon | Muscle & Skin | 10 | | |
| AMS3 | Salmon | Muscle & Skin | 213 | | |
| | Trout | Muscle & Skin | 9 | | |
| Florfenicol | Salmon | Muscle & Skin | 99 | | |
| **B2A Anthelmintics** | | | | | |
| Anthelmintics | Salmon | Muscle & Skin | 111 | | |
| | Trout | Muscle & Skin | 10 | | |
| Avermectins | Salmon | Muscle & Skin | 96 | 2 | Emamectin: 130, 150 µg/kg |
| | Trout | Muscle & Skin | 11 | | |
| **B2C Pesticide Screen** | | | | | |
| Pyrethroids | Salmon | Muscle & Skin | 134 | | |
| **B3A Pesticide Screen** | | | | | |
| | Salmon | Muscle & Skin | 7 | 1 | PCB 138 & 153: 5.1 µg/kg |
| | Trout | Muscle & Skin | 6 | 1 | PCB 138 & 153: 5.7 µg/kg |
| **B3B Pesticide Screen** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| OPs | Salmon | Muscle & Skin | 38 | | |
| **B3C Heavy Metals** | | | | | |
| Metals | Salmon | Muscle & Skin | 24 | | |
| | Trout | Muscle & Skin | 5 | | |
| **B3D Mycotoxins** | | | | | |
| Mycotoxins | Salmon | Muscle & Skin | 6 | | |
| | Trout | Muscle & Skin | 6 | | |
| **B3E Dyes** | | | | | |
| Dyes | Bass | Muscle & Skin | 1 | | |
| | Salmon | Muscle & Skin | 151 | | |
| | Tilapia | Muscle & Skin | 1 | | |
| | Trout | Muscle & Skin | 110 | | |

**HONEY**

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A6 Annex IV** | | | | | |
| Chloramphenicol | Bees | Honey | 10 | | |
| Nitrofurans | Bees | Honey | 10 | | |
| **B1 Antimicrobial** | | | | | |
| AMS1 | Bees | Honey | 25 | | |
| AMS3 | Bees | Honey | 25 | 2 | Oxytetracycline: 1200, 2000 µg/kg |
| AMS4 | Bees | Honey | 25 | | |
| AMS5 | Bees | Honey | 26 | | |
| **B2C Pesticide Screen** | | | | | |
| Pyrethroids | Bees | Honey | 12 | | |
| **B3A Pesticide Screen** | | | | | |
| | Bees | Honey | 10 | | |
| | Bees | Honey | 10 | | |
| **B3B Pesticide Screen** | | | | | |
| OPs | Bees | Honey | 10 | | |
| **B3C Heavy Metals** | | | | | |
| Metals | Bees | Honey | 12 | | |

**MILK**

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A6 Annex IV** | | | | | |
| Chloramphenicol | Cattle | Milk | 643 | | |

| | | | | | |
|---|---|---|---|---|---|
| | Goats | Milk | 42 | | |
| **B1 Antimicrobial** | | | | | |
| Antimicrobial Screen 1 | Cattle | Milk | 663 | | |
| | Goats | Milk | 22 | | |
| Antimicrobial Screen 2 | Cattle | Milk | 240 | | |
| | Goats | Milk | 17 | | |
| Antimicrobial Screen 3 | Cattle | Milk | 193 | | |
| | Goats | Milk | 20 | | |
| Antimicrobial Screen 4 | Cattle | Milk | 163 | | |
| | Goats | Milk | 16 | | |
| Cefquinome | Cattle | Milk | 220 | | |
| | Goats | Milk | 21 | | |
| Ceftiofur | Cattle | Milk | 84 | | |
| | Goats | Milk | 19 | | |
| **B2A Anthelmintics** | | | | | |
| Anthelmintics | Cattle | Milk | 438 | 2 | Triclabendazole sulphone: 20, 32 µg/kg |
| | Goats | Milk | 11 | | |
| Avermectins | Cattle | Milk | 392 | | |
| | Goats | Milk | 19 | | |
| **B2E NSAIDs** | | | | | |
| | Cattle | Milk | 174 | 1 | Ibuprofen: 14 µg/kg |
| | Goats | Milk | 13 | | |
| **B3A Pesticide Screen** | | | | | |
| | Cattle | Milk | 47 | | |
| | Goats | Milk | 5 | | |
| **B3B Pesticide Screen** | | | | | |
| OPs | Cattle | Milk | 35 | | |
| | Goats | Milk | 2 | | |
| **B3C Heavy Metals** | | | | | |
| Metals | Cattle | Milk | 26 | | |
| | Goats | Milk | 2 | | |
| **B3D Mycotoxins** | | | | | |
| Mycotoxins | Cattle | Milk | 28 | | |
| | Goats | Milk | 2 | | |

**POULTRY**

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A1 Stilbenes** | | | | | |
| | Broilers | Liver | 16 | | |
| | Turkeys | Liver | 1 | | |
| **A3 Hormones** | | | | | |
| Steroid screen 2 | Broilers | Liver | 503 | | |
| | Ducks | Liver | 14 | | |
| | Hens | Liver | 31 | | |
| | Turkeys | Liver | 54 | | |
| **A4 Zeranol** | | | | | |
| | Broilers | Liver | 23 | | |
| | Turkeys | Liver | 1 | | |
| **A5 Beta-Agonists** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Broilers | Feed | 148 | | |
| | Ducks | Feed | 5 | | |
| | Hens | Feed | 10 | | |
| | Turkeys | Feed | 23 | | |
| | Broilers | Liver | 338 | | |
| | Ducks | Liver | 11 | | |
| | Hens | Liver | 22 | | |
| | Turkeys | Liver | 48 | | |
| **A6 Annex IV** | | | | | |
| Chloramphenicol | Broilers | Muscle | 502 | | |
| | Ducks | Muscle | 12 | | |
| | Hens | Muscle | 19 | | |
| | Turkeys | Muscle | 44 | | |
| Nitrofurans | Broilers | Feed | 248 | | |
| | Ducks | Feed | 7 | | |
| | Hens | Feed | 10 | | |
| | Turkeys | Feed | 26 | | |
| | Broilers | Muscle | 473 | | |
| | Ducks | Muscle | 12 | | |
| | Hens | Muscle | 20 | | |
| | Turkeys | Muscle | 47 | | |
| Nitroimidazoles | Broilers | Feed | 260 | | |
| | Ducks | Feed | 6 | | |
| | Hens | Feed | 10 | | |
| | Turkeys | Feed | 25 | | |
| | Broilers | Serum/ Liver | 820 | | |
| | Ducks | Serum | 21 | | |
| | Hens | Serum/ Liver | 35 | | |
| | Turkeys | Serum/ Liver | 84 | | |
| **B1 Antimicrobial** | | | | | |
| AMS1 | Broilers | Muscle | 1526 | | |
| | Ducks | Muscle | 35 | | |
| | Geese | Muscle | 6 | | |
| | Hens | Muscle | 70 | | |
| | Turkeys | Muscle | 170 | | |
| AMS2 | Broilers | Muscle | 462 | | |
| | Ducks | Muscle | 9 | | |
| | Geese | Muscle | 2 | | |
| | Hens | Muscle | 23 | | |
| | Turkeys | Muscle | 47 | | |
| **B2A Anthelmintics** | | | | | |
| Anthelmintics | Broilers | Liver | 280 | | |
| | Ducks | Liver | 20 | | |
| | Hens | Liver | 24 | | |
| | Turkeys | Liver | 56 | | |

| | | | | | |
|---|---|---|---|---|---|
| **B2B Coccidiostats** | | | | | |
| Coccidiostats | Broilers | Liver | 738 | | |
| | Hens | Liver | 15 | | |
| | Turkeys | Liver | 32 | | |
| **B2C Pesticide Screen** | | | | | |
| Pyrethroids + Carbamates | Broilers | Liver | 70 | | |
| | Ducks | Liver | 7 | | |
| | Hens | Liver | 7 | | |
| | Turkeys | Liver | 18 | | |
| **B2E NSAIDs** | | | | | |
| | Broilers | Liver | 5 | | |
| | Ducks | Liver | 5 | | |
| | Hens | Liver | 5 | | |
| | Turkeys | Liver | 5 | | |
| **B3A Pesticide Screen** | | | | | |
| | Broilers | Liver | 245 | | |
| | Ducks | Liver | 6 | | |
| | Hens | Liver | 11 | | |
| | Turkeys | Liver | 24 | | |
| **B3C Heavy Metals** | | | | | |
| Metals | Broilers | Muscle | 87 | | |
| | Ducks | Muscle | 2 | | |
| | Hens | Muscle | 4 | | |
| | Turkeys | Muscle | 8 | | |
| **B3D Mycotoxins** | | | | | |
| Mycotoxins | Broilers | Liver | 15 | | |
| | Hens | Liver | 1 | | |
| | Turkeys | Liver | 1 | | |

**RED MEAT**

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A1 Stilbenes** | | | | | |
| | Cattle | Urine | 41 | | |
| | Fattening cattle | Urine | 31 | | |
| | **Pigs** | Urine | 13 | | |
| | Sheep | Urine | 4 | | |
| **A2 Thyrostats** | | | | | |
| Thyrostats | Cattle | Urine | 173 | 1 | Thiouracil: 12 µg/kg |
| | Fattening cattle | Urine | 269 | 5 | (Methylthiouracil + Thiouracil) 19.4, 23.4, (Thiouracil) 25, 34, 40 µg/kg |
| | Horses | Urine | 2 | | |
| | Pigs | Urine | 75 | | |
| | Sheep | Urine | 77 | | |
| **A3 Hormones** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Gestagens | Cattle | Kidney fat | 282 | | |
| | Pigs | Kidney fat | 100 | | |
| | Sheep | Kidney fat | 90 | | |
| | Fattening cattle | Serum | 303 | | |
| Methyltestosterone | Pigs | Feed | 26 | | |
| Oestradiol | Cattle | Serum | 210 | | |
| | Fattening cattle | Serum | 358 | | |
| Steroid screen 1 | Cattle | Urine | 1572 | 8 | a - Boldenone: 3.8 and a-Nortestosterone: 0.5, 0.8, 5.1, 7.4, 7.9, 8.9, 11 |
| | Fattening cattle | Urine | 1675 | 11 | a - Boldenone: 2.4, 3.5, 3.8, 4.5, 6.9 and a - Nortestosterone: 5.4, 5.7, 5.7, 7.2, 8, 14 |
| | Horses | Urine | 2 | | |
| | Pigs | Urine | 333 | | |
| | Sheep | Urine | 573 | 17 | a - Boldenone: 2, 2.1, 2.2, 2.4, 2.4, 2.4, 2.6, 2.7, 3, 3.1, 3.9, 4.1, 4.3, 4.8, 6.7, 8.7, 11 µg/kg |
| Testosterone | Cattle | Serum | 279 | | |
| | Fattening cattle | Serum | 323 | 2 | Beta testosterone: 0.55, 2.8 µg/kg |
| **A4 Hormones** | | | | | |
| Zeranol | Cattle | Urine | 226 | 5 | Taleranol: 2.4, 2.7, and Taleranol + Zeranol: 2.44, 18.3, 6.1 g/kg |
| | Fattening cattle | Urine | 178 | 5 | Taleranol + Zeranol: 2.9, 3.2, 3.3, 3.6, 31 µg/kg |
| | Horses | Urine | 2 | | |
| | Pigs | Urine | 183 | | |
| | Sheep | Urine | 74 | | |
| **A5 Beta-Agonists** | | | | | |
| | Fattening cattle | Feed | 199 | | |
| | Pigs | Feed | 45 | | |
| | Fattening cattle | Urine | 222 | | |
| | Calves | Liver | 9 | | |
| | Cattle | Liver | 589 | | |
| | Horses | Liver | 8 | | |
| | Pigs | Liver | 350 | | |
| | Sheep | Liver | 291 | | |

| | | | | | |
|---|---|---|---|---|---|
| **A6 Annex IV** | | | | | |
| Chloramphenicol | Fattening cattle | Feed | 296 | | |
| | Fattening cattle | Urine | 45 | | |
| | Calves | Kidney | 9 | | |
| | Cattle | Kidney | 277 | | |
| | Horses | Kidney | 4 | | |
| | Pigs | Kidney | 236 | | |
| | Sheep | Kidney | 153 | | |
| Nitrofurans | Fattening cattle | Feed | 211 | | |
| | Pigs | Feed | 7 | | |
| | Calves | Kidney | 5 | | |
| | Cattle | Kidney | 171 | | |
| | Horses | Kidney | 4 | | |
| | Pigs | Kidney | 304 | | |
| | Sheep | Kidney | 245 | | |
| Nitroimidazoles | Pigs | Feed | 15 | | |
| | Calves | Kidney | 4 | | |
| | Cattle | Kidney | 172 | | |
| | Horses | Kidney | 8 | | |
| | Pigs | Kidney | 229 | | |
| | Sheep | Kidney | 108 | | |
| **B1 Antimicrobial** | | | | | |
| AMS1 | Calves | Kidney | 97 | 2 | Sulphamethazine: 5900 µg/kg, Gamithromycin: 12000 µg/kg |
| | Cattle | Kidney | 1258 | | |
| | Goats | Kidney | 10 | | |
| | Horses | Kidney | 14 | | |
| | Pigs | Kidney | 1242 | | |
| | Sheep | Kidney | 2767 | | |
| AMS2 | Cattle | Kidney | 139 | | |
| | Pigs | Kidney | 341 | | |
| AMS4 | Calves | Kidney | 96 | 2 | Dihydrostreptomycin: 1200, 11000 µg/kg |
| | Cattle | Kidney | 141 | 1 | Dihydrostreptomycin: 6400 µg/kg |
| | Sheep | Kidney | 121 | 1 | Dihydrostreptomycin: 12000 µg/kg |
| Ceftiofur | Pigs | Kidney | 106 | | |
| Florfenicol | Calves | Kidney | 100 | 4 | Florfenicol: 1200, 2500, 3000, 6800 µg/kg |
| **B2A Anthelmintics** | | | | | |
| Anthelmintics | Cattle | Liver | 596 | 1 | Amino Flubendazole: 2.1 |
| | Goats | Liver | 4 | | |
| | Pigs | Liver | 297 | | |

| | | | | | |
|---|---|---|---|---|---|
| | Sheep | Liver | 1116 | 5 | Closantel: 1882, Nitroxynil 37.6, Levamisole 290, Triclabendazole 712, Oxfendazole & Fenbendazole 1370 µg/kg |
| Avermectins | Cattle | Liver | 396 | | |
| | Goats | Liver | 16 | | |
| | Horses | Liver | 12 | | |
| | Pigs | Liver | 141 | | |
| | Sheep | Liver | 514 | | |
| **B2B Coccidiostats** | | | | | |
| Coccidiostats | Calves | Liver | 22 | | |
| | Horses | Liver | 2 | | |
| | Pigs | Liver | 97 | 1 | Lasalocid 230 µg/kg |
| | Sheep | Liver | 326 | | |
| **B2C Pesticide Screen** | | | | | |
| Pyrethroids | Calves | Kidney fat | 33 | | |
| | Cattle | Kidney fat | 9 | | |
| | Horses | Kidney fat | 2 | | |
| | Pigs | Kidney fat | 70 | | |
| | Sheep | Kidney fat | 564 | | |
| **B2D Sedatives** | | | | | |
| | Breeding Boar | Liver | 85 | 1 | Azaperone & Azaperol 158 µg/kg |
| | Cattle | Liver | 49 | | |
| | Horses | Liver | 21 | | |
| | Pigs | Liver | 163 | | |
| | Sheep | Liver | 98 | | |
| **B2E NSAIDs** | | | | | |
| | Cattle | Kidney/ Plasma | 773 | 2 | Phenylbutazone 0.5, Ibuprofen 17 µg/kg |
| | Horses | Kidney/ Plasma | 92 | 6 | Ibuprofen 8.6, Phenylbutazone 4.9, 8.2, 12, 49, 1200 µg/kg |
| | Pigs | Kidney | 36 | | |
| | Sheep | Kidney | 50 | | |
| **B2F Glucocorticoids** | | | | | |
| | Cattle | Liver | 356 | | |
| | Pigs | Liver | 71 | | |
| | Sheep | Liver | 22 | | |
| **B3A Pesticide Screen** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Cattle | Kidney fat | 80 | | |
| | Horses | Kidney fat | 2 | | |
| | Pigs | Kidney fat | 63 | | |
| | Sheep | Kidney fat | 129 | | |
| **B3B Pesticide Screen** | | | | | |
| OPs | Cattle | Kidney fat | 249 | | |
| | Horses | Kidney fat | 2 | | |
| | Pigs | Kidney fat | 138 | | |
| | Sheep | Kidney fat | 582 | 2 | Diazinon 1000, 1100 µg/kg |
| **B3C Heavy Metals** | | | | | |
| Metals | Cattle | Kidney | 77 | 14 | Cadmium 1000, 1100, 1200, 1300, 1400, 1500, 1700, 1700, 2300, 4200, 1168, 1543, 1309 and Lead 580 µg/kg |
| | Goats | Kidney | 5 | | |
| | Horses | Kidney | 2 | 2 | Cadmium at 6100, 31000 µg/kg |
| | Pigs | Kidney | 13 | | |
| | Sheep<br>Cattle | Kidney<br>Muscle | 53<br>24 | 2 | Lead: 510, 650 µg/kg |
| | Pigs | Muscle | 3 | | |
| | Sheep | Muscle | 6 | | |
| **B3D Mycotoxins** | | | | | |
| Mycotoxins | Cattle | Liver | 30 | | |
| | Horses | Liver | 2 | | |
| | Pigs | Liver | 59 | 1 | Ochratoxin A 3.5 µg/kg |
| | Sheep | Liver | 10 | | |

**FARMED GAME**

| Substance Group/analyte | Species | Matrix | No of Analyses | No above action level | Concentration where samples above MRL (µg/kg) |
|---|---|---|---|---|---|
| **A2 Thyrostats** | | | | | |
| Thyrostats | Deer | Liver | 4 | | |
| **A3 Hormones** | | | | | |
| Steroid screen 2 | Deer | Liver | 7 | | |
| **A5 Beta-Agonists** | | | | | |
| | Deer | Liver | 20 | | |
| **A6 Annex IV** | | | | | |
| Nitroimidazoles | Deer | Muscle | 4 | | |

| | | | | | |
|---|---|---|---|---|---|
| **B1 Antimicrobial** | | | | | |
| AMS1 | Deer | Kidney | 24 | | |
| **B2A Anthelmintics** | | | | | |
| Anthelmintics | Deer | Muscle | 4 | | |
| | Partridge | Muscle | 5 | | |
| | Pheasant | Muscle | 5 | | |
| **B2B Coccidiostats** | | | | | |
| Coccidiostats | Partridge | Muscle | 6 | 1 | Lasalocid: 600 µg/kg |
| | Pheasant | Muscle | 5 | | |
| | Quail | Muscle | 4 | 1 | Lasalocid: 29 µg/kg |
| **B2C Pesticide Screen** | | | | | |
| Pyrethroids | Deer | Kidney fat | 3 | | |
| **B2D Sedatives** | | | | | |
| | Deer | Liver | 4 | | |
| **B2E NSAIDs** | | | | | |
| | Deer | Kidney | 5 | | |
| **B3A Pesticide Screen** | | | | | |
| | Deer | Kidney fat | 7 | 1 | DDE-pp: 1300 µg/kg |
| **B3C Heavy Metals** | | | | | |
| Metals | Deer | Muscle | 7 | | |
| | Partridge | Muscle | 10 | | |
| | Pheasant | Muscle | 9 | | |
| | Quail | Muscle | 1 | | |
| | Wild Deer | Muscle | 100 | | |

## Section C: RESULTS OF FOLLOW-UP INVESTIGATIONS INTO NON-COMPLIANT RESIDUES:

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| **Cattle** | | | | |
| Calf Kidney | Dihydrostreptomycin 1200 µg/kg<br><br>(1223156) | Ubro Yellow or Tetra Delta intramammary. | Dihydrostreptomycin | This is a large dairy farm with 320 cows and 380 young stock and heifer replacements. Calves often receive additional colostrum from older cows to help prevent Rotavirus infection. All calves are raised on calf milk replacer and waste milk from antibiotic-treated cows. The medicine records and storage were satisfactory, therefore, the most likely cause of this residue is from feeding on contaminated milk from cows treated with Ubro Yellow or Tetra Delta intramammary. |
| Calf Kidney | Dihydrostreptomycin 11,000 µg/kg<br><br>(1223152) | Pen and Strep Suspension for Injection | Dihydrostreptomycin Sulphate, Procaine Benzylpenicillin | This two week old calf originated from a large dairy farm from where it was sent directly for slaughter. The medicines records show that Pen and Strep Suspension for Injection was used on the farm for treating lame cows, however, there was no record of any calves having been treated. The farmer speculated that the feeding of colostrum and milk from treated cows caused this residue but the science does not support a residue of 11 times the MRL occurring from this source. The most likely cause of this residue is that the calf had an unrecorded treatment and slaughtered within the withdrawal period. This case will be referred to the RPA for consideration. |
| Calf Kidney | Florfenicol 1200 µg/kg<br><br>(1224449) | Nuflor | Florfenicol | This three week old calf was sent for slaughter from a small mixed dairy/beef farm, which is under long term TB restriction. The calendar which is used to record treatments showed this calf was treated with Nuflor on 19/07/2012, however, this was not transferred to the computer medicines record. The farmer then mistook this calf for one which was treated on the 22/06/12 and therefore erroneously sent it for slaughter within the withdrawal period. The farmer has been reminded of the importance of keeping accurate records and this case will be referred to the RPA for consideration. |
| Calf Kidney | Florfenicol 2500 µg/kg<br><br>(1232312) | Resflor 300/16.5 mg/ml Solution for Injection for Cattle | Florfenicol, Flunixin, Flunixin meglumine | This calf was sent for slaughter at 40 days old after being bought at auction 4 days prior. Investigations were carried out at both of the farms where this calf resided during its life and it was found that Resflor was present at both. In both cases the medicines records and storage appeared satisfactory and both farmer deny treating this animal with florfenicol. Therefore it is cincluded that this calf was likely to have been treated with Resflor but the the investigations were unable to establish the source of this residue. |
| Calf Kidney | Florfenicol 3000 µg/kg<br><br>(1232315) | Resflor 300/16.5 mg/ml Solution for Injection for Cattle | Florfenicol, Flunixin, Flunixin meglumine | This calf was traced to a 220 cow dairy farm with 250 followers. On inspection the records appeared to be adequate, but there was some suggestion that other staff may have treated the calf and not recorded the treatment. Resflor was present in the medicines store and other calves had been recorded as being treated with it around this time. Therefore, the most likely cause of this residue is that the calf had an unrecorded treatment and was slaughtered within the withdrawal period. This case will be referred to the RPA for consideration. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Calf Kidney | Florfenicol 6800 µg/kg (1206586) | Resflor 300/16.5 mg/ml Solution for Injection for Cattle | Florfenicol, Flunixin, Flunixin meglumine | The owner who submitted the calf for slaughter runs an assembly centre for calves where no treatments are given and therefore has no medicines storage or records. Only calves with documents to show they have not been treated are purchased so the investigation continued to the previous owner. This calf was treated successfully for pneumonia with Resflor and was still in the withdrawal period when sold at market. Medicines records and storage were satisfactory, however, the vendor did not declare the treatment at the time of sale, as she did not consider the calf would be slaughtered. This case has been referred to the RPA for consideration. |
| Calf Kidney | Gamithromycin 12,000 µg/kg (1222990) | Zactran 150 mg/ml Solution for Injection for Cattle | Gamithromycin | This calf originated from a dairy herd with 240 milking cows where calves remain with their dams for 7-14 days, then reared on milk replacer. The Medicines records and storage appeared satisfactory however, the cause of this residue in most likely due to the misidentification of the calf at the time of treatment with Zactran. The treated calf was then erroneously sent for slaughter within the withdrawal period. The farmer has been reminded of the importance of keeping accurate records and this case will be referred to the RPA for consideration. |
| Calf Kidney | Sulfamethazone 5,900 µg/kg (1229926) | Intradine 30.89% w/v Solution for Injection | Sulphadimidine | This is a medium sized dairy farm where Intradine Solution for Injection is present and has been recorded in use for other calves, but there are no records of its use in this calf, or in other calves around this time. On inspection the records and storage appeared to be adequate, but the cause of this residue is likely to be because the farmer did not record the treatment of this calf, and therefore slaughtered it within the withdrawal period. The farmer has been reminded of the importance of keeping accurate records and this case will be referred to the RPA for consideration. |
| Cattle Kidney | Cadmium 1000 µg/kg (1232480) | | | This is a mixed dairy, beef and sheep farm which is situated close to historical lead mining site. The cattle are grazed during spring to autumn each year and fed home produced silage in the winter. As there were no other obvious causes of this residue it was most likely caused by environmental contaminants. |
| Cattle Kidney | Cadmium 1100 µg/kg (1206848) | N/A | N/A | This animal originated from a beef suckler farm with 30 cows and 75 followers. Cattle are grazed or fed home-produced hay. No concentrate is used and no obvious source of Cadmium was present, although there was evidence of historic iron mining in the area so the soil may have been contaminated. The FSA was informed and, considering that the cow was 30+months at the time of slaughter, advised that no further action would be required as this residue was most likely caused by a gradual build up from environmental contaminants. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Kidney | Cadmium 1200 µg/kg<br><br>(1226586) | N/A | N/A | This is a traditional dairy farm with 75 cows in a closed herd, breeding their own replacements. Cattle are fed grass and home-produced silage with commercial pelleted feeds, and on inspection the medicines records and storage were satisfactory. This non-compliant sample came from a 6 year old cow in good condition at the time of slaughter. The farm is regularly flooded which leaves a residue of silt and sludge when the water recedes. It is possible that this includes sewage sludge which is ingested causing a gradual build up over time. The farmer has been advised to avoid grazing flooded fields until the silt has washed into the soil. |
| Cattle Kidney | Cadmium 1300 µg/kg<br><br>(1216652) | N/A | N/A | This residue originated from a cull cow born in 2001 which had been grazed and fed silage, distiller's "draff" and a commercial compound feed on a 200 cow beef suckler farm, since 2008. The medicines records and storage were satisfactory, with no unusual substances. There was evidence of past zinc mining at a recent off-premesis grazing where it is most likely gradual build up from environmental contaminants has occurred. It was also noted that the previous owner is reported to have a very untidy farm with old machinery and batteries around, which may have contributed to this residue. |
| Cattle Kidney | Cadmium 1400 µg/kg<br><br>(1226600) | N/A | N/A | The animal from which this residue originated was submitted for slaughter after two weeks of purchase and as there were no obvious sources of cadmium exposure she was traced back to the previous owner who had kept her from birth in 1997. This is a dairy farm with 450 cattle in a closed herd breeding their own replacements which are fed grass, silage and purchased concentrates. On inspection, the medicines records and storage were satisfactory apart from the requirement to record batch numbers and advice was given to rectify this. There are a number of coal mining sites on the farm, and a new area is about to be exploited for open cast. The water supply is from a well and has been analysed to be high in iron and ammonia which causes known deficiencies in Cu and Se which are addressed. There are fields supplied with fresh water from the hills, which are used mainly for young stock. There are also multiple other possible sources of environmental contamination i.e. a working landfill site, a factory which burns waste timber, an old coal-fired power station (until the 80s) and a pre-war landfill site which is now restored and grazed. The cause of this residue was most likely caused by a gradual build up from environmental contaminants. |
| Cattle Kidney | Cadmium 1500 µg/kg<br><br>(1206841) | N/A | N/A | The animal from which this non-compliant sample originated was born in 1997 and spent 11 years from 2000 on the same farm before being sold 7 month prior to its slaughter. No fertilizers were used on the grazing fields of either farm and neither farm routinely vaccinated or medicated animals unless there was a specific health issue. One area adjacent to the most recent farm was excavated and used by the local farmers as a general waste disposal area where food waste and batteries were also found. However, the most likely cause of this residue, given the age of the animal, was due to a dietary accumulation over time. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Kidney | Cadmium 1700 µg/kg<br><br>(1226596) | N/A | N/A | This cow originated from a traditional, with winter housing, summer grazing farm with a small herd of 24 beef breeding cattle and was purchased in 2002. The medicines records and storage were satisfactory and purchased feeds are used, with home grown hay straw and cereals. The adjacent piece of land on the other side of a brook was used in the past to dispose of soil from an opencast coal mine. However, the affected land has not been grazed by this herd. The most likely cause of this residue was due to a dietary accumulation over time given that the animal was 12 years old at the time of slaughter. |
| Cattle Kidney | Cadmium 1700 µg/kg<br><br>(1232494) | N/A | N/A | This estate company runs two farms, one of which no longer has cattle, but was where the traced cow was born in 2002. The other has a large organic dairy farm. Both farms have used significant amounts of phosphate fertiliser in the past but are now using just the home-produced manure and slurry. No sewage sludge has been used. The cattle are fed a combination of purchased soya, minerals and beans with home-produced cereals. The medicines records and storage were satisfactory and the routine treatments used were fly repellent and pneumonia vaccination. There was no evidence of mining or industrial damage, therefore the most likely cause of this residue was due to an environmental accumulation over time given that the animal was 10 years old at the time of slaughter. |
| Cattle Kidney | Cadmium 2300 µg/kg<br><br>(1206836) | N/A | N/A | This non-compliant sample originated from a 10 year old cow which spent the majority of its life on a suckler/growing farm in an area with no history of heavy industry or mining locally. The cattle are summer grazed and since 2011 have shared grazing sites with a large poultry unit. The water supply is by both mains and borehole, which is stored in a reservoir on a hilltop and transferred to various troughs through gravity using standard agricultural equipment. The cause of this residue is most likely due the age of the cow and the accumulation of cadmium over time. |
| Cattle Kidney | Cadmium 4200 µg/kg<br><br>(1226589) | N/A | N/A | This cow originated from a former dairy farm which changed to beef 5 years ago where cattle are fed homegrown silage and hay with purchased wheat-based concentrate and straw. No phosphate fertilisers had been used on the farm, only manure. There had been some mining activity 3 miles away but there no obvious origin. The most likely cause of this residue was due to an environmental accumulation over time given that the animal was 8 years old at the time of slaughter. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Kidney | Dihydrostreptomycin 6400 µg/kg<br><br>(1205108) | Pen & Strep | Dihydrostreptomycin, Procaine Benzylpenicillin | This non-compliant originated from a large beef and dairy farm which is farm assured with FAWL. The husbandry was excellent and the medicines records and storage appeared satisfactory. However, according to the records, the subject animal had suffered with pneumonia which was initially unsuccessfully treated with Nuflor and Metacam and then six weeks later treated with Pen & Strep The animal was slaughtered three days after the end of the 23 day withdrawal period. The investigation showed no evidence of overdosing or unrecorded treatments. VMD veterinary advice stated that once injected and absorbed into the body, the highest concentrations of dihydrostreptomycin are found within the kidney. It is exclusively eliminated by the kidney but small amounts can be reabsorbed. If anything affects blood flow to the kidney, this can decrease the clearance of the drug. The SPC advises against the use of pen and strep in cases of renal disease or if anything affects kidney function. A knock on effect of respiratory disease could be decreased drinking/eating etc and may cause a degree of hypovolaemia, which may decrease clearance of the drug. Another possibility could be that the acidosis that can be caused by respiratory disease may also affect clearance of the drug.<br>However, this is speculation and it is, therefore, not possible to say whether the disease process is responsible. |
| Cattle Kidney | Lead 580 µg/kg<br><br>(1216664) | N/A | N/A | This is a large beef and sheep farm and the cattle are mainly beef crosses, but include some dairy breed bull beef. The cattle are grazed from May to November, when they are housed and fed grass and maize silage, cereals and a feed supplement. Medicines records and storage were satisfactory. There are possible environmental origins on this farm as there is evidence of an old silver/lead mining site on the grazing land and stone from this site may have been used in the old farm buildings. Although there has been the use of sewage sludge as fertiliser, the contaminants are monitored; therefore the most likely cause of this residue is due to environmental pollution. |
| Cattle Kidney | Ibuprofen 17 µg/kg<br><br>(1225238) | N/A | N/A | This non-compliant originated from a large dairy farm with horses and poultry. The cattle were winter housed and various commercial feeds were used. The medicines storage and records were satisfactory with no record of Ibuprofen and the vet also confirmed he has not prescribed it. The medicines record is connected to computerised system which automatically discards treated milk. The farmer had no Ibuprofen in the house due to relative's medical condition, therefore, the cause of this residue could not be established. |
| Fattening Cattle Serum | Beta-testosterone 0.55 µg/l<br><br>(1219485) | N/A | N/A | This is a large dairy farm with some beef cattle. The medicines records and storage were satisfactory and the cattle appeared normal. The investigation showed that this heifer was twinned with a bull calf, which is the most likely cause of the presence of testosterone. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Fattening Cattle Urine | Alpha-boldenone 4.5 µg/l<br><br>(1200920) | N/A | N/A | This is a small suckler herd of 15 cows and 2 bulls. The cattle are grazed in the summer and fed hay, straw and a mineral lick in the winter. Medicines storage is satisfactory, with a normal range of substances. However, the withdrawal periods had not been entered against each treatment and the farmer has been advised of the requirement to do so. This same cow was sampled in 2003 which gave a positive testosterone but evidently was not culled at that time. This cow is now heavily pregnant and therefore is questionable why she was sampled. The presence of this substance is therefore considered natural, through faecal contamination of the sample. |
| Cattle Urine | Alpha-nortestosterone 0.5 µg/l<br><br>(1225852) | N/A | N/A | This is a 110 cow suckler herd with a sheep flock of 500 ewes. The calves are reared to slaughter weight and sold through market or direct to slaughter for sale through the farm shop. The fattening cattle are grazed then fed silage, cereals and a protein/mineral mix in the winter and while housed in the second summer. They were routinely wormed and vaccinated against pneumonia and the medicines records and storage were satisfactory with no evidence of the use of any anabolic compounds, therefore, the most likely cause of this residue is due to natural occurrence. |
| Cattle Urine | Alpha-nortestosterone 0.8 µg/l<br><br>(1217922) | N/A | N/A | The animal from which this residue originated was a pure Highland steer and came from a medium sized beef suckler and sheep breeding unit on rough upland ground. This animal was not ready for slaughter until nearly five years of age which is slow growing even for a Highland. There was nothing otherwise remarkable about the feeding regime or treatments given and the medicines records and storage were satisfactory. There was no evidence of the use of any anabolic compounds, therefore, the most likely cause of this residue is due to natural occurrence. |
| Cattle Urine | Alpha-nortestosterone 5.1 µg/l<br><br>(1217937) | N/A | N/A | This animal originated from a traditional dairy farm and had previously calved in Feb 2012 and in Sep 2010. There was a history of ovarian cysts requiring treatment with Cyclix (Cloprostenol -prostaglandin F2 alpha) and on 24/04/12 with Metricure (Cefapirin) for endometritis. Records and storage of medicines were satisfactory and there was no evidence of any administration of nortestosterone. The cow was sampled at slaughter and was not, but there may have been a case of cystic ovaries causing the endogenous production of nortestosterone, either naturally or as a result of recent treatment. |
| Fattening Cattle Urine | Alpha-nortestosterone 5.7 µg/l<br><br>(1210248) | N/A | N/A | Although appropriate questions were asked at the time of sampling, initial investigations have shown that this animal was pregnant at the time, which is the most likely cause of this residue. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Urine | Alpha-nortestosterone 7.4 µg/l<br><br>(1217950) | N/A | N/A | This is a medium sized dairy farm which raises calves as replacements and for beef. This was an 8 year old Friesian cow, culled from the herd as infertile. There was no evidence that she was pregnant at the time of slaughter, but she may have been suffering from some pathology of the reproductive tract to explain her condition. Medicines records and storage were satisfactory with no evidence of any unusual substances, therefore, the most likely cause of this residue is due to natural levels. |
| Cattle Urine | Alpha-nortestosterone 7.9 µg/l<br><br>(1208544) | N/A | N/A | This is a suckler herd of 80 cows, fattening their own calves to slaughter weight. The main diet is grass with the only supplement being a mineral lick. The heifer was sampled at the abattoir and there is no evidence as to whether she was pregnant, but is thought not to have been. Medicines records and storage were satisfactory with no evidence of any unusual substances, therefore, the most likely cause of this residue is due to natural levels. |
| Cattle Urine | Alpha-nortestosterone 8.9 µg/l<br><br>(1217914) | N/A | N/A | This animal was submitted for slaughter via a dealer, however, there was no reason to suspect it had been given any treatments during the three days spent at the lairage so it was traced back to the farm where it had been present for 7 months. This farm is a beef fattening unit taking 4-5,000 cattle (including cull cows) each year, generally fattening for about 3 months on a diet of silage, barley and a protein balancer. This particular cow was kept longer than usual, which suggests there may have been a problem. She was recorded as being treated with Dectomax, which may be because she was not putting on condition. Medicines usage is minimal, but records and storage were satisfactory. It was unlikely that the cow was pregnant at slaughter, but this cannot be confirmed. The most likely cause of this residue is due to natural levels. |
| Cattle Urine | Alpha-nortestosterone 11 µg/l<br><br>(1217943) | N/A | N/A | This was a pregnant cow that and suffered a prolapse and was sent to slaughter as a casualty. Therefore the presence of nortestosterone is most likely due to the pregnancy. |
| Fattening Cattle Urine | Alpha-nortestosterone 14 µg/l<br><br>(1210245) | N/A | N/A | Although appropriate questions were asked at the time of sampling, initial investigations have shown that this animal was pregnant at the time, which is the most likely cause of this residue. |
| Fattening Cattle Urine | Beta-testosterone 2.8 µg/l<br><br>(1201015) | N/A | N/A | This non-compliant sample was taken on farm from a heifer from a small suckler herd of eight cows and a bull. Further calves are purchased and reared to be sold as stores at about 12 months of age. The medicines records are satisfactory and apart from medications given by the vet, the farmer has only recorded the use of ivermectin twice a year and no drugs were currently in the store. The animal was of in average condition for its age. There were no signs of hormone implants or recent injections on any of the animals. Five follow up samples were taken, including from the original heifer, and all of these were compliant. Therefore, the cause of this residue is likely to be due to natural levels. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Fattening Cattle Urine | Taleranol 1.9 µg/l and Zeranol 0.54 µg/l<br><br>(1226459) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Fattening Cattle Urine | Taleranol 1.9 µg/l and Zeranol 1 µg/l<br><br>(1219597) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Fattening Cattle Urine | Taleranol 2 µg/l and Zeranol 1.2 µg/l<br><br>(121228147) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Fattening Cattle Urine | Taleranol 2.1 µg/l and Zeranol 1.5 µg/l<br><br>(1210427) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Fattening Cattle Urine | Taleranol 2.2 µg/l and Zeranol 1.1 µg/l<br><br>(1210427) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Cattle Urine | Taleranol 2.4 µg/l<br><br>(12186117) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Cattle Urine | Taleranol 2.7 µg/l<br><br>(1218582) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Fattening Cattle Urine | Taleranol 3.8 µg/l and Zeranol 2.3 µg/l<br><br>(1226459) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Cattle Urine | Taleranol 14 µg/l and Zeranol 4.3 µg/l<br><br>(1233885) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |
| Fattening Cattle Urine | Taleranol 20 µg/l and Zeranol 11 µg/l<br><br>(1228137) | No investigation required as research has shown that low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feedingstuffs contaminated with the fusarium fungus. | | |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Urine | Thiouracil 12 µg/l<br><br>(1218520) | N/A | N/A | This is a 160 cow dairy herd where heifers are kept as replacements and bull calves are either kept to 18 months as bull beef or 8 months as extensive veal, known as "rose beef". This sample originated from one of the latter at slaughter. Medicines storage and records were satisfactory, with no evidence of unusual substance use. These calves are kept indoors and fed a milk replacer, followed by barley, straw and a commercial finisher which is recorded as containing rapeseed meal. Therefore, the most likely cause of this residue is due to ingesting brassica rich feed. |
| Fattening Cattle Urine | Thiouracil 17 µg/l & Methylthiouracil 2.4 µg/l<br><br>(1219523) | N/A | N/A | This animal was traced to a farm where 600 cattle are purchased as stores and finished. Medicines storage and records were checked and were satisfactory. These cattle have been wormed with Ivermectin but no other products are recorded for this animal. They are fed with purchased concentrate and the ingredient list shows "Double Low Rapemeal (Extracted)" which is most likely the source of the residue. |
| Fattening Cattle Urine | Thiouracil 21 µg/l & Methylthiouracil 2.4 µg/l<br><br>(1219530) | N/A | N/A | This was an 80 cow dairy herd farm at the time of sampling but the milking cows have now been sold and the remainder are being sold as they calve. Calves are kept on the dam for 2 days then fed surplus milk. No milk replacer is used and they move onto weaner pellets and straw at 6-8 weeks. The ingredients were checked for the calf weaner pellet, and there is no inclusion of rapeseed cake. The medicines storage and records were satisfactory with no unusual substances. As there is no obvious source of Thiouracil is was not possible to determine the cause of this residue. |
| Fattening Cattle Urine | Thiouracil 25 µg/l<br><br>(1201046) | N/A | N/A | This is a large farming operation with 2000 breeding cows and 1000 ewes spread over several farms. This sample was taken from a heifer sampled on farm and the medicines records and storage were satisfactory with a normal range of products. The cattle are fed home grown wheat, barley and whole crop silage. There is no record of any crop of roots, rape or kale on the farm and the supplements used are molasses, minerals and Agriking Maximiser and Vitagold which appear to be yeast-based products. As there is no obvious source of Thiouracil is was not possible to determine the cause of this residue. |
| Fattening Cattle Urine | Thiouracil 34 µg/l<br><br>(1210344) | N/A | N/A | This finishing farm has 250 steers and heifers. This sample was taken on farm but the heifer has now been slaughtered. No medicines were being stored but satisfactory records were being kept and there was no evidence of any use of thyrostats. An ingredients list for the beef finishing ration shows 10% Rapemeal, therefore, the most likely cause of this residue is due to ingesting brassica rich feed. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Fattening Cattle Urine | Thiouracil 40 µg/l<br><br>(1210340) | N/A | N/A | This sample was taken from a male calf at 6 days of age, so is unlikely to be taking any solid food. Male calves are treated differently to females in that male calves receive discarded (antibiotic) milk as well as milk replacer. Medicines storage was satisfactory however the records were not complete and the farmer has been advised of the requirement to keep accurate and complete records. The ingredients list for the milk replacer was provided and contained vegetable oil which could possibly be rapeseed oil or alternatively it is possible that the cows' milk may contain Thiouracil from dairy cake, however an ingredients list for this was not available. The most likely cause of this residue is due to ingesting brassica rich feed through milk or milk replacer. |
| Pig | | | | |
| Breeding Boar Liver | Azaperone 18 µg/kg & Azaperol 140 µg/kg<br><br>(1218713) | N/A | N/A | This boar sample was misidentified at the time of samplings and therefore it was not possible to adequately determine the origin of this animal to carry out an investigation. The FSA are aware of the identification issues and are working to ensure that these occurrences are reduced in future. |
| Pig Liver | Lasalocid 230 µg/kg<br><br>(1216270) | N/A | N/A | The farmer mixes the feed on site and follow up samples were taken as part of this investigation. These samples tested negative for lasalocid and as there has never been any record of lasalocid sodium on site it was not possible to establish the cause of this residue. |
| Pig Liver | Ochratoxin A 3.5 µg/kg<br><br>(1224727) | N/A | N/A | This is a medium pig breeding and fattening unit. The feed is mixed on farm and home grown barley is used along with purchased soya meal and rape meal which were stored on the farm. There was no obvious degradation of feed ingredients or the mixed feed and the mixed feed was stored in silos which were cleaned every 3 months. The medicines records were deficient, in particular regarding the recording of withdrawal periods and batch treatments. It was not possible to establish the cause of this residue as there was no obvious source, however, the farmer was given advice on the requirement for keeping accurate records. |
| Sheep | | | | |
| Sheep Kidney | Dihydrostreptomycin 12000 µg/kg<br><br>(1205119) | Pen & Strep | Dihydrostreptomycin, Procaine Benzylpenicillin | The originating farm is run by a part time sheep keeper with 39 ewes and 54 lambs. The lamb which was non-compliant was a runt and unhealthy and had been treated with Pen & Strep on three consecutive days. However, it was considered it would never fatten and was slaughtered at 11 months of age. The farmer used a medicine which had been prescribed 5 months prior and gave an unauthorised dose of 8ml a day which is over 6 times the recommended dose. The farmer recorded the withdrawal period as 21 instead of 31 days in the medicines records, and the sheep was slaughtered 62 days after treatment. The farmer has been given written advice by the VMD and this case has been referred to RPA for consideration. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Sheep Kidney | Lead 510 µg/kg (1232505) | N/A | N/A | This is a dairy farm with 205 milking cows and was under TB restriction at the time of the investigation. There are also 200 ewes, including 60 for breeding and the rest purchased for fattening. The traced lamb was purchased with its dam at 3 weeks of age in May 2012 and remained in a fenced paddock until slaughter. There is no obvious source of lead in this paddock apart from an area of bonfire ash in a poorly fenced adjacent area which may have been accessible to lambs. |
| Sheep Kidney | Lead 650 µg/kg (1232503) | N/A | N/A | This non-compliant originated from a sheep farm with 200 breeding ewes and 40 beef cattle which are grazed separately at the farm. There is a history of lead mining in the Swaledale valley area until 1912 and one area of the farm which is known to have high levels of lead has been used to graze fattening lambs. This is most likely the cause of this residue and the farmer has been advised to fence the affected area to prevent sheep grazing there. |
| Sheep Kidney Fat | Diazinon 1000 µg/kg (1233171) | N/A | N/A | The farmer claimed to have never used an OP dip and instead controlled flies with Crovect. The medicines records and invoices supported this statement and the farm has no facilities to dip sheep. Therefore it was not possible to determine the cause of this residue. |
| Sheep Kidney Fat | Diazinon 1100 µg/kg (1233077) | Osmonds Goldfleece 60% | Diazinon | This is a sheep farm with 550 ewes with a suckler unit of 50 cows. The traced lamb was dipped against scab with Osmonds Goldfleece 60% Diazinon by the farmer who has a certificate of competence. Lamb was then fed a commercial feed while grazing until its slaughter, 73 days after dipping. The withdrawal period for this product is 70 days, so therefore the most likely cause of this residue is due to normal variations between individual sheep. |
| Sheep Liver | Levamisole 290 µg/kg (1205321) | N/A | N/A | This sample originated from a farm which has 450 ewes and ewe lambs, selling 600 lambs each year fattened off grass. The owner sells empty ewe lambs in January after scanning. Usual practice is to scan first then treat just the pregnant ewe lambs with Fasimec Duo which is a combination anthelmintic that does not contain Levamisole. There were previous recorded treatments of Parafend, which also does not contain Levamisole. There was no Levamisole in the store and no records of purchasing this substance. Medicines records and storage were satisfactory and it is considered unlikely that this substance had been used. Therefore, it is possible that there may have been an error in identifying the sampled sheep at the abattoir. |
| Sheep Liver | Oxfendazole 930 µg/kg & Fenbendazole 440 µg/kg (1205332) | N/A | N/A | The originating farm has a high turn-over of both cattle and sheep and the medicines records and storage were satisfactory, showing a number of products for cattle and sheep. None of these medicines contain Oxfendazole or Fenbendazole and there was no reason to suspect that medicines with these substances were used. Further investigation with the previous owner and breeder of this lamb revealed that this farm also used a number of treatments but again, none containing these substances. There is the possibility that there was an identification error at the time of sampling, therefore no further action will be taken regarding this case. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Sheep Liver | Triclabendazole 712 µg/kg<br><br>(1215257) | N/A | N/A | This farm has 344 ewes producing 450 lambs which are mainly sold fat, although some are sold as stores. Medicines records and storage were satisfactory. There are records of treatments with medicines containing Albendazole, Fenbendazole and Closantel, but there is no evidence of any medicine containing Triclabendazole neither the farm or in the records. The sheep moved directly from this farm to slaughter, therefore, it was not possible to determine the cause of this residue, however, there is the possibility that there was an identification error at the time of sampling, therefore no further action will be taken regarding this case. |
| Sheep Urine | Alpha-boldenone 2 µg/l<br><br>(1233429) | N/A | N/A | This is a large sheep farm with some associated beef, pigs and poultry. There is a high standard of management, audited by its retail customers. The medicines records are on computer and are satisfactory, as was the medicines store. There were no unusual or SMR10 substances present, therefore the presence of this substance is considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 2.1 µg/l<br><br>(1233513) | N/A | N/A | This is a farm with 345 ewes and 64 suckler cows plus lambs and youngstock. The sheep are grazed and fed silage, oats and concentrate and the medicines records and storage were satisfactory, with no unusual substances. Therefore the presence of this substance is considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 2.2 µg/l<br><br>(1226170) | N/A | N/A | This is a medium sized beef cattle and sheep farm where the sheep are outwintered. The medicines records and storage were satisfactory with no unusual substances. There was no reason to suspect the administration of Boldenone, therefore, the presence of this substance is considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 2.4 µg/l<br><br>(1208330) | N/A | N/A | This farm produces 550 lambs each year with 400 of these being sent direct to slaughter. The breeding sheep are mainly outwintered with some concentrate feeding. The medicines records and storage were satisfactory with no unusual substances recorded, therefore, the presence of this substance is considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 2.4 µg/l<br><br>(1233493) | N/A | N/A | This is an organic mountain farm where the lambs were not given any supplementary feed. The ewes are grazed and fed silage, swedes and organic mineral licks. The medicines records and storage were satisfactory, with no unusual substances. The presence of Boldenone is likely to be natural, due to faecal contamination of the urine sample at the abattoir. |
| Sheep Urine | Alpha-boldenone 2.4 µg/l<br><br>(1218142) | N/A | N/A | This residue originated from a homebred male lamb from a farm with 1600 ewes, mainly Mules, and also a herd of 200 fattening cattle. The sheep are fattened off grass with a supplementary concentrate and the medicines records and storage were satisfactory, with no unusual substances. The presence of this substance is therefore considered natural, through faecal contamination of the sample. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Sheep Urine | Alpha-boldenone 2.7 µg/l<br><br>(1208309) | N/A | N/A | This is a hill farm with 277 ewes and 27 beef cattle. Animals are kept outdoors all year and are fed concentrate, molasses, minerals and haylage. All animals are slaughtered locally for sale in the owner's butcher shop. Medicines records and storage were satisfactory, with no unexpected products. The presence of this substance is therefore considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 2.6 µg/l<br><br>(1208320) | N/A | N/A | This is a farm with 800 ewes and 114 cattle. The sheep are outwintered and fed concentrates. Medicines records and storage were satisfactory, with no unexpected products. The presence of this substance is therefore considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 3 µg/l<br><br>(1218101) | N/A | N/A | Although there was an error with the tracing from the slaughterhouse it was established that the ram came directly from the breeder's flock rather than a market. The farm has a beef suckler herd of 45 cattle and a sheep flock of 300 ewes, most of which are kept through the summer on common grazings, although the rams are kept at the home farm all year round. The sheep are vaccinated with Heptovac-P, treated routinely with anthelmintics and occasionally with Oxytetracycline for foot rot. The farm is farm assured with FAWL and as there was no reason to suspect the administration of Boldenone, the presence of this substance is therefore considered natural, through faecal contamination of the sample.. |
| Sheep Urine | Alpha-boldenone 3.1 µg/l<br><br>(1233419) | N/A | N/A | There were 950 Blackface ewes, 300 ewe lambs and 240 fat lambs remaining at the time of the investigation. The fat lambs slaughtered on the day of sampling were a mixture of entire males, castrated males and ewe lambs. They had grazed in-bye fields of high clover and were fed two brands of commercial feed. The medicines and storage were satisfactory, with no unexpected products. The presence of this substance is therefore considered natural, through faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 3.9 µg/l<br><br>(1208255) | N/A | N/A | The non-compliant sheep originated from an upland farm with 1000 ewes which has grazing commons shared by 10 other farmers. There is also a beef suckler herd and a mare and foal co-grazing with some of the sheep. The Medicines records and storage were satisfactory. As there was no alternative explanation for this residue, it is most likely due to a natural occurrence from possible faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 4.1 µg/l<br><br>(1226181) | N/A | N/A | This residue originated from a homebred castrated male lamb from a medium sized beef breeding/fattening farm with a secondary sheep breeding/fattening enterprise. The sheep are often grazed on marginal areas, although lambs are finished on better pastures and may be given purchased concentrate. The medicines records and storage were satisfactory with no unusual substances and showed this lamb to have been treated only with Rycoben. There is no reason to suspect the administration of Boldenone. As there was no alternative explanation for this residue, it is most likely due to a natural occurrence from possible faecal contamination of the sample. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Sheep Urine | Alpha-boldenone 4.3 µg/l<br><br>(1233465) | N/A | N/A | This is a smallholding with 151 ewes with their lambs which are fed a locally-produced concentrate. The medicines records and storage were satisfactory and as there was no alternative explanation for this residue, it is most likely due to a natural occurrence from possible faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 6.7 µg/l<br><br>(1233482) | N/A | N/A | This is a medium sized sheep farm with satisfactory medicines records and storage. As there was no alternative explanation for this residue, it is most likely due to a natural occurrence from possible faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 8.7 µg/l<br><br>(1233461) | N/A | N/A | This is a medium sized sheep farm with satisfactory medicines records and storage. As there was no alternative explanation for this residue, it is most likely due to a natural occurrence from possible faecal contamination of the sample. |
| Sheep Urine | Alpha-boldenone 11 µg/l<br><br>(1226219) | | | This is a medium sized sheep farm with satisfactory medicines records and storage. As there was no alternative explanation for this residue, it is most likely due to a natural occurrence from possible faecal contamination of the sample. |
| Horse | | | | |
| Horse Kidney | Cadmium 6100 µg/kg<br><br>(1232496) | N/A | N/A | This horse has been on this premises for 10 years and there was no evidence of mining or industrial damage, therefore the most likely cause of this residue was due to an environmental accumulation over time given the age of the horse at the time of slaughter. |
| Horse Kidney | Cadmium 31000 µg/kg<br><br>(1232495) | | | The horse has been at this organic dairy and arable farm with 220 cattle and 750 sheep on 500 acres, for 2 years. The horse had a growth on one foot, so was slaughtered at 10 years of age. No chemical fertilisers are used, but mineral supplements are fed and there are no obvious sources of cadmium therefore the most likely cause of this residue was due to an environmental accumulation over time given the age of the horse at the time of slaughter. |
| Horse Kidney | Phenylbutazone 4.9 µg/kg<br><br>(1232843) | N/A | N/A | This sample originated from a stable which apparently has the policy that all horses are signed out of the food chain because phenylbutazone is regularly prescribed. The groom for a riding yard did not believe that this horse had been treated with bute during 2012 and had no recollection of the passport. Due to the groom's reluctance to assist with the investigation it was not possible to establish whether this horse personally belonged to the groom or was a stable horse. It is possible that he had administered some of the phenylbutazone prescribed for horses at the yard to his own horse, which was not signed out of the food chain. Unfortunately, the passport has been destroyed so it is not possible to investigate further back in the chain. Further action to be considered. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Horse Kidney | Phenylbutazone 8.2 µg/kg<br><br>(1217058) | N/A | N/A | It was not possible to adequately determine the origin of this horse as the registered owner according to the passport, which was destroyed at the same time as the horse, has never knowingly sold one for slaughter for human consumption. This horse is likely to be one sold in 2009 and later sent for slaughter by the purchaser or possibly a dealer, without changing the name in the passport, but these premises cannot be traced with the available information. |
| Horse Kidney | Phenylbutazone 12 µg/kg<br><br>(1207301) | Danilon | Suxibuzone | This horse was badly injured and prescribed Danilon, the owner then sent the mare to a convalescence livery, however, after four weeks showed no sign of improvement so was subsequently slaughtered. The livery owner checked the passport and there was no note from the prescribing vet removing the horse from the food chain. The investigating officer discussed this with the prescribing vet and new procedures have now been put in place at the practice to ensure this error does not occur again. The vet has been sent written confirmation of the agreed changes to the process. |
| Horse Kidney | Phenylbutazone 49 µg/kg<br><br>(1207312) | Equipalazone | Phenylbutazone | This animal was purchased from Eire in 2008 and castrated shortly after purchase. No phenylbutazone had been prescribed for this horse by the owner's vet, however, sachets of Equipalazone, expired in 2006, unlabelled by any vet, were available at the premises and, although not admitted by the owner, it is most likely that this horse was treated with this medication at the time of symptoms when the horse suffered from cervical stenosis in March 2012, which is why it was sent for slaughter. The owner was unaware that treatment with phenylbutazone would preclude slaughter for human consumption, but she was apparently equally unaware that horses are slaughtered in the UK for export for human consumption. |
| Horse Kidney | Phenylbutazone 1200 µg/kg<br><br>(1217081) | Unknown | Phenylbutazone | This was a racehorse which was injured in a race sustaining a tendon injury. The course veterinary surgeon administered intravenous phenylbutazone and on return to the stables was examined by their own vet who advised euthanasia. Despite the vet being aware of its treatment at the racecourse and that the owner then gave the horse oral phenylbutazone, did not ask to see the passport. The vet has now been made aware of the passport requirements and has signed all the horses at this stable out of the food chain. |
| Horse Kidney | Ibuprofen 8.6 µg/kg<br><br>(1207304) | N/A | N/A | This residue came from a Welsh Pony which had been kept for 19 years by the same owner and had never been treated for anything during all that time except for routine worming. The horse was sold to a dealer on 25/01/2012 for disposal. It was given no treatment by the dealer and it was loaded with nine others (also untreated by the dealer) for slaughter that same day. The FSA reported that the sampling officer was not using this medication and Fera have also confirmed that it is unlikely that contamination happened at the lab, therefore, the source of this residue could not be established. |
| Egg | | | | |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Free Range | Diclazuril 1.2 µg/kg<br><br>(1209002) | This concentration falls below the European Food Safety Authority's maximum residue limit of 2 mg/kg, therefore no investigation will be carried out. | | |
| Free Range | Diclazuril 4.3 µg/kg<br><br>(1218893) | This concentration falls below the European Food Safety Authority's maximum residue limit of 2 mg/kg, therefore no investigation will be carried out. | | |
| Free Range | Lasalocid 200 µg/kg<br><br>(1210943) | N/A | N/A | The investigation concluded that the contamination could not have occurred on the farm and analysis of retained samples confirmed this. The cause of this residue is due to contamination during manufacture at the mill. The mill was already aware of this contamination prior to the investigation and they had already taken prompt corrective action. |
| Game | | | | |
| Farmed deer Kidney fat | DDE-p,p' 1300 µg/kg<br><br>(1209067) | N/A | N/A | This non-compliant sample came from a young female Fallow deer which was kept in an enclosed permanent pasture which used to be an orchard until the 1980's. The deer were fed on wheat, barley, soya, malt nuts and minerals and samples of feed were tested and found to be compliant. It was noted during the investigation that it was possible that the deer have been investigating broken ground and may therefore have eaten some soil. The Environmental Health Community Directorate sampled the soil which was found to be contaminated with DDE, DDD and DDT pesticides. The Food Standards Agency has been informed. |
| Partridge Muscle | Lasalocid 600 µg/kg<br><br>(1234032) | N/A | N/A | As this sample came from a game dealer it was not possible to further trace the origin of this animal due to the numerous sources used by the dealer. It is, however, most likely that the cause of this residue was due to the medicated feed not being withdrawn from the birds in accordance with the product's withdrawal period.A letter has been send to the game dealer for distribution to game farms. |
| Quail Muscle | Lasalocid 29 µg/kg<br><br>(1234041) | N/A | N/A | As part of this investigation, four follow up feed samples were taken from the associated feed mill and a positive result was reported for one these. The mill was notified of the result and asked to carry out an internal investigation which concluded that the consignment of feed had followed grower feed containing Lasalocid in the production line. This was considered to be the cause of the carryover and the mill has taken preventative steps to ensure that this will not occur again in future. |
| Milk | | | | |
| Cattle | Ibuprofen 14 µg/l<br><br>(1210763) | N/A | N/A | The investigation into this non-compliant concluded that this sample was not taken in conjunction with the field instructions for collecting milk. As the bulk tank was empty at the time of sampling, the collecting officer took this sample from a jug which was used to supply milk for the farm kitchen. There was no evidence that cows had been treated with Ibuprofen, however a farmhouse resident was using 5% Ibuprofen gel on their hands, therefore it is mostly likely that this contamination is the cause of this residue. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle | Triclabendazole 20 µg/l<br><br>(1228303) | Fasinex | Triclabendazole | The investigation in to this non-compliant established that the farmer estimates the weight of the animal when administering Fasniex. The farmer agreed that the most likely cause of this residue is due to overdosing. |
| Cattle | Triclabendazole 32 µg/l<br><br>(1210859) | Endofluke 10% | Triclabendazole | This residue originated from a large dairy farm with 500 cows. The product Endofluke 10% is routinely used on cows at drying off, usually observing the required 2 month withdrawal period before being brought into the milking herd. The farmer admitted that some newly purchased cows may have been treated 'inadvertently' by a new worker, implying that they may have been milking within the withdrawal period. There was no entry for Endofluke in the medicines records and the farmer stated that his vet had advised him that it was not necessary to record anthelmintic treatments. Otherwise, the medicines records and storage were acceptable. This admission was later retracted, however the cause of this residue is most likely due to failure to comply with the withdrawal period due to erroneous treatment. |
| Fish | | | | |
| Salmon Muscle | Emamectin 130 µg/kg<br><br>(1227187) | Slice | Emamectin | Initial enquiries showed that this sample was erroneously taken within a withdrawal period. |
| Salmon Muscle | Emamectin 150 µg/kg<br><br>(1209487) | Slice | Emamectin | The medicines records and storage were checked and were satisfactory. Two treatments of Slice had been administered over previous few months, the second treatment finishing only two days prior to sampling. Although the withdrawal period for Slice is zero days, this company has customers from the USA and has a company policy of a 60 day (not degree) withdrawal in place. This was still being observed at the time of the investigation. The investigating officer concluded that the cause of this residue is most likely due to difficulties in treating aquaculture animal in general because of the variations in weight and appetite with populations, making administering exact doses of an oral medicine difficult. The company has been advised to submit a suspect adverse reaction to the MA holder. |
| Salmon Muscle | PCBs 5.1 µg/kg<br><br>(1213256) | No investigation required as PCBs are ubiquitous in the environment and not associated with medicinal use. | | |
| Trout Muscle | PCBs 5.7 µg/kg<br><br>(1226669) | No investigation required as PCBs are ubiquitous in the environment and not associated with medicinal use. | | |
| Honey | | | | |
| Honey | Oxytetracycline 1200 µg/kg<br><br>(1218767) | | | Awaiting investigation results |
| Honey | Oxytetracycline 2000 µg/kg<br><br>(1218766) | | | Awaiting investigation results |

## Section D: Follow up/Investigation Results from Northern Ireland

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| **Cattle** | | | | |
| Cattle Urine | α-Boldenone 6.9 µg/l | N/A | N/A | This is a small herd of 44 cattle. The animal had been born into the herd and was 20 months old at the time of on-farm sampling. The investigating veterinary officer found all the animals in the herd in good health with adequate and appropriate confirmation for their age. No suspects were identified. Five follow-up samples were collected, however, two were insufficient for analysis. Two others were compliant and one, collected from the original suspicious animal, contained 9.2 µg/l conjugated α-boldenone, which can arise as a result of faecal contamination and this is thought to be the likely cause in this case.<br><br>The herd owner had no medicine records. He was informed that this was a legal requirement. |
| Cattle urine Female OTM | α-Boldenone 3.8 µg/l | N/A | N/A | This is a small suckler herd of 24 animals. This herd had been targeted in 2012 following the finding of α-Boldenone in it from the 2011 national plan. The sample was collected on-farm from an OTM female. An investigation was carried out on 24/07/2012. Medicine records were available. No suspects were identified. The animal originally positive plus five others were sampled. All six samples were found to be compliant.<br><br>Conjugated α-boldenone, can arise as a result of faecal contamination and this is thought to be the likely cause in this case. |
| Cattle urine Female OTM | α-Boldenone 2.4 µg/l | N/A | N/A | This animal is from a suckler herd of 72 animals. The sample was collected from an OTM female on-farm. The animal had been purchased in 2009 when it was about 18 months old. The investigating veterinary officer found the farm to be well managed and included a few pedigree cattle. Some medicine records were kept but were rather haphazard. The herd owner was advised of the need to keep accurate records of medicines purchased and used on the farm. No suspects were identified. The animal originally positive plus five others were sampled. All six samples were found to be compliant.<br><br>Conjugated α-boldenone, can arise as a result of faecal contamination and this is thought to be the likely cause in this case. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle urine Female OTM | α-Boldenone 3.8 µg/l | N/A | N/A | This sample is from a beef & suckler herd of 100 animals. The sample was collected from an OTM female at slaughter. The animal had been purchased on 11/04/2012, about a month before sampling. It had been housed between purchase and slaughter. The investigating veterinary officer found the farm to be well managed. Movement and medicine records were available and well kept. This animal had not received any treatment while on the farm. For to health & safety reasons no samples were collected during the visit. On the 21/06/2012 one sample and on the 25/06/2012 a further five samples were collected from this herd at slaughter. All samples were compliant.<br><br>Conjugated α-boldenone, can arise as a result of faecal contamination and this is thought to be the likely cause in this case. |
| Cattle Urine Male | α-Boldenone 3.5 µg/l | | | This sample is from a suckler herd of 70 animals. The sample was collected from a one year old, home bred male, on-farm. Movement and medicine records were available and satisfactory. The investigating veterinary officer found no evidence of substance abuse on the farm and no suspects were identified. Five samples were collected on the 15/11/2012. Three of the five samples contained conjugated α-Boldenone above the EC 2.0 µg/l suspicious level and two were compliant. The three non-compliant animals were resampled individually on 30/11/2012, 04/12/2012 and 07/12/2012 and two remained above the EC 2.0 µg/l suspicious level and one was compliant.<br><br>The original non-compliant animal had been moved to another herd. It was sampled 08/11/2012 when it was still above the EC 2.0 µg/l suspicious level. A sample was again collected on 29/11/2012 which proved to be compliant.<br><br>Conjugated α-boldenone, can arise as a result of faecal contamination. |
| Cattle Urine Female OTM | α-Nortestosterone 8.0 µg/l | N/A | N/A | This is a very small herd of only four animals. The sample had been designated to be collected from a young bovine but a four year old cow had been sampled on-farm in error. The animal in question has been reported by the investigating veterinary officer as pregnant. Pregnant bovines produce α-Nortestosterone.<br><br>The herd owner had no medicine records. He was informed that this was a legal requirement. |
| Cattle Urine Female Young | α-Nortestosterone 7.2 µg/l | N/A | N/A | This animal was seven months pregnant at the time of sampling. Female cattle produce α-Nortestosterone naturally during pregnancy. No further action is indicated. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Urine Female Young | α-Nortestosterone 5.7 µg/l | N/A | N/A | An investigation was carried out on 12/10/2012. This is a herd of 311 animals consisting of 220 dairy cows and 91 followers. Medicine and movement records were available. This animal was sampled approximately 10 days after calving. The investigating veterinary officer found no evidence of illegal drugs being administered. Five samples were collected and all were compliant.<br><br>Female cattle produce α-Nortestosterone naturally during pregnancy. The level may not have fallen sufficiently in the short period between calving and sampling. |
| Cattle Urine Female Young | α-Nortestosterone 5.4 µg/l | N/A | N/A | This animal calved 10 days after sampling. Female cattle produce α-Nortestosterone naturally during pregnancy. No further action is indicated. |
| Cattle Kidney Female OTM | Cadmium 1168 µg/kg | N/A | N/A | An investigation was carried out on 24/04/2012. This is a herd of 250 animals. The non-compliant animal was a 13 year old dairy cow that had been bred on the farm. Full movement and medicine records were available. There is no history of mining in the area. No obvious cadmium sources were identified. Kidney cadmium levels increase with age and it may be the case that this result reflects nothing other than the fact that the sampled animal was nine years old. The herd was flagged for further sampling. |
| Cattle Kidney Female OTM | Cadmium 1543 µg/kg | N/A | N/A | An investigation was carried out on the 13/08/2012. This is a suckler/beef herd of just over 200 animals. This animal had been born on the farm and was 10.25 years old. Movement and medicine records were available and were considered to be good by the investigating veterinary officer. There is no history of mining in the area. Herd owner uses car batteries on electric fencing to strip graze kale in the winter. Batteries are stored in a yard and cattle cannot access them other than when they are being used for strip grazing. Kidney cadmium levels increase with age and it may be the case that this result reflects nothing other than the fact that the sampled animal was 10.25 years old. The herd was flagged for further sampling at slaughter. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Cattle Kidney Female OTM | Cadmium 1309 µg/kg | N/A | N/A | An investigation was carried out on 29/01/2013 This is a small herd of 49 animals. The herd keeper ceased milk production 2 years ago and has now only one old cow remaining. He is now purchasing store cattle and finishing to beef. This animal had been born into the herd and was 15 years old. The corresponding muscle sample from this animal was compliant. Movement and medicine records were available. There is no known history of mining in the area.<br><br>Kidney cadmium levels increase with age and it may be the case that this result reflects nothing other than the fact that the sampled animal was 15years old. The herd was flagged for further sampling at slaughter. |
| Cattle Female OTM Plasma | Phenylbutazone 0.5 µg/l | Not determined | N/A | An investigation was carried out on 28/05/2012. This is a dairy herd of approximately 500 animals. The animal had been purchased in June 2011 some 9 months prior to sampling. Movement and medicine records were available. Medicine records were good though some discrepancies were noted when the records were examined along with the PVP. This animal had been treated on 04/11/2011 for pneumonia. Flunixin was administered by the PVP and the herd owner advised of the meat withdrawal time. The herd owner stated the animal was not in calf and was fattened up for slaughter. There were no entries referring to phenylbutazone in the medicine records nor was any of this drug found in the medicine store. The list of products in the store was as described in the medicine record book. The herd owner stated he had not heard of phenylbutazone and had never used it. He has two horses but they only get flu vaccinations.<br><br>This case was forwarded for SMR10 consideration. |
| Cattle Liver | Amino-Flubendazole 2.1 µg/kg | Not determined | N/A | An investigation was carried out on the 04/07/2012. This is a small herd of 21 animals. Medicine records were available. The whole herd had been treated with Cydectin (Moxydectin ) and Spot On (deltamethrin ) on 04/11/2011.<br>Two neighbours are rearing and releasing pheasants for shooting. Bird feeders are placed in the field where this herd owner grazes and it is thought that the pheasants were being treated and contaminated the grazing.<br><br>This case was forwarded for SMR10 consideration. |

| Species & Matrix | Residue detected & concentration (RIM Ref) | Products used | Actives | Cause of residue |
|---|---|---|---|---|
| Sheep Urine | α-Boldenone<br>4.8 µg/l | N/A | N/A | An investigation was carried out on 20/11/2012. This animal was from a flock of approximately 730 animals. Movement and medicine records were available and the investigating veterinary officer noted the medicine records were excellent. No suspects were identified. Five samples were collected and all tested compliant.<br>Conjugated α-boldenone can arise as a result of faecal contamination and this is thought to be the likely cause in this case. |
| Sheep Liver | Nitroxynil<br>37.6 µg/kg | Trodax | Nitroxynil | An investigation was carried out on 10/01/2013. This animal was from a flock of 104 animals. The animal was treated with Trodax on 06/10/2012 and slaughtered on 26/11/2012, 51 days after treatment. The withdrawal period is 49 days. Movement and medicine records were available, however, the quantity administered and the withdrawal period were not recorded in the record but were known by the flock keeper. The investigating veterinary officer noted that the lambs are treated with a calibrated doser which is not changed possibly resulting in over dosage in lighter animals.<br><br>This case was forwarded for SMR10 consideration. |

# Non-Statutory Surveillance Scheme 2012 - 2013

The Non-Statutory Surveillance Scheme concentrates on imported and processed foods. Imported produce was identified by the Veterinary Residues Committee (VRC) as the primary target for investigation. This is because the Committee considers that imported food represents a significant part of the food consumed in the UK and would like to know if there are any residues of concern.

The Non-Statutory Surveillance Scheme, as its name suggests, does not have a legal base. Therefore, the VRC can recommend the substances and foods that should be included. The scheme is funded by Defra with no contribution from the food industry. However, this means that funding is very limited and the surveillance programme is of a much smaller scale than the statutory programme.

## Section E: Residues found during 2012 Non-Statutory Surveillance Programme

| Sample | Analysed for | Number of samples analysed | Reference Point (µg/kg) | Number of samples below the Reference Point, with concentration | | Number of samples at or above the Reference Point, with concentration | |
|---|---|---|---|---|---|---|---|
| | | | | No. found | µg/kg | No. found | µg/kg |
| **Farmed Warm Water Crustaceans** | **Amphenicols**<br>Chloramphenicol | 152 | 0.3 (MRPL) | 1 | 0.25 | | |
| **Imported Farmed Fish** | **Multi-residue (Dyes/Quinolones/ Macrolides)**<br>Leucomalachite Green | 301 | 2 (MRPL – sum of malachite green and leucomalachite green) | 2 | 0.59, 1.3 | | |

## Section F: Full details of 2012 - 13 non-statutory residues surveillance programme

### Imported Raw Beef

| Substance Group/analyte | No. of Analyses | No. above Action Level | Concentration where samples above MRL or at/above the MRPL/Action Level (µg/kg) | No. detected below action level | Concentration where samples below MRL/MRPL/Action Level (µg/kg) |
|---|---|---|---|---|---|
| NSAIDs | 300 | | | | |
| Multi-residue (Nitroimidazoles/avermectins/ phenolic anthelmintics/anthelmintics) | 168 | | | | |

### Imported Honey

| Substance Group/analyte | No. of Analyses | No. above Action Level | Concentration where samples above MRL or at/above the MRPL/Action Level (µg/kg) | No. detected below action level | Concentration where samples below MRL/MRPL/Action Level (µg/kg) |
|---|---|---|---|---|---|
| Amphenicols | 70 | | | | |
| Multi-residue (Nitroimidazoles/ quinolones/macrolides) | 70 | | | | |
| Nitrofurans | 70 | | | | |

### Imported Farmed Fish

| Substance Group/analyte | No. of Analyses | No. above Action Level | Concentration where samples above MRL or at/above the MRPL/Action Level (µg/kg) | No. detected below action level | Concentration where samples below MRL/MRPL/Action Level (µg/kg) |
|---|---|---|---|---|---|
| Amphenicols | 188 | | | | |
| Nitrofurans | 188 | | | | |
| Multi-residue (Dyes/quinolones/macrolides) | 301 | | | 2 | Leucomalachite green: 0.59, 1.3 |

### Farmed Warm Water Crustaceans

| Substance Group/analyte | No. of Analyses | No. above Action Level | Concentration where samples above MRL or at/above the MRPL/Action Level (µg/kg) | No. detected below action level | Concentration where samples below MRL/MRPL/Action Level (µg/kg) |
|---|---|---|---|---|---|
| Amphenicols | 152 | | | 1 | Chloramphenicol: 0.25 |
| Nitrofurans | 152 | | | | |
| Antimicrobial Screen | 152 | | | | |

**Section G:  Results of follow-up actions for non-compliant residues**

No non-compliant results for 2012.

# Further Information

The following links will take you to websites where you can find further information relating to surveillance for veterinary residues:

**Link to Glossary of relevant terms and abbreviations**
Web address - http://www.vmd.defra.gov.uk/VRC/pdf/glossary.pdf

**Veterinary Residues Committee website**
Web address – www.vmd.defra.gov/vrc

**Veterinary Medicines Directorate website**
Web address – www.vmd.gov.uk

**Food Standards Agency website**
http://www.food.gov.uk/

**EU guidance and information on control and monitoring of veterinary residues:**
http://ec.europa.eu/food/food/chemicalsafety/residues/control_en.htm

**Fera website**
http://www.fera.defra.gov.uk/