

National statutory surveillance scheme for veterinary residues in animals and animal products: 2021

Residues detected above the reference point to date: 31 December 2021

Sample	Analysed for	No. of analyses	No. of Non-compliant samples	Reference Point µg/kg/l	Concentrations above the Reference Point µg/kg/l
Calves kidney	Antimicrobials screen 1	134	5	50	270 amoxicillin
				600	700 chlortetracycline
				100	4100, 5200 gamithromycin
				3000	3400 tulathromycin
	Antimicrobials screen 4	108	6	1000	28000 dihydrostreptomycin
				1500	2300, 3400, 15000, 21000, 78000 paromomycin
Florfenicol	101	1	300	460 florfenicol	
Calves kidney fat	Pyrethroids	32	1	500	4600 permethrin
Cattle kidney	Antimicrobials screen 1	1289	2	600	1100 oxytetracycline
				3000	4500 tulathromycin
	Metals	82	4	1000	1500, 1500 cadmium
				500	680, 6300 lead
NSAIDs	431	1	65	5700 meloxicam	
Cattle liver	Anthelmintics	750	4	1000	1200 closantel
				100	112 levamisole
				20	27 nitroxylnil
				500	1470 oxyclozanide
	Avermectins	487	1	100	160 ivermectin
	Cattle milk	Antimicrobials screen 1	620	1	4
Anthelmintics		496	1	10	230 triclabendazole
Avermectins		500	2	Presence	1.9, 8.0 ivermectin
Cattle serum	Testosterone	339	1	Presence (female)	0.47 beta testosterone
Cattle urine	Steroid screen 1	1091	16-2 substances in 1 sample	Presence	0/2.65, alpha-boldenone
				0.7 (male) 5 (female)	0.53, 0.55, 0.76, 1.2, 1.6, 8.7, 15 alpha-nortestosterone
				Presence	0.26, 0.46 beta-nortestosterone
				8.4	9.7 progesterone
				12	13, 20, 23, 43, 44 testosterone
				Presence	0.36 beta-estradiol
	Zeranol	406	3-2 substances per sample	Presence	1.2, 1.6, 4.7 taleranol 0.89, 0.94, 1.5 zeranol
Fattening cattle serum	Steroid screen 1	58	1-2 substances in 1 sample	4	4.9 alpha boldenone 0.78 beta-boldenone
	Testosterone	343	2	Presence (female)	0.3, 5.8 beta-testosterone

Sample	Analysed for	No. of analyses	No. of Non-compliant samples	Reference Point µg/kg/l	Concentrations above the Reference Point µg/kg/l
Fattening cattle urine	Steroid screen 1	1195	24	Presence	0.69/2.42, 2.4, 2.6, 3.8, 5.1 alpha-boldenone
				5	5.1, 5.3, 5.5, 6, 6.5, 10, 10, 10, 10, 11, 11, 11, 14, 14, 22, 22, 24, 27 alpha-nortestosterone
				Presence	22 beta-estradiol
	Thyrostats	240	2	Presence	5.8 methylthiouracil
				30	31 thiouracil
Zeranol	375	7-2 substances per sample	Presence	0.88, 1.1,1.1,1.9, 2.2, 2.9, 3.8 taleranol 0.5, 0.56, 0.61, 0.92,1.0, 1.7, 2.2, zeranol	
Pig kidney	Antimicrobials screen 1	1346	1	50	159 penicillin G
	Nitrofurans	345	1	0.5	0.41 semicarbazide
Pig liver	Mycotoxins	76	1	Presence	2.7 ochratoxin A
Sheep kidney	Antimicrobials screen 1	2086	2	200	350 gamithromycin
				600	1100 oxytetracycline
				1000	1600 cadmium
	Metals	57	3	500	550, 620 lead
Sheep liver	Anthelmintics	1494	4	1500	1700, 1800, 2700, 5600 closantel
	Avermectins	585	2	100	180, 450 moxidectin
Sheep urine	Steroid screen 1	506	19	2	0.67/1.73, 2.42/0.14, 2.6, 2.7, 2.7, 2.8, 3.0, 3.2, 3.5, 3.7, 3.9, 4.1, 4.1, 4.2, 4.4, 5.4, 7.4, 10 alpha-boldenone
				Presence	0.41 beta-nortestosterone
Broiler muscle	Antimicrobials screen 1	1261	1	100	110 doxycycline
Deer muscle	Nitroimidazoles	4	1	3	48 ronidazole
Eggs	Coccidiostats	745	1	150	480 lasalocid
Partridge muscle	Coccidiostats	7	3	5	8.8, 94, 210 lasalocid

Results of follow-up investigations: 31 December 2021

Medicinal products referenced can be found on the [Product Information Database](#).

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Amoxicillin 270 µg/kg 2129725	Great Britain	A medium sized dairy farm accredited as part of the Red Tractor Assurance Scheme. The farm has a total of 254 animals, approximately 91 milking cows and around 56 beef cattle which are usually sold at market. Cattle are out for grazing April-May and housed in October-November. All are vaccinated for BVD and monitored for Johne's disease. This is a closed herd, using AI for breeding. Up to August 2019, the medicine records were kept on paper as hard copies, then electronically. Calves less than 42 days old are usually sold to a private buyer. The positive calf was part of a group of calves which was meant to be purchased, but the animal was affected by scour, so was treated. From April-May 2021, the farmer looked at reducing usage of antibiotics on farm and started to use alternative natural treatments. When the private buyer came to pick up the calves, he rejected some as being too small, including the animal from which the positive sample has been collected. At this stage, the farmer decided to send the calf for slaughter. Synulox bolus 500 mg was present on farm, kept in the calves shed together with natural boluses. The Synulox bolus was not recorded in the medicine book as the farm was not aware it had a withdrawal period. The farmer only buys it when required and in small quantities (not with a datasheet, just in a plastic bag with minimum information and had never been informed it had a withdrawal period). At the time of the visit, Synulox was stored in the medicine cabinet which was secured. Other medicines used included Zactran, Metacam, Pen&Strep, Ketodlor, Ubrolixin, Betamox, and Diatrim. The investigation established that the likely cause of this residue was an unrecorded treatment due to human error and subsequent slaughter of the animal whilst within a withdrawal period. The farmer was advised to record all medicines used on the farm and if not sure of withdrawal periods to seek advice from the PVS and veterinary practice. Advice on and guidance on observing withdrawal periods and record keeping requirement guidance was provided.
Calves kidney	Cadmium 1500 µg/kg 2133300	Great Britain	This is a mixed upland QMS accredited farm growing grass, cereals, and forage crops to feed 500 breeding sheep and 250 suckler cows. The sheep live outside all year grazing fields, nursing lambs at foot or on the hill when dry. Male lambs are sold as stores at weaning in August. Females are kept as replacements. Cull ewes are sold post weaning in the autumn. The cows, pedigree Aberdeen Angus and Beef Shorthorn graze mostly in fields when nursing. Cows will be housed for calving in February through to April-May and are fed a home-grown ration of straw and silage. Young stock is housed for their first winter and fed a home-grown ration of grass silage, whole crop silage, rolled barley, minerals, and a protein supplement. Male calves are sold either as stores at a year old or as breeding bulls as yearlings. Most females are retained for breeding. Cast cows are sold in the autumn post weaning. Only selective animals, mostly rams and the odd bull are brought on farm. They are members of the Premium Cattle Health Scheme. There is a sow kept in isolation that occasionally produces piglets. The pigs are fed home grown barley with minerals. The investigation established that there were potential sources of environmental contamination of the soil and water, locally. Research has shown that heavy metals can accumulate in the kidney of animals subject to low level exposure over time and this is likely to be the cause in this case as it was an eight-year-old cow. The farmer was advised to discuss the findings with the PVS.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Chlortetracycline 700 µg/kg 2111251	Great Britain	<p>A medium sized pedigree dairy enterprise consisting of 360 animals, (239 milking cows), Red Tractor accredited. The positive animal was a 3 month-old friesian male calf born in October 2020 and sold at market in January 2021. The animal resided on another site for 3 days before being sent to slaughter in February 2021. The farm was a closed herd although occasional replacement cows are bought in. Only AI is used and calving is all year round. Milking cows are housed all year round and fed a TMR ration. Calf heifers are fed milk powder, while friesian and beef calves can be fed waste milk (high cell count milk only). Replacement heifers are homebred. Friesian and beef cross calves are normally sold between 1-3 months of age via market. The herd is vaccinated for BR, Lepto and routinely screened for Johnes and BVD. Medicines are supplied by the PVS and stored in a lockable cabinet only accessible by the herd keeper and a trained operative. Medicine records for calves are kept in paper format and appeared satisfactory. Cow medicine records are kept in electronic format and a trained operative is responsible for the administration of medicines. Records of treatment are transferred into the computer and on a white board. The milk from cows undergoing treatment is automatically diverted by robot. Medicines routinely in use are Ubrolexin (treatment of clinical mastitis), Pen&Strep (for lameness), Prellim, Metricure and Ubrostar Red (fertility treatment). Records show that several calves (17 in total) were treated for pneumonia in January 2021 Resflor Solution containing florfenicol and flunixin. The ID of the treated calves is recorded and there was no evidence that the positive calf was injected. No evidence of chlortetracycline products were found on the farm. The farmer confirmed that no medicated feedstuff is used. No other issues were identified and no expired medicines were found (medicines are usually disposed of by the PVS). Invoices of all purchased medicines are retained for more than 5 years. Record keeping requirements were discussed with the owner and advice was given to check ear tags of animals that have been treated. The investigation was inconclusive - the cause of residue was unestablished.</p>
Calves kidney	Dihydrostreptomycin 2800 µg/kg 2117520	Great Britain	<p>A medium sized dairy cattle farm accredited by Red Tractor Assurance Scheme. The positive animal was born in March 2021, taken to the abattoir in May and slaughtered on the same day. This CPH comprises of 2 different blocks of land. Cattle graze and additionally are fed with grass silage and blend. Young calves are given milk replacer and young bull calves are also fed waste milk. There were approximately 500 cattle in the herd mainly Heifer Friesians. Bull calves are sold directly to slaughter or on the market. Weak or sick calves are treated on farm and sold to slaughter after the withdrawal periods are met. The herd health plan is developed with the PVS who routinely visits, medications are sourced from the PVS. The PVS confirmed very good management of medicines and administration at the farm. The medicine records were up to date and correctly completed. Proof of purchase is retained for all medications with data sheets for each product used. There were issues with pneumonia on calves during the winter/spring. The calf had suffered with pneumonia and a high temperature in April, treatment was recorded in the medicine book (Draxxin and Metacam). The active ingredient in Metacam is meloxicam and its withdrawal period of 15 days should have ended on 07 May 2021. The calf was moved off the holding on 19 May. The substance detected in the calf's kidney was dihydrostreptomycin. None of the recorded/used medicines contain dihydrostreptomycin. The farmer and the PVS confirmed that the farm regularly stocked PenStrep used rarely on some calves. According to the medicine records, no calf was treated with this product during April, May, or June. Even if the PenStrep had been used instead of the medicines administered, the withdrawal period of 23 days would have been met. Medicines are mainly administered by the family SQP, but other members also do it. It is likely that the animal was administered a product containing dihydrostreptomycin (PenStrep) close to it being slaughtered and it was not recorded. The farmer was advised to discuss antimicrobial treatment with the PVS, to pay particular attention to the product which is administered to avoid misuse or errors. The investigation established that the likely cause of residue was an unrecorded treatment and subsequent slaughter whilst within a withdrawal period.</p>

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Florfenicol 460 µg/kg 2129816	Great Britain	A medium sized beef and growing farm accredited as part of SAI Global Assurance. The enterprise is a fattening cattle unit. There are 7 animals on the main premises and approximately 320 animals in each of the other holdings that operate as a beef cattle herd with no breeding stock. They are sold for slaughter when they reach between 1-2 years of age. Occasionally, animals are sold to private customers. The cattle are bought from different markets and auctions. The premises also operate as a collection centre for young calves with ages ranging from 10 days to 6 weeks. Medicine records showed that 2 bottles of Nuflor (florfenicol) had been purchased in November 2020. The product was applied to cattle in November, December, and March. The animals were identified and recorded in the medicines book. The batch doses and dates were all recorded. The positive animal was born in July 2021 and was sold at auction. The animal stayed on farm for less than 24 hours before it was sent for slaughter. There were no records for the positive animal found in the medicines book. No evidence of fraudulent treatment was seen during the investigation visit. It can be concluded that the most likely reason for this positive result is that the animal was treated prior to the purchase at the holding of birth and inadvertently sent for slaughter within the withdrawal period. The investigation was unable to establish where the calf was treated prior to slaughter.
Calves kidney	Gamithromycin 4100 µg/kg 2129703	Great Britain	This is a large cattle farm accredited as part of the Red Tractor Assurance Scheme. The positive animal was a 6-week-old Holstein Friesian bull calf and was part of a consignment of 12 calves delivered from the farm directly to slaughter. This is a complex farming operation comprising of three dairy herds spread across different sites, plus a calf and a heifer rearing unit (total stock around 2000 animals, 1200 milking cows). All replacement heifer calves are moved to a dedicated heifer rearing unit where they are reared, served, and then returned to the main premises to calf. Bull calves are sent directly to slaughter for veal production on a weekly basis at about 3-6 weeks of age. There are no bulls on farm for natural service, the last bull was moved off in June 2021 and all cows are now artificially inseminated. Bull calves are reared at a dairy unit and kept in pens, housed on deep straw bedding, fed pooled milk and powder. Management is the responsibility of an on-farm apprentice, two relief farm workers under the direct supervision of the farm manager. They are responsible for the administration of treatments and record keeping. Medicines routinely used are Zactran (active substance gamithromycin), Metacam and Diatrim. The ear tag number, name of product administered is recorded on a white board and transferred into the medicine book at the end of the day. The farm manager is responsible for cross checking these records. Management of the calves was the responsibility of a former employee who was particularly accurate in recording treatments. A robust system has now been implemented and all employees are fully trained. These measures should prevent similar incidents from happening in future. No other breaches were identified during the visit. The investigation established that the likely cause of this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Gamithromycin 5200 µg/kg 2111260	Great Britain	This is a large cattle farm; the main enterprise is dairy with a small-scale beef side. The farm is FABBL accredited. Many cows are pedigree Guernsey and Jersey. There are also Holstein Friesian cows, the male calves are raised as stores, but occasionally are sold as calves at market or directly to abattoir. A small group of suckler cows is kept, predominantly British Blue and Limousins. The positive animal was a male calf born in January 2021. The animal was sold at market in February with 4 other calves, on the same day it moved to a collection centre, then was moved to slaughter. It had been treated with Zactran an antimicrobial solution for injection for cattle, sheep, and pigs (active ingredient gamithromycin) for pneumonia instead of Engemycin. Medicine records were found to be satisfactory, however records suggest that the animal was given the medicine and sent for slaughter whilst within a withdrawal period. The farmer admitted that a calf was treated with an antibiotic normally used only for dairy calves. At the time of dispatch, it was presumed that the usual medicine with shorter withdrawal period was administered to this animal, and this was not checked and/or the medicine record was read incorrectly. The farmer was advised of the importance of correct usage of medicinal products for dosage, correct application as stated on the label or as prescribed. The investigation established that the animal was sent for slaughter whilst within a withdrawal period.
Calves kidney	Oxytetracycline 1100 µg/kg 2115656	Great Britain	A medium sized cattle farm and accredited as part of the Farm Assurance Scheme. The farm has a mix of growing and beef cattle of various breeds. The farmers are also cattle dealers. Depending on the time of year, stock is either out at grass or housed. They are fed silage and concentrate mix. The positive animal travelled direct from the farm to the abattoir in May 2021. The medicine Alamycin LA 25ml was injected in April 2021 (Almamycin LA 200 mg/ml – meat withdrawal 41 days for cattle – dosage should be 20mg/kg i.e., 1 ml/10kg so the animal was underdosed based on its carcass weight. The withdrawal period had been adhered to. This alongside the underdosage administered indicates that this is an adverse reaction. Medicines were stored appropriately, and the records were found satisfactory. The farmer complied with the statutory requirements, there was no evidence to conclude a breach during the inspection. The farmer has been advised to officially report this to the VMD as an adverse reaction. The investigation established that the likely cause of this residue was an adverse reaction to the medicine given.
Calves kidney	Paromomycin 2300 µg/kg 2129769	Great Britain	This is a large dairy and beef cattle farm accredited as part of the Red Tractor Assurance Scheme. In August 2021, 9 male calves were transported directly to the market. The positive calf (18 days old) was presented for slaughter for human consumption at the abattoir. Male and female calves are segregated on different farm areas. Female calves are kept as a replacement. Male calves are sold between 10 to 30 days for storage at the market. Male calves rarely receive medicine treatment. Treatment is applied if needed and the animal will be marked accordingly. The farmer, was not aware of the destination of this batch of calves, sold less than 20 days old. Medicine records were checked and found to be accurate and satisfactory. Parofo Crypto (active substance paromomycin) was found and the farmer confirmed that the product is used on mainly female calves when clinical signs are presented around 4-5 days old. None of the batch of calves sent to the market in August 2021 had been treated. The owner stated that it would be very unusual for a human error to occur as male and female calves are segregated. However, the same day the calf was born, another male calf was treated with this substance and the treated animal recorded on the medicine records died. On inspection of the product, there was no cause for concern. Movement records were also presented with no concerns. The PVS described farm management as spotless and routine visits were regularly carried out with no issues. High management standards were evident during the inspection. There is a robust management system in place, recommendations were given to continue storing medicines and records in the same way to meet requirements. The investigation was unable to establish a source for this residue.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Paromomycin 3400 µg/kg 2111302	Great Britain	<p>This is a large cattle dairy farm, dairy herd 550, 450 young stock, 954 cattle mainly Holstein. The farm is managed by the owner with help from the herdsman and additional workers. Breeding is AI plus bulls; all the animals are in one holding. There is a paddock grazing system in the summer. Cows and young stock are housed in different sheds over the winter. Beef and heifer calves are kept separated and housed in opposite sides of the building. Beef calves are sent to market or sold to other farms before they are 42 days old. The herdsman only has access to the medicine cabinet. Parofo Oral Powder is given with the milk replacement fed to the calves by a different worker. Calves are fed with individual bottles of colour coded milk to alert the person doing the feeding how much the calves should receive and labelled with yellow tape to denote Parofo treated milk. Medicine records showed the use of Parofo routinely only in heifers and was administered in February to different heifers. The positive animal was not recorded as being treated. No other medicines were found containing paromomycin according to the records and invoices produced by the farmer. The investigation established that the cause of this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period at the farm of origin. The person responsible for calf feeding and treatment at the time, is no longer with the farm due to this incident. Procedures have since been put in place to avoid reoccurrence and treatments have been reviewed by the PVS.</p>
Calves kidney	Paromomycin 15000 µg/kg 2117513	Great Britain	<p>A large farm accredited by the Dairy Farm and Beef Farm Assurance Schemes. There is a dairy pedigree milking herd which is separated in two locations (1000 cows) and (850 cows). Milking is carried out 3 times a day, animals are kept in house. all year. The farm rears its own replacements and the dairy bull calves are slaughtered at 10 days old. Beef calves are sent to the market with a TB movement licence. A protocol is in place for calves' management from birth until turning out for grass. There are approximately 250 calf heifers. There is a vaccination program for IBR, BVD, leptospirosis and an ongoing problem with Johnes' disease. Colostrum is only used from disease free cows. Medicines are sourced from the vets. The medicine stock is checked monthly; expired medicines are returned to the vet. There is a dedicated medicine cabinet for calf medication, in-house trained staff that are responsible for calves have the only access. Worming treatments are administered regularly, Dectomax Pour on is used on all young stock going out to pasture. Some incomplete medicine records were found, and medicated feed was not recorded. The positive calf was a homebred male born in April 2021. The residue was discussed with the farmer who confirmed that it must have been a mistake by one of the employees. The investigation established that the cause of this residue was the calf being given medicated milk.</p>
Calves kidney	Paromomycin 21000 µg/kg 2136442	Great Britain	<p>This is a medium sized dairy farm also producing beef calves. It is accredited with the Red Tractor Assurance Scheme and FAWL. The beef and dairy female calves are kept growing, the male calves are sent for slaughter. Calves kept for growing on farm are treated with Parofo (active substance paromomycin). Male dairy calves are not treated with that product. The farm has good records for all the medicines used, except for the Parofo which is not recorded. There is a writing board where the information on treatment of calves is added, then deleted when a new batch of calves requires treatment with Parofo. All the calves inspected were in good housing facilities and no health or welfare issues were observed. The official veterinary practice confirmed good farm practice and good care for the animals. According to records, the farm had not had any previous issues. Advice was given to correctly record all administration of medicines. All treatment records will now be paper based and details of administration of Parofo will be recorded. The farm is aware that extra surveillance on the male dairy calves is required to avoid such problems in future. The PVS will also visit the farm to provide extra advice to prevent non-compliances with medicines in the future. The most likely cause of this positive residue is that the male calf was treated in error.</p>

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Paromomycin 78000 µg/kg 2111301	Great Britain	This dairy farm consists of 1043 cattle, 640 milking cows, 1 stock bull and young stock. The farm has 750 acres of land all used for making grass, maize, silage, and crops. Cattle are vaccinated for BVD, IBR, Lepto and monitored for Johne's disease. Most of the animals are homebred and occasionally the farmer buys in heifers as replacements. Dairy bull and beef calves are sent directly to slaughter at less than 42 days old or are kept for rearing. All calves are housed in groups from birth, accommodation for all calves is disinfected weekly. Medicines are kept in lockable medicine storage; expired medicine containers are disposed by the PVS. The medicine records were satisfactory, main medicines used are Trymox LA, Synulox RTU, Kelapofen and Metacam. 24 calves were treated with Parofor Crypto December-January. The positive animal a 15-day old Holstein Friesian male was not included in the medicine records the records, as it was to be slaughtered. There was an animal with a similar eartag on the records, it is possible the animals were mixed up. The investigation established that the likely cause of residue was an unrecorded treatment of the animal and subsequent slaughter whilst within a withdrawal period.
Calves kidney	Tulathromycin 3400 µg/kg 2129732	Great Britain	The holding is Red Tractor Assurance Scheme accredited. It has a large dairy herd, 561 cattle, 290 dairy cows (mainly Holstein Friesian). Since 2019 all replacements are homebred. Milking is twice daily. There is only AI, the calving pattern is all year round. Animals graze in summer and are housed in winter. The farm has a contract with a dealer for the calves, the weak ones are taken to slaughter by the farmer. There are problems with pneumonia in calves. A new shed has been built for calves to improve conditions and ventilation. The PVS is involved trying to solve the problem and the animals have been treated with Draxxin (tulathromycin). The positive animal did not appear on the list of animals treated. There was a calf treated twice in May and June (Draxxin only needs one injection), all other animals were injected once. The correct withdrawal period was recorded in the medicines book. There were no records of treatment for worms. There is no vaccination program. All medicines are correctly stored. Movement records were inspected, the positive animal was moved in July and that matched with CTS data. Recommendation was given to the farmer to seek advice from the PVS, to keep medicine records correctly updated (detailing medicines used, expiry dates, withdrawal periods) for all products including treatments for worms and to check the ID of treated animals. The investigation established that the likely cause of this residue was an overdose due to incomplete medicine records.
Cattle kidney	Cadmium 1500 µg/kg 2126820	Great Britain	This is a small cattle farm comprised of 61 cattle (some Hereford pedigree, Hex and 15 sheep). All the animals looked healthy and in good condition on inspection. The positive animal a pedigree, had been in several shows and was sold at market in August 2021. The farmer reported that the animal was the fittest animal on the farm. Cattle usually graze in groups of 6 in different fields, some share the field with sheep. A motorway is very close to the fields where the cattle graze. There is no steel industry near the fields, however one of the fields is close to industrial land, no mining is located nearby. There is a field which is prone to flooding. The farmer confirmed that no phosphate fertilisers were used. The farmer was not aware of any issues of cadmium or zinc with the topsoil. The investigation established that there were potential sources of environmental contamination of the soil and water locally. Research has shown that heavy metals can accumulate in the kidney of animals subject to low level exposure over time and this is likely to be the cause in this case.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Lead 680 µg/kg 2117449	Great Britain	The farm is approved by the Red Tractor Assurance Scheme and is a large mixed dairy and beef farm of around 360 cattle. There are approximately 60 milking cows and 30 suckler cows. The farmer buys 12-month-old bulls from market, sells them at 20 months old or they are sent directly to the abattoir. The farmer also keeps sheep and sells fattening lambs. There are approx. 800 ewes. The farm has traditional dairy buildings, and 500-acre land is used for grazing. Cattle are fed a total mixed ration when housed. No medicated feeding stuffs are used. The water supply is from the mains. Medicines are stored in a lockable case in the farm office. No expired medicines are kept, but if identified they are put aside to avoid use. The medicine book and movement records were checked and were all satisfactory. The positive animal was a cross breed bull born in July 2019, purchased in September 2020 and it stayed on the premises and stayed on the premises until May 2021, when it was sold via market and slaughtered in June. The positive animal was reported to be a healthy animal and did not graze the land on this farm. The shed where the animal was housed was inspected and no evidence of known sources of lead such as vehicle batteries, old machinery, flaky lead paint was found. The farmer was given a leaflet on lead prevention and advised on any potential sources of lead. The investigation established that there were potential sources of environmental contamination of the soil and water, locally. Research has shown that heavy metals can accumulate in the kidney of animals subject to low level exposure over time and this is likely to be the cause in this case.
Cattle kidney	Lead 6300 µg/kg	Northern Ireland	An investigation was undertaken in September 2021. The animal was 26 months and 24 days old and had been purchased just over 5 months prior to slaughter. Movement and medicine records are kept in accordance with legislation. The heifer was from a 155 suckler and store to beef herd. Sheep are also present on the farm. The animal had been treated for fluke, worms and lice but nothing which would have caused lead to be present in the animal. All follow up samples had very low levels of lead presence (30-71 µg/kg). The batch in which this animal was in have now all been slaughtered. Further investigations revealed that there had been issues with fly tipping on a concrete lane that runs adjacent to the field where the cattle graze. Environmental services from the council are aware of this.
Cattle kidney	Meloxicam 5700 µg/kg 2126646	Great Britain	This is a medium sized dairy farm, assured with the Red Tractor Scheme. The farm is run by 3 full time members of staff. It consists of 349 cattle in total, approximately 283 milking cows, 40 dry cows, 2 stock bull and young stock. Land is used for making grass silage and for cattle summer grazing, cattle are housed during the winter. Most of the replacements are milking cows purchased from market and freshly calved cows from a local dealer. The farmer keeps some of the homebred dairy heifers. All dairy bull and beef calves are sold to the market at less than 42 days old. The milking cows have cake in the parlour and are fed with grass, blend with bread and molasses. The calves have colostrum from their mothers for 2 days and are then fed with milk powder or pooled milk. No medicated feed is given to the cattle. Cattle are vaccinated for BVD, IBR, Lepto and monitored for Johne's disease. Medicines are kept in lockable storage facilities. The farm uses medical treatments for mastitis, pneumonia, and foul. Main medicines used are Diatrim, Betamox, Gamaret. The farmer uses the anti-inflammatory Metacam to aid recovery and reduce pain in animals. Medicine records appeared satisfactory; medicine invoices are retained for 5 years. The positive animal was over 36 months old, a Holstein Friesian cross breed female, born in April 2016. The animal had slipped in the yard and was unable to rise (suspected injured right hind leg), however no treatment was administered by the PVS. The milking cow had previously been in very good health and had no incidence of mastitis. The investigation established that the likely cause of this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Tulathromycin 4500 µg/kg 2110489	Great Britain	A medium sized farm beef cattle farm. The farmer buys store cattle from markets, then finishes them on the farm before sending them to the abattoir. Due to Covid-19 circumstances a friend had to deal with the cattle in the farmer's absence. This person was not aware that the animal had been injected and decided to send it to the abattoir prior to the withdrawal period finishing. Draxxin was administered to this animal in January 2021, the animal was slaughtered in March. It had remained on the farm for 20 days; the withdrawal period was 22 days. The investigation established that due to covid-19 illness, the cause was down to human error in failing to understand the dosing regimen. Advice was provided to develop a system where animals are clearly identified so that they cannot be sent to the abattoir whilst in a withdrawal period. The farmer was also reminded of obligations for record keeping requirements related to the administration and disposal of veterinary medicinal products, further guidance was provided. This investigation was carried out remotely due to Covid-19 restrictions.
Cattle kidney fat	Permethrin 4600 µg/kg 2129850	Great Britain	This is a large dairy cattle farm of 960 animals, 890 are Holstein Friesian, the positive animal was in this breed. Beef calves are taken from a cattle dealer, loaded early morning and taken to the abattoir. No treatment is given to animals at this stage. According to the movement records, 5 calves were taken to the abattoir, and this included the positive animal. The animal was born in July 2021. The medicines cabinet and medicines kept in the fridge were inspected, both were found satisfactory. Flypor Pour-on was found in the cabinet, an insecticide for cattle (4% permethrin) used for the control of flies and lice on cattle. The farmer confirmed he only used it on dry cows yearly before the cows went to graze. The farmer was aware of the withdrawal periods for milk. The product is not used on calves. Calves and cows are kept in separate sheds and locations and there is no contact between them when the product is sprayed on the cows. For milking cows and for sheds a biological control is used, using parasitic wasp flies. Since its use, there have been no problems with flies when cows are in-housed and use of the pour-on medicine has decreased. The medicine records appeared satisfactory and were provided by the PVS. No treatment was recorded against the positive animal. Cross-contamination or human error cannot be dismissed as the medication is on the farm. Recommendation was given to keep the product in the locked cabinet, advice given not to spray the product on cows if calves are present and to record the wormers, vaccinations and fly treatment in accordance with regulations. The investigation was unable to establish a likely source for this residue.
Cattle liver	Closantel 1200 µg/kg 2103405	Great Britain	This is a large fattening cattle farm accredited by FABBL. In autumn the farm purchases stock 6-10 months old mainly from the market. Animals are kept outside unless the weather is too extreme, and they graze during summer. The feeding system is based on local silage, barley, and straw. Young ones receive some protein pellets. Each animal is tagged and administered IBR vaccine. Cattle are wormed two months before slaughter, using Norofas Pour-on Solution for Cattle. The last treatment applied to the positive animal was in November 2020. Standards on this farm are quite high, they have the correct management system, although there is room for improvement in medicine recording. There was a lack of records for some of the vaccines and antiparasitic treatment in 2019. A treatment for wormer had not been recorded individually, although the farmer stated each animal could be identified. The syringe used for the application is one specially designed by the manufacturer bought in 2019 and looked in good condition although it was not calibrated. Pour-on treatments require calibrated equipment to ensure delivery of the correct dose. The farmer stated that cattle were individually weighed and dosed accordingly. He was advised on the importance of accurate completion of medicine records and correct administration of medicines and to discuss further with the PVS. The investigation established that the likely cause of this residue was an inadvertent overdose of the animal.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle liver	Ivermectin 160 µg/kg	Northern Ireland	An investigation was completed in November 2021. Movement and medicine records are kept in accordance with legislation. The animal was transported to slaughter by haulier although the cattle for this farm are usually transported first. The animal was from a herd of 100, there were also some sheep present on the farm. The animal had been treated with Noramectin in June 2021 (the medication has a 28-day withdrawal period). The withdrawal time was adhered to. A further six animals were taken to slaughter on the same day which had all been dosed at the same time as the positive animal. All follow up samples were compliant.
Cattle liver	Levamisole 112 µg/kg Oxyclosanide 1470 µg/kg	Northern Ireland	An investigation was completed in January 2022. The animal was 21 months old and was purchased 10 days prior to slaughter. The animal was from a beef herd of 110 and was taken to slaughter by the farm's own haulier who stated that the animal must have been treated prior to purchase and not declared during sale. Follow up samples were complaint (one contained Levamisole 13 µg/kg).
Cattle liver	Nitroxynil 27 µg/kg 2103424	Great Britain	This medium size beef cattle farm is an accredited member of the QMS farm assurance scheme. There were 70 cows with calf at foot or just about to calf. All the fattening cattle had been sold, there were 69 store cattle (growing) and 2 bulls present. Approximately 70-75 calves are born May-June time. Around half of these will be sold at market as stores, aged 14 months, the remainder are finished and sold directly to the abattoir. Bulling heifers are sourced privately from clean herds and some homebred heifers are kept for breeding. Only bulls are in use which are put with cows mid-July. Cattle are kept outside during April-May to October-November weather permitting. Cast cows and bulls are only sold when they no longer perform efficiently, so age can vary. The investigation established that the likely cause of this residue was an overdose to the animal and subsequent slaughter whilst within a withdrawal period. The owners were advised to ensure that the correct dosage of veterinary medicinal products is administered to all cattle and the date of treatment is accurately recorded in the medicine records.
Cattle milk	Ivermectin 1.9 µg/kg 2131126	Great Britain	The dairy farm is comprised of 338 milking cows, 225 beef calves and is accredited as part of the Red Tractor Assurance Scheme. There are also 5 sheep, 18 chickens and 2 donkeys on site. Preventative medicines used are, Albex (albendazole) used to treat fluke on dry cows. Paramectin (ivermectin) is administered to heifers during their first year and occasionally to beef calves. It is not administered to milking or dry cows and Dysect (alpha-cypermethrin) is used. Approximately 103 heifers calved between August-November, they had been milking since August-September. The last dose of Paramectin was in May, in October Dysect (fly treatment) was given to all cows. The farmer mentioned there could have been cross-contamination as he used the same dosing gun for these medicines and the dosing gun was not cleaned properly. The inspector could not rule out that a more recent treatment was given, but not recorded. Record keeping guidance was given and the farmer was advised to clean and disinfect the dosing gun used, or to use a different gun for each treatment. Although the investigation was unable to establish a cause for this residue, dosage with contaminated equipment is the likely risk route.
Cattle milk	Ivermectin 8.0 µg/kg	Northern Ireland	An investigation was completed in September 2021. Movement and medicine records were kept in accordance with legislation. The positive animal was from a dairy herd of 91. The herd keeper explained that he had separated 5 cows out and these were treated with Ivomec Super in October 2021. However, mistakenly these cows were then included in the next milking by the person carrying out the milking. A follow up sample was compliant.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle milk	Penicillin G 10 µg/kg 2101479	Great Britain	This is a medium size dairy herd with around 130 cows milked. All treated animals are housed separately from the rest of the herd and marked with red tape on the tail. Regular samples are taken by the dairy monthly. Medicine records are kept for more than 5 years in an organised folder. Batch numbers and quantities used are recorded against each medicine. No discrepancies were found, all withdrawal periods are recorded and checked. Unused or expired products are disposed of in a designated container and taken to the veterinary practice. The medicine cabinet was inspected and found satisfactory. One of the milking animals was treated with PenStrep in March. This suggests human error as either the treatment was not recorded, or recorded with an incorrect date, or another animal was treated earlier but not recorded by mistake. The PVS confirmed that the farmer kept very good records. The farmer admitted that human error was possible as the milk sample was taken on the day a gamma test was done, so a treated cow could have been milked along the herd. The importance of good record keeping and marking of treated stock was highlighted by the inspector. The investigation established that the likely cause of this residue was an unrecorded treatment due to human error.
Cattle milk	Triclabendazole 230 µg/kg	Northern Ireland	An investigation was completed in January 2022. The milk was from a farm with 66 sucklers. Movement and medicine records are kept in accordance with legislation. A batch of suckler cows were treated with Fasinex, medication was mixed with meal rather than oral dosing as per instructions. The medication has a withdrawal period of 52 days. The herd keeper explained that milking cows may have accidentally gained access to this feed. Since December 2021, the herd keeper has ceased being a milk producer. Follow up liver sample was compliant.
Cattle urine	Alpha-boldenone 0/2.65 µg/kg	Northern Ireland	An investigation was undertaken in April 2021. The animal was 20 months old and had been bought 18 months prior to slaughter. Movement and medicine records were kept in accordance with legislation. The positive animal was an in-calf heifer from a dairy herd of 198 animals. Follow up samples were compliant for boldenone; one further follow up sample was taken which was fully compliant for all hormones. There was no suspicion or evidence of hormone usage on the farm
Cattle urine	Alpha-boldenone 4.3 µg/kg 2133639	Great Britain	This is a FAWL accredited farm. Livestock on the holding consist of 207 cattle beef animals, tack sheep are kept in the winter and there is a dog on the premises. The animals are purchased from local market as calves to be reared and fattened, or as stores to be fattened. After fattening they are sent straight to slaughter. All cattle are fed with high quality grass silage, grown, and processed by the owner. Cattle are also provided salt licks. Cattle graze outdoors in summer and are housed for winter. The positive animal was born in August 2019, purchased from market. It was reared and fattened on the farm and transported to slaughter via haulier in November 2021 with a batch of 7 animals (all beef cattle). Medicines are provided by the PVS, all withdrawal periods are recorded in the medicine records book. Expired products are returned to the veterinary practice for disposal. Medicine storage facilities were found satisfactory. The positive animal was last treated in July 2021 in a batch of 80 cattle with Paramectin Pour-on Solution. Evidence of medicine purchases, receipts, movement records were provided. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling. The inspection was carried out remotely due to Covid-19 circumstances.
Cattle urine	Alpha-nortestosterone 0.53 µg/kg 2109839	Great Britain	This is a large holding accredited by the Red Tractor Assurance Scheme, FABBL and MS schemes. Store cattle are purchased and reared to finish (500 cattle were finished in the last 6 months). All stock is housed and reportedly fed a home mixed ration of grass silage, maize silage and purchased corn only. Finished stock are transported direct to abattoir, no other sites are visited. The total distance for the journey to abattoir was approximately 150 miles. The first animal was loaded at noon and offloaded in the lairage early evening. The investigation established that there was no evidence of the use of banned substances on the farm, therefore the presence of this hormone is considered a natural level. The farmer was advised that nortestosterone can be naturally occurring and stress may be a cause for detection in steers.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle urine	Alpha-nortestosterone 0.55 µg/kg 2133538	Great Britain	This is a large non grazing AFU unit, where approximately 20 cattle are sent for sale each week. Stores are purchased from all over the country, aged 8-12 months and sold at 16-20 months of age. No breeding takes place on the farm. No medication is mixed in the feed, cattle receive minerals, grass maize, silage, straw, barley rape meal and brewers grain. Medicine records were checked and appeared to be satisfactory; no non-compliances were found. Administered medicines are recorded against individual animals electronically, the system flags up any animal that has completed the withdrawal period before it is sent to slaughter (withdrawal periods are double-checked). No expired medicines are used or kept on the holding; expired medicines are returned to the vet practice for disposal. Medicines are purchased from the PVS. IBR vaccination is used and Closamectin wormer is routinely used. The owners were aware of requirements for medicine storage, medicines were kept in a lockable fridge. The positive animal was sent to market in September 2021, this was a 72-mile journey. From there the animal went to the abattoir. In total, this animal travelled 140 miles on the same day according to CTS records. Advice was given on how to minimise stress caused for animals during loading and travelling, with use of proper handling facilities. The owner was aware of these requirements and confirmed they had good handling and loading practices (such as a loading ramp and gates available to minimise cattle stress). The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered a natural level.
Cattle urine	Alpha-nortestosterone 0.76 µg/kg 2125954	Great Britain	This is primarily a cattle fattening farm accredited with the Red Tractor Assurance Scheme. Cattle are purchased around 9 months of age onwards. There were around 18 cattle during August-September 2021 which were either artificially inseminated or subjected to embryo transfer. The holding has home produced maize silage, and rolled barley is grown for the cattle. Cattle are kept in sheds, and some are turned out. There are 2 other premises, neither of which contain livestock or horses. The positive animal a steer moved on with good weight straight into the fattening shed until it was sent to the abattoir. In May and July 2021, the animal was treated with Fly and Lice Spot On Insecticide (active substance deltamethrin). Metacam Solution for Injection was given in May to treat pneumonia. According to the medicine records, the animal was not in a medicine withdrawal period at the time of slaughter. There was a locked medicine cabinet containing a bottle of Trymox LA, Draxxin, a tube of Opticlox Eye Ointment and a bottle of the anti-inflammatory Metacam. The medicine records demonstrated steroid progesterone use on the farm. Medicine records are stored electronically. The group of cattle that had been subjected to the synchronisation procedures were visually inspected and appeared to be in normal condition. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered a natural level.
Cattle urine	Alpha-nortestosterone 1.2 µg/kg 2109854	Great Britain	A medium sized farm comprised of calves, cattle, pigs, goats and mainly sheep. The positive animal was a homebred male born in December 2019. The animal had been treated with Animectin in a group of 14 store cattle in September 2020. Two days prior to slaughter, the animals developed a bloat condition and the PVS was called. The food supplement which came in pellet form was too fragmented and dusty. The owner believed that the supplement was the cause for the bloat of the animals. No other contamination was suspected by the owners. The animal was treated in March 2021 by the PVS to release the bloat condition. This was carried out by passing a stomach tube. No further treatment was given. Routine vaccination and deworming programme were in place as per the herd health plan agreed with the PVS. The movement records and medicine storage facilities were found satisfactory. All veterinary medicines were obtained from the PVS and expired medicines returned; no expired medication was found. Some needles were found inserted on bottles which could cause contamination of products. The owner was advised to give only pellets and avoid the powder that could increase fermentation in the rumen, stress, and creation of this natural occurring hormone. There was no evidence of the use of banned substances on the farm, therefore the presence of this hormone is considered a natural level.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle urine	Alpha-nortestosterone 1.6 µg/kg 2109745	Great Britain	This is a large farm accredited by the Red Tractor Assurance Scheme. The farm has approximately 450 ewes for breeding, selling young lambs at 4-5 months old, and a small suckler herd of around 50-60 cows. There are 500 fattening cattle of various breeds bought at different ages, and 30 30 fattening pigs. A second holding keeps a few ewes bought in winter for grazing, with 200 fattening cattle. The third holding has over 700 cattle that are fattened for 3-4 months before going to slaughter. The main farm has around 1000 acres of arable land producing a variety of cereals (maize, wheat, barley, fodder beet). Hay and silage are produced by the farm, they also buy in soya, molasses, minerals, and a little maize. One medicine book is kept in the form of a diary for the three farms and is kept next to the locked medicine cabinet which was found to be satisfactory. Medicines are obtained from the vet practice; wormers are bought in and coccidiostats are occasionally used. The farmer does not get many expired medicines, out of date medicines are separated and returned to the PVS. The positive animal was seen by the vet in February as it had lost condition rapidly. The vet diagnosed pericarditis, and nothing could be done for it. The animal was likely under stress and nortestosterone can occur naturally, especially in situations of stress. There was no evidence of the use of banned substances on the farm, or any abnormal muscling in the other animals, therefore the cause of this hormone is considered a natural level.
Cattle urine	Alpha-nortestosterone 8.7 µg/kg 2116087	Great Britain	This farm is an accredited member of the Red Tractor Assurance Scheme. This is a closed dairy herd of 200 Holstein Friesian cows in total, there are 150-160 milking cows. All replacements are homebred. A natural service is used for heifers and AI failures, there is one Aberdeen Angus bull at this premises. The farmer performs AI, a small proportion is sexed semen. Movements off are for culled cows to slaughter, 5-week-old cross beef calves and male dairy calves are sold to other farms. The routine medicine protocols are pour-on solution for flies and Ivermectin wormer for heifers only. The rest of the treatments are individually administered as and when required. All medicines are purchased from an official veterinary practice. No vaccination protocols are in place. The official vet stated that no medicines containing nortestosterone had been sold or administered to the cattle. The positive animal had finished her productive life and was moved from the farm directly to the abattoir in June 2021. The cow was not in calf and polycystic ovary was very unlikely according to the farmer. No treatments had been given and no other non-compliances were found. The investigation established that there was no evidence of the use of banned substances, therefore the presence of this hormone is considered a natural level.
Cattle urine	Alpha-nortestosterone 15 µg/kg 2109769	Great Britain	The farm is FABBL accredited, and the owner runs a beef suckler and sheep herd. Cattle are mostly Galloways and Limousin x, run in management groups. They are kept in different pens when outside. Cattle are usually housed in winter and graze in summer after calving in April. They are sold as stores at 10-12 months of age, some are sent fat to slaughter. The farm does not buy much stock, only bulls when needed and heifers from local auctions. The herd is screened for BVD, but there is no monitoring for other diseases. Cattle are wormed and treated when required. When housed, they are fed with their own silage, hay and straw is purchased. All animals are fed supplementary nuts. The positive animal was a homebred female born in April 2015. It calved once in its lifetime and lost a couple of calves as it was not good at feeding them. The bovine was dosed for fluke and worms in November 2020 with Albex. It was reported to be healthy and fat, so it was sent to the abattoir in February 2021 in a batch of 10 animals. The medicine and movement records were found satisfactory. Medicines were stored in a locked cabinet; no expired medicines were found. Wormers and parasite control medicines were kept in a locked barn. This hormone appears normally in the urine of pregnant cows. The animal should not have been pregnant, but there was a young bull in the same group, so it could have been possible. There was no evidence of the use of banned substances on the farm, therefore the presence of this hormone is considered a natural level.
Cattle urine	Beta-nortestosterone 0.26 µg/kg	Northern Ireland	All follow up samples were compliant; no further investigation required.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle urine	Beta-nortestosterone 0.46 µg/kg 2115933	Great Britain	This is a medium sized farm accredited with the Red Tractor Assurance Scheme. Both dairy and beef cattle are kept. There are approximately 150 dairy cows, 3 stock bulls and calves. The calving pattern is all year round. The farm was under movement restrictions due to a suspect TB slaughterhouse found. The farmer buys in approximately 300 store cattle per year, then finishes and sends them to slaughter either directly or through a red market. The 26-month-old heifer that tested positive was purchased from the market. It was slaughtered in May 2021. Cattle are turned out for grazing between April-October. Dairy cattle are fed with dairy nuts in the parlour, silage is also fed to all the cattle. There is no medicated feed. Rock salts (mineral licks) are also given. Main health issues on the farm are dermatitis and mastitis of the dairy cattle. Cattle receive worming treatment when brought indoors after the grazing period. Worming treatment was not recorded in the medicine records. All medicines, except sprays used to treat foot problems, are kept in a lockable fridge in the farm office. The farmer and one other member of staff have access. No products containing hormones were found at the time of the investigation and there was no evidence of the use of banned substances. Veterinary invoices were checked and there was no indication of the use of steroid treatment on the farm. It is possible that the 'positive' heifer was pregnant when slaughtered. The farmer was reminded that the use of steroids, other than those prescribed by a vet for treatment is not permitted and advised to include all worming treatments in the medicine records. The presence of this hormone is considered a natural level.
Cattle urine	Progesterone 9.7 µg/kg	Northern Ireland	The investigation was undertaken in March 2021. The animal was 2 years old and had been bought just 3 weeks prior to slaughter. Movement and medicine records are kept in accordance with legislation. The herd keeper did not administer any treatment to this animal and there was no evidence of hormone usage on the farm. Follow up samples were taken from both the owner of this animal and its previous owner; all were compliant for progesterone. Levels of α-Boldenone were present in one of the follow up samples taken from the owner of the positive animal.
Cattle urine	Testosterone 13 µg/l	Northern Ireland	The investigation determined the animal as a bull and bull animals can produce high physiological levels of this hormone. No further action is required.
Cattle urine	Testosterone 20 µg/l	Northern Ireland	The investigation determined the animal as a bull and bull animals can produce high physiological levels of this hormone. No further action is required
Cattle urine	Testosterone 23 µg/l	Northern Ireland	The investigation determined the animal as a bull and bull animals can produce high physiological levels of testosterone. The sample contained α-estradiol (15 µg/l) which can explain the b-estradiol finding. No further action is required.
Cattle urine	Testosterone 43 µg/l Beta-estradiol 0.36 µg/l	Northern Ireland	The investigation determined the animal as a bull and bull animals can produce high physiological levels of this hormone. No further action is required
Cattle urine	Testosterone 44 µg/l	Northern Ireland	The investigation determined the animal as a bull and bull animals can produce high physiological levels of this hormone. No further action is required
Cattle urine	Taleranol 1.2 µg/kg Zeranol 0.89 µg/kg 2133778	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.
Cattle urine	Taleranol 1.6 µg/kg Zeranol 0.9.4 µg/kg 2133777	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.
Cattle urine	Taleranol 4.7 µg/kg Zeranol 1.5 µg/kg 2126095	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle serum	Beta- testosterone 0.47 µg/kg 2126042	Great Britain	This is a large farm, SAI Global and Red Tractor accredited. The farm is an intensive fattening unit and has mixture of breeds mainly dairy crosses and is well managed. Stores are purchased from different markets. Beef animals are bought in different stages and kept in groups depending on size. There is a high turnover of cattle. All purchased animals are vaccinated against pneumonia and wormed on arrival. The farm uses its own feed mixer, feed is stored in lockable barns. Animals are fed a mixed ration of by products (potato and vegetable oil), bread from outlets and own grown hay and silage. No medicated feed is given, routine medication is done by the farm owner. Medicine records were satisfactory, and medicine withdrawal periods routinely noted. All medicines were stored appropriately, medicines found were Tylosin. Metacam and wormers next to the handling system. Animals inspected showed normal body conformation, the weight of animals is recorded by computer. Records showed normal growth for the positive animal (14 months old), born on farm, and sold at market in April 2021. In July it was sent direct to slaughter, the journey time was over 2 hours. This residue was at a very low level and can be seen in animals that suffer stress, causing an increase in natural levels of beta-testosterone. The animal likely suffered stress during the loading and travelling to the abattoir. There was no evidence of the use of banned substances on the farm, therefore the presence of this hormone is considered a natural level.
Fattening cattle serum	Alpha-boldenone 4.9 µg/l Beta-boldenone 0.78 µg/l	Northern Ireland	An on farm follow up serum sample was taken from the original animal as well as follow up urine samples from cohorts on the farm. Testosterone was detected in the serum sample and in the urine samples but consequently the animals were declared with bull status and bull animals can produce high physiological levels of this hormone. There was detection of beta-boldenone in the samples and the presence of free α-boldenone were considered to be evidence of faecal contamination. No further action is required.
Fattening cattle serum	Beta-testosterone 0.3 µg/kg 2100575	Great Britain	This is a medium size farm accredited as part of the FABBL scheme. The positive animal a Holstein Friesian cow, was imported in a consignment of 33 direct from Germany in February 2021. The animal was sampled on farm in March 2021 and was reported to be in excellent health and milking well. The farmer stated that it had received no treatment or medicines since its arrival on the farm and the sampling date and there was no evidence to suggest this. The investigation was carried out remotely due to Covid-19 restrictions and the farmer was very cooperative, appeared knowledgeable and conscientious. Screen shots of the computerised medicine records were provided for the previous month prior to the sampling. No hormonal treatment had been given, but the standard treatment for lameness and pneumonia was used (antibiotics, Metacam). All the German heifers were vaccinated with Bovilis IBR on the date of sampling in March. The stress of transport could potentially be a reason for this residue, its calving history or early pregnancy status would also be unknown. The residue is likely to be of natural origin.
Fattening cattle serum	Beta-testosterone 5.8 µg/kg 2100590	Great Britain	A large farm accredited member of the Red Tractor Assurance Scheme. It has 313 bovines, pedigree shorthorn dairy herd (171) and a fattening unit (142). Bulls are kept in pens, fed hay, plus corn and when finished they are taken to slaughter. The dairy herd grazed all year round, grass silage, hay and concentrate given at parlour. The farm has a herd health plan in place, no vaccinations are carried out. Medicines are kept in a locked cabinet and only the farmer and his herdsman have access. Medicines found were Loxicom, PenStrep, Terramycin, Orbenin LA Intramammary Suspension, Mastiplan LC, Cydectin, and Calciject. All were within expiry date and recorded on the intake sheet. The medicine records were satisfactory. The positive bovine had been outwintered with heifers and steers from the same age group. No treatment was recorded for the animal. All animals on the farm were visually examined and no evidence of abnormal growth or modified behaviour was observed. The farmer was advised to keep up to date records of all veterinary medicinal products acquired and to record specific information medicines are used. There was no evidence of the use of banned substances, therefore the presence of this hormone is considered to be from natural levels.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Fattening cattle urine	Alpha-boldenone 2.4 µg/kg 2120964	Great Britain	This is a medium sized dairy cattle farm, Acoura accredited. This holding was overstocked due to TB restrictions, hence why youngstock born in 2020 were still housed to preserve grazing for older cattle on the holding. The positive bovine is derived from a dairy cow crossed with an Aberdeen Angus bull selected for ease of calving, born, and raised on the farm. It had been housed since birth in a five-bay traditional stone barn, bedded on bought straw and was fed homegrown bale silage. The heifer (the oldest Aberdeen Angus Cross) was housed with other heifers and castrated male stirks (7 cattle were in the pen). The heifer looked healthy and was not heavily muscled. It had not had access to any grazing throughout its life. The medicine records, as well as photographs of the bovine in question (identified by a visible ear tag) were provided for inspection. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling. General advice and guidance on prescribing, following withdrawal periods, record keeping requirements and storage were provided. This inspection was carried out remotely.
Fattening cattle urine	Alpha-boldenone 2.6 µg/kg 2120914	Great Britain	This is a small beef cattle farm of 55 Dexter cattle, most of them are born and bred on farm. The positive animal a female born in December 2017 was still on farm and a part of the breeding stock. Medicines are mainly administered by the PVS, the medicine records are maintained on paper and were found to be satisfactory. The animals have minimum medication administered, consisting mainly of fertility medications. Medicated feed is not used, the animals also receive supplementary food such as hay, silage, wheat, barley, and straw. The family grows all the grass themselves and very rarely buy anything such as hay or silage. Mineral licks are also administered. Medicines are stored in an old fridge inside a locked shed and the temperature inside proved to be adequate. Expired or unused medicines are stored in a blue bucket and collected by the PVS (the only minor non-compliance identified), as medicine records and cabinet storage followed the regulations. Records of all medicines purchased (name of product, name of supplier, expiry date, batch number) are detailed and these records are kept for 5 years. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Fattening cattle urine	Alpha-boldenone 3.8 µg/kg 2130235	Great Britain	This is a medium sized dairy enterprise, FAWL accredited. There is also a small flock of sheep present on the holding. The positive animal was born on farm and lived there until sent to slaughter in December 2021. The owner transported the animal directly from farm to the abattoir. Many of the milking cows are Holstein Friesian Cross or similar crosses. The cows are put to a Limousin bull, and all calves are sent fattened at approximately 20 months. The herd is a flying herd, all replacement breeding animals are bought in, as are some stores to fatten. This has reduced in recent years due to TB restrictions on the farm. The farmer appeared to be attentive and engaged. The PVS confirmed relatively low medicines usage and comprehensive medicine records were provided. Medicine storage facilities appeared satisfactory, although the inspector was not able to confirm whether there were any expired medicines. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Fattening cattle urine	Alpha-boldenone 5.1 µg/kg 2120861	Great Britain	This is a small farm accredited by the Farm Single Payment Scheme. The farm is mainly comprised of suckler herd. Cattle are kept until they 15-16 months old, then sold. Other species of animal kept are sheep, poultry broilers, geese, and horses. No medicines are stored at the farm. The PVS surgeon prescribes the exact amount of medicine that is needed, and it is provided in syringes. Once the medicine is administered, the syringes are discarded through a sharp waste container. Medicines that are not used are returned immediately to the PVS. According to the medicine records, no medicines had been given to the cattle since February 2021. The farmer confirmed that the positive animal is a twin from a male, this female cannot be used for breeding due to freemartinism. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Fattening cattle urine	Alpha-estradiol 254 µg Beta-estradiol 22 µg/l	Northern Ireland	The sample contained a high concentration of α-estradiol (254 µg/l) which can explain the presence of the β-estradiol; no further action is required.
Fattening cattle urine	Alpha-nortestosterone 5.1 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 5.3 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 5.5 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 6.0 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 6.5 µg/kg	Northern Ireland	Animal was a pregnant female and levels indicative of fusarium toxin contamination. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 10 µg/kg 2100213	Great Britain	The animal was in-calf at the time of sampling.
Fattening cattle urine	Alpha-nortestosterone 10 µg/kg 2121101	Great Britain	The animal was in-calf at the time of sampling.
Fattening cattle urine	Alpha-nortestosterone 10 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 10 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 11 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 11 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 14 µg/kg Alpha-boldenone 0.69/2.42 µg/l	Northern Ireland	Pregnant female: no investigation required for α-nortestosterone 14 µg/l finding. The sample also contained conjugated α-boldenone at 2.42 µg/l. A follow up sample was requested. The follow up sample was taken from the same animal, and this contained α-nortestosterone 8.8 µg/l, α-estradiol 3940 µg/l and b-estradiol 105 µg/l. α-nortestosterone finding is due to the pregnancy status of animal, high α-estradiol in the sample can explain the b-estradiol finding; no boldenone detected. No further action required.
Fattening cattle urine	Alpha-nortestosterone 14 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 22 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 22 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 24 µg/kg	Northern Ireland	Pregnant female. No investigation required.
Fattening cattle urine	Alpha-nortestosterone 27 µg/kg	Northern Ireland	Pregnant female. No investigation required.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Fattening cattle urine	Methylthiouracil 5.8 µg/kg 2130180	Great Britain	A medium sized beef and sheep farm accredited as part of the HiHealth Herdcare Cattle Scheme. The farm stock 140 Simmental Cross cows and heifers, 8 bulls, 50 youngstock and 82 calves. The sheep flock consists of 400 ewes made up of Texel Cross and Cheviot mules, 50 Cheviots and 10 Charolais Cross. All stock is kept outside during the grazing period. Cattle are housed through the winter (October-May), sheep and cattle are kept separately. At grazing, growing cattle are supplemented with beef stock pellets. When cattle are housed during winter, they are transitioned over 2-3 weeks on to a ration of home-grown winter barley and silage. When the sample was taken, it is likely the positive animal was still in transition to winter feed, so is likely to have been receiving pellets. The only change to diet from previous years is that the greening used on the winter barley fields prior to sewing was new (a mixture of red clover, crimson clover, phacelia, and fodder radish). Cattle do not have access to these arable fields or any other crops. Veterinary medicines are prescribed by the PVS. Medicines are stored in a secure lockable room and any expired medicines are collected. The medicine records were satisfactory, there was no evidence of administration of a thyrostat or other unauthorised medicine. Both the calf creep feed and grower pellets that the positive animal will have ingested contain the brassica rapeseed in which thiouracil is known to occur. The investigation established that the likely cause of this residue was due to natural ingestion. Research has shown that thiouracil may be present in the urine of animals following the use of cruciferous-based feed or having access to cruciferous crops.
Fattening cattle urine	Taleranol/Zearanol 0.88/0.56 µg/kg	Northern Ireland	No investigating visit was undertaken as levels indicative of fusarium toxin contamination. No investigation required.
Fattening cattle urine	Taleranol 1.1 µg/kg Zeranol 0.5 µg/kg 2121367	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.
Fattening cattle urine	Taleranol 1.1 µg/kg Zeranol 0.61 µg/kg 2112116	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.
Fattening cattle urine	Taleranol 1.9 µg/kg Zeranol 0.92 µg/kg 2130518	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.
Fattening cattle urine	Taleranol 2.2 µg/kg Zeranol 1.0 µg/kg 2112124	Great Britain	Low levels of zeranol and fungal metabolites may be present in the urine of animals that have ingested feeding-stuffs contaminated with the fusarium fungus. At this level of residue, a statistical model based on research has confirmed this to be the case. No further investigation was required.
Fattening cattle urine	Taleranol/Zearanol 2.9/1.7 µg/kg	Northern Ireland	Animal was a pregnant female and levels indicative of fusarium toxin contamination.
Fattening cattle urine	Taleranol/Zearanol 3.8/2.2 µg/kg	Northern Ireland	No investigating visit was undertaken as levels indicative of fusarium toxin contamination.
Fattening cattle urine	Thiouracil 31 µg/kg 2111851	Great Britain	This is a large well-run beef cattle farm, accredited by the Farm Assured Scheme. There are approximately 900 cattle, half indoors (fattening) and half outdoors (cows and young stock). No animals are purchased, just occasionally some bull. Young stock is used for replacement. The positive sample originated from a 1-year-old animal born in April 2020 and was still on farm. Medicine records are maintained correctly with a farm management app, Farm Plan, where any treatment is recorded with a lot of detail. All medicines are mainly provided by the PVS and the invoices confirmed this. The storage facilities were good and lockable. Out of date substances are retained in a different cabinet and collected by the PVS regularly. The farm system can track any treatment, dose applied, individual animal ID, withdrawal period and who administered it. Cows and calves are regularly fed with kale and turnips. The farmer was made aware that long-term administration of feed with a high content of cruciferous plants may cause an increase in thiouracil in urine and cause a non-compliant result. The investigation established that there was no evidence of the use of banned substances therefore the likely cause of this residue was due to accumulation of feed and natural ingestion.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Pig kidney	Penicillin G 159 µg/kg	Northern Ireland	An investigation was completed in June 2021. Medicine records are kept in accordance with legislation. The owner of the pigs is the presenter at the slaughterhouse however he has various premises which are used as fattening units for the animals; the day-to-day management of the pigs is completed by the owners of these units. The owner of the fattening unit from which this pig came from said that all movement records are kept by the herd keeper. This unit has 1300 pigs. The animal was 35kg when it arrived at the fattening unit and was 120kg when it left approximately 105 days later. It was taken to slaughter by the herd keeper. The medicine records detailed the usage of Norocillin in April 2021, but the medicine records do not record against specific pigs. Norocillin has a 7-day withdrawal period. The animal was slaughtered in April and the withdrawal time was adhered. All follow up samples were compliant. No further investigation required.
Pig kidney	Semicarbazide 0.41 µg/kg	Northern Ireland	An investigation was undertaken in March 2021. There were 6000 pigs on the farm at the time of inspection. The positive animal (a finishing pig) was born on the farm. The positive animal was taken to slaughter by a haulier and kept separately. The movement and medicine records were kept in accordance with legislation. The herd keeper stated that he did not use any medicine which contained the substance detected. There was no evidence of illegal activity. Other samples from the same producer were analysed and were compliant for Nitrofurans.
Pig liver	Ochratoxin A 2.7 µg/kg 2103792	Great Britain	The positive animal was sent in a batch of 160 pigs from the holding to the abattoir in January 2021. The animals were slaughtered the same day. This QMS accredited farm is a growing unit of 500 pigs, white breed, with two groups of growers and finishers. Pigs are housed in pens by groups of age on concreted floor with straw used as bedding and for environmental enrichment. Diet is based on local barley, soya, and wheat plus feed supplements. Grain is stored in a barn with good ventilation and is received weekly. The barn is emptied every 3 months to be cleaned and disinfected. Piglets come from a breeding unit when they are around 12 weeks old. They stay in the growing premises for 10-14 weeks until going to slaughter. There is a barn for straw bales with good ventilation. The farmer is aware of the potential risk of mouldy straw and it is a matter that has been discussed with the PVS. There is lockable medicine storage, Chloromed (chlortetracycline) is used in the treatment of respiratory diseases. Medicine records are kept quite poorly in a diary and just the use of this product was registered in recent months. The farmer was advised to keep more accurate medicine records, to avoid the use of damp or moulded straw for bedding where possible, to roll out bales in a well-ventilated bedded area to limit the total hours that animals are exposed to high levels of harmful spores in the air. The investigation established that the likely cause of this residue was via damp bedding straw.
Sheep kidney	Cadmium 1600 µg/kg 2108307	Great Britain	This is a small farm comprised of sheep, no other species. All medicine records were found to be satisfactory, and medicines were appropriately stored. Adequate animal ID and withdrawal period details were recorded. No expired medicines were found on site. There was no history of mining locally, no effluents and no waste were discarded in the area. The investigation could not establish any potential sources of environmental contamination of the soil and water, locally. Research has shown that heavy metals can accumulate in the kidney of animals subject to low level exposure over time and this is likely to be the cause in this case.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep kidney	Closantel 1800 µg/kg 2103680	Great Britain	<p>This is a large enterprise of around 5900 sheep (a wide variety breeds) and 425 cattle. The positive animal was transported to the abattoir in March 2021, approximate travel duration 5 hours and slaughtered the next day. Cattle are housed through the winter, normally December-May. Sheep are generally kept outdoors although those scanned with triplets are brought into a shed just before lambing. Sheep are fed a mixture of home-grown turnips, hay, and silage. Cows are given home grown barley, straw, and silage. Cattle are given beef stock pellets once calved. Medicines are prescribed by a veterinary service and photographs showed medicines stored in a fridge and lockable cupboard. Medicine records were checked and were generally found satisfactory, no medicine containing closantel had been administered to sheep. Closamectin Pour-on Solution had been administered to cattle on several occasions (last one being March 2021.) The farm manager confirmed that cattle and sheep are kept separately, this was also supported by the PVS, so a cross contamination issue was highly unlikely. A sheep health plan advises the use of Solantel (closantel) for fascioliasis treatment of new stock. Fasinex (triclabendazole) or Trodax (nitroxinil) are offered as alternative flukicides. Fasinex and Combinex had been recorded on the medicine records on several occasions. The possible use of the same dosing gun for applying Closamectin to cattle and for the administration of oral drenches to sheep has been discussed with the farm manager, who thought it highly unlikely as the tools used for these purposes are kept separated by species. Advice was given to continue to keep accurate records of all medicines administered to livestock, ensuring that withdrawal periods are adhered to. A copy of the medicines guidance for record keeping requirements was provided and discussed. The investigation established that the likely cause of this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period.</p>
Sheep kidney	Gamithromycin 350 µg/kg 2128574	Great Britain	<p>A medium size farm and an accredited member of FAWL. There is a sheep flock of 2000 (1000 breeding ewes, 150 replacement lambs) which are housed and grazed. In summer the sheep can graze in another rented location. A small beef herd of 80 animals, 4 in-calf heifers and calves of various ages which are fattened and sent directly to the abattoir are also kept. Medicines are usually obtained from the vet practice. The farmer and his son administer veterinary medicines to the animals apart from the PVS. Animals treated are marked to indicate they are within the withdrawal period, and this is also noted in the medicine book. Zactran (gamithromycin) is frequently used generally for lameness to due to foot rot. According to the medicine book, some lambs were treated with Zactran in June and July 2021, but the book did not specify the number treated. Due to the concentration of the substance in the positive lamb it is likely that the lamb was accidentally injected (because of sneaking into the pen) where the other lambs were being treated. The farmer was advised to discuss the result with the PVS to implement an effective system to prevent this happening in future, and to keep accurate records of the number of animals treated in the medicine book. This investigation was carried out remotely, photographs of the medicine cabinet, medicine records and purchases were provided. The investigation established that the likely cause of this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period.</p>

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep kidney	Lead 550 µg/kg 2108310	Great Britain	<p>The homebred male lamb was a healthy animal and had never been treated with medicines, except for wormer. At inspection, there were 21 cattle, 4 goats, 200 sheep 70 pigs, 300 chickens, 1 goose, 1 duck, rabbits, and guinea pigs. Lambs are reared until about 12 months and then sent direct to slaughter. Sheep are fed with grazing, hay, and energy lick buckets. No medicated feeding stuffs are used, concentrates are brought in. The water supply came from the mains in the fields and checks were carried out on the water supply. Farmyard manure is used as a fertiliser, last spread in spring 2019. Animal movement and medicine records appeared satisfactory, only a few medicines were used Heptavac vaccine and a wormer Rycoben. The withdrawal periods were observed, and no expired medicines are kept. The main fields are closed by the farm building and are surrounded by the main access road, a public pathway crosses the fields. There had been movement from two construction sites, heavy vehicle lorries with debris, that could be a problem if something was discarded, some litter was found, but no batteries or paints. There was a metal gate with spray painting, but no lead painting. Some illegal trespassing occurred during lockdown by members of the public. The farmer was not aware of any sources of lead such as old machinery or paint. However, there are frequent incidents of lead poison in the area after heavy rain, as the area is linked to old mining fields. The farmer was given a leaflet and information on protecting sheep and goats from lead poisoning and the PVS will be advising further. The investigation could not establish any potential sources of environmental contamination of the soil and water, locally. Heavy metals can accumulate in the kidney of animals subject to low level exposure over time and this is likely to be the cause in this case.</p>
Sheep kidney	Lead 620 µg/kg 2108308	Great Britain	<p>This is a large sheep farm which operates for store lambs, usually about 4000-5000 lambs. The business rents fields for sheep grazing on winter keep. The landowners choose the fields and prepare them with turnip crops (fodder radish occasionally). The lambs are usually bought from September and may be kept up to May-June. The positive animal a female (6-12 months old) was purchased from the market in October 2020 as a total of 449 sheep. It was part of a lot of 49 store lambs, but a second lot of 61 lambs with the same flock number were also acquired. The store lambs were moved to farm straight from the market and remained there until sent to the abattoir. The lambs were kept together and grazed on 3 fields. The lamb was sent for slaughter as a batch of 510 in February 2021. From the group, 7 died within the first 4 days of being at the farm, Alamycin LA2000 was administered. Medicine records from September 2020 show treatments of Ovivac P, Heptavac P, Noromectin, Alamycin LA2000. There is a close link to the sport of bird shooting, with conservationist work developed across the years to increase habitat and partridge population. A lead poisoning pamphlet was given to the farmer to discuss further with the PVS on what could be done to prevent lead contamination. The investigation established that there were potential sources of environmental contamination of the soil and water, locally. Heavy metals can accumulate in the kidney of animals subject to low level exposure over time and this is likely to be the cause in this case.</p>
Sheep kidney	Oxytetracycline 1100 µg/kg 2106583	Great Britain	<p>This is a small farm of 750 sheep (Suffolk, White Welsh, Cheviot and Aberdale breeds) kept in 3 flocks. Lambing is in January for Suffolk breeds, March for Aberdale breeds and April for Cheviot and White Welsh breeds. Sheep are always kept on the fields and are fed with mineral and supplements in buckets. An animal was treated for heavy breathing in January 2021. The product was administered following vet advice and the product label instructions (by deep intramuscular injection). According to the medicine records, two doses were administered, which could be part of the reason the residue was present. The FCI also suggests that a slight overdose may have been given. The farmer was advised to consult with his private vet when administering the medicines and to discuss potential alternatives for the medicine used. The likely cause of this residue is an overdose due to human error.</p>

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep liver	Closantel 1700 µg/kg 2107624	Great Britain	<p>A medium sized sheep and beef cattle farm that has multiple locations. Lambs and ewes were sold at market in February 2021 and slaughtered the next day. The herd mark ID provided by the inspector in the slaughterhouse did not appear on the FCI, the market had the farm registered under a different ID number. Breeding ewes were kept separate from finishing lambs and other ewes, different age groups were kept on different fields however it was possible for lambs to jump fences and to be found in a different group. Lambs were not dosed with anthelmintics when destined for slaughter, but farm practise is to dose breeding ewes. The manager believed the lamb in question could have been dosed by mistake if it was found in the wrong age group while the treatment was applied. There were discrepancies found in the medicine book, a withdrawal period date was not clearly stated in the records and ID of groups was not specific enough. In January 2021, Solantel containing closantel was administered to all ewes according to the medicine book, the withdrawal date was not provided, but the number of days of the withdrawal period was written down as 42 days. Ewes and lambs went to market for sale, no treatment was declared at this time. Record keeping requirements were discussed and explained at the visit. The medicine cabinet was kept in good order and there were no discrepancies found. All products were up to date and purchased from the PVS. Labels on the products were correct. It is possible that all ewes were dosed with Solantel, some of the lambs could have been dosed by mistake. Nine days after the ewes were dosed, some were sold with a group of lambs at the market and entered the food chain. The person responsible for the sheep and medicine book had been dismissed due to misconduct before the inspector's visit commenced. The investigation established that the likely cause of this residue was the animal was dosed in error.</p>
Sheep liver	Closantel 2700 µg/kg 2107451	Great Britain	<p>A medium sized farm mainly comprised of sheep. The cattle herd consists of 27 beef commercial animals: 6 cows, 3 calves and 18 in calf heifers. There are no bulls (artificial insemination is used from two years ago). Summer grazing is during May-October and animals are housed in winter. Animals are fed with silage, hay and cakes in winter, grass, and cakes in summer. No medicated feed is used. Medicines are purchased from the PVS and agriculture store. There is no vaccination program in place, all cattle receive fluke treatment yearly. The sheep herd consists of around 600 meat animals, there is no milk production. Animals graze all year around and are fed turnips. Adult sheep are used for breeding and are sent to slaughter only in case of problems appearing. The lambing period is in the middle of January, around 300 animals are lambing inside the buildings and around 250 outside in the fields. Ewe lamb replacements are vaccinated with Heptavac P Plus and Solantel a deworming treatment is used for all the animals twice yearly. A third dose of Solantel is administered to animals that have been lambing outside the buildings before they are moved to other fields. Veterinary medicines were found appropriately stored in a locked cabinet. All products were in good order within the expiry date, except for Moxodex 1mg/ml and Closiver 5mg/ml (unsealed and unused). These expired products were not marked or separated from the rest and have now been sent to the PVS for disposal. The investigation established that the positive residue probably occurred because of overdose due to possible factors as double treatment administered, underestimation of body weight, misadministration of the product, or lack of calibration of the dosing device. Recommendation was given to seek advice from the PVS, record keeping advice and guidance was provided to ensure future compliance with the regulations.</p>

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep liver	Closantel 5600 µg/kg 2107252	Great Britain	This is a medium sized farm, where sheep and cattle are kept on the main holding. There were 1000 breeding sheep and 50 cattle at the time of inspection. Sheep are mostly homebred (breeding and fattening) occasionally some are purchased privately or from markets. Purchased animals are kept separately for 2-3 weeks, then are later mixed with flock. The positive animal was homebred and sold through market. The movement records were not consistent, the owner did not keep an individual sheep ear tag number and the ear tag readers used in the markets were not working properly, some ear tags could not be read. Treatment against endoparasites was administered to breeding ewes and wintering hogs (hogs are usually between 11-24 months old). The positive animal was 6-12 months old. The owner uses different medicines for cattle and sheep. No expired medicines are kept on the premises. Some of the sheep on the farm were within a withdrawal period when sent to the abattoir. The herd keeper reported that the treated sheep were not marked and has since been advised to mark treated animals with a temporary marking to prevent any recurrence of issues. The investigation established that the likely cause of this residue was human error, due to inadequate record keeping. This investigation was carried out remotely.
Sheep liver	Moxidectin 180 µg/kg 2107752	Great Britain	This is a large farm, there were 385 cattle, 6000 sheep and 2500 pigs on site in April 2021. High standards of management were observed at this farm which is regularly audited by the Red Tractor Assurance Scheme. Sheep and cattle are bought mainly from the markets and fed with the farm's own grass. Sheep are usually kept for 3-4 months, then sent to the abattoir. All microchipped animals are checked or are identified with one at the time of arrival. Information is recorded in the animal movement records. Sheep treated had been entered in the medicine records by groups of dates of arrival not individual. According to the medicine records, Closamectin was used in December 2020 on a batch of 32 sheep that arrived in November 2020. A female sheep 6-12 months old tested positive for the residue. Products licensed for sheep containing moxidectin have extremely long meat withdrawal periods. As the sheep were bought in November and sent for slaughter in January (50 days difference), it is very likely that the sheep were injected with a long acting moxidectin product on the previous farm. The farm of origin was unable to be traced. Sheep could have been overdosed accidentally. No expired medicines were found and there was no evidence of the use of banned substances. The farmer was advised to calibrate the guns using graduated cylinder before performing the treatment and to discuss measures with the PVS to achieve future compliance. The investigation was unable to establish the cause of this residue.
Sheep liver	Moxidectin 450 µg/kg 2107769	Great Britain	This farm is comprised of a dairy cattle and sheep herd. The sheep herd can have up to 1200 at some point in the year located in different fields around the farm. The farmer buys from market weekly and can buy 20-300 sheep per week. They are either kept for further fattening or are sent straight to the abattoir. Approximately 300 ewes are kept for breeding (December-June, finished lambs are sold at 4-10 months). The positive animal was purchased at auction, sold, and sent to the abattoir in March 2021. The movement records were checked and found to be satisfactory. The farmer confirmed that he does not use Moxidectin, and it was not recorded on the medicine records either. The farmer uses Endospec and Levafas Diamond Oral Suspension for worming treatment and these were recorded. Recommendation was given to continue maintaining record keeping in the current format as there was a good system in place. The investigation established that the residue is likely to have occurred at another premise before purchase of the animal (likely to be an overdose and unrecorded treatment whilst within a withdrawal period).
Sheep urine	Alpha-boldenone 0.67/1.73 µg/kg	Northern Ireland	Presence of unconjugated (free) α-Boldenone is considered to be evidence of faecal contamination. No further action required.
Sheep urine	Alpha-boldenone 2.42/0.14 µg/kg	Northern Ireland	Presence of unconjugated (free) α-Boldenone is considered to be evidence of faecal contamination. No further action required.
Sheep urine	Alpha-boldenone 2.6 µg/kg 2135272	Great Britain	The animal was untraceable.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 2.7 µg/kg 2106139	Great Britain	A large farm of mainly sheep, dairy replacement heifers and beef stores. The farm is an accredited member of FAWL. The female lamb left the holding in February 2021 and travelled amongst a batch of 40 other lambs of a similar age to the abattoir (a journey of around 6 hours). The farmer reported that fields where the animals grazed had a large amount of clover in the pasture. The animals were quite well-muscled as is usual for Texel-crossbreeds, however the farmer did not observe any double-muscling or other abnormal features. There was no information from the slaughterhouse to indicate whether the weight of the sheep in that batch was within a normal range or not. The medicine records were found to be satisfactory, proof of veterinary medicines purchased for the previous five years were available to view. The medicine storage facilities were found to be excellent. The farmer was advised to limit the amount of time finishing sheep on clover pasture in future where possible. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 2.7 µg/kg 2135283	Great Britain	This farm is FAWL accredited. A batch of 45 store lambs (6-8 months old) were sent for slaughter in November 2021. One of the lambs tested positive. The livestock on this holding has 34 beef suckler cattle, and around 800 sheep. There are also 3 backyard hens on site. Veterinary medicines are obtained from a veterinary practice or agricultural store, no medicated feed is used. There is no sheep milk production. Sheep are fed grass, silage, and hay. Feed is also purchased (finish lamb pellets, ewe nuts). The sheep are vaccinated against clostridial diseases and enzootic abortion; also wormed routinely (drenches for ectoparasites). The PVS is called out where required and there is a health plan for sheep. Medicines used are for the correct target species. The lambing period is from February to mid-April; store lambs are sold from 11 weeks to 8 months old. Some of the sheep winter graze at another premises where there are currently 115 ewes, 2 rams and 133 lambs. Medicines are administered by the farmer under the same management of records at the main farm. The cattle herd consist of 12 suckler cows, 2 breeding bulls, plus followers. Calves are reared to fat and sold to slaughter to meat farming standards. Medicine storage facilities and medicine records were found satisfactory and in good order. The farmer stated that he uses all purchased medicines and was aware of the correct route for their disposal. The PVS confirmed there was no suspicion of veterinary medicine misuse at the farm. Good husbandry standards and procedures were in place and observed during the inspection. The presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 2.8 µg/kg 2128072	Great Britain	A medium sized QMS accredited farm comprised of mainly sheep. There are also beef cattle and gamebirds on site. The animal was purchased in August 2021 from market, then sent for slaughter in September 2021. The dealer stated animals were not given any medication (only food and water) during the short time they were there. The owner has a breeding herd, managed by an experienced farmer. Around 1800 lambs are sold July to November. The previous year no animals were purchased from outside. Animals are homebred, sold or purchased at market. Local farms are used to source and sell some of the lambs and sheep. At the time the animal was sent for slaughter all the lambs had been on grass for the last months. The ewes in the field appeared to be in normal condition. Advice was given to purchase medicines only from the PVS, to continue recording all medicines in the medicine book and storing medicines appropriately. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is natural due to accidental faecal contamination of the urine at the time of sampling.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 3.0 µg/kg 2117614	Great Britain	This is a medium sized farm, where the owner keeps approximately 350 breeding ewes and their lambs. Additional lambs for fattening are purchased mainly from various markets, others are sold as ewe lambs from breeding. The owner keeps approximately 35 beef cattle at this premises, store cattle are purchased at 12 months old and are kept until they are 18-26 months old. There are also 2 horses on the premises, paddocks are rented out and the horses have no contact with the livestock kept on the farm. All medicines are kept in a lockable cabinet, except sprays used to treat foot problems. The farmer and one other staff member have access to the medicine products. The medicine and movement records were found to be compliant. All medicines were recorded, including the tuberculin batches for the cattle, worming treatments and treatments given to the farm dogs (a farm assurance requirement). All receipts from the vet practice and medicine purchases are retained. The movement records appeared to be complete and in good order. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 3.2 µg/kg 2128062	Great Britain	The animal was unable to be traced, due to a clerical error compromising the evidence chain. The level of alpha-boldenone is likely to be of natural origin.
Sheep urine	Alpha-boldenone 3.5 µg/kg 2117695	Great Britain	A medium sized farm, FAWL accredited. The farm is mainly comprised of sheep with some beef cattle. A batch of 84 sheep left the farm in June 2021 and arrived at the abattoir the same day. An investigation was carried out in November, after months of unsuccessfully attempting to contact the farmer. The visit was satisfactory all paperwork was completed in accordance with the Veterinary Medicines Regulations. Adequate animal ID and withdrawal period details were recorded, and all the medicines were stored appropriately. No expired medicines were found on the premises. The investigation established that there was no evidence of the use of banned substances on farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 3.7 µg/kg 2135281	Great Britain	This is a sheep holding, there were no sheep present at the time of the inspection. The owner is a sheep trader and collected fattened lambs from different sources to send them to slaughter. The owner sent 12 lambs with the same flock number to a farm shop where they were slaughtered. A total of 206 ewes, rams and lambs were moved. All the lambs with the same flock number were within a group of 88 lambs also moved on that date. The owner had confirmed on farm records and the FCI that the positive animal was sent directly to slaughter. Traceability of the lamb was confirmed. The owner does not buy, store, or administer any medicines. There were no previous records for positive animals or investigations for the premises. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 3.9 µg/kg 2115163	Great Britain	This is a large farm comprised of 5,300 sheep, including 1,900 breeding ewes. The farm is accredited as part of the QMS cattle and sheep assurance scheme. The positive animal went directly to slaughter from the farm in April 2021. All the lambs were from the same management group as the animal that had already been sent to slaughter. Sheep are kept outdoors and rotated through different pastures. Some of the sheep grazed on fields with clover, cauliflower, broccoli, forage, rape, or stubble turnip. All bought in lambs are treated with wormers and ectoparasite control within 2-3 days of introduction. Breeding ewes are treated annually with clostridial disease vaccines, no further routine treatments are used. Medicine records were checked and found to be compliant with current legislation. Veterinary medicines are kept in a separate building with limited access to a locked cupboard. The lambs sent to the abattoir in April had not been treated with any veterinary medicines since October, which was well after the relevant withdrawal periods. The investigation established that there was no evidence of the use of banned substances on the farm. The positive result is most likely due to accidental faecal contamination of the urine at the time of sampling.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 4.1 µg/kg 2128041	Great Britain	This is a medium sized farm FAWL accredited. There are 450 head sheep and 150 head cattle on the holding. A batch of 8 homebred male lambs were taken to market in August 2021, sold and moved to the abattoir in October. The positive animal was reared on the farm. Fields in which the animals were grazing had a large amount of clover in the pasture. No medicated feedstuff is used on farm and lambs are finished at pasture. All animals inspected were in good condition. At the time of the inspection, no sheep were being medicated, but the farmer was treating calves for pneumonia. Unwell treated animals were housed separately from others. Medication was purchased from the PVS, recorded in the medicine records and all veterinary medicines were stored in locked containers. Some medications were found opened and had expired. The farmer reported that out of date medicines are not used on farm, medicine records support this. Mastitis tubes unopened were out of date. An open bottle of medicine being used to treat pneumonia did not have a broach date or expiry date but was still within the 28 days expiry period as stated on the bottle. Medicine records, records of purchases and storage were all excellent. The farmer was advised to mark expired drugs clearly to avoid the risk of being used and to dispose of any expired drugs promptly. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 4.1 µg/kg 2135297	Great Britain	The animal was untraceable.
Sheep urine	Alpha-boldenone 4.2 µg/kg 2106057	Great Britain	This is a sheep breeding enterprise with approximately 700 breeding ewes and is accredited as part of the Red Tractor Assurance Scheme. The farm keeps and rears their own replacement females., Lambs are born and reared through to fat, then are sold through 2 auction markets. Record keeping is satisfactory, and medicines are only purchased from the PVS or local agricultural suppliers. The farm is part of a flock health scheme with the PVS who undertakes an annual review of medicine usage, primarily antimicrobials. The inspection found 4 out of date medicines in the medicine cabinet (2 x Spectam Scour Halt Oral Solution, 2 x Caliject20 Solution for Injection). The farmer was asked to provide evidence that products had been disposed of adequately. He was advised to monitor expired products, and to dispose of products promptly through an approved route. The farmer confirmed that the medicines had not been used recently, they were left over from the previous lambing season. The positive animal was a homebred lamb sold through auction in January 2021, it had never left the holding or grazed elsewhere. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 4.4 µg/kg 2117595	Great Britain	A medium farm comprised of primarily laying hens (approximately 8000). The owner keeps 8 sows and 2 boars and produces approximately 2 litters yearly. Nanny pigmy goats and 300 sheep are also kept. The farmer had purchased POM-V antibiotics (mainly chlortetracycline and amoxicillin) this year. The PVS had trouble reviewing records as computer systems had recently merged but confirmed that the last prescribed medicines were given the previous year, to treat a sick ewe that later died. Medicines prescribed at the last visit were Deccox, Dexaject (dexamethasone), Synulox (amoxicillin, clavulanic acid), glucose, Planipart (clenbuterol hydrochloride) beta-agonist and local anaesthetic. The veterinary practice confirmed that POM-V medicines ordered are approved by the practice vet before being sent out to the keeper. There had been no recent changes in feed in the few months prior to slaughter. Sheep are kept separately from other species, but the odd goat may jump the fence. No medicated feeds had been used in the last 3 years and no medicines had been used in the other species. There were some partially used and empty medicine bottles on farm, but these were kept in dedicated containers for discarded medicines (to be taken to the PVS for disposal). Medicine records did not show matching batch numbers, they appeared to be product codes, and differed to the batch numbers on the products, other records in the medicines book appeared satisfactory. There was no indication of the use of banned substances on farm (confirmed by the PVS) and sheep appeared to be in normal condition from the photograph provided. The keeper was given advice and guidance on record keeping requirements and obligations for compliance with the veterinary medicines regulations was provided. The investigation established that the presence of this hormone is from natural levels due to accidental faecal contamination of the urine at the time of sampling. This inspection was carried out remotely due to Covid-19 restrictions and the keeper fully co-operated throughout.
Sheep urine	Alpha-boldenone 5.4 µg/kg 2106081	Great Britain	This is a large sheep farm. Sheep are mainly kept on grass, fed cake and corn. The positive animal was slaughtered in January 2021. The owner of the farm confirmed that the sheep ear tag number belonged to him, but he could not tell whether he sold the sheep to a market in December 2020. He confirmed that it was highly unlikely that the sheep in question was sold from his farm. Although the market does receive sheep from the area, they were not able to trace the sheep back to the owner and could not find the ear tag number in their database. The ear tag number was not listed on the FCI provided by the abattoir and the remainder of the IDs indicated several previous owners. However, none of them were related to the ear tag in question. Issues with traceability suggest the source farm information has been missed due to tracing issues, a failed scan and incorrect FCI information. Traceability issues with authorities will be followed up locally. The owner stated that the only injections administered are for penicillin. The owner was advised to keep the medicine records updated. There was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling. This investigation was carried out remotely.
Sheep urine	Alpha-boldenone 7.4 µg/kg 2127997	Great Britain	This is a small sheep farm and meat is for private use. There are no horses on the farm and the owners do not use steroids that could justify cross contamination. Four sheep were transported to the abattoir by the owner in September 2021, the duration of the journey was 30 minutes. The only medication given to the sheep prior to the slaughter was Clik a pour on against blowfly in ovine which was administered in July 2021. Evidence gathered confirmed that the owner had complied with the withdrawal periods and the medicine records were correct. Sheep grow on grass, there are nettles present, but occasionally people give the sheep vegetables through the gate of the fields. Recommendation was given to have better control over what the sheep are fed and to main good husbandry practices. The owner sends faecal samples to the PVS on a regular basis and there is tight worm control on the farm. sheep are fed and to maintain good husbandry practices. There was no evidence of the use of banned substances on the farm therefore the presence of this hormone is natural due to accidental faecal contamination of the urine at the time of sampling. The investigation was carried out remotely following Covid restrictions.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 10 µg/kg 2135269	Great Britain	This is a medium sized cattle (beef fattening herd) and sheep farm. The farm had approximately 400 breeding ewes in 2021. A group of 47 prime fat sheep were transported to the abattoir in the farmer's own vehicle. The sheep were purchased overnight and slaughtered the next day. The group of lambs sampled were all homebred and wormed twice during the summer, the last time being September 2021 (withdrawal period of 14 days). Ewes were given the usual vaccination of Ovivac P Plus. All sheep including lambs had access to general bucket minerals and none had to be treated for any condition. The medicine records indicate no medicines were given to these lambs in the two months prior to sale. On inspection the farmer had all the correct paperwork. Advice was given to transcribe information into the main medicine records so that there is one main location summarising all treatments to the flock in date order. The movement records were satisfactory and correctly recorded. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered natural due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Beta-nortestosterone 0.41 µg/kg 2117591	Great Britain	This is a medium sized sheep farm. The positive animal was born in March 2014, sold in October 2015 and went to slaughter in April 2021. The animal was traced through information from the FSA and by contacting the farmer responsible for the ear mark. A visit was then conducted on the farm. The medicine records were in line with current regulation requirements, adequate animal ID and withdrawal period details had been recorded. All medicines were stored appropriately, and no expired medicines were found. Evidence suggested that the medicine in question had been used therapeutically on the farm. However, there was no obvious visible evidence in the sheep that this type of medicine had been used, as muscle condition and conformity appeared normal. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of this hormone is likely from physiological variation, due to transit related stress.
Broiler muscle	Doxycycline 110 µg/kg 2131635	Great Britain	This is a large poultry farm accredited with the Red Tractor Assurance Scheme. There were 309,600 broiler birds at production time. Birds are sent to the abattoir from 28-44 days old, placed at farm and raised until ready. No Doxycycline is administered to the birds while at the farm, the poultry manager recalled that Doxycycline is administered to 1-day old chicks. Amoxicillin was administered to some birds in October 2021. Poulvac Bursa Plus vaccine was also administered to some birds in the same month. The medicine records appeared to be satisfactory. There was no apparent evidence of use of the medicine, birds on the unit had been treated, but no Doxycycline use was recorded on the medicine records. All the medicines on site were stored appropriately and no expired medicines were retained. Adequate withdrawal period details were recorded. Further advice was provided about the storage and disposal of out-of-date products. The investigation was unable to establish the likely cause of this residue.
Deer muscle	Ronidazole 48 µg/kg 2111448	Great Britain	A large farm accredited as part of SAI Global. The positive animal went to the abattoir in February 2021. Deer are always sent to the same slaughterhouse and the length of the journey is approximately 1.5-2 hours. The farm produces red deer as its main breed and the animals are generally not bought from other farms or markets. In summer, the deer are grazed. In winter, they are fed barley silage and beans. The animal tested positive for nitroimidazoles. It was deparasitised in June 2020 and records confirm that the withdrawal period was respected. Between December 2020 and January 2021, no medicines were administered to that animal or its flock. There was no evidence to support the purchase and use of Ronidazole which is used for the treatment of antiprotozoal disease in cats or to treat trichomonosis species in pet birds. There was no presence of pets (cats or dogs or birds) reared at the farm. Medicines were stored in a cabinet and fridge. The PVS was satisfied with the medicine records and storage facilities. The source of residue could not be established.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Eggs	Lasalocid 480 µg/kg 2122449	Great Britain	The farm is not part of any assurance scheme. They run a free-range poultry layers farming business (approx. 4500 eggs/day), the farm has a very simple setup and a 3-house system. Each house is identified with a number that is marked on the entrance door. The bulk feeding bin for house 2 is also marked, house 3 does not have a dedicated bin. Feed is manually transferred to house 3 using a wheelbarrow. Feed is purchased from the same supplier used for 20 years. There is no home-mixed feed. For the past two years, feed has been delivered into bin number 2. The bin is gravity-fed, and it is topped up each delivery. There has never been feed with SFAs in this bin. The farmers are not always present with each feed delivery; however, as only one bin is in use (bin 2), there is no room for error. The driver also records the bin number on delivery notes. The only feed samples retained are the ones provided by the mill. There are no other birds on the farm, there is a pet goat and a ram. All their feed is purchased as bagged feed, and none is medicated. There were no feeding issues to report and no changes to the formulation. The only coincidence is that the birds had medicated feed with flubendazole from late July onwards – zero withdrawal and no SFAs. The egg in question came from house 2. Information gathered during the inspection, did not indicate the contamination occurred at the farm. The farmer had complained about having contaminated feed delivered on multiple occasions e.g., crumbs contaminated with pellets. Feed for the farm is manufactured at an approved manufacturer of medicated feed. The mill will be responsible for corrective actions where applicable, to carry out a detailed stock audit, evaluate flushing procedures to prevent medicine carry-over during medicated feed manufacturing, review their cross-contamination matrix and to check that mill operators carry out correct procedures, including equipment monitoring. The mill has admitted they were at fault due to issues with equipment, no issues were found on the farm. The mill does not have earned recognition at this time, the mill will be inspected again to ensure procedures are embedded and the mill is operating as expected.
Partridge muscle	Lasalocid 8.8 µg/kg 2136603	Great Britain	No further investigation was carried out due to the low level of residue for muscle.
Partridge muscle	Lasalocid 94 µg/kg 2129901	Great Britain	There was nothing conclusive found at the mill, but the feed went from the mill to a distributor, then onto the shoot. The inspection found some issues with the distributor's record keeping. The estate also has many shoots across a 12-mile-long glen and there is no way of knowing which sheds have been given what feed. It is likely to be an issue with the feed the distributor supplied or a problem with the shoot, but inconclusive. Record keeping issues and deficiencies will be monitored by inspections to improve compliance (including the improvement of traceability of feed on the estate).
Partridge muscle	Lasalocid 210 µg/kg 2111429	Great Britain	The inspection uncovered some issues at the mill, there are procedures in place for the shoot, but there were no records to show when lasalocid feed was started or finished. A reminder of adequate record keeping requirements and guidance will be highlighted to prevent further non-compliances and issues in the future. There was nothing conclusive to establish the original source of this residue.

Covid-19 circumstances have impacted aspects of investigation work this year. In addition, resources have been re-directed to deal with the recent AI outbreak in the UK.

Sampling of animals suspected of containing a residue at the time of slaughter: 31 December 2021

Residues detected above the reference point to date: 31 December 2021

Medicinal products referenced can be found on the [Product Information Database](#).

Sample	Analysed for	No. of Analyses	No. of Non-compliant samples	Reference Point µg/kg/l	Concentrations above the Reference Point µg/kg/l
Cattle kidney	Antimicrobials screen 1	941	9	1000	2070, 2720, 2720, 3750, 6570, 6940 dihydrostreptomycin
				50	282, 580 penicillin G
				600	932 oxytetracycline
	Florfenicol	941	4	300	406, 541, 828 florfenicol
				150	4000 marbofloxacin
Cattle liver	Avermectins	83	2	100	145, 328 ivermectin
Cattle muscle	Antimicrobials screen 1	26	1	100	188 oxytetracycline
Pig kidney	Antimicrobials screen 1	111	1	50	1100 penicillin G

Results of suspect follow-up investigations: 31 December 2021

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Dihydrostreptomycin 2070 µg/kg	Northern Ireland	An investigation was undertaken in September 2021. The animal was blind, and the owner had declared on the FCI that it had been treated with Engemycin (oxytetracycline), last injection was in July 2021, the withdrawal period was 21-35 days and had been adhered to. No other usage of antibiotics or treatment were declared. The carcass was sampled for antimicrobials, and detained pending result as normal (all offal and parts were condemned). Another animal on the farm had been treated with PenStrep, so the likely cause of residue is a mix up caused at the farm level.
Cattle kidney	Dihydrostreptomycin 2720 µg/kg	Northern Ireland	An investigation was undertaken in February 2021. The animal identification was from a 186 suckler beef herd. It was 15 years and 8 months old and had been purchased at the market 5 days prior to slaughter. It was taken to slaughter by the farm's own transport although it was mixed with other animals. Movement and medicine records were kept in accordance with legislation. The herd keeper confirmed he had not been given any indication that the animal had been treated with any drug or that it was within a withdrawal period. The producer slaughters animals on a weekly basis and confirmed he was well aware of required withdrawal times. All follow up samples were compliant.
Cattle kidney	Dihydrostreptomycin 2720 µg/kg	Northern Ireland	An investigation was undertaken in May 2021. The animal was 7 years old and had been purchased 6 years previously; it was from a dairy herd of 300 and was taken to slaughter by the farmer's own transport. The animal was kept separately from other animals. The movement and medicine records were kept in accordance with legislation. The animal was treated in March with PenStrep (21 days withdrawal period required). The animal was given 54 days withdrawal period and slaughtered in May.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Dihydrostreptomycin 3750 µg/kg	Northern Ireland	An investigation was undertaken in April 2021. This is a dairy and beef farm, where some store lambs are kept over winter. The animal was 4 years and 7 months old; it had been born on site and was taken to slaughter by the farm's own transport. Movement and medicine records were kept in accordance with legislation. The herd keeper and those working on the farm do not recollect this animal having been given any medication. Treated animals are clearly marked and information is entered into the computer to ensure the milking machine does not accept milk from any treated animal. An animal was listed as being treated in March with PenStrep but the herd keeper said this was not the same animal. All follow up samples were compliant.
Cattle kidney	Dihydrostreptomycin 6570 µg/kg	Northern Ireland	The animal was 7 years old; it was born on farm and was from a dairy herd of 190 animals. It was injected with PenStrep according to veterinary advice. The last injection given was in March and animal was slaughtered in May. The withdrawal period is 23 days. The medicine records were completed to a very high standard and kept in accordance with legislation. There was no explanation for the residue non-compliance. A follow up sample was compliant.
Cattle kidney	Dihydrostreptomycin 6940 µg/kg	Northern Ireland	An investigation was undertaken on in March 2021. The animal was 4 years and 8 months old; it has been purchased 15 days prior to slaughter. It was taken to slaughter by the farm's own transport. Movement and medicine records were kept in accordance with legislation. The herd keeper confirmed that the animal has not been treated with any form of medication on his farm and he did not recollect any issue/illness with this animal that would have deemed any treatment. The animal is from a 98-beef finishing farm; the producer is constantly turning animals over from market to slaughter at short intervals.
Cattle kidney	Florfenicol 406 µg/kg	Northern Ireland	An investigation was undertaken in January 2022. Movement and medicine records were kept in accordance with legislation. The animal was from a 204-beef fattening herd. There were also some sheep on farm. The animal was 9 months old and was bought 60 days prior to slaughter. It was unwell with pneumonia and was treated with Cadorex (florfenicol). It was an on-farm emergency slaughter, bled out on farm and the carcass was transported by the farm manager. The animal had been injected subcutaneously twice with 20ml/site and was given 44 days withdrawal period. The manufacturer's instruction is 44 days withdrawal, but with 10ml/site at a dosage of 2ml/15kg. The correct dosage was given but should only have been given once. If given Intramuscularly 2 lower dosages (2ml/15kg) can be given 2 days apart). All follow up samples were compliant.
Cattle kidney	Florfenicol 541 µg/kg	Northern Ireland	An investigation was undertaken in October 2021. The animal was 1 year old and had been purchased almost 10 months previously. The animal is from a beef finisher herd of 93; sheep were also present on the farm. It was taken to slaughter with 4 other animals using the farm's own transport but kept separated as it was smaller than the other animals. Movement and medicine records are kept in accordance with legislation. The animal was treated intramuscularly with Norfenicol (20ml), the last administration was 24 days prior to slaughter. There were no instructions on the bottle to instruct what volume was to be used per injection site; although it is recorded on NOAH's compendium that cattle should not exceed 10ml dose at any one injection site and given 39 days withdrawal for intramuscularly treatments. The herdkeeper had mistakenly written 21 days withdrawal in the medicine records.
Cattle kidney	Florfenicol 828 µg/kg	Northern Ireland	An investigation was undertaken in February 2021. The animal was 18 months old and was born on site. It was from a beef finishing herd of 63. The animal had suffered a broken leg and was slaughtered as an emergency on the farm. It was transported using the owner's trailer. Movement and medicine records were kept in accordance with legislation. In October 2020 the animal was treated for pneumonia; it was given two injections of Nuflor in early October 2020 after a conversation with the vet. The investigation report did not state the administration route of the treatment; this medicine has 30 days withdrawal for intramuscular and 44 days withdrawal for subcutaneous. The medicine records had a 30-day withdrawal period detailed so it is likely that Nuflor was administered intramuscular. Regardless of the route of the administration the animal had been given 74 days withdrawal. There was a suggestion that the animal may have received a higher volume than the recommended dosage.
Cattle kidney	Marbofloxacin 4000 µg/kg	Northern Ireland	An investigation was undertaken in November 2021. The 5-year-old animal born on farm, was from a dairy herd of 830. Movement and medicine records were kept in accordance with legislation. The animal was treated in October 2021 with Marbocyl (6-day withdrawal period required). The animal was given a 7-day withdrawal period and slaughtered in November. Medicine records were not initially completed for this animal but have been since. The vet confirmed that medication is only provided as a last resort, and these are discussed with the farm manager. The herd owner will talk to staff regarding withdrawal period times to ensure these are adhered to. Follow up samples were compliant.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Penicillin G 282 µg/kg	Northern Ireland	An investigation was undertaken in January 2022. The animal was 21 months old and born on site. It was from a dairy and suckler herd and was transported to slaughter by haulier in a mixed lorry. The movement and medicine records were kept in accordance with legislation. The Animal was injected in November 2021 with PenStrep (23 days withdrawal period) and was given a 24-day withdrawal period. It was slaughtered near the end of November. The herd keeper mentioned that they would err on the higher end when estimating animal weight to determine the dosage. The veterinary officer investigating theorised that the animal's metabolism may have been compromised due to ill health, resulting in slower clearance of the antibiotic. The follow up samples compliant.
Cattle kidney	Penicillin G 580 µg/kg	Northern Ireland	The animal was 3 years of age and had been bought almost 4 months earlier. Movement and medicine records are kept in accordance with legislation. It is from a finishing beef herd of 365 and was transported to slaughterhouse by the farmer's own transport. The animal was injected with Depocillin (5-day withdrawal period) and the withdrawal time was adhered to. Follow up samples were compliant.
Cattle kidney	Oxytetracycline 932 µg/kg	Northern Ireland	An investigation was undertaken in April 2021. The animal had been purchased 2 months and 3 days prior to slaughter and was from a beef finishing herd of 70 animals. There were also sheep present on the farm. The positive animal had been treated for pneumonia using Hexasol A, it was injected twice; intramuscularly, and via subcutaneous route in February 2021. It was eligible for slaughter in March as the recommended withdrawal period is 35 days. The animal was given 36 days; however, the recommended administration is intramuscularly. An incorrect route of administration may have been the cause of the persistence of the drug. Follow up samples were compliant.
Cattle liver	Ivermectin 145 µg/kg	Northern Ireland	An investigation was undertaken in February 2021. The animal was 13 months old and had been purchased 9 months prior to slaughter. The animal was from a beef fattening herd of 165 and was taken to slaughter by the farm's own transport. Movement and medicine records were kept in accordance with legislation. The animal was treated with Bimectin Plus (ivermectin & clorsulon) which has a 66-day withdrawal period for cattle. The animal's last day of treatment was in December 2020 and it was slaughtered in January 2021 (withdrawal time was not adhered to). The herd keeper had treated the animal however a family member assisted him on the farm and had arranged for the animal to go to slaughter. The herd keeper confirmed that he had omitted to mention that the animal was still within its withdrawal period. All follow up samples were compliant.
Cattle liver	Ivermectin 328 µg/kg	Northern Ireland	An investigation was undertaken in November 2021. The animal was 3 years, 8 months old and had been purchased 3 years prior to slaughter. It was taken to slaughter by haulier and kept separate. The movement and medicine records were kept in accordance with legislation. The animal was from a herd of sucklers and followers (79 animals) and had been treated with Ivomec Super (66 days withdrawal period) in August 2021. It was slaughtered on the day the withdrawal period was completed. The herd keeper reported that the animal was very thin and after calving was not putting on weight. He gave her wormer in an attempt to improve her condition. However, it did not improve so was sent to slaughter. The herd keeper suggested that the animal may have been given an upper end dose of Ivomec and as it was in poor condition the body was not able to metabolise the drug fully which resulted in the residue finding. This sample also contained clorsulon (39.7 µg/kg-MRL 100 µg/kg).
Cattle muscle	Oxytetracycline 188 µg/kg	Northern Ireland	An investigation was undertaken in May 2021. The animal was 7 years and 9 months old and was born on farm; it was from a beef rearing herd of 28. It was taken to slaughter by the farmer's own transport and kept separate. Movement and medicine records were kept in accordance with legislation. The animal had been treated in March with Alamycin LA (41 days withdrawal required) as it was lame. The herd keeper miscalculated the withdrawal time, and the animal was taken to slaughter after 25 days. A follow up sample was compliant.
Pig kidney	Penicillin G 1100 µg/kg	Northern Ireland	An investigation was undertaken in March 2021. This farm had 6000 pigs at the time of inspection. The animal (a finishing pig) had been born on farm. It was taken to slaughter by haulier and kept separate. Movement and medicine records are kept in accordance with legislation. The herd keeper stated that no treatments had been given to the pigs in the last 3 weeks and treated pigs are marked. The only suggestion for the cause of residue could be if the stockman had administered medicine without the herd keeper's knowledge. All follow up samples were compliant.

Details of 2021 UK statutory surveillance programme by sector

Cattle

Group	Analyte	Species	Matrix	Number of non-compliers / analyses (% non-compliant)
A2	Thyrostats	Cattle	Urine	0/176
		Fattening cattle	Urine	2/240 (0.8%)
A3 Hormones	Gestagens	Cattle	Kidney fat	0/300
		Fattening cattle	Serum	0/292
	Oestradiol	Cattle (male)	Serum	0/214
		Fattening cattle (male)	Serum	0/342
	Steroid screen 1	Cattle	Urine	16/1091 (1.5%)
		Fattening cattle	Urine	24/1195 (2.0%)
			Serum	1/58 (1.7%)
	Testosterone	Cattle (female)	Serum	1/339 (0.3%)
Fattening cattle (female)		Serum	2/343 (0.6%)	
A4 Hormones	Zeranol	Cattle	Urine	3/406 (0.7%)
		Fattening cattle	Urine	7/375 (1.9%)
A5	Beta-agonists	Calves < 6 months	Liver	0/8
		Cattle	Liver	0/573
		Fattening cattle	Feed	0/206
		Fattening cattle	Urine	0/241

Group	Analyte	Species	Matrix	Number of non-compliers / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	Calves < 6 months	Kidney	0/8
		Cattle	Kidney	0/301
		Fattening cattle	Feed	0/293
		Fattening cattle	Urine	0/52
	Nitrofurans	Calves < 6 months	Kidney	0/4
		Cattle	Kidney	0/170
		Fattening cattle	Feed	0/206
	Nitroimidazoles	Calves < 6 months	Kidney	0/4
		Cattle	Kidney	0/178
	B1 Antimicrobials	AMS1	Calves < 6 months	Kidney
Cattle			Kidney	2/1289 (0.2%)
AMS2		Cattle	Kidney	0/142
AMS4		Calves < 6 months	Kidney	6/108 (5.6%)
		Cattle	Kidney	0/136
Florfenicol		Calves < 6 months	Kidney	1/101 (1.1%)
		Cattle	Kidney	0/266
B2A		Anthelmintics	Cattle	Liver
	Avermectins	Cattle	Liver	1/487 (0.2%)

Group	Analyte	Species	Matrix	Number of non-compliance / analyses (% non-compliance)
B2B	Coccidiostats	Calves < 6 months	Liver	0/18
		Cattle	Liver	0/6
B2C Pesticide screen	Pyrethroids	Calves < 6 months	Kidney fat	1/32 (3.1%)
		Cattle	Kidney fat	0/6
B2D	Sedatives	Cattle	Liver	0/38
B2E	NSAIDs	Cattle	Kidney	1/431 (0.2%)
B2F	Glucocorticoids	Cattle	Liver	0/342
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Cattle	Kidney fat	0/84
B3B Pesticide screen	Organophosphorus compounds	Cattle	Kidney fat	0/234
B3C Heavy metals	Metals	Cattle	Kidney	4/82 (4.9%)
		Cattle	Muscle	0/22
B3D	Mycotoxins	Cattle	Liver	0/31

Horses

Group	Analyte	Matrix	Number of non-compliance / analyses (% non-compliance)
A2	Thyrostats	Urine	0/1
A3 Hormones	Steroid screen 1	Urine	0/2
A4 Hormones	Zeranol	Urine	0/1
A5	Beta-agonists	Liver	0/18
A6 Annex IV	Chloramphenicol	Kidney	0/3
	Nitrofurans	Kidney	0/2
	Nitroimidazoles	Kidney	0/2
B1 Antimicrobials	AMS1	Kidney	0/5
B2A Anthelmintics	Avermectins	Liver	0/7
B2B	Coccidiostats	Liver	0/2
B2C Pesticide screen	Pyrethroids	Kidney fat	0/1
B2D	Sedatives	Liver	0/7
B2E	NSAIDs	Kidney	0/28
B2F	Glucocorticoids	Liver	0/5
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	0/1
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/1
B3D	Mycotoxins	Liver	0/1

Pigs

Group	Analyte	Matrix	Number of non-compliance / analyses (% non-compliant)
A2	Thyrostats	Urine	0/111
A3 Hormones	Gestagens	Kidney fat	0/110
	Methyltestosterone	Feed	0/32
	Steroid screen 1	Urine	0/377
A4 Hormones	Zeranol	Urine	0/255
A5	Beta-agonists	Feed	0/50
		Liver	0/407
A6 Annex IV	Chloramphenicol	Casings	0/2
		Kidney	0/273
	Nitrofurans	Casings	0/2
		Feed	0/10
		Kidney	1/345 (0.3%)
	Nitroimidazoles	Casings	0/2
		Feed	0/19
		Kidney	0/253

B1 Antimicrobials	AMS1	Kidney	1/1346 (0.1%)
	AMS2	Kidney	0/387
	AMS4	Kidney	0/50
	Ceftiofur	Kidney	0/110
	Florfenicol	Kidney	0/182
B2A	Anthelmintics	Liver	0/339
	Avermectins	Liver	0/192
B2B	Coccidiostats	Liver	0/115
B2C Pesticide screen	Pyrethroids	Kidney fat	0/76
B2D	Sedatives	Kidney	0/25
		Liver	0/121
B2E	NSAIDs	Kidney	0/45
B2F	Glucocorticoids	Liver	0/47
	Carbadox	Liver	0/10
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	0/78
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/157
B3C Heavy metals	Metals	Kidney	0/16
		Muscle	0/4
B3D	Mycotoxins	Liver	1/76 (1.3%)

Sheep

Group	Analyte	Matrix	Number of non-compliers / analyses (% non-compliant)
A2	Thyrostats	Urine	0/79
A3 Hormones	Gestagens	Kidney fat	0/82
	Steroid screen 1	Urine	19/506 (3.8%)
A4 Hormones	Zeranol	Urine	0/110
A5	Beta-agonists	Liver	0/282
A6 Annex IV	Chloramphenicol	Kidney	0/152
	Nitrofurans	Kidney	0/242
	Nitroimidazoles	Kidney	0/114
B1 Antimicrobials	AMS1	Kidney	2/2086 (0.1%)
	AMS2	Kidney	0/7
	AMS4	Kidney	0/103
	Florfenicol	Kidney	0/213
B2A	Anthelmintics	Liver	4/1494 (0.3%)
	Avermectins	Liver	2/585 (0.3%)
B2B	Coccidiostats	Liver	0/327
B2C Pesticide screen	Pyrethroids	Kidney fat	0/556
B2D	Sedatives	Liver	0/90
		Kidney	0/7

Group	Analyte	Matrix	Number of non-compliers / analyses (% non-compliant)
B2E	NSAIDs	Kidney	0/50
B2F	Glucocorticoids	Liver	0/23
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	0/128
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/574
B3C Heavy metals	Metals	Kidney	3/57 (5.3%)
		Muscle	0/8
B3D	Mycotoxins	Liver	0/20

Eggs

Group	Analyte	Species	Number of non-compliers / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	Barn hen	0/9
		Caged hen	0/7
		Free range hen	0/114
		Organic hen	0/11
		Quail hen	0/1
	Nitrofurans	Barn hen	0/9
		Caged hen	0/6
		Free range hen	0/165
		Organic hen	0/10
	Nitroimidazoles	Barn hen	0/10
		Caged hen	0/9
		Free range hen	0/154
		Organic hen	0/15
		Quail	0/1
	B1 Antimicrobials	AMS1	Barn hen
Caged hen			0/4
Free range hen			0/222
Organic hen			0/7
Quail			0/1

Group	Analyte	Species	Number of non-compliers / analyses (% non-compliant)
B1 Antimicrobials	AMS2	Barn hen	0/8
		Caged hen	0/8
		Free range hen	0/119
		Organic hen	0/10
		Quail	0/1
	AMS3	Barn hen	0/15
		Caged hen	0/10
		Free range hen	0/163
		Organic hen	0/19
	Florfenicol	Free range hen	0/129
	Tiamulin	Barn hen	0/2
		Caged hen	0/4
		Free range hen	0/27
		Organic hen	0/4
B2A	Anthelmintics	Free range hen	0/182
	Fipronil	Free range hen	0/182
B2B	Coccidiostats	Barn hen	0/39
		Caged hen	0/33
		Free range hen	1/626 (0.2%)
		Organic hen	0/45
		Quail	0/2
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Barn hen	0/2
		Caged hen	0/4
		Free range hen	0/77
		Organic hen	0/4

Poultry

Group	Analyte	Species	Matrix	Number of non-compliers / analyses (% non-compliant)
A3 Hormones	Steroid screen 2	Broilers	Liver	0/554
		Broilers	Serum	0/77
		Ducks	Liver	0/6
		Hens	Liver	0/33
		Turkeys	Liver	0/74
A5	Beta-agonists	Broilers	Feed	0/219
		Broilers	Liver	0/444
		Ducks	Feed	0/3
		Ducks	Liver	0/8
		Hens	Feed	0/11
		Hens	Liver	0/24
		Turkeys	Feed	0/18
		Turkeys	Liver	0/62
A6 Annex IV	Chloramphenicol	Broilers	Muscle	0/706
		Ducks	Muscle	0/15
		Hens	Muscle	0/38
		Turkeys	Muscle	0/41
	Nitrofurans	Broilers	Feed	0/296
		Broilers	Muscle	0/591
		Ducks	Feed	0/5
		Ducks	Muscle	0/10
		Hens	Feed	0/17
		Hens	Muscle	0/34
		Turkeys	Feed	0/29
		Turkeys	Muscle	0/48
	Nitroimidazoles	Broilers	Feed	0/301
		Broilers	Serum	0/980
		Ducks	Feed	0/5
		Ducks	Serum	0/17
Hens		Feed	0/16	
Hens		Serum	0/35	
Turkeys		Feed	0/31	
Turkeys		Serum	0/76	

Group	Analyte	Species	Matrix	Number of non-compliers / analyses (% non-compliant)
B1 Antimicrobials	AMS1	Broilers	Muscle	1/1261 (0.1%)
		Ducks	Muscle	0/25
		Hens	Muscle	0/79
		Turkeys	Muscle	0/100
	Florfenicol	Broilers	Muscle	0/192
	AMS2	Broilers	Muscle	0/562
		Ducks	Muscle	0/10
		Geese	Muscle	0/2
		Hens	Muscle	0/34
		Turkeys	Muscle	0/71
	Tiamulin	Broilers	Muscle	0/12
B2A	Anthelmintics	Broilers	Liver	0/316
		Ducks	Liver	0/8
		Hens	Liver	0/31
		Turkeys	Liver	0/66
B2B	Coccidiostats	Broilers	Liver	0/1432
		Hens	Liver	0/25
		Turkeys	Liver	0/83
B2C Pesticide screen	Pyrethroids + Carbamates	Broilers	Fat	0/13
		Broilers	Liver	0/82
		Ducks	Liver	0/7
		Hens	Liver	0/11
		Turkeys	Liver	0/12
B2E	NSAIDs	Broilers	Liver	0/7
		Ducks	Liver	0/6
		Hens	Liver	0/6
		Turkey	Liver	0/6
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Broilers	Fat	0/44
		Broilers	Liver	0/272
		Ducks	Liver	0/6
		Hens	Liver	0/13
		Turkeys	Liver	0/9

Group	Analyte	Species	Matrix	Number of non-compliance / analyses (% non-compliance)
B3C Heavy metals	Metals	Broilers	Liver	0/14
		Broilers	Muscle	0/88
		Ducks	Muscle	0/4
		Hens	Muscle	0/5
		Turkeys	Muscle	0/7
B3D	Mycotoxins	Broilers	Liver	0/16
		Hens	Liver	0/1
		Turkeys	Liver	0/1

Fish muscle & skin

Group	Analyte	Species	Number of non-compliers / analyses (% non-compliant)
A3 Hormones	Methyltestosterone	Trout	0/5
A6 Annex IV	Chloramphenicol	Salmon	0/190
		Trout	0/16
	Nitrofurans	Salmon	0/190
		Trout	0/3
	Nitroimidazoles	Salmon	0/197
		Trout	0/6
B1 Antimicrobials	AMS1	Salmon	0/116
		Trout	0/4
	AMS2	Salmon	0/38
		Trout	0/3
	AMS3	Salmon	0/198
		Trout	0/4
	Florfenicol	Salmon	0/100
	B2A	Anthelmintics	Salmon
Trout			0/2
Avermectins		Salmon	0/107
		Trout	0/2
B2C Pesticide screen	Pyrethroids	Salmon	0/142
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Salmon	0/12
		Trout	0/4
B3B Pesticide screen	Organophosphorus compounds	Salmon	0/46
B3C Heavy metals	Metals	Salmon	0/25
		Trout	0/2
B3D	Mycotoxins	Salmon	0/10
		Trout	0/3
B3E	Dyes	Salmon	0/239
		Trout	0/67

Milk

Group	Analyte	Species	Number of non-compliers / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	Cattle	0/987
		Goats	0/5
		Sheep	0/2
	Dapsone	Cattle	0/45
		Goats	0/1
		Sheep	0/1
B1 Antimicrobials	AMS1	Cattle	1/620 (0.2%)
		Goats	0/4
		Sheep	0/2
	Florfenicol	Cattle	254
		Goats	0/2
		Sheep	0/1
	AMS2	Cattle	0/303
		Goats	0/2
		Sheep	0/2
	AMS3	Cattle	0/370
		Goats	0/3
	AMS4	Cattle	0/223
	Cefquinome	Cattle	0/158
	Ceftiofur	Cattle	0/107
		Goats	0/2
B2A	Anthelmintics	Cattle	1/496 (0.2%)
		Goats	0/4
		Sheep	0/1
	Avermectins	Cattle	2/500 (0.4%)
		Goats	0/4
		Sheep	0/2
B2E	NSAIDs	Cattle	0/209
		Goats	0/2

Group	Analyte	Species	Number of non-compliance / analyses (% non-compliance)
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Cattle	0/40
		Goats	0/1
B3B Pesticide screen	Organophosphorus compounds	Cattle	0/44
B3C Heavy metals	Metals	Cattle	0/48
B3D	Mycotoxins	Cattle	0/43

Game

Group	Analyte	Species	Matrix	Number of non-compliers / analyses (% non-compliant)
A2	Thyrostats	Deer	Liver	0/3
A3 Hormones	Steroid screen 2	Deer	Liver	0/7
A5	Beta-agonists	Deer	Liver	0/10
A6 Annex IV	Nitroimidazoles	Deer	Muscle	1/4 (25%)
B1 Antimicrobials	AMS1	Deer	Kidney	0/21
B2A	Anthelmintics	Deer	Liver	0/4
		Partridge	Liver	0/3
		Pheasant	Liver	0/4
		Red Grouse	Liver	0/6
B2B	Coccidiostats	Partridge	Muscle	3/7 (42.9%)
		Pheasant	Muscle	0/7
B2C Pesticide screen	Pyrethroids	Deer	Kidney fat	0/4
B2D	Sedatives	Deer	Liver	0/2
B2E	NSAIDs	Deer	Kidney	0/3
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Deer	Kidney fat	0/6
B3C Heavy metals	Metals	Deer	Muscle	0/5
		Partridge	Muscle	0/5
		Pheasant	Muscle	0/5
		Wild deer	Muscle	0/100

Bees honey

Group	Analyte	Number of non-compliant / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	0/11
	Nitrofurans	0/11
B1 Antimicrobials	AMS1	0/22
	AMS3	0/23
	AMS4	0/22
	AMS5	0/22
B2C Pesticide screen	Pyrethroids	0/13
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	0/14
B3B	Organophosphorus compounds	0/16
B3C Heavy metals	Metals	0/15
B3F	Amitraz	0/14
	Naphthalene	0/13