National statutory surveillance scheme for veterinary residues in animals and animal products: 2023

Residues detected above the reference point to date: 31 December 2023

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	119	3	3000	10000, 15000, 19000 tulathromycin
	Antimicrobials screen 4	97	1	1500	16000 paromomycin
Cattle kidney	Antimicrobials screen 1	1266	1	600	880 oxytetracycline
	Metals	83	2-2 substances in one sample	1000	3000 cadmium
				200	340, 350 lead
	NSAIDs	413	2	Presence	5.7 ibuprofen
				65	5800 meloxicam
Cattle liver	Anthelmintics	732	2	1000	1800, 3770 closantel
Cattle milk	Antimicrobials screen 1	616	1	100	1800 cefalexin
Cattle serum	Testosterone	318	2	Presence	0.49, 2.5 beta-testosterone
Cattle urine	Steroid screen 1	1045	11-2 substances in one sample	12 male	14 alpha-estradiol
				0.7 male, 5 female	0.74, 0.8, 0.81, 2.0, 2.1, 7.2, 14, 16 alpha-nortestosterone
				2 female	30, 39 testosterone
				Presence	2.66 beta-nortestosterone
	Zeranol	420	7-2 substances in each sample	Presence	1.1, 1.1, 1.2, 1.7, 1.9, 2.5, 2.7 taleranol
					0.32, 0.34, 0.38, 0.53, 0.63, 0.89, 1.1 zeranol
Fattening cattle urine	Steroid screen 1	1130	29-2 substances in seven samples	2	2.5, 2.5 alpha-boldenone 0.5/2.2, 0.5/5.4 alpha-boldenone free/conjugated
				12 male	197 alpha-estradiol
				0.7 male, 5 female	1.6, 5.3, 5.3, 5.5, 5.7, 6.9, 7.8, 7.9, 8.1, 8.4, 8.6, 9.9, 10, 11, 12, 13, 14, 16, 18, 20, 20, 25, 27, 30 alpha-nortestosterone
				Presence	147/1.6, 718/1.69, 1058/30, 1573/6, 1937/37, 4270/99 alpha-estradiol/beta-estradiol
				2 male	3.9 testosterone
	Zeranol	391	5-2 substances in each sample	Presence	1.1, 1.1, 1.6, 2, 2.6 taleranol
					0.36, 0.50, 0.75, 1, 1.4 zeranol

Sample	Analysed for	No. of analyses	No. of non-compliant samples	Reference Point µg/kg/l	Concentrations above the Reference Point µg/kg/l
Pig kidney	Antimicrobials screen 1	1394	1	100	410 sulfadiazine
Pig kidney fat	OCs & PCBs	85	1-2 substances in the sample	10	31 PCB28 8.9 PCB52
Pig liver	Glucocorticoids	52	1	Presence	1.6 cortisol
Sheep kidney	Antimicrobials screen 1	1864	1	200	440 gamithromycin
	Metals	51	8-2 substances in one sample	1000	1300, 2000, 2800 cadmium
				200	220, 330, 420, 540, 1100, 1100 lead
Sheep liver	Anthelmintics	1340	5-3 substances in one sample	1500	2200, 3500, 4200 closantel
				100	140 levamisole
				250	1100 triclabendazole
					550 triclabendazole sulfone
					59 triclabendazole sulfoxide
	Avermectins	536	2	100	130, 510 moxidectin
Sheep urine	Steroid screen 1	444	34-2 substances in two samples & 3 substances in one sample	2	2.1, 2.2, 2.3, 2.3, 2.6, 2.6, 2.6, 3.0, 3.1, 3.2, 3.3, 3.3, 3.4, 3.6, 3.7, 3.7, 3.9, 3.9, 7.0, 8.2, 10, 12, 15, 21 alpha-boldenone 0/3.6, 0/4.0, 0/5.5, 0/5.8, 1.3/1.8, 1.5/2.1, 1.7/3.7, 5.5/13.8 alpha-boldenone free/conjugated
				Presence	3.1, 29 alpha-nortestosterone
					0.39 beta-boldenone
					0.69, 1.3, 13 beta-nortestosterone
Horse kidney	Metals	1	1	1000	90000 cadmium
Broiler liver	Coccidiostats	1553	3	3.5	4.3, 16, 42 halofuginone
Eggs	Coccidiostats	718	1	2	4.3 narasin
Trout muscle & skin	Dyes	59	3	Presence	0.554 crystal violet
				0.5	0.54, 0.87 leucomalachite green
Turkey liver	Coccidiostats	76	2	300	350, 440 dinitrocarbanilide
Turkey muscle	Metals	7	1	50	180 cadmium
Wild deer kidney	Metals	1	1	50	4300 cadmium

Results of follow-up investigations: 31 December 2023

Medicinal products can be found on the Product Information Database.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Paromomycin 16000 µg/kg 2333643	Great Britain	An initial investigation took place at the farm that sent the positive animal to slaughter. This is a small calf farm that buys calves from market and sends them directly to slaughter the next working day. No medicated feeds or medicines are given to the animals, as they go immediately to slaughter. Therefore, no medicines are stored on the premises. If an animal is ill or unfit to be transported, an animal disposal contractor is called. Movement records are good. The positive animal was moved off this farm to market, in a batch of two animals in November, and sent to slaughter the next day, when the sample was taken. A second investigation took place at the farm of origin; a medium-sized, Red Tractor accredited farm, with 87 British Frisian cows and 3 Hereford bulls. The positive animal was born in October 2023. Medicines are provided by their PVS and stored in a locked cabinet. No medicine product containing paromomycin was present and there is low usage of antibiotics on site. Medicine records for more than 5 years were available, and invoices were provided by the vet. Medicine records for used products include the batch numbers, expiry dates, withdrawal periods, date of administration, and dose and quantity administrated. The positive animal had not been treated before being sold and medicine containing paromomycin has never been prescribed by their vet. There is no vaccination program in place. As neither site has had any medicine containing paromomycin prescribed by the PVS and neither farmer has declared use of this product, the cause of the residue could not be established. If it had been used, the calf was only 11 days old at slaughter, so it would be within the 20-day withdrawal period.
Calves kidney	Tulathromycin 10000 µg/kg 2329884	Great Britain	This is a medium-sized, Red Tractor accredited farm with 524 cattle. They graze in the summer and are housed during the winter, when they are fed on silage and concentrate. No medicated food is used at any time of the year. The farmer was only able to show some of the medical records as the person in charge of the physical management of the animals had the records locked away and was unavailable. Movement records were satisfactory. They vaccinate cattle for pneumonia, BVD, IBR, Leptospirosis and Johne's disease. All medicines are bought from their vet and there is an annual health program in place. The vet tests the animals every seven days and strongly remarked the good farming practice. There are no records of treatment for the positive animal, but one of the antibiotics used on the farm was Draxxin, (active substance tulathromycin), which has a withdrawal period of 22 days for cattle meat and offal. The positive animal was sold in July 2023 and slaughtered the next day aged only 16 days, when the sample was taken. It is likely the cause of the residue in the sample is due to human error. As a consequence of a mistake in the records kept, an animal was sent to slaughter for human consumption within the withdrawal period.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Calves kidney	Tulathromycin 15000 µg/kg 2305769	Great Britain	An initial investigation took place at the farm that sent the positive animal to slaughter. This is a medium-sized, SAI Global Assurance and Red Tractor accredited enterprise mainly comprised of fattening cattle, beef cattle on another holding. The cattle are sold for slaughter when they reach between 1-2 years of age. Occasionally they are sold to private customers of different farms. Cattle are purchased from different markets. The CTS record indicates that during the last 6 months, 4235 animals moved on, 4230 moved off the farm. During the same period there were no births or imports. The premises also operate as a collection centre for young calves with ages comprised from 10 days to 6 weeks. The positive male calf was born in December 2022 and sold in January 2023. The animal stayed at the farm for less than 30 hours before it was sent for slaughter and had not been treated during this time. The purchased medicine records, show that the product Draxxin was used previously, the product was purchased on multiple occasions, as it is the antibiotic prescribed for pneumonia in calves. There were a high number of cases during last season. The product was used in November, December and January before the suspect animal was moved to slaughter. The medicine purchase and usage records were found satisfactory and up to date. There were no records detailed for the positive animal on the medicine treatment records and there was no evidence of fraudulent treatment. The most likely reason for this positive result is the animal was treated prior to purchase. A second investigation then took place at the farm of origin; a medium-sized, Red Tractor and Co-Op accredited farm, with approximately 300 dairy cattle and calves, mainly Holstein Friesian cows. Calving is all year round and young stock is grouped in ages (cows, heifers, and calves). The male calves are sold. They rear all their own replacements, and no cattle is introduced from other farms. Cows graze in summer and are housed in winter. No vaccination programme is in place. Medicines are kept in an office in a lockable metal cabinet and were all in-date, with VM marketing authorisation. Medicines are purchased from the PVS, and invoices kept. They were labelled by the veterinary practice with the name of the farmer, the solution for injection, the amount to be administered, the withdrawal period and the expiry date. Medicine records were inspected and satisfactory. The cause of the positive result was failure to observe the withdrawal period after the administration of Draxxin, at the farm of origin, in January 2023 for respiratory symptoms. The calf was sold through the green market and sent to slaughter two days later by the buyer.
Calves kidney	Tulathromycin 19000 µg/kg 2329872	Great Britain	This is a large, Red Tractor accredited farm with cattle and calves. It is a closed herd with mainly dairy cattle and some others for beef. Sexed semen is used as part of the breeding program but there are still some male calves born. Holstein Friesian male calves are sent to the slaughterhouse, the Aberdeen Angus are sold on. Records are of a high standard and the drugs are stored appropriately with no out of date or illegal drugs present. Farm records confirmed that a dose of 3mls of Draxxin (active ingredient of tulathromycin) had been administered to the positive animal. The dose rate is 1ml per 40kg, so a dose for a 120kg animal was given. The Agriculture and Horticulture Development Board (AHDB) gives a weight of approximately 62.5kg for a one-month-old calf, this calf was 18 days old at the time of slaughter, so it received a double dose. Draxxin was not present in the medicine cupboard (the last bottle prescribed had been used). Proof of purchase (invoice) for the veterinary product had been presented. The positive animal was transported by the farmer using his own trailer in July 2023, to the abattoir within a few miles of the farm. The farmer reported that one of the staff members (who is no longer employed by them) had made the preparation and loading of the calf without checking the medicine record book and sent it on day 11, of a 22-day withdrawal period. In conclusion, due to human error, the calf has been sent to slaughter and the withdrawal period has not been complied with.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Cadmium 3000 µg/kg Lead 350 µg/kg 2305726	Great Britain	This is a large, Red Tractor accredited cattle and sheep farm. There are 520-550 cattle, 250 breeding ewes, 70 suckler cows and 3 stock bulls, plus their followers. Block calving is undertaken in March-April, and additional stores are bought (12-24 months). All stock is reared until finishing. The suckler herd and some of the fattening beef cattle are turned out to grazing in the spring/summer months. Mains water is provided to the cattle and as well as grazing, livestock are fed with cereals, straw, and grass silage. The farm is located in an old lead mining village that has been highly polluted. The farm was found to be in a very good, clean, and tidy condition, and there was no scrap material, old machinery, or batteries left in the yard or cattle accommodation. The farmer could not recall any fly tipping incidents either. Buildings where cattle are housed are modern (built in the last 15 years) and no lead paint has been used. The farmer confirmed they avoid grazing animals in fields that are known to be more heavily contaminated with lead. The positive cow was born in March 2013 and had been on the farm since March 2015 and grazed each spring/summer since then. It was sent to slaughter in March 2023 when the sample was taken. 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. The farmer was advised to avoid grazing fields that are known to be contaminated with lead, consult with the PVS to establish if there is an issue with possible environmental contamination.
Cattle kidney	Ibuprofen 5.7 µg/kg 2305571	Great Britain	This is a medium-sized, mainly agricultural farm (fruit and crops) which also has Red Tractor accreditation and approximately 60 fattening beef cattle. These are mainly Aberdeen Angus, Belgian Blue, and their crosses. Around 30 calves are purchased every year between February and March. At 22-24 months old, approximately 30 finished cattle are sent for slaughter, every year, between December and February, prior to a new batch of calves being received. Medicines are stored in a lockable cupboard within a storage room. Apart from the routinely used wormer, all other medicines were out of date (some as long ago as 2006). The farmer arranged to have these placed in a marked, closed container, awaiting disposal. Medicine records had some omissions and were lacking in detail, although all dispensed veterinary medicines were recorded in the veterinary medicines diary, used on farm. Veterinary medicines are exclusively acquired through the veterinary practice. Should an animal be ill, the PVS is consulted, and their advice followed. The positive animal was sent for slaughter in a group of 15 cattle directly from farm to the slaughterhouse. As the PVS is consulted for any condition, the use of medicines seems to be recorded and the fact that the illegal use of ibuprofen does not have obvious benefits for the business, it is unlikely the source of the residue is from the farm of origin. For similar reasons, it is unlikely for the animal to have been treated between departure from the farm and time of kill. Consideration should be given to the potential of cross contamination of the tissue at a later moment off farm.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Lead 340 µg/kg 2326956	Great Britain	This is a large-sized, FABBL (Red Tractor) accredited farm with 510 cattle and depending on the time of year, some 900 lambs. The main enterprise is dairy with a smaller beef side, currently 345 are dairy and 165 are beef breeds. Most of the dairy cattle are Holstein Friesian, the rest are Holstein and British Friesian crosses. The dairy herd consists of 170 milking cows and the followers. Winter store lambs are purchased from local markets in November, grazed through the winter till April, then sent to abattoir. The cattle only graze in summer (July- September) and are housed through the rest of the year. They are fed sileage and a mix of barley, wheat straw, soya, and minerals. The parlour is supplied with mains water; but cattle have access to spring water while grazing. The herd has been closed for over 10 years. Breeding is through AI and the calving is all year around. The calves are routinely vaccinated for Black leg, cows BVD and leptospirosis, and beef cattle for mycoplasma. The main health issues are mastitis in cows, respiratory problems and scour in housed calves. Medicines are stored in a lockable cupboard, while those needing refrigeration, in the farm's office, which is also lockable. Medicine records lacked sufficient purchase and disposal details. The veterinary medicine record is kept separately for dairy, beef, and sheep. The dairy one is in electronic format, while for beef and sheep a paper version is kept. All three contain all the required information: the name of the product, the date of administration; the quantity administered and the withdrawal period. The positive cow was born in February 2018 and kept on farm. It was transported in a batch of three cull cows directly from farm to the slaughterhouse by the farmer in July 2023 and slaughtered the same day. At the time of slaughter, the animal was 5.5 years old. No indication of lead residues was found in the farm buildings or fields; however, the area was heavily mined for various metals in the past, mainly tin, but also lead. The farmer does not recall any issues with fly-tipping and the area is not prone to flooding. As this animal remained its whole life on this farm, natural geo accumulation from grazing is the likely cause.
Cattle kidney	Meloxicam 5800 µg/kg 2317891	Great Britain	This is a medium-sized, Red Tractor accredited dairy farm, with 500 cattle, comprised of approximately 430 milking cows (20 dry cows),10 stock bulls and young stock calves. Farmland is used for making grass silage and summer grazing, and cattle are housed during winter. Replacements are bought-in, milking-cows from market and all calves are sold aged under 42 days. Milking cows have concentrates in the parlour and are also fed grass, blended with cereals and corn. No medicated feed is given to the cattle. There are no health issues, just some pneumonia, mastitis, and foul. The herd are vaccinated for BVD, IBR, Leptospirosis and monitored for Johne's disease. Medicine products are kept in the lockable medicine storage, which is only accessible by the farmer and two permanent members of staff. The farmer confirmed all medicines are used in date, and there is no overstock. Expired medicines and empty containers are disposed of by the PVS. Medicine records were available and found satisfactory, invoices are kept for at least 5 years. The farmer uses anti-inflammatory drugs (Metacam) to aid recovery and reduce pain in animals, per case decision. The positive dairy cow, a British Friesian female, was born in February 2016 and bought in January 2019. The meloxicam detected can be found in Metacam which may be used for adjunctive therapy in the treatment of acute mastitis, in combination with antibiotic therapy. The cow, a high yielder, calved a healthy calf in April 2023 and was housed in a pen with a small group of other cows that recently calved. The farmer stated the cow fell late the same afternoon and was unable to rise. According to the farmer the milking cow was in very good health, and no medicine was administered before or after her calving. The investigation established that the likely cause of this residue was due to an accident with the animal and a member of staff administering Metacam but overlooking the marking and recording of the details in the medicines record. The importance of ensuring administration of medicines to the correct animals and record keeping requirements were explained and guidance provided. Some of the medicine record entries were not completed, treatment reasons were not recorded. The farmer was advised to record all treatments, and to seek further advice from the PVS if in doubt.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Oxytetracycline 880 µg/kg 2313956	Great Britain	This is a large dairy cattle farm comprised of 1400 animals (700 milking cows, 700 young stock). The medicine storage facilities and records were inspected and procedures for antibiotics administered on farm were discussed. A treated animal is identified and marked to ensure its milk does not enter the food chain when the animal is milked. This is recorded in a diary and electronically on a database system, information is then transferred into the medicine book. The farmer was able to show that the system in place is working for milk, and real time records are part of procedure to protect the food chain. The positive animal was treated in March 2023 with Pharmasin (tylosin active ingredient). In that same period, there was a purchase of Alamycin LA (oxytetracycline). The PVS invoice was also checked. The farmer thought it was possible a treatment record may not have been transferred electronically and this could have missed. The SVI checked the other animal records for consistency to verify this was just a human error, not a lack of compliance on regulation procedures and confirmed this was an isolated case. All feed is purchased, invoices checked, and the feed was excluded as a possible pathway for this incident of residue. The PVS visits the farm frequently, all invoices for medicines were available to link the quantity of medicine to required treatments at the inspection. The farmer has a solid system in place to ensure any animals under antibiotic treatment do not get milked with the others, no milk is mixed. The standard operating procedures ensure that no antibiotic residues are in the bulk milk collected. There was very good cooperation by the farmer (the farmer was aware of the regulation requirements). The farmer has been advised to discuss findings with the PVS, to implement the solidity of the system for immediate recording of treatments and to have an internal audit system in place. The investigation established that the cause for this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period. The investigation concluded that although the medicine records were generally of a good standard, nevertheless human error occurred in not transferring the treatment to the electronic recording system.
Cattle liver	Closantel 1800 µg/kg 2304168	Great Britain	This is a large Red Tractor Assured, fattening cattle farm, there were 258 animals registered in the CTS (Cattle Tracing System) at the time of the investigation. In autumn, the farm purchases stock when cattle are 6-10 months old, mainly from market. New animals are management tagged and administered IBR vaccine. If weather conditions are too extreme the animals are housed. During summertime cattle are grazed, near the end of the year they are housed again to be finished until going directly to slaughter. Animals are collected by the local haulier and sent to the abattoir in monthly batches of 8-10. The feeding system is based on local silage, barley, and straw. Young animals also receive some protein pellets. Approximately two months before going to the abattoir, cattle are treated for parasites using Norofas Pour-on Solution (containing substances, ivermectin and closantel). The positive animal was last treated in December 2022, in a batch of 30 for worming the same day. The withdrawal period was observed before the animal was collected in February 2023 and slaughtered the next day, when the sample was taken. There was some minor non-compliance for veterinary medicine recording requirements (no individual ID of animals in the medicine book, however there was a cross-reference note with the management ear tag and the official ID that allows identification of animals treated). This is the second positive animal with a residue of closantel in two years, (previously March 2021). Since then, only the keeper has administered the product, weighing each animal, calibrating the dose (this task has not been delegated to any other staff). The investigation was unable to establish the precise cause of the residue as the records show that the withdrawal period had been adhered to. Possible causes were highlighted as either an unrecorded treatment or the animal may have ingested the medication by licking it off another medicated animal. A temporary spray mark to treated groups of animals was advised as best practice to avoid redosing (if animals escape or are mixed into another group.) The mark should remain as a reminder that the animal was treated and to ensure the withdrawal period is fully observed. Careful animal dose by dose calculation should continue to be carried out to avoid over/underdosing. Animals should also be observed for excessively grooming other animals, if necessary, an alternative method of dosing could be considered. The owner was also advised to contact the PVS to discuss the issue further.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle liver	Closantel 3770 µg/kg	Northern Ireland	An investigation was undertaken in March 2023. The positive animal was over five years old and was purchased in February 2023, eight days prior to slaughter. It was part of 141 beef rearing and finishing cattle. The animal was transported to the abattoir in the herd keeper's own transport, mixed with other herds. Movement and medicine records were kept in accordance with legislation and found satisfactory. The herd keeper rears some cattle but generally has a high turnover of bought-in, short-stay cattle for slaughter. The herd keeper confirmed that he did not administer any medications and does not purchase dosing products that contain closantel, only ivermectin. No products containing closantel were found on the farm. The herd keeper states the animal had been administered medications before he purchased the animal. A follow up request has been made to determine what information was supplied at the time of the sale at the mart. All follow samples were compliant.
Cattle milk	Cefalexin 1800 µg/kg 2310787	Great Britain	The enterprise is a beef fattening unit, as well as another farm with a dairy herd (Red Tractor and Arlagarden accredited). There are also calves and ducks on site. The positive sample was taken in January 2023. On inspection, of the medicine records it appears that one animal had been treated during the target period with Ubrolexin (active ingredient cefalexin) which has a milk withdrawal period of 5 days. The medicine cabinet was also inspected, and this appeared satisfactory, no issues were found. The farmer maintained that all cattle within their medicine withdrawal period were milked last and the milk placed into the dump tank to be fed to the calves, not for human consumption. Five animals contributed to the dump tank, including the milk from the treated cow, the others were detained due to high cell counts. As the milk tanker had already collected the milk from the farm that day, the bulk milk tank was empty. However, a sample of the milk present in the dump tank was taken instead (against current procedures). The investigation established that the cause of this residue was the erroneous sampling of the dump tank where treated waste is collected for disposal.
Cattle serum	Beta-testosterone 0.49 µg/kg 2304674	Great Britain	This is a small beef farm with 29 British Friesian cattle which are permanently housed and never go out. Medicines are stored in a lockable box in a shed. The only medicines in the medicine storage were Cyclospray and Tylenol, no other medicines were stored on site. There were no products containing hormones and no evidence of any fraudulent administration of hormonal treatments. The herd has achieved earned recognition for TB and only tests once a year even though it is in a 6 monthly testing high risk area. The farmer confirmed that he does not use any medicinal treatment other than occasionally anti-inflammatory medicines and does not worm the animals as they are housed, never grazed. There were no health issues with the animals. The positive animal was a barren cow born in December 2014. It was picked up from the farm, taken directly to the abattoir in January 2023 and slaughtered the same day, when the sample was taken. There was no evidence of any medicinal treatment administered to this animal or use of banned substances on the farm. The farmer was also sure the animal could not have been in calf. The investigation established that the presence of this hormone is considered to be from natural levels. The farmer was given general advice about record keeping requirements of medicinal treatments and guidance was provided.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle serum	Beta-testosterone 2.5 µg/kg 2335872	Great Britain	This is a large-sized cattle farm, specialising in rearing male beef cattle, with a current registration of 571 animals. Generally, young stock bulls, aged 8-24 months from various breeds, are bought in from different farms through the market. The cattle are fattened and then sold to slaughterhouses. During warmer months, the cattle are kept in fields for natural grazing and movement. During colder months, the animals are housed within the farm's facilities. The positive animal was born in March 2022 and arrived on this farm in April 2023. It was sold at market and went straight to slaughter in October 2023. Medicine administration is recorded and maintained electronically. Mainly antibiotics are used for bovine respiratory disease and lameness, with strict adherence to withdrawal periods. No medicine treatment was administered on the farm during the presence of the animal and no evidence was found of anabolic steroid use. Cattle are housed in appropriate conditions and display normal behaviour. The absence of female cattle on the farm makes it rather unlikely that the sample came from a female. The evidence points towards an error in sample collection, leading to a misidentification as female. Considering that testosterone is naturally present in bovines and the detected level of testosterone in the sample can be within the physiological range for male cattle, the residue appears to be of natural origin.
Cattle urine	Alpha-estradiol 14 µg/kg Beta-nortestosterone 2.66 µg/kg	Northern Ireland	An investigation was undertaken in November 2023. The animal was just under 21 months old and purchased in August 2022. It is from a high turnover finishing herd of 775 animals. Movement records were held in accordance with legislation. The herd keeper uses an electronic medicine record system, it was viewed on the day, but nothing was recorded. Medications were found on the farm, but there was no record of when or why they were used. The herd keeper explained he does not know how to operate the system and will contact the supplier of the system to ask if medicine details can be retrieved. He provided a completed medicine record at a later date. No evidence of illegal treatment was found, and the cause of residues was not determined. Five follow up samples were taken, four were compliant, one sample had a residue of testosterone of 14.3 µg/kg, but the animal was later confirmed to be a bull.
Cattle urine	Alpha-nortestosterone 0.74 µg/kg 2335759	Great Britain	This is a medium-sized, Red Tractor accredited farm, with 400 mixed-breed fattening cattle and 800 sheep. The cattle unit has recently become a licensed finishing unit (LFU), so there is zero grazing. Animals are bought in at around 20 months and finished for slaughter. The animals are fed on straw and home-grown silage in addition to a barley and concentrate mix. They receive a changeover pellet when they arrive on the unit and are wormed and vaccinated for infectious bovine rhinotracheitis (IBR). Medicines are purchased from the private veterinary surgeon and kept in a locked storage cupboard. Any expired medicines are returned to the PVS for disposal. Medicine records were checked and satisfactory. The animal in question had not received any medication on farm other than vaccination and anthelmintic on arrival. The cattle in the LFU were visually inspected and appeared in normal condition, with no abnormal muscling. The positive animal was born in July 2021, kept at several locations, then taken to the abattoir by haulier, in a batch of 38, in November 2023. There was no evidence of the use of banned substances on farm and it is likely that the positive result is due to natural levels of this hormone. It was a castrated male, so possible poor castration technique could be a factor and the journey to the abattoir was 60 miles, so this may have caused increased stress levels.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle urine	Alpha-nortestosterone 0.8 µg/kg 2317040	Great Britain	This is a large-sized Red Tractor accredited beef cattle farm. Breeds include Simmental, Limousin, British Blue, and Blonde d'Aquitaine. Cattle are purchased from markets, depending on availability, size, and farmer's requirements. Transport is done by local hauliers and cattle are purchased between approximately 8-12 months old (200-250kg in weight). When they reach approximately 700kgs, cattle are sent for slaughter. Straw bales are cut, baled by the farmer (brought to the farm yearly and stored at the back of the farm). The straw is swapped for muck which is removed fortnightly by arable farmers. Pens have straw bedding renewed every other day. Feed consists of potatoes, sugar beet, cut straw, supplements mixed up on farm and fed ad hoc to all cattle. Water is mains supplied. On arrival purchased cattle are vaccinated and wormed, they stay on farm between 8-12 months, therefore the withdrawal periods are met. Other medicines used include Hexasol LA, Draxxin, Ivomec. Medicines are stored in a small, padlocked metal cupboard fitted on the wall. All labels were legible, and none were out of date. Medicine records were checked for the last 5 years, and were found satisfactory (detailing product, treatment dates, batch numbers, quantities used, withdrawal period and name of person administrating medication). Separate containers are kept for empty bottles and needles which are collected by the PVS when full. No medicinal products contained the active substance found in the residue. There is also a hazardous waste disposal protocol in place, and this was compliant. The positive male animal was born in March 2021 and purchased at market in April 2022, at 26 months old. It was part of a group of 19 animals, 6 of which came from the same farm as the positive animal. The animal was castrated but it is unknown whether it was castrated over 6 months old. It was sent to the abattoir in May 2023 and slaughtered the next day. There was no evidence of the use of banned substances on the farm, therefore, the presence of this hormone is considered to be of natural origin. The stress of a nearly five-hour journey from the farm to the abattoir (269 miles) could provide an explanation for the residue. The farmer was advised to improve recording routine treatments in the medicine book, cross reference ear tag number of cattle purchased on a particular date.
Cattle urine	Alpha-nortestosterone 0.81 µg/kg 2303918	Great Britain	This is a medium sized QMS accredited beef cattle farm with 201 animals registered. The farm was a former dairy farm but is now a fattening unit. There were 15 breeding cows present on the farm, the owner is reducing the number of breeding stock progressively. Cattle are bought and finished all year round at about 400-410kg, staying for no more than a year. The farm grows cereals and produces its own silage, hay, and straw which is fed to the livestock. All cattle are sold direct to the abattoir at present. All medicines are supplied by the veterinary practice and the farmer keeps a record of all invoices and a medicine records book. The farmer states that medicine usage is limited to wormers, and occasionally antibiotics. There is small lockable storage, which was inspected, no medicines were found, just syringes and needles. All vet and keeper administered medicine usage is recorded, withdrawal periods are extended based on assurance scheme rules (adequate animal ID was also recorded). The positive steer was purchased at market in February 2022 and sent to the abattoir in January 2023. The same haulier is always used by the farmer. 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 to be a natural level as a result of minor injury or transit stress following 2.5-hour journey between the farm and abattoir.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle urine	Alpha-nortestosterone 2.0 µg/kg 2335674	Great Britain	This is a medium-sized, Red Tractor accredited farm with around 200-250 beef cattle. Annually, the farmer acquires 150-200 calves, usually a few weeks old, predominantly of Belgian X, Angus X, Hereford X, and Holstein breeds. Upon reaching 18-24 months of age, the cattle are sent for slaughter. The feeding regimen includes silage and a home mix comprising of calf nuts, barley, and sugar beet. The farmer states that he does not implement a deworming treatment, citing the less likelihood of parasites in the intensive system. The primary health issue affecting the farm is pneumonia in young calves. The steer, born in October 2021, was transported to the abattoir in October 2023, as part of a batch of 15 finished beef, and was slaughtered the next day, when the sample was taken. The distance from the farm to the abattoir was a minimum of 84.8 miles. The combination of transportation and the night spent in the lairage could amplify the stress on the animal, potentially contributing to increase the level of alpha nortestosterone. There is no evidence of banned substances on the farm, suggesting that the presence of this hormone originates endogenously, likely induced by stress.
Cattle urine	Alpha-nortestosterone 2.1 µg/kg 2304324	Great Britain	This is a small farm comprised of 8 Highland breed cattle which are kept in the field all year. The positive male animal was purchased and moved onto the farm in November 2020 and sent to the abattoir in February 2023. The animal was not treated before being sent to the market and no medicine was administered prior to the slaughter date. Movement records were found to be satisfactory. There is no medicine storage as veterinary medicines are not kept at the farm. All veterinary medicines are obtained from the PVS practice (PVS visit report/invoices and medicines supplied were made available). Veterinary medicine records were found unsatisfactory (PVS invoices for vet services and sales), there was no ID of treated animals (medicine, date, animal quantity, treatment, withdrawal period, expiry date). No expired medication was found at the time of the inspection and no medicines were presented. Used or expired medicines are sent to the PVS for disposal and these procedures were satisfactory. The animals inspected in the field were found in good condition, with feed and water available. 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 to have been caused by stress and therefore considered to be a natural level. A copy of the medicine record keeping requirements was provided to the farmer for information, an animal health plan also advised.
Cattle urine	Alpha-nortestosterone 7.2 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Cattle urine	Alpha-nortestosterone 14 µg/kg 2316892	Great Britain	This is a medium-sized dairy cattle farm with some calves. The positive animal suffered a broken leg in April 2023 and was taken for an emergency slaughter the same day, when the sample was taken. The farm has very good medical records and has retained them for 10 years. The medicine storage and the remaining dairy cattle on the farm were inspected. There was no evidence of the use of illegal substances. The course of events was confirmed with the PVS who examined the animal prior to slaughter. The presence of nortestosterone is likely related to the accident and related stress. The exact cause of the accident is not known.
Cattle urine	Alpha-nortestosterone 16 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Cattle urine	Taleranol 1.1 µg/kg Zeranol 0.32 µg/kg 2326077	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 1.1 µg/kg Zeranol 0.38 µg/kg 2335910	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 1.2 µg/kg Zeranol 0.34 µg/kg 2326067	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 urine	Taleranol 1.7 µg/kg Zeranol 0.53 µg/kg 2304702	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 1.9 µg/kg Zeranol 0.63 µg/kg 2335900	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 2.5 µg/kg Zeranol 0.89 µg/kg 2326105	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 2.7 µg/kg Zeranol 1.1 µg/kg 2326085	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	Testosterone 30 µg/kg	Northern Ireland	Animal was a bull. No further action required.
Cattle urine	Testosterone 39 µg/kg	Northern Ireland	Bull status confirmed. No further action required.
Fattening cattle urine	Alpha-boldenone 2.5 µg/kg 2319101	Great Britain	This is a Red Tractor accredited farm comprised of beef cattle and sheep. It is a medium to large sized beef suckler (mainly a closed herd). The farm rears its own replacements, although some newborn calves from a neighbouring farm were purchased during lockdown (including the positive animal). All cattle are finished on farm and sent directly to slaughter. There is natural mating with an owned bull, no AI is used. No medicated feeds are used, the cattle are fed on grass and supplemented with rolled barley, molasses and straw or hay. There were 500 ewes and followers at the time of the sampling, but most have been sold and only a handful retained. The farmer is in the process of downsizing the herd and concentrating on his arable business. The medicine records and medicine storage facilities were inspected, medicines were stored appropriately. There was a very small amount of medication given on this farm according to the records. The farmer was aware of withdrawal periods and records were found to be complete and satisfactory. Adequate animal ID and withdrawal period details were recorded. The positive heifer was born in February 2021 and purchased as a newborn calf. It was still on the farm but not far off from being sent to slaughter. The farmyard, positive cow, as well as the rest of the animals in the group, were inspected. There was no evidence of the use of banned substances on the farm therefore the presence of this hormone is considered to be natural due to accidental faecal contamination of the urine at the time of sampling.
Fattening cattle urine	Alpha-estradiol 197 µg/kg Beta-estradiol 1.6 µg/kg	Northern Ireland	Follow up sample was taken and was compliant. No further action required.
Fattening cattle urine	Alpha-estradiol 147 µg/kg Beta-estradiol 1.6 µg/kg	Northern Ireland	Beta-estradiol can be present when levels of α-Estradiol is present- No further action
Fattening cattle urine	Alpha-estradiol 718 µg/kg Beta-estradiol 1.69 µg/kg	Northern Ireland	Beta-estradiol can be present when levels of α-Estradiol is present- No further action
Fattening cattle urine	Alpha-estradiol 1058 µg/kg Beta-estradiol 30 µg/kg	Northern Ireland	Beta-estradiol can be present when levels of α-Estradiol is present- No further action
Fattening cattle urine	Alpha-estradiol 1573 µg/kg Beta-estradiol 6 µg/kg	Northern Ireland	Beta-estradiol can be present when levels of α-Estradiol is present- No further action
Fattening cattle urine	Alpha-nortestosterone 5.3 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 5.5 µg/kg	Northern Ireland	Pregnant female. No further investigation required.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Fattening cattle urine	Alpha-nortestosterone 5.7 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 6.9 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 7.8 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 7.9 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 8.4 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 8.6 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 9.9 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 11 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 12 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 13 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 16 µg/kg 2318936	Great Britain	Female, possibly pregnant, but sent for slaughter before an investigation could take place.
Fattening cattle urine	Alpha-nortestosterone 18 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 20 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 20 µg/kg	Northern Ireland	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 27 µg/kg 2309590	Great Britain	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 5.3 µg/kg Alpha-boldenone 0.5/2.2 µg/kg	Northern Ireland	The animal was pregnant at time of sampling which explains α-Nortestosterone finding. The animal was retested after calving and urine was compliant. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 14 µg/kg Alpha-boldenone 2.5 µg/kg 2309455	Great Britain	Pregnant female. No further investigation required.
Fattening cattle urine	Alpha-nortestosterone 30 µg/kg Alpha-boldenone 0.5 free/5.4 conjugated µg/kg	Northern Ireland	Pregnant female and presence of unconjugated (free) α-Boldenone is considered evidence of faecal contamination. No further
Fattening cattle urine	Alpha-nortestosterone 10 µg/kg Alpha-estradiol 1937 µg/kg Beta-estradiol 37 µg/kg	Northern Ireland	Pregnant female, Beta-estradiol can be present when levels of α-Estradiol is present. No further investigation required
Fattening cattle urine	Alpha-nortestosterone 25 µg/kg Alpha-estradiol 4270 µg/kg Beta-estradiol 99 µg/kg	Northern Ireland	Pregnant female, Beta-estradiol can be present when levels of α-Estradiol is present. No further investigation required
Fattening cattle urine	Alpha-nortestosterone 8.1 µg/kg Testosterone 3.9 µg/kg	Northern Ireland	Pregnant female. No further investigation required.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Fattening cattle urine	Taleranol 1.1 µg/kg Zeranol 0.36 µg/kg 2330812	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 0.50 µg/kg 2330794	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 1.6 µg/kg Zeranol 0.75 µg/kg 2321280	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 2.0 µg/kg Zeranol 1.4 µg/kg 2321301	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 2.6 µg/kg Zeranol 1.0 µg/kg 2321304	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.
Pig kidney	Sulfadiazine 410 µg/kg 2327527	Great Britain	This is a large-sized, Red Tractor accredited pig farm. It is a finishing and breeding farm of approximately 500 sows, who grow their own-born piglets and fattening pigs. Evidence was provided of the correct storage of medicines, and all were in date. Medicine Records were checked from the last 5 years. Information provided by the farm's Director showed expired drugs are securely stored in a yellow waste container ready for collection. Once removed from site, a waste transfer note is issued. No non-compliances were observed on site. The positive animal was sent, in a group of 161 pigs, to the slaughterhouse in August 2023. A supply farm provides them with feeds for their pigs, in bulk and ready to use. The reason for this positive antibiotic result in the meat, is human error due to the use of a finishing feed mixed with a premedicated growing feed. Information provided by the supply farm showed they had 30 bags of grower minerals in the mill store that had somehow managed to slip through the stock rotation system they have in place. To avoid a waste of product, they decided to use this up, by adding 1 bag out of 6 that go into each finisher diet produced. Once the farm was notified of the positive antibiotics findings, they immediately stopped the movement of pigs, fed with the medicated feed and due to be slaughtered, to allow for a withdrawal period. Feed lines and hoppers were cleaned and refilled with uncontaminated feed. At the supply farm a review of the manufacturing system was done to ensure no feed will be produced with presence of antibiotics.
Pig kidney fat	PCB28 31 µg/kg PCB52 8.9 µg/kg 2330115	Great Britain	This is a medium-sized, Red Tractor and RSPCA accredited pig farm. They have been a finisher unit for 5 years. Pigs arrive on farm, as stores, around 35kg. They are sourced from an outdoor breeding unit, with weaners moving to a nursery site prior to arriving at the farm. Pigs are housed in 5 large straw-based sheds with concrete floors, river drinkers, automated ad lib feeders and natural ventilation. Feed is bought from a supplier, with 3 rations throughout. Water is mains supplied and straw is sourced from two local farms. Medicines are supplied by their PVS. The positive animal arrived on farm in May 2023 and sent for slaughter in September. The origin of the residue, from possible accidental ingestion of unknown compounds, could not be determined.
Pig liver	Cortisol 1.6 µg/kg	Northern Ireland	An investigation was undertaken in October 2023. The animal was approximately 2 weeks old. It was born on site, then moved as a weaner to a second site for finishing. The animal was part of a fattening herd of approximately 750 animals. Movement and medicines records kept in accordance with legislation, medicine records computerised and tally with medications kept on farm. Possible adverse stress and/or illegal treatment of animal was investigated. The herd keeper commented that there was no more stress than usual, and the pigs were not usually injected at the finishing unit. The holdings have excellent husbandry and record keeping, and the residue was perhaps naturally caused by stress at the abattoir. No evidence of illegal treatment was found. No follow up samples were received.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep kidney	Cadmium 1300 µg/kg 2329765	Great Britain	The positive animal was born in 2020, resided at several premises, and was then sent to slaughter in August 2023. An initial investigation took place at the farm that sent the animal to slaughter. This is a medium-sized, Assured British Meat accredited, sheep farm, with some cattle, goats, and poultry. A second investigation took place at the previous farm; a medium-sized, Red Tractor accredited cattle farm, with sheep, pigs, goats, poultry, ducks, geese, and horses. Movement and medicine records for both premises confirmed this animals movement history and that it was not treated with medicines on site. None of the medicines present at the farms, are known for causing high cadmium residues. Neither premises reported any clinical signs which could be related to high cadmium in livestock and there were no known reports of fly tipping. All farms appear to be in areas with relatively high geological cadmium levels in the soil. This is the likely cause of the residue, and the acid nature of the soil in those locations may contribute to its bioavailability.
Sheep kidney	Cadmium 2800 µg/kg 2309192	Great Britain	This is a large-sized, Red Tractor accredited farm with approximately 1500 beef cattle, 700 sheep, and some horses. The farmer buys store cattle and sheep from market every week, then sells them directly to abattoirs. Store cattle are normally kept on average for 3-4 months before being sent to slaughter. The timing may be just a few days for cull sheep, whereas lambs are normally kept for longer. Cattle are checked for abnormalities and any treatment administered is recorded in a diary, then transferred to medicine records. Store cattle are routinely vaccinated for IBR and cattle recently moved on farm are kept separate from the rest. Sheep are first separated from the resident flock and then treated for parasitic conditions (Dysect and Crovect are routinely used). Remaining cattle are left grazing on the fields between May-September, then housed. Similarly, sheep are fed on grass if outdoors or mixed hay/ grass silage if indoors. Grass silage is made inhouse, hay and straw are partially sourced elsewhere. There is a resident sheep flock of about 250 breeding ewes, the rest are lambs and cull sheep. Ewes are routinely clipped during spring-summer. Medicines are supplied by a local veterinary practice and stored in a separate room, which is always locked. There was no evidence that sources of cadmium, such as fresh paint or old vehicle batteries were accessible to sheep. The farmer is aware of sources of contamination and ensures his livestock can never gain access, as the farm is not far from a patch of land where the soil cadmium content may be above average. The positive ewe was purchased in January 2023 and sent to slaughter 3 days later when the sample was taken. 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
Sheep kidney	Cadmium 2000 µg/kg Lead 220 µg/kg 2329773	Great Britain	The positive sheep had been on three different farms since it was born. An initial investigation took place at the farm that sent the animal to slaughter, a large-sized, FAWL accredited farm with sheep, broilers, and cattle. There were no sheep remaining from the group sent to slaughter, but groups are not necessarily kept and managed together during the short stay at the premises. The positive animal only stayed at these premises for 20 days. It was among a batch of 169 store lambs (6-8 months old), sent to slaughter in July 2023, when the sample was taken. A second investigation took place at the previous farm; a large-sized, Red Tractor accredited farm, with sheep and cattle. The sheep are grazed outside with no access to buildings. Mains water is supplied. The medicine records are good and comply with regulations. There is no evidence of contamination at this farm. The farmer does not have a shoot on his land, which might result in contamination with lead, and there weren't any old car batteries etc. to account for the residues. However, the farm is in a mining area and lead and cadmium contamination can be associated with lead or coal mining. Both of these were once widespread in the area but are now disused. The lamb was resident on this farm for only 2 months. A third investigation took place at the farm of birth. This is a medium-sized farm, run for commercial purposes, with 400 Welsh Mountain breeding ewes, and one cow with a calf. The farm has 300 acres of grazing land, and the sheep graze all year. Lambing takes place outside, and they are fed grass silage, grown and processed by the owner. Lambs receive extra cake for fattening, bought in from an outside supplier. Medicine is provided from their PVS, and all withdrawal periods are recorded in a medicine record book and followed as required. The residue is likely to have been acquired via accumulation from soil ingested during grazing, upland acidic soils and areas of high cadmium and lead possibly from local sources associated with ancient mines, at one or more of the 3 holdings that the animal spent its life.
Sheep kidney	Gamithromycin 440 µg/kg 2313693	Great Britain	This is a medium-sized farm of sheep, breeding stock and breeding cattle. The number of sheep is variable depending on lambing time, but there are approximately 900 ewes and 800 lambs. The animals were found in good clean condition and showed normal calm behaviour. There's a good system in place for traceability. Veterinary and movement records were complete and updated. All invoices are kept for medicines supplied by the PVS. Medicines are kept locked at the farm and only the farmer and his daughter have access to the drugs. Zactran is the only drug used at this farm containing gamithromycin and is only administrated for single adult ewes with footrot, following PVS recommendation. When an animal with footrot requires treatment, it is done in the field, marking the animal on the back with spray and scanning the ear tag number. Records are completed accordingly. A board in the room where medicines are kept, has all the essential information about each drug used on farm (name, species, withdrawal period, dose, and administration) to be checked prior to any treatment. The farmer denied the possibility that a lamb was treated by mistake as the animals are checked before treatment, and the difference of size would be obvious. Also, the mark on their back would be noticed when the lamb was sent to slaughter. Medicine records show 7 ewes were treated in the last 3 months with Zactran. One of the treated ewes was in the same group as the positive lamb sent to slaughter. As the lamb slaughtered was 5 months old, there is a possibility it was still suckling. There is suggestion of passive transfer of the drug to this lamb through the milk from the ewe which had been treated. Treated animals should be in isolation pens for traceability and Zactran should not be used in lactating ewes with direct contact to lambs. The lamb was sent to slaughter in a group of 49 in June 2023, and slaughtered the next day when the sample was taken. If it had been treated this would be within the withdrawal period (29 days). The high level is suggestive of a recent treatment dose. The cause of the residue is either human error where the lamb was given Zactran by mistake, or passive transfer to the lamb via milk from a treated ewe.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep kidney	Lead 330 µg/kg 2316853	Great Britain	This is a medium-sized Red Tractor accredited, beef cattle farm with sheep and horses. of 140 beef suckler cows graze on marshland. Sheep are managed at grass; they lamb outdoors and use natural shelter. Supplementary feed is provided in galvanised metal creep feeders, sheep get fodder beet and standard bucket supplement blocks. No silage is fed. There is general good health and growth in the flock. Minimal interventions include routine worming and vaccinations for clostridial diseases only (ewes are vaccinated with Ovivac during pregnancy). Lambs are vaccinated at 6 weeks; ewes are usually treated with a multivitamin drench and a white wormer in June/July. Lambs are usually sold as milk lambs, some may be held back at stores and are typically sold through market, then go directly to slaughter. The flock is a mixture of Suffolk X, Texel X mules, Beltex and Dutch spotted ewes put to Charolais rams. The holding uses mains water, with mostly plastic (some galvanised metal) pipes. Land the sheep graze on is 1-2km from a decommission WWII airfield. The surrounding areas were historically used for emergency landings, emergency storage of aeroplanes. Some fields used for grazing were turned over from woodland/scrub in 1960s. The farm ran a game shoot until a few years ago, but no clay shoots in the area. There are no nearby recycling centres or glass/metal works, fly-tipping is common, but on roads/driveways rather than grazing. A herd of 140 beef suckler cows are kept on another land where they graze on marshland. The cows are housed over winter on the main holding, then turned out in January immediately after calving. Cattle are fed fodder beet, hay/straw and beef nuts. Calves are sold on the following August. The positive home-bred male sheep (6-12 months old) was sent to abattoir via market in a batch of 6, in April 2023. 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.
Sheep kidney	Lead 420 µg/kg 2316859	Great Britain	This is a large-sized farm with approximately 2000 sheep (ewes and lambs) and around 104 beef cattle. They buy rams from the local markets and keep around 200 sheep as replacements. The cull ewes and some breeding ewes are sold through market. The farm doesn't breed any cattle, young stock at around 6 months old, is bought from local markets. They fatten the animals for 12 months and sell them back through the markets at around 18-22 months. Most of the ewes lamb outside, only a small proportion are brought inside for lambing. All the lambs graze the fields near the farm building which have very low lead concentration. Some of the farms fields are in close proximity to where old mines used to be and have normal background concentrations (NBCs) of contaminants, with high levels of lead. However, these fields are not used for grazing. In spring, when grazing, sheep get magnesium licks, cattle get silage. Sheep are treated for fluke in February and wormed in April and August. Dysect is used for flystrike control in June-July and some sheep are vaccinated for clostridial diseases in August. Cattle are treated for fluke in December and wormed in May and September. Medicine and movement records were inspected and satisfactory. Worming treatment and vitamins are bought from farm supply shops and antibiotics from their private vet. The farmer keeps the invoices for the medicines, which are kept in a locked metal cabinet. The farmer is buying the right quantity of medicines for the animals, and all were in date and had the VM marketing authorisation. The positive sheep was a female, approximately 12 months old. It was bought by the farmer in November 2022 and sent for slaughter in April 2023, when the sample was taken. The cause of this residue is likely to be natural (background) exposure accumulated from different sites. This area is between the 50 and 75 percentile of lead levels. Acid soil in these areas may facilitate uptake during natural grazing.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep kidney	Lead 540 µg/kg 2309197	Great Britain	This is a small-sized sheep farm. The positive ewe lamb was born in early 2022 and it was sold at four months old at market to this farm. The animal had grazed outside whilst at the farm, including natal farm. According to the medicine records, several treatments were administered across May, June, July 2022 including Bravoxin 10, (clostridial vaccine), Clik Extra (blowfly pour-on prevention), Rycoben SC, and Chanaverm (wormers). The animal went to market again in March 2023 and was slaughtered the day after arrival, when the sample was taken. The British Geological Survey (BGS) data shows levels of lead at the birth holding and the fattening isolation unit, where sheep lived for similar lengths of time. 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.
Sheep kidney	Lead 1100 µg/kg 2309200	Great Britain	This is a large-sized, Red Tractor accredited mixed arable sheep farm, with 800 breeding ewes. In the autumn and winter the growing lambs are taken to several farms locally. They are grazed over winter on stubble turnips, grown as part of a rotation on arable farms in the area. The sampled sheep was born in Spring 2022 at the farm, and reared there for six months until Autumn 2022, when it was overwintered at one of the other farms. It was taken from here as part of a consignment of 186 last years finished lambs, all homebred to market in March 2023. It was slaughtered two days later. The farmer was not aware of any incidents with batteries or other lead related waste such as putty, paint or bonfires, that may have contaminated the fields used by the sheep. It is also unlikely the sheep became contaminated from mining-related pollution. The fields grazed by the sheep over winter are on estate fields that may have been used for shooting. The shot used might have contained lead, and this could be the source of lead residue in the sampled sheep. Ideally the farmer would avoid grazing fields that are used for shooting purposes, however, these are rented grazing's and it is unlikely that he has any control over their use. 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.
Sheep kidney	Lead 1100 µg/kg 2309201	Great Britain	This is a medium-sized sheep farm NFSCO accredited. The livestock consists of 600 ewes, all of which are homebred, and grass fed, plus 20 lambs purchased in September 2022. Additional ewe rolls are bought in. The positive lamb was sent to the abattoir in January 2023 as part of a batch of 20, and slaughtered the next day when the kidney sample was taken. The owner runs a commercial sheep farm, the livestock on the holding consisted of 600 ewes. All stock were homebred, except the 20 lambs purchased. All sheep are grass fed. All medicines are provided by the PVS, all withdrawal periods are recorded in the medicine record book and followed as required. Any expired products are returned to the veterinary practice for disposal. There was no evidence of feedstuff or treatment of the animals with products that may contain lead. The owner advised that there are mining operations in the area which may contaminate the water streams accessed by the sheep. Movement records provided by the farmer were confirmed by a crosscheck with CTS and the FCI document. 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
Sheep liver	Closantel 2200 µg/kg 2308399	Great Britain	This is a large cattle and sheep accredited farm. The positive animal (female approximately 6 months old) was sent to market in March 2023 alongside 20 sheep, then onto the abattoir, slaughtered and a liver sample was collected, which tested positive for closantel. The farmer had approximately 1600 sheep on the farm. Most of the lambs were fattened and sent directly to slaughter every 1-2 weeks. The sheep were kept grazing most of the time and breeding ewes were brought inside for lambing. The farmer used Flukiver and Supaverm to treat animals. During the summer/autumn months, Supaverm was used for breeding ewes, in the winter Flukiver was used for ewes and lambs. Antibiotics and vaccines were purchased from the PVS. Medicine records were kept electronically, detailing medicines purchased, quantity, expiry dates, withdrawal periods and supplier. However, the ID of the treated animals was not sufficient as the farmer was recording the total of animals treated (ewes, hogs, and lambs). The 21 sheep that went to slaughter were treated with Flukiver in December 2022 as part of a batch of 450 lambs, the withdrawal period was completed at the end of January. Fluikver was also used to treat 300 ewes, in December, 300 ewes in January 2023, and 560 hogs in February. The farmer informed the inspector (confirmed by the medicine records) 7 ml Flukiver had been administered to every lamb in December 2022 and confirmed that at the time on average the lambs would have been 30kg considered to be an overdose. According to the individual weight list from the abattoir, which includes ID, some of the 21 sheep would have been below 30kg at the time of the treatment. Medicines were stored in a lockable cabinet located in one of the farm buildings and farmer was ordering the correct quantity of medicines, therefore no leftover or expired medicines were kept. Expired medicines are disposed of through the veterinary practice, no expired medicines were seen during the inspection. The movement records were found to be satisfactory. The positive animal was identified with a general slaughter ID, making it difficult to trace the animal back through farm movements and records. Possible causes for the residue were identified as possible overdose, or repeated unrecorded treatment(s) of the animal. During the visit the inspector highlighted the importance of providing the correct dosage to an animal as per the manufacturer’s instructions, to correctly identify treated animals (e.g., spray marking and noting details in the medicine records).
Sheep liver	Closantel 3500 µg/kg 2329205	Great Britain	An initial investigation took place at the farm that sent the positive animal to slaughter. It is a large-sized, Red Tractor accredited sheep farm, that buys in over 200,000 sheep a year and sends them to the abattoir. If any of the purchased sheep are not big enough, they are kept for fattening. Most will go to the abattoir within 10 days of purchase, no breeding takes place on farm. Sheep that are too small will be treated for fluke, worms and dipped throughout the year. Sheep will not be treated unless they really need to be. The fluke and worming treatments don’t contain closantel. Antibiotics are sourced from the private vet and stored in a dedicated fridge inside the locked farm office. No medicine has been disposed of in the past as the farmer buys the exact quantity needed. Movement and medicine records were inspected and found to be satisfactory. The farmer bought 1500 animals at market in September 2023, including the positive animal and another 13 from the same farm. 9 days later 5 of these animals were sent to slaughter, where the sample was taken. As this farm doesn’t use medicines that contain closantel, and due to the short period of time the animals were resident on these premises, it is unlikely the source of the residue originates here. A second investigation was then made at the small sheep farm of origin, which sent the positive female sheep to market, in a batch of 77 store lambs, about 5 months old at the time. The medicine and movement records show the sheep in question had not been treated with products containing closantel. They show the batch was treated with Rycoben (active substance albendazole oxide, withdrawal period 3 days) in August 2023. Although on medicine records it shows that Flukiver containing closantel, was used on a later group. The most likely explanation is accidental administration to an animal sent for slaughter.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep liver	Closantel 4200 µg/kg 2308441	Great Britain	This is a medium sized farm comprised of sheep and cattle (approximately 250 sheep plus followers, continental breeds). The farm keeps its own replacements and buys tups from auction. Lambing normally takes place in March and April. Animals are sold through local auctions usually by October-November time (although they were sold later this time due to issues with foot rot and sheep scab). Heptavac and Footvax vaccines are used occasionally but not every year due to supply issues. The animals are wormed regularly, antibiotics are used as and when prescribed by the PVS. This group of lambs were wormed with Benzimole (albendazole) shortly after birth in April 2022. They were also given Dectomax (doramectin) for scab in October 2022, and Flukiver (closantel) in January 2023. The farm is in a wet area that is also prone to liver fluke. This product has a 42-day withdrawal period which was comfortably met. Medicine records are of a good standard, the medicine storage facilities were satisfactory with no expired medicines found. All products appear to have been administered according to the manufacturers' guidelines. The positive lamb was born in April 2022, sold at auction in April 2023 in a batch of 31 animals and sent straight to the abattoir in a group of 104 animals. The possibility of dosing this animal twice was discussed with the farmer, however this was thought to be unlikely, no signs of overdose were observed by the farmer. The investigation was unable to find the precise cause for this residue as the records show that the withdrawal period had been observed. When it is not possible to record the tag number of each animal, a temporary spray mark should be applied to treated animals. This mark should be noted in the medicines record, this will help to distinguish which animals were treated and avoid sending stock with a potential residue to slaughter. The farmer was reminded of the importance of good record keeping, traceability, including the need to complete food chain information for animals being sent to auction.
Sheep liver	Levamisole 140 µg/kg 2335306	Great Britain	The farm that sent the animal to slaughter, is a large-sized, FAWL accredited farm with 8000 sheep, including 2000 ewes. They have a mix of homebred and bought-in sheep that are raised until fat. All sheep are grass fed and some also have concentrated feedstuff. All medicines are provided from their Private Veterinary Surgeon (PVS) or their local merchant. Medicine and movement records, receipts and stock were all checked. There was no evidence of feedstuff or medicines containing the residue found. The positive animal was sent to market from the farm of origin in October 2023 and bought the same day by this farm. It was sent to slaughter two days later in a batch of 143 sheep and slaughtered the following day, when the sample was taken. As it is unlikely the cause of the residue is from this farm, an investigation also took place at the farm of origin. That farm is a medium-sized sheep farm with calves, beef cattle and pigs. There are 700 ewes, mostly homebred apart those occasionally bought as replacements. All sheep are grass fed and medicines are provided by their PVS. Withdrawal periods are recorded in the medicine record book and followed as required. Products are used before expiration date and there is no evidence of treating animals with products that may contain levamisole. The farmer stated that he last used levamisole with ewes 2 years ago. Multiple licenced anthelmintics (anti wormers) are in regular use, but none contain levamisole. As it is unlikely the cause of the residue is from this farm either, the origin of residue cannot be determined.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep liver	Moxidectin 130 µg/kg 2308783	Great Britain	This is a medium-sized, FAWL accredited farm with 220 sheep, 100 beef cattle, calves, and poultry. The 220 sheep are ewes, split into 2 groups. The first group includes the youngest animals kept in the shed for lambing. The second group include the oldest animals kept on the fields during the lambing period. Medicines were stored in an unsecure rusty metal cabinet in an unlocked room. Expired medicines mixed with medicines currently in use were found outside of the medicine's cabinet, although there was no evidence of the outdated veterinary medicine being used. All documents were inspected, medicine records were available for more than 7 years, kept electronically. The worming details for the positive ewe were not recorded, the last medical treatment was in January 2023, with Pasteurella vaccine (heptavac). The ewe was part of the outside lambing group and had developed a prolapse after lambing. For better care, this animal joined the group in the shed. The farmer decided to inject all the animals in the shed routinely with Cydectin (moxidectin) before sending them into the field in February. The positive animal was also injected by mistake because it was in the wrong lambing group. The farmer sought veterinary advice as the animal looked unwell, however it was moving and acting normal. The PVS was unable to help the ewe, rather than sending the ewe to a collection centre for culling, it went to a slaughterhouse in a batch of 8 animals (1 ewe and 7 lambs) in March 2023 and was slaughtered the next day. It was only 39 days into the Cydectin 104-day withdrawal period at the time of slaughter. The carcase was condemned as septicaemic; therefore, it did not enter the food chain. The most likely cause of this residue was an unrecorded treatment and subsequent slaughter of the animal whilst within a withdrawal period. The farmer was advised to record all veterinary medicines administered to livestock on the same day of administration, ensure correct ear tag numbers of animals are recorded and identifiable. Procedures on withdrawal periods were discussed, obligations for record keeping requirements, medicine storage and disposal were also explained.
Sheep liver	Moxidectin 510 µg/kg 2308738	Great Britain	This is a medium-sized, FAWL accredited farm, with around 272 cattle, of which 65 are females in calf, around 65 suckling calves, 2 bulls and the rest are stores. There are also 600 sheep, of which 31 are store lambs, about 6-7 months old. Some of the sheep lamb in February, but most lamb from the 20th of March onwards. Some store lambs are bought during the year and kept until they are ready to be sold. The cattle calve from the 20th of April onwards. The farmer or vet treats the animals. There was one expired bottle of vitamins in the medicine cabinet which was immediately disposed of. There was nothing in the treatments records or medicines invoices containing Moxidectin. There was contradictory information contained in the movement records and online data, which made the market of origin uncertain. It is unlikely that the positive animal was treated at this holding and the source of the residue is not established.
Sheep liver	Triclabendazole 1100 µg/kg Triclabendazole sulfone 550 µg/kg Triclabendazole sulfoxide 59 µg/kg 2308652	Great Britain	This is a medium sized FAWL accredited farm comprised of 76 cattle in total and with approximately 350 breeding ewes. The cattle are housed from November-May (20 breeding females, 1 homebred bull and young stock). Ewes are housed in a sheep shed, the breed of sheep on farm is Charollais cross. At the time of the inspection, the farmer was busy with lambing. From the medicine records detailed, Endofluke was administrated to approximately 500 sheep in October 2022. According to the farmer, the live weight of lambs slaughtered was about 40kg, he did not know the exact weight, however, the carcase weight from the slaughterhouse supported this. The dose 8ml per lamb of 40kg is a double dose. The positive animal (a homebred lamb, 10-11 months old) was transported by the farmer directly to the abattoir (detailed on the FCI). It was slaughtered in January 2023 (45 days after the end of the withdrawal period). The likelihood of administrating the medicine twice was low as the facilities for drenching were good, the farmer confirmed the process of putting all sheep intended to be treated into the shed, they are then released into the field after treatment). Based on the evidence available the investigation established that the most likely cause of the residue was an inadvertent overdose, with it being possible that lambs could have been overdosed due to incorrect estimation of animal weight and calibration of the dosing device. The inspector explained to the farmer the importance of keeping accurate medicine records (detailing specifics) for traceability to avoid mistakes and recommendations regarding weight/dosage were given.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 0/3.6 µg/kg	Northern Ireland	An investigation was undertaken in October 2023. The animal was from a batch of 16 slaughter-eligible lambs, born on site and moved in July 2023. The herd keeper does not transport lambs to abattoir, they are collected and transported by other farmers. The lambs are all born and reared for slaughter, currently a flock of 50 sheep and a small number of cattle are kept on site. The herd keeper does not live on site. Medicine and movement records were kept in accordance with legislation. The animal was last treated in March 2023 and was vaccinated with Heptavac P and treated with Levafas Diamond oral drench (active ingredients levamisole & oxyclozanide). The five-day withdrawal time for Levafas was complied with. The herd keeper had no comment on the positive finding. No obvious on farm source or evidence of contamination was found. All follow up samples were compliant.
Sheep urine	Alpha-boldenone 0/4.0 µg/kg	Northern Ireland	An investigation was undertaken in November 2023. The animal was approximately 4 months old and was born on-site into a breeding to slaughter flock. Cattle are also kept on the farm. Movement and medicine records are kept in accordance with legislation. The positive animal was treated with Ovidrench (active ingredient albendazole) in May 2023, and the withdrawal period was adhered to. The herd keeper was surprised at the result and had no explanation. The investigating officer found the farm to be well organised with good record keeping. The cause of the residue was not determined, but there was no evidence of illegal activity. All follow up samples were compliant.
Sheep urine	Alpha-boldenone 0/5.5 µg/kg	Northern Ireland	An investigation was undertaken in October 2023. The age of the animal was unknown. It had been purchased between August and September 2022, so estimated to have been on the farm 8 months prior to slaughter. The farm holds a dairy herd, finishing lambs and hen houses. Medicine records are kept in accordance with legislation. There was no evidence of illegal hormone activity on the farm. Five follow up samples taken from other ewe lambs were all compliant.
Sheep urine	Alpha-boldenone 0/5.8 µg/kg	Northern Ireland	An investigation was undertaken in October 2023. The animal was one of 49 sheep purchased in 6 batches at a mart in April 2023 and taken directly to slaughter the next day. The sheep were never taken to the farm site and the age of the animal was unknown. The farm also holds bovine animals. There is a high turnover of stock, bought and sold on immediately. A previous positive in the year was due to same occurrence. 10 (2x5) follow up samples were taken, seven were compliant, three had levels of boldenone. There was no evidence of illegal treatment, the residue was most likely due to faecal contamination or natural cause.
Sheep urine	Alpha-boldenone 1.3/1.8 µg/kg	Northern Ireland	Presence of unconjugated (free) α-Boldenone is considered evidence of faecal contamination No further investigation required.
Sheep urine	Alpha-boldenone 1.5/2.1 µg/kg	Northern Ireland	Presence of unconjugated (free) α-Boldenone is considered evidence of faecal contamination No further investigation required.
Sheep urine	Alpha-boldenone 1.7/3.7 µg/kg	Northern Ireland	Presence of unconjugated (free) α-Boldenone is considered evidence of faecal contamination No further investigation required.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 2.1 µg/kg 2328326	Great Britain	This is a large-sized, Red Tractor accredited sheep farm, with between 1,000 and 2,000 animals depending on the time of year. Lambing season occurs in April and May, allowing natural forage availability and favourable weather conditions. This results in generally healthy stock, requiring minimal veterinary intervention and very low medicine usage. All the ewes and lambs observed on the field appeared to be in good physical condition. Most lambs are sold to the slaughterhouse around six months old. Approximately 10 percent of the stock is retained each year to replenish the flock. Movement and medicine records are on computer and up to date. Paper copies of purchase receipts were also available. Sampled disposal and purchases records checked, were found in compliance with current regulations. Medicines used were mainly for routine vaccination and worming treatment, with some presence of antibiotics (Betamox). The positive male sheep was sent to the abattoir in September 2023, indirectly via a collection centre. The animal was sampled in the abattoir 2 days later. There was no evidence of the use of anabolic steroids in any form nor evidence of illegal substances used on the farm. Therefore, the presence of the detected hormone is considered to be natural, most likely the residue has arisen following faecal contamination of the sample or other endogenous (natural) origin (feeding the lambs with plants during the summer months).
Sheep urine	Alpha-boldenone 2.2 µg/kg 2328331	Great Britain	This is a large-sized sheep farm with approximately 900 breeding ewes. Medicine usage is relatively low, and the level of storage appears to be sufficient. No out-of-date medicines were found onsite and there is a high standard of record keeping. The animal in question was a ram lamb taken to a collection centre in August 2023, then transported to a local abattoir and slaughtered the next day, when the sample was taken. The alpha-boldenone levels identified were just over the maximum level. The lambs had been grazing on mixed pasture which had rape in it. The relatively high levels of plant sterols contained in oilseed rape are the most likely cause of this positive result. There is no reason to suspect any untoward medicines abuse in this case.
Sheep urine	Alpha-boldenone 2.3 µg/kg 2315586	Great Britain	This is a small-sized, Maedi Visna accredited sheep farm with 70 ewes and followers, and 20 lambs from last year. Sheep are fed grass, silage, hay, and locally shop-purchased pellets are given to the ewes while feeding the lambs. None of the feed is medicated, but vitamins and trace elements are added. Some of the sheep winter-graze at another premises in the same village. Lambing period starts in November; breeding male lambs are sold from 11 weeks to 8 months old. Medicines are obtained from the veterinary practice, or agricultural store, and stored tidily in a locked cabinet, and are for the correct target species. Expired medicines are set aside for disposal at their private vets. Records and invoices are kept for more than 5 years. Non-medicated feed is sourced from local suppliers. There is a health plan for the sheep, and they are vaccinated against clostridial diseases and pasteurellosis (Heptavac P). Worming and ectoparasites treatments are given routinely (Albex 2.5 and Clikzin). There was no evidence or suspicion of the use of anabolic compounds, nor steroids being administered to livestock on this farm. The farmer always follows the vet’s advice with regards to treatments. No animals from the group sent to slaughter remain on the farm. The positive animal and others sold for meat are bought by the local butcher who organises transport directly to the abattoir, then receives the meat. The most likely cause of this residue is an endogenous (natural) origin, as it is possible that certain plant sterols can be metabolised to produce boldenone in the urine. Another possible cause for the residue arisen is faecal contamination of the sample.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 2.3 µg/kg 2331741	Great Britain	This is a medium-sized, Food Integrity Assurance (FIA) accredited farm, with 300 sheep and 113 cattle. There is summer grazing and winter housing. Lambs are only fed on grass and cover crops. The ewes receive a little bit of concentrate in the lead up to lambing. Medicines are stored in a lockable cabinet. There are some expired products that the farmer has kept, to return to the vet practice. All medication had the purchase receipts and prescriptions records. No unlicensed veterinary medicines were found. Medicine records for sheep and cattle were inspected and appeared mostly compliant with legal requirements, apart from some details concerning the identification of treated sheep. Lambs were wormed with Albacert (Albendazole) and 22 ewes were treated with Alamycin, in September 2023 according to the farmer's testimony. However, the entry in the medicine book does not identify the type of animal that the treatment was applied to. Lambs are sent directly to the slaughterhouse, at 5-6 months old, by an independent haulier, the day before slaughter. Travelling time is a minimum of 75 minutes. The cull ewes and tups are sent via market. The positive animal was a 5-month-old male lamb, slaughtered in October 2023, in a batch of 17 homebred lambs. There was no evidence of the use of banned substances on the farm. Therefore, the presence of this hormone is considered to be natural, due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 2.6 µg/kg 2315552	Great Britain	Animal untraceable, no investigation able to take place.
Sheep urine	Alpha-boldenone 2.6 µg/kg 2328253	Great Britain	This is a small-sized farm with a flock of 13 Beltex pedigree sheep. The keeper mostly allows the sheep to graze in three separate adjoining fields and supplements their diet with Heygates lamb feed. Only two rams have been introduced since 2020, all other replacements have been from within the flock. Lambing occurred in April and sheep have gone to slaughter via market. All medication at the farm had been issued by the private vets. There were several expired anti-inflammatories which were kept separate, ready to be collected by the PVS for disposal. Medicine and movement records were pristine. Since there haven't been any changes in the feed for many years and this is the first residues case at these premises, it is likely that the alpha-boldenone has been endogenously produced (although unclear from what origin) or having been the cause of cross contamination at the time of sampling.
Sheep urine	Alpha-boldenone 2.6 µg/kg 2334663	Great Britain	This is a large, Red Tractor accredited farm with sheep and cattle. There are around 1200 ewes primarily for lamb and wool production and around 150 cows used for breeding and calves. Sheep are grazed on local farmland throughout the year. The medicines used on farm were mainly for worming, fly strike and footrot treatment, with antibiotics present for treating lameness or localised infections. The medicine records for both sheep and cattle were checked and found to be satisfactory. The medicine storage was adequate, and no expired medicines were found. Additionally, there was no evidence of the use of anabolic steroids in any form, nor evidence of illegal substances used on the farm. Paper copies of purchase receipts were also available. Movement records were up to date and confirmed the male sheep was sent from the farm in October 2023, through a collection centre. From there, sheep from the farm were combined with a larger batch and sent to the abattoir the same day. The animals were slaughtered the next day. The presence of the detected hormone is considered to be of natural origin, likely due to feeding the lambs with plants, such as clover, which has common occurrence on used pasture during the summer months.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 3.0 µg/kg 2328289	Great Britain	This is a large-sized, FABBL accredited farm with 350 beef cattle and 650 ewes. Cattle and lambs are kept indoors and the ewes graze outside. The only treatments the lambs received were Clik Extra in May 2023, for prevention of blowfly strike, the 40 days meat withdrawal was observed and Endospec in July, a multi-purpose anthelmintic with a short 4-day meat withdrawal for sheep. There were some open and expired bottles of medicines that the farmer was advised to return to the vets for disposal. There was no evidence of the use of banned substances on the farm and medicine records were compliant. The positive animal was in a group of 45 lambs sent to a collection centre in August 2023. The following day, the lambs along with others from different farms (a total of 122), were all sent to slaughter, and the male animal, under 6 months old, was urine sampled. There were some of the texel lambs left from the same generation as the one investigated. They were inspected and nothing suspicious found. They were in two small groups of 8 and 7 according to size, in a shed mostly empty, in which the farmer had around 400 at its busiest. The farmer provided a receipt from July 2023 of the main feed given to the lambs, this was "Prime lamb creep pellets" purchased from, and delivered by, an animal feed company. In conclusion, there is no evidence of banned substances usage on this farm and therefore the presence of this hormone must have been due to it naturally occurring in this case.
Sheep urine	Alpha-boldenone 3.1 µg/kg 2328281	Great Britain	This is a large-sized, Red Tractor accredited farm with sheep and cattle. The farm has a suckler herd with 320 beef cattle and a flock of 1580 breeding ewes, 20 rams and around 400 lambs. The cattle are currently kept indoors. The ewes and lambs are grazing on fields in the area. Some lambs were kept inside as they were being dewormed. The positive lamb was part of a group of 200-300 lambs kept together, that were born in spring. None of the lambs from this group remain on the farm. Some lambs that were born this spring were inspected and nothing suspicious was noted. Lambs are fed only with grass at pasture. Supplementary food is provided to some Ewes for a couple of months during the winter between January and February. The farmer purchases medicines from his veterinary practice and stores them in a fridge. Some expired bottles were present. Proof of purchases are kept, and medicine records are stored electronically on a computer system, with access using a mobile app, where the farmer can see each animal under a withdrawal period. The only treatment the positive lamb received was CLiKZiN 12.5 mg/ml pour-on suspension in June 2023, for prevention of blowfly strike due to Lucilia sericata and with a five-day withdrawal period, and Ovivac P Plus in July 2023, for active immunisation as an aid in the control of pulpy kidney, tetanus, braxy and blackleg and with a zero-day withdrawal period. The positive lamb was part of a group of 34 lambs sent directly from the farm to the abattoir in September 2023, when the urine sample was taken. There is no evidence of banned substances usage on this farm. It is most likely that the residue has arisen following faecal contamination of the sample or other endogenous (natural) origin, as it is possible that certain plant sterols can be metabolised to produce boldenone in the urine.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 3.3 µg/kg 2307224	Great Britain	This is a small well-managed sheep herd with a mixture of cross Texel breed and some pedigree Herdwick. At the time of the investigation, there were 11 sheep, 2 goats, 5 ducks, 13 chickens and 5 guinea fowls onsite. The stock is not fed any medicated feedstuff either purchased or produced on farm. The sheep are only fed grass and receive medicine treatments only when needed, as per PVS recommendation. The owners reported they are not familiar with the active ingredient alpha-boldenone or any of the commercial forms of this synthetic steroid. The only steroid medicine administered to sheep is Rapidexon, as prescribed by the PVS. The medicine is used around lambing time to help the ewes that are a bit subdued post-lambing. The usage of all medicines is recorded in the medicine book, including withdrawal periods. There were no records related with the synthetic hormone (including commercial names), in the medicine record book, that had exceeded the maximum residue limits. The positive animal was purchased in August 2022 in a batch of 13 tups. It was sent directly to the slaughterhouse in January 2023, in the farmer's own trailer. 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 to be natural, as certain plant steroids can be metabolised to produce boldenone in the urine. It could also have occurred due to accidental faecal contamination of the urine at the time of sampling.
Sheep urine	Alpha-boldenone 3.3 µg/kg 2313614	Great Britain	This is a medium-sized, QMS accredited farm comprised of fattening cattle, and sheep (fattening lambs). The lambs had been fed kale, turnips, lick buckets and commercially available feeds containing unspecified herbs, prior to slaughter. An inspection of the cattle and sheep was undertaken, as well as the cattle feed stores, feeds, medicine cupboard and records. The medicine records were not up to date and treatments were not always recorded (due to a busy lambing period), these were found unsatisfactory. However, animal group treatments were recorded correctly in the medicine book and group medicine records were recorded. Individual animals are marked as they are treated, but identification is not always recorded. All medicines are purchased from the private vet, or the feed and medicine merchant. Invoices are retained for 5 years. Wormers, vaccinations, and mineral treatment invoices from other suppliers are also kept on file. The farm is in the process of moving to digital medicine records and is rectifying these shortcomings. There was no evidence that individual animals are moved off the holding before withdrawal periods have concluded. The investigation established that there was no evidence of the use of banned substances on the farm. The presence of this hormone is considered as naturally occurring. Further advice and guidance were given on record keeping requirements and medicine storage.
Sheep urine	Alpha-boldenone 3.4 µg/kg 2328351	Great Britain	This is a medium-sized farm with 700 cattle, a mix of dairy and beef. There are also 240 sheep and calves. The sheep are homebred and grass fed. The positive animal was sent to the abattoir in a batch of 26 lambs in July 2023 and slaughtered the next day, when the sample was taken. All documents were inspected, including medicine and movement records, and receipts of purchased medicines. Medicines are provided by the PVS, withdrawal periods are recorded in the medicine record book and procedures are followed as required. Any expired products are returned to the veterinary practice for disposal. During the inspection, no evidence of feedstuff or treatment of animals with products that may contain alpha-boldenone was found. Animal management at the holding and the remaining lambs from the group sent for slaughter were inspected. 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 farmer was advised to continue to record the veterinary medicines administered to livestock, to follow withdrawal period guidance and the requirements for disposal of expired medicines.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 3.6 µg/kg 2334670	Great Britain	This is a large-sized, FAWL accredited farm, with 8000 sheep, including 2000 ewes. There is a mix of homebred and bought-in sheep that are raised until fat. They are grass fed and some additionally have concentrated feedstuff. Medicines are provided from their PVS and their local merchant, withdrawal periods are recorded in the medicine record book and followed as required. There was nothing in the treatment records, medicines invoices, or medicines cabinets containing alpha-boldenone. The positive male animal was sent to slaughter in October 2023, when the sample was taken. The residue has arisen following faecal contamination of the sample or other endogenous (natural) origin, as it is possible that certain plant sterols can be metabolised to produce boldenone in the urine.
Sheep urine	Alpha-boldenone 3.7 µg/kg 2325469	Great Britain	This is a small sized farm with 26 sheep and 10 laying chickens grown for the farmer's own consumption, with some sheep sold to other keepers. The sheep graze outside and are kept in the fields for 16 months before slaughter. Silage is provided during winter and water is from the mains. The males and females are kept separated in fenced fields, and have no contact with other animals, the public, buildings, or stores. The chickens are kept in a separate netted run behind the dwelling house, protected from wild birds, and never come into contact with other animals. Eggs are for the farmers own consumption. Only a few drugs are kept at the premises, locked in a metal cabinet, in an empty shed and only accessible by the farmer. No evidence of suspect or expired products were found during the inspection. Also, no signs of steroids or products containing boldenone, abnormal muscling or drugs being used for incorrect species, according to the product. Medicines are supplied by the veterinary practice and administrated after PVS recommendation. Some supplements are purchased at local shops or online. Medicine and movement records were lacking in detail. Treatments for the sheep were recorded as a group and not for the individual animals. The sheep are dewormed once a year. Four Castlemilk Moorit homebred tups were transported directly from farm to abattoir, in July 2023, in the farmers own transport. It was a private slaughter; carcases were taken back by the owner for their own consumption of meat. It is possible that higher level of alpha-boldenone was caused by stress (endogenous origin) after the sheep were mixed up with other sheep (likely females) and kept for 2 days in the lairage before slaughter. Also, potentially faecal contamination of sample during sampling or by certain plant sterols which can be metabolised to produce boldenone in the urine, can be considered.
Sheep urine	Alpha-boldenone 3.7 µg/kg 2334683	Great Britain	This is a large-sized, FAWL accredited sheep farm. They buy store lambs to fatten and send them direct to slaughter. They are bought from multiple holdings of differing breeds; they do not produce any lambs on farm. The farm consists of around 211 hectares and have up to 2000 sheep at any one time. At the time of inspection there were around 850 remaining, due to be sold for slaughter. They do not use any medicated feed; sheep stay out grazing all year round. No vaccines are used on farm, upon arrival sheep are treated with doramectin (Dectomax) as an anthelmintic to prevent sheep scab. All sheep are kept for a minimum of 70 days to observe the withdrawal period. Depending on the time of year, sheep on the farm may also be treated with levamisole hydrochloride triclabendazole Combinex drench. The medicine cabinet cannot be accessed by anyone unauthorised. They do not carry much medicine stock, there were no prescription-only medicines (POM-V) present at the time of inspection. There was an out-of-date bottle of cypermethrin (Crovect; anthelmintic) although this was stored separately, and the farmer intends to dispose of it at his vet practice. There was no evidence to suggest that the animal was administered the identified substance (boldenone) on this farm. The positive male lamb, aged 6-12 months, was part of a batch of 160 sheep moved directly from the farm to the abattoir. As the Food Chain Information (FCI) only identified a flock mark, not an individual animal ID, it was not possible to trace where the animal was bought from originally. It is most likely that the residue has arisen following faecal contamination of the sample or other endogenous (natural) origin, as it is possible that certain plant sterols can be metabolised to produce boldenone in the urine.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 3.9 µg/kg 2325472	Great Britain	This is a small, QMS accredited farm with sheep and cattle. The group of sheep, with the positive animal, were kept on multiple different grass fields and either grazed on grass or fed creep feed, bought from a farm supplier. Only normal chemical fertilizers have been used on these fields, according to the keeper, no sewage. One of the fields backs onto a housing estate. Some other animals from the same group were inspected and all appeared to have normal muscle conformation, no obvious signs of anabolic steroid use. Medicines were either kept in a filing cabinet or a carry box if in current use when the farmer was inspecting stock in fields, both stored within a lockable shipping container. There were some out of date medications stored separately in the filing cabinet, from drugs currently in use. The keeper explained he was unsure if he was supposed to dispose of these in the DOOP bin provided by their PVS, or if this was only for empty bottles. He was advised to confirm with his PVS how to dispose of them. The positive animal was transported within a group of 11, by the farmer, directly to the abattoir, where the sample was taken. In summary, no evidence of drugs was present on the farm or treatment that would account for the raised alpha boldenone found in the urine sample. Based on the information, it is most likely that the residue was due to faecal contamination or other endogenous (natural) origin.
Sheep urine	Alpha-boldenone 3.9 µg/kg 2328274	Great Britain	This is a medium-sized, FAWL accredited farm, with approximately 850 sheep and a suckler herd of 35 cattle. Lambs are grazed on post silage harvest fields, where high levels of clover are present. They do not receive any feeding, mineral, or energy supplements. The only medicines utilised in the sheep flock, during the period of 30 days prior to sampling, were anthelmintics. There is very little other medicine used or purchased. Lambs are vaccinated with Ovivac P Plus at 8 weeks of age. All medicines are purchased from an agricultural merchant or vets. Expired medicines are returned to the veterinary clinic for disposal. No medicated feed is provided. The medicine cabinet was tidy, and all the medicines appear to be appropriate for the species kept on farm. There is no inappropriate use of medicines or suspicion of illegal medicine use. In August 2023, when the positive animal was approximately 7 months old, it was taken directly to slaughter. The journey was approximately 35 minutes, and it was in a group of five homebred lambs. They were for the keeper's own consumption and samples were taken at the butcher shop associated with the slaughterhouse. The most likely causes of the residue is faecal contamination of the sample or other endogenous (natural) origin as it is possible that certain plant sterols can be metabolised to produce boldenone in the urine.
Sheep urine	Alpha-boldenone 5.5/13.8 µg/kg	Northern Ireland	Presence of unconjugated (free) Alpha -boldenone is considered evidence of faecal contamination No further investigation required.
Sheep urine	Alpha-boldenone 7.0 µg/kg 2328377	Great Britain	This is a small-sized sheep farm with a closed flock of 300 breeding Welsh Mountain ewes. They are outside all year round with lambing in April. Ewes are given feed blocks in the spring, around lambing time. The flock is vaccinated with a 10 in 1 clostridial vaccine. The positive homebred lamb was sold at market in September 2023, in a batch of 34. It was sent to slaughter on the same day. Based on the evidence from the Food Chain Information (FCI), medicine records and medicine cabinet, there is no apparent cause of the residue in this lamb’s urine. It is most likely that the residue has arisen following faecal contamination of the sample or other endogenous (natural) origin, as it is possible that certain plant sterols can be metabolised to produce Boldenone in the urine.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 8.2 µg/kg 2334672	Great Britain	This is a large-sized, Red Tractor accredited organic farm, with various species including 450 cattle, 3000 sheep, 100 pigs, and 200 laying hens. The farm aims to breed all replacement animals on-site, in addition to raising for meat production. Sheep are reared outside on grass and clover pastures during the drier months, while the young stock is kept inside in barns on straw, during the coldest winter months. Most of the fields are used to grow grass and clover mixes. Medicine records are computerised and up to date, disposal and purchase records were in compliance with regulations. Medicines used are mainly for routine vaccination, worming treatment, and infection treatment (antibiotics). They aim to use as few medicines as possible due to the farm's organic status. There was no evidence of the use of anabolic steroids in any form, nor evidence of illegal substances used on the farm. The positive male lamb was in a batch of 222, sent directly from the farm to the abattoir in October 2023. It was slaughtered the next day when the sample was taken. The detected hormone is considered to be natural, most likely the residue has arisen following faecal contamination of the sample or other endogenous (natural) origin.
Sheep urine	Alpha-boldenone 12 µg/kg 2334682	Great Britain	This is a large-sized, Red Tractor accredited sheep farm, with cattle and horses. The main activity of the farm is buying and fattening sheep. Medicine and movement records are consistent and electronically stored, and receipts from the acquisition of medicines are kept. No medicated feed is used and most of the treatments applied are for worming. In the medicine cupboard there were 3 bottles of Alamycin LA that were in date, and receipts from the vets were kept in the medicine file. Ivermectin and Triclabendazole wormers and supplements based on vitamins and trace elements, were also kept on the premises. 196 sheep were sent from the farm, in October 2023, directly to the slaughterhouse. There were some issues with the Food Chain Information (FCI), in that the herd mark did not accurately reflect the origin of the animals. Therefore, it wasn't possible to backtrack the route of the animal from the original owner or market. There was no evidence of the use of unauthorized substances on this farm. Consideration should be given to the potential of cross contamination of the sample at a later date, off farm, likely natural origin.
Sheep urine	Alpha-boldenone 15 µg/kg 2307211	Great Britain	This is a medium sized, SAI Global accredited, sheep and beef cattle farm. There are approximately 200 breeding ewes with lambs, from a mixture of breeds. The beef cattle on farm are kept separate to the breeding sheep and stores/cull ewes The farmer supplements his sheep with ewe nuts in winter and the rest of the year they are at grass. Lick buckets are also used for minerals. The farmer stated medicines are purchased from either the PVS or a suitably qualified person and all receipts are kept. Several stores/cull ewes are purchased on a regular basis, fattened, and then sent to slaughter. These animals are not treated and tend to spend less than a month on farm. The farmer also has his breeding sheep flock at this holding and confirmed the animals purchased, fattened, and sent to slaughter, are kept separate from the breeding stock. The farmer confirmed the fattening stock do not receive medication. The inspected animals did not show any signs indicative of steroid use and there were no animals left on farm from the original lot of sheep. This is the third recorded incident of the same substance; however, the large throughput of purchased and slaughtered sheep could explain the incidence. The positive animal was purchased from market in February 2023 and sent to slaughter two weeks later. It did not receive any treatment whilst on farm, according to the farmer. 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 to be 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 21 µg/kg 2334712	Great Britain	This is a medium-sized, FAWL accredited farm, with 800 sheep and 50 cattle. Sheep breeding occurs and they sell lambs, mainly through the market, but occasionally straight from farm. The positive animal was homebred and had been grazing at pasture prior to being sent for slaughter. No medicated feedstuff is used on the farm, the lambs are finished at pasture. Medicine records and storage appear satisfactory. The positive 6-month-old male lamb was moved off the holding to a collection centre in October 2023, in a batch of 68, and transported to the slaughterhouse by a haulier. The residue could have arisen following faecal contamination of the sample or other endogenous (natural) origin, as it is possible that certain plant sterols can be metabolised to produce boldenone in the urine. Additionally, the journey from the farm to the abattoir was a 249-mile, 5 hr 26 min drive, so transit stress could also be a cause or contributing factor to the relatively high-level of residue detected.
Sheep urine	Alpha-boldenone 10 µg/kg Beta-boldenone 0.39 µg/kg 2334678	Great Britain	The animal was untraceable owing to an error in Food Chain Information.
Sheep urine	Alpha-nortestosterone 3.1 µg/kg Beta-nortestosterone 13 µg/kg 2315506	Great Britain	This is a medium-sized sheep breeding and cattle growing farm. The holding has a comprehensive herd health plan and is Red Tractor assured. Sheep are vaccinated against clostridial diseases and footrot and supplemented with annual copper injections. Preventative treatments for coccidiosis, myiasis, and sheep scab are used for the sheep. Cattle and sheep are treated with preventative endoparasiticides. The breeding sheep enterprise consists of 160 breeding ewes and 3 rams, they produce around 240–250 lambs each year. The rams are Charolais, the ewes are mostly mules, with some Charolais, Suffolk, and Texels. No lambs are kept as replacements, they are all sold. 20–30 breeding ewes are purchased in the autumn as replacements. Old ewes are sold to market when no longer fit for breeding. Tupping occurs around October each year. Lambing takes place from mid-March for 3 weeks. Pregnant ewes are brought in 10-14 days before lambing and lambed indoors. Beef cattle consist of several different breeds, including Simmental X, British Blue X, Limousin X, and Charolais X. All the cattle are steers, around 40 replacements are purchased at market in September and October as yearlings. These animals are sent for slaughter when they reach around 30 months old. No medicated feed stuffs are used on farm. Barley and beans are milled on farm to produce sheep and cattle feed. Six weeks before the start of lambing, sheep are started on supplementary feed until the end of May. Sheep are turned out to pasture 2–3 days after lambing. All cattle are fed supplementary feed from the end of October to the end of April, whilst they are housed. They have access to grass silage during housing. Cattle are turned out to pasture at the end of April. Any fat cattle due to be sold will continue to be fed on the supplementary feed sale. Medicine records were available for the past 4 years and 6 months. There were no records of disposal of veterinary medicines. The positive Charolais ram was purchased as a lamb from market in September 2018 and kept for breeding for almost 6 years. In June 2023 the animal was clipped and following this, was found with weakness and paraparesis. It is suspected it may have sustained a spinal injury whilst being handled for clipping. No medication was administered to the animal, but instead it was sent to slaughter 2 days later, direct to the abattoir, no dealer was involved. All other ovine animals on site were checked and appeared in good health and of normal body condition.) The fact that the ram was not castrated, clipped, and found with a suspected spinal injury would likely cause stress which would reasonably be expected to elevate the nortestosterone level above normal. The investigation established that there was no evidence of the use of banned substances on the farm therefore the presence of these hormones is considered to be from natural levels.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Sheep urine	Alpha-boldenone 3.2 µg/kg Alpha-nortestosterone 29 µg/kg Beta-nortestosterone 1.3 µg/kg 2328200	Great Britain	This is a medium-sized, FAWL accredited farm with 540 sheep and 60 cattle. All sheep are homebred, grass fed and were allowed to graze in pasture with a high presence of clover, which is known to contain natural sterols. All medicines are provided by their PVS, and all withdrawal periods are recorded in the medicine record book and followed as required. There is no evidence of feedstuff, steroid misuse or treating the animals with products that may contain the residues found in the sample. Medicine and movement records, purchased medicines receipts and stock were all assessed. The positive sheep was moved off the farm of origin to the market, and from there to slaughter, in a batch of 11 sheep in August 2023. The 86-mile journey would have taken up to 2 hours. It was slaughtered the same day, and a sample of urine was taken. The most likely cause of the residues detected is either faecal contamination of the sample or of natural origin, from the metabolization of certain vegetal sterols, considering that stress and transit time can play a factor in natural production.
Sheep urine	Beta-nortestosterone 0.69 µg/kg 2328203	Great Britain	The farm that sent the animal to slaughter, mainly buys sheep and cattle that spend a short period on farm, from a couple of days to a couple of weeks, before being slaughtered. Their movement and medicine records were consistent. No medicines were used since August 2019, and this was confirmed by the PVS. There was no suspicion of unauthorised substance use. The positive ewe was bought in September 2023 and only spent 18 days on this holding when sent for slaughter. It had previously been resident at the farm of origin since 2018. That farm is a small-sized farm with around 200 sheep and 2 growing cattle. Movement records were available since 2019 and medicine records since January 2022. Only a small amount of antibiotics were kept in the drug cupboard, in date and dispensed by the vet practice, and some ivermectin-based wormer. There was no evidence of any unauthorized substance being used or any withdrawal period not being observed. This was confirmed by the PVS. As it is unlikely the cause of the residue is from either farm, the origin cannot be determined. It may be due to the contamination of the sample or might be related to the reproductive status of the ewe at the time of killing.
Horse kidney	Cadmium 90000 µg/kg 2329834	Great Britain	The farmer has a large-sized farm with mainly beef cattle and some horses. The positive mare was purchased from another local farmer, just two days before it was sent to slaughter in August 2023. It had spent its entire 21-year life roaming freely in a National Park, which makes it challenging to pinpoint potential sources of environmental contamination. In addition, the natural levels of cadmium in the soil in this area are low. A former World War II airfield has been transformed into a grazing zone, with the removal of the tarmac in the 1990s. The mare used to graze in this specific location. Airfields can be a source of heavy metal pollution even years after being decommissioned. Cadmium is not a residue associated with medicine administration; instead, elevated concentrations of this metal in animals are typically linked to environmental pollution. Horses, in particular, are more prone to accumulating cadmium compared to other species. Aged horse likely natural geo accumulation after 21/2 years of grazing. There is an argument that as he is aware that areas being grazed have high levels of cadmium, he should complete information to that effect on the FCI.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Eggs	Narasin 4.3 µg/kg 2322782	Great Britain	The organic mixed farm keeps a variety of livestock, including pigs, cows, sheep, and poultry. A new flock of 500 Lohmann Brown Classic and Redco layer hens arrived on farm in May 2023. Hens are housed in mobile houses that can be rotated and moved around the farm to allow access to fresh pasture. Houses hold between 75 and 250 hens. They roam free during the day on organic pastureland and are locked away at dusk. Chickens are fed once a day, and each house has two hanging feeders filled daily. The farm has its own packing station. No issues were identified at the farm. The feed mill was inspected in February 2023. It operates 24/7 and has its own transport fleet. About 60-70% of all production is organic. They pre-grind for multi-species, producing approximately 45,000-50,000 tonnes per annum. All types of feeds are produced, split approximately 30% ruminant, 45% pig and 25% poultry. The mill is capable of producing meals, pellets, crumbs, and nuts. In conclusion, the feed mill has failed to follow their own cross contamination sequencing rules which states that no organic feed will be manufactured after any conventional broiler starter feed with SFA. Production records show the broiler starter pellet was manufactured before the organic pellet. The mill has also not carried out any quality control testing for narasin.
Broiler liver	Halofuginone 4.3 µg/kg 2312916	Great Britain	The farm has 2 sheds containing a total of 40,000 birds. Shed 1 houses 22,500 birds and shed 2 houses 17,500. Each shed has two holding bins and a pan feeding system. The two bins outside each shed are so that one bin always has a plain withdrawal diet for the birds to eat, before they leave the site. Analysis of the withdrawal diet showed that some contamination had been picked up during production. The farmer confirmed no Stenorol was ordered or put into the feed. There was no fault found at the farm. The feed mill had been making broiler feed with Stenorol (active ingredient halofuginone) and shortcut pellets that were produced at the same time. They were alternated through the mixer to different press lines and the pellets had picked up some halofuginone during this process. There had been an issue with the mixer leaking into the underhopper. The process of alternating different feeds, with specified feed additives (SFAs), through the mixer is allowed using their cross-contamination matrix. This is programmed to flush after Stenorol, if going into a plain product, but if the product contains another SFA there is no flush and alternating different SFAs through the mixer is allowed. The procedure includes a hand tip flush, but this doesn't appear to be happening. In conclusion, there had definitely been cross contamination at the mill. Production of feed with Stenorol should be made in a block and not alternated with other products through the mixer. Flushing of the intake should be re-instated. If emergency procedures are implemented awaiting some maintenance work, then there should be a record showing the procedures have been followed.
Broiler liver	Halofuginone 16 µg/kg 2312880	Great Britain	The farm has 5 sheds with approximately 17,500 birds in each shed. There is only one feed bin per shed, three hoppers and pan feeders. The farm collects all feed from the mill and the driver records which bins he fills, although not the quantities in the event of bin splits. It is not known if these bins have ever been cleaned out in the last 30 years. The farm had ordered Stenorol (suggested by their vets) in the first order of crumb, then the next order of short cut. After that it was grower with Monimax, then finisher with Sacox. The company does not use a plain withdrawal diet before slaughter. The mill confirmed that the farm had ordered Stenorol in the crumb and pellets. No errors or production cross contamination issues were found, and all records looked in order. Various samples were taken and sent for analysis; all results came back negative for halofuginone. There was no fault found at the mill. In conclusion, the contamination occurred on farm, due to a number of reasons including the bins not being cleaned, high staff turnover, insufficient staff training and poor record keeping. A plain withdrawal diet and a two-bin system for each house would reduce the chance of contamination in future.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Broiler liver	Halofuginone 42 µg/kg 2333316	Great Britain	This is a Red Tractor accredited poultry farm with 6 sheds, each containing 52,000 birds. They also keep some sheep. The site is extremely clean and tidy. The bins look clean and any product in the bins looks fresh. The funnelling nature of bulk bins was discussed and the possibility that there may have been some older feed around the sides of the bin. They are planning to get the bins cleaned out in the near future. All feed is bought in from the mill. The farm's feed delivery records were seen and agreed. The feeding programme is crumb, then pellets with Sacox, until feed is withdrawn. They generally use a zero withdrawal Specified Feed Additives (SFA) feed, through to slaughter but will look at using a plain diet as they have a spare bin. Feed pans are used. Feed with Stenorol has not been used for two crops. The sheds are power washed out after each crop. No issues were identified at either the mill or the farm. The cause of the residue could not be determined.
Trout muscle & skin	Crystal Violet 0.554 µg/kg	Northern Ireland	An investigation was undertaken in December 2023. Crystal violet had not been used as a treatment on the farm. A roll of blue paper was available at the farm which potentially could be a factor to be considered. Otherwise, the source of contamination could not be established. The fish were all 2+ years of age and located across ponds. Due to commercial reasons the farm is being depopulated and left fallow. The fish are to be relocated to sea cages for one year on-growing before slaughter for human consumption. Follow up samples were compliant**.**
Trout muscle & skin	Leucomalachite green 0.54 µg/kg 2300031	Great Britain	The trout farm is one of the oldest trout farms in England and produces around 10 tonnes of rainbow and brown trout predominantly for the angling restocking sector. A non-compliant sample was taken in line with sampling procedures. No suspicion of the use of MG was noted at the time of the visit and no previous samples were found non-compliant. A follow-up investigation was carried out where the site owner was questioned on the use of malachite green and admitted that the substance had been used on a large scale in the past until its ban in 2002, but none had been used since then. A full site investigation was undertaken where all ponds, barns and buildings were inspected. In conclusion, no evidence of the use of malachite green on this site was observed. Although, there is no doubt a large amount of historical use, the very low level in the original sample does not indicate its recent use. Experience in similar results would suggest that this could be environmental contamination possibly from silt that had been disturbed in the days or weeks prior to the sample being taken.
Trout muscle & skin	Leucomalachite green 0.87 µg/kg 2300032	Great Britain	The trout farm is a very old concrete trout farm dating back to the 1970s. It produces around 30 tonnes of rainbow trout predominantly for the table market. These are all sold to fish markets. In 2022 rainbow trout were grown for the restocking market. The non-compliant sample was taken in line with sampling procedures. However, the site did return a non-compliant in 2020 for similarly low levels. The site owner was questioned on the use of malachite green and admitted that the substance had been used on a large scale in the past up to its ban in 2002, but none had been used since then. A full site investigation was undertaken where all ponds, barns and buildings were inspected, no evidence of malachite use was observed. The inspector discussed the fact that this was the second time in two years that these results had been obtained. There have been extensive river corridor excavations and restoration of the river above the site that have been in progress for some years. There may well have been a lot of sediment disturbed into the inlet of the farm causing contamination. There is another fish farm upstream which is an earth pond site and will have also used large quantities of malachite green in the past. The low levels of found in the original sample do not indicate the recent use of malachite green. In conclusion, results suggest that this could be due to environmental contamination.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Turkey liver	Dinitrocarbanilide 350 µg/kg 2303583	Great Britain	The farm where the positive sample was taken, rear chickens for laying and turkeys for fattening, to a maximum age of 16 weeks. The turkeys are housed in two polytunnels and each polytunnel can house up to 350 birds. Both polytunnels have pan feeders fed by an auger, drawing from bulk bins. No issues were identified in the procedures at the farm. The feed mill primarily produces turkey feed for farms but has been manufacturing for other mills in the group due to a reduction in demand. Following a cyber-attack, the mill temporarily lost their cross-contamination matrix. Despite the matrix being reinstated after the attack, low levels of residues were being created by the failure of a motor for the blow lines carrying premix to the mixer. The subsequent solution of sending the premix via a divertor created residues of coccidiostats in feeds not intended to be medicated. This was confirmed by the results from the samples taken. The mill has made arrangements to prevent the same thing happening again.
Turkey liver	Dinitrocarbanilide 440 µg/kg 2333548	Great Britain	The positive turkey was sent to slaughter, from the Red Tractor accredited farm, in October 2023, in a batch of 2574 birds. All feed is provided ready-mixed by the mill, on a devised nutrition plan. The grower feed used is Monimax, which has an active ingredient of nicarbazin, labelled at a rate of 50mg/kg, and with a zero-day meat withdrawal. (Nicarbazin, when ingested, is rapidly split in its two components dinitrocarbanilide and 2-hydroxy-4,6-dimethylpyrimidine). Broiler feed was cleared out of the bins prior to stocking. Deliveries show that bin 1 was not in use whilst other bins were rotated. It may have been empty or may have contained feed from 3 weeks earlier. It was not refilled until the next delivery, suggesting that early-stage feed could have been delivered at rearer stage. The positive bird was caught in October 2023 aged 60 days. No withdrawal feed was introduced, instead feed was withdrawn 6 hours before the catch. No other feeds are used on site whilst turkeys are in place. In terms of the feed mill, there has been no evidence to suggest that the SFA originates from contamination with a previous product. The feed mixer moves alternately between turkey ration and broiler narasin ration, but the flush in-between is as per manufacturer recommendations and the test results show that this is likely to be successful. Carry-over testing is conducted every 6 months, between broiler and breeder ration. The carry-over test is conducted by taking samples post mixing and from the finished feed sampling point. The carry over test taken in November 2023 was out of range, showing a 1.1mg/kg carryover of narasin into turkey finisher. That said, recoveries tested as part of this residue did not show that unusually high levels of SFA had been used. In conclusion, the carryover of narasin from previously pressed broiler feed could have compromised the bird's ability to process dinitrocarbanilide in the liver, thus delaying the excretion, or it is possible that the bird had a higher load of Monimax from ground feeding after withdrawal.
Turkey muscle	Cadmium 180 µg/kg 2313566	Great Britain	This is a large-sized, Red Tractor accredited turkey farm. There are 37663 turkeys in total, received as day old poults from the hatchery. This is an intensive, fattening farm, with all birds supplying the slaughterhouse. There are 5 houses, all built around 1968 and refurbished in 2017. Each house is split in half for stags and hens. Ventilation, food, and water is automated. The unit appears to have good biosecurity and record keeping with recording sheets for medicine usage for each batch. There were no medicines on site at the time of inspection. Bedding is wood shavings for the first 4-5 weeks, then chopped straw. The straw is processed over a magnet, dust removers and sprayed to control fungi and salmonella at the chopping plant. Feed is supplied to this farm. Cadmium levels are checked as there was a recent alert for cadmium at the source quarry from where the supplier gets their limestone flour, which is added to the ration. The limestone flour and final feed were found to be within the tolerance levels. Water is from the mains. The investigation could not establish any potential sources of environmental contamination of the soil and water, locally. However, research has shown that heavy metals can accumulate, in animals or birds subject to low level exposure over time and this is likely to be the cause in this case.
Wild deer kidney	Cadmium 4.3 mg/kg	Northern Ireland	It was determined no further action was required.

Sampling of animals suspected of containing a residue at the time of slaughter: 31 December 2023

Residues detected above the reference point to date: 31 December 2023

Medicinal products 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	911	11 - 2 substances in one sample	1000	4420, 5360 dihydrostreptomycin
				300	633, 734, 941, 1610 florfenicol
				600	793, 1010, 1240 oxytetracycline
				50	272 penicillin G
				3000	6770 tulathromycin
				100	2076 tylosin
Cattle liver	Anthelmintics	41	1	2	3.3 dexamethasone
Sheep kidney	Antimicrobials screen 1	16	1	1000	3620 dihydrostreptomycin

Results of suspect follow-up investigations: 31 December 2023

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Dihydrostreptomycin 4420 µg/kg	Northern Ireland	An investigation was undertaken in May 2023. The animal was 4yrs 9 months old and was from a small suckler herd, born on farm. It was transported by haulier and kept separately from other herds. Medicine records are kept in accordance with legislation. The animal was administered PenStrep (active ingredients dihydrostreptomycin and penicillin) by intermuscular injection in February 2023. The withdrawal period for this medicine is 23 days and this was adhered to. The herd keeper's theory was that the animal was unwell so therefore it did not process the medication in the normal way. The investigation officer believed this was a one-off and does not require any further action. No follow up samples received.
Cattle kidney	Dihydrostreptomycin 5360 µg/kg	Northern Ireland	An investigation was undertaken in August 2023. The animal was born in December 2022 and purchased in March 2023 into a herd of 128 animals. The animal was transported to slaughter in the farmer's own transport. Movement and medicines records are kept in accordance with legislation. The animal was not treated by the herd keeper between purchase and slaughter the same month. All follow up samples were compliant.

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Florfenicol 633 µg/kg	Northern Ireland	An investigation was undertaken in March 2023. The homebred animal was 16 months old, part of a 260 suckler and beef finishing herd. It was transported to the abattoir by a haulier and kept separate from other cattle. Movement and medicine records are kept in accordance with legislation. No herd health issues were identified, only one individual animal was treated with Fenflor (active ingredient florfenicol), 30ml was injected intra-muscularly in two sites. The animal was treated for 2 days (given 60m in total), the last administration was in December 2022. The withdrawal period for IM injection is 30 days and this was observed, plus one further week. The recommended dosage per site on the datasheet site should not exceed 10ml so the dose was not administered correctly. As the animal had last been injected in December, the injection site would have been over 30 days old, therefore there is a query regarding the fresh injection site which was observed at the abattoir. Animal was condemned at slaughter due to chronic pneumonia, pleurisy and the fresh injection site. All follow up samples were compliant.
Cattle kidney	Florfenicol 734 µg/kg	Northern Ireland	An investigation was undertaken in May 2023. The animal was born on site and was nearly 3 years old. It was part of a herd of 71 animals. The animal was an onsite emergency slaughter. Movement and medicine records were kept in accordance with legislation. There was no record of treatment of the positive animal. The herd keeper stated that no drugs were administered to the animal. The cause of the residue was not determined. Tissue sample follow up was compliant
Cattle kidney	Florfenicol 1610 µg/kg	Northern Ireland	An investigation was undertaken in March 2023. The homebred animal was 6 to 7 years old and from a dairy herd. It was transported by a haulier and mixed with other cattle during transport. Movement (online) and medicine records are kept in accordance with legislation. The positive animal had been administered with Cadorex (florfenicol) which has a 30-day withdrawal period. It was suffering from pneumonia and had been treated 3 times over the last few months. The last administration had been in January 2023; with the withdrawal period adhered to. However, the dosage should not exceed 10ml per injection and the site herd keeper suspects he may have exceeded this. The animal was noted as emaciated and had been condemned at slaughter. Follow up milk sample and tissues samples were compliant.
Cattle kidney	Florfenicol 941 µg/kg Penicillin G 272 µg/kg	Northern Ireland	An investigation was undertaken in January 2024. The animal was 11 months old, bought into a beef finisher herd of 338 animals, sheep are also on site. This animal was purchased in October 2023 and kept on farm for 37 days prior to slaughter. It was transported in their own transport. Movement records were completed up to July 2023. The medicine record was kept in accordance with legislation. There was an incorrect entry on the withdrawal period for Trymox LA, otherwise records very good and cross referenced correctly with medicines in the cabinet. The animal had been treated by the vet on site and was administered Trymox LA 50ml and Dexject 10ml (dexamthasone) in November 2023. The vet confirmed they had advised the herdowner of the withdrawal period at this time. The herdowner's wife had checked the internet and entered medication withdrawal time as 28 days. However, this data was outdated as the withdrawal time was increased from 28 to 39 days for this product in 2021. There was no evidence in medicine records to show animal had been administered Penicillin G or Florfenicol containing medication. All follow up samples were compliant for all substances.
Cattle kidney	Oxytetracycline 793 µg/kg	Northern Ireland	An investigation was undertaken in February 2023. The animal was 37 months old and purchased 3 days prior to slaughter. It was part of a high-turnover beef-fattening unit and transported to the abattoir in the herd keeper's own transport, kept separately. Movement (online) and medicine records are kept in accordance with legislation. The herd keeper did not administer any medication to this animal. It had been bought from a mart and no information was provided in relation to administration of any medicine to this animal from the seller at the time of the sale. All follow up samples were compliant.
Cattle kidney	Oxytetracycline 1010 µg/kg	Northern Ireland	An investigation was undertaken in September 2023. The animal was 26 months old and from a 216-beef finisher herd. It was purchased 9 months prior to slaughter. The animal was taken by haulier and kept separate during transport. Movement and medicine records are kept in accordance with legislation. The animal was administered Pharmasin (active ingredient Tylosin), in March 2023, by injection to one site only. The withdrawal period is 28 days, the animal was slaughtered in May 2023, so the withdrawal period was adhered to. No record of administration of any medicine containing oxytetracycline was determined. The herd keeper was advised to follow directions of usage and administration of medicines more carefully. All follow up samples were compliant

Species & Matrix	Residue detected & concentration (RIM Ref)	Region	Cause of residue
Cattle kidney	Oxytetracycline 1240 µg/kg	Northern Ireland	An investigation was undertaken in June 2023. The animal was 3 years, 9 months old, born on-site and is part of a dairy herd of 1638 animals. It was transported by haulier separately due to a swollen leg. Movement and medicine records are kept in accordance with legislation. The animal was last administered Alamycin LA (active ingredient oxytetracycline) in April 2023 by intermuscular injection in multiple sites. The withdrawal period is 41 days, the animal was slaughtered 52 days later, and the withdrawal period was adhered to. The veterinary officer did not find any explanation for the residue. All follow up samples were compliant.
Cattle kidney	Tulathromycin 6770 µg/kg	Northern Ireland	An investigation was undertaken in December 2023. The animal was 20 months old, purchased in September 2023, and was on farm for 8 weeks prior to slaughter. The animal was part of a finishing herd with 158 animals. The herd has been treated for pneumonia with marbofloxacin and tulathromycin. The animal was taken to slaughter in the farms own transport. Movement and medicine records are kept in compliance with legislation. The animal was treated with Tullavis 100mg/ml injectable solution (active ingredient tulathromycin) in October 2023. The herd keeper believes he may have forgotten to divide the dose as per manufacturer's instructions. The withdrawal period is 22 days, and the animal was slaughtered on day 22. The investigating officer believes the cause of residue is due to a combination of factors, injection into a single site, the high dosage administered, and the withdrawal period was not strictly adhered to. Five follow up samples were all compliant.
Cattle kidney	Tylosin 2076 µg/kg	Northern Ireland	An investigation took place in June 2023. The animal was two years old and was purchased in November 2021 into a beef rearing herd of 43 animals. The animal was transported to slaughter in the herd owner's transport alone. Movement and medicine records are kept in accordance with legislation. The herd keeper had two white Charolais males grazing together with similar tag numbers. One of the animals was treated for lameness after it broke its leg, it was administered Tylosin by injection in April 2023 as per manufacturer's instructions. A mix up by the herd keeper with the tag numbers and an error in the medicine records meant the herd keeper was unsure which of the animals was presented for slaughter. He found out later after his vet informed him that the treated animal was sent to the meat plant.
Cattle liver	Dexamethasone 3.3µg/kg	Northern Ireland	An investigation was undertaken in April 2023. The animal was 21 months old and from a short-stay beef finisher system. The herd and associated herd contained 854 animals in total. This animal had been purchased two months previously and was transported in the keeper's own transport with the herd. Movement and medicine records were kept in accordance with legislation. The herd keeper stated he had been extra careful since a previous positive in November 2022. The animal had been treated for a sore foot and was injected with Dexaject in March 2023. The withdrawal date was recorded in the medicine book and the animal was slaughtered on the same date. Dexaject was administered correctly - intramuscularly with the correct dosage for the weight of the animal. The animal was also administered Depocillin in March 2023. All follow up samples were compliant.
Sheep kidney	Dihydrostreptomycin 3620 µg/kg	Northern Ireland	An investigation was undertaken in August 2023. The animal was 5 years old and had been born on site. There were 150 ewes and 300 lambs on the farm, as well as calves and suckler cows. The animal was treated with Penstrep (injectable) in June 2023; the withdrawal period is 31 days. The animal was taken to slaughter in their own transport, with other animals from the farm. Movement and medicine records were kept in compliance with legislation. The animal was slaughtered in July 2023; with the withdrawal period being met. Medicine records indicated that a dose of 10ml was given although recommended dose is 1ml per 25kg. This overdosing may have contributed to the residue finding. Follow up samples were compliant.

Details of 2023 UK statutory surveillance programme by sector
Cattle

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
A2	Thyrostats	Cattle	Urine	0/163
		Fattening cattle	Urine	0/223
A3 Hormones	Gestagens	Cattle	Kidney fat	0/280
		Fattening cattle	Serum	0/277
	Oestradiol	Cattle (male)	Serum	0/198
		Fattening cattle (male)	Serum	0/333
	Steroid screen 1	Cattle	Urine	12/1045 (1.2%)
		Fattening cattle	Urine	35/1130 (3.1%)
	Testosterone	Cattle (female)	Serum	2/318 (0.6%)
		Fattening cattle (female)	Serum	0/318
A4 Hormones	Zeranol	Cattle	Urine	7/420 (1.7%)
		Fattening cattle	Urine	5/391 (1.3%)
A5	Beta-agonists	Calves < 6 months	Liver	0/7
		Cattle	Liver	0/561
		Fattening cattle	Feed	0/184
		Fattening cattle	Urine	0/215

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	Calves < 6 months	Kidney	0/7
		Cattle	Kidney	0/289
		Fattening cattle	Feed	0/240
		Fattening cattle	Urine	0/95
	Nitrofurans	Calves < 6 months	Kidney	0/4
		Cattle	Kidney	0/165
		Fattening cattle	Feed	0/198
		Fattening cattle	Serum	0/28
	Nitroimidazoles	Calves < 6 months	Kidney	0/4
		Cattle	Kidney	0/171
B1 Antimicrobials	AMS1	Calves < 6 months	Kidney	3/119 (2.5%)
		Cattle	Kidney	1/1266 (0.1%)
	AMS2	Cattle	Kidney	0/131
	AMS4	Calves < 6 months	Kidney	1/97 (1.0%)
		Cattle	Kidney	0/123
	Florfenicol	Calves < 6 months	Kidney	0/89
		Cattle	Kidney	0/327
B2A	Anthelmintics	Cattle	Liver	2/732 (0.3%)
	Avermectins	Cattle	Liver	0/494

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
B2B	Coccidiostats	Calves < 6 months	Liver	0/16
		Cattle	Liver	0/5
B2C Pesticide screen	Pyrethroids	Calves < 6 months	Kidney fat	0/29
		Cattle	Kidney fat	0/7
	Carbamates	Cattle	Liver	0/8
B2D	Sedatives	Cattle	Liver	0/38
B2E	NSAIDs	Cattle	Kidney	2/413 (0.5%)
B2F	Glucocorticoids	Cattle	Liver	0/333
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Cattle	Kidney fat	0/77
B3B Pesticide screen	Organophosphorus compounds	Cattle	Kidney fat	0/217
B3C Heavy metals	Metals	Cattle	Kidney	2/83 (2.4%)
B3D	Mycotoxins	Cattle	Liver	0/31

Horses

Group	Analyte	Matrix	Number of non-compliants / analyses (% non-compliant)
A2	Thyrostats	Urine	0/1
A3 Hormones	Steroid screen 1	Urine	0/1
A4 Hormones	Zeranol	Urine	0/1
A5	Beta-agonists	Liver	0/8
A6 Annex IV	Chloramphenicol	Kidney	0/2
	Nitrofurans	Kidney	0/1
	Nitroimidazoles	Kidney	0/1
B1 Antimicrobials	AMS1	Kidney	0/4
B2A Anthelmintics	Avermectins	Liver	0/5
B2B	Coccidiostats	Liver	0/2
B2C Pesticide screen	Pyrethroids	Kidney fat	0/2
B2D	Sedatives	Liver	0/5
B2E	NSAIDs	Kidney	0/10
B2F	Glucocorticoids	Liver	0/4
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	0/1
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/1
B3C Heavy metals	Metals	Kidney	1/1 (100%)
B3D	Mycotoxins	Liver	0/1

Pigs

Group	Analyte	Matrix	Number of non-compliants / analyses (% non-compliant)
A2	Thyrostats	Urine	0/115
A3 Hormones	Gestagens	Kidney fat	0/111
	Methyltestosterone	Feed	0/26
	Steroid screen 1	Urine	0/405
A4 Hormones	Zeranol	Urine	0/283
A5	Beta-agonists	Feed	0/45
		Liver	0/433
A6 Annex IV	Chloramphenicol	Casings	0/4
		Kidney	0/289
	Nitrofurans	Casings	0/4
		Feed	0/8
		Kidney	0/356
	Nitroimidazoles	Casings	0/4
		Feed	0/16
		Kidney	0/267

Group	Analyte	Matrix	Number of non-compliants / analyses (% non-compliant)
B1 Antimicrobials	AMS1	Kidney	1/1394 (0.1%)
	AMS2	Kidney	0/437
	AMS4	Kidney	0/50
	Ceftiofur	Kidney	0/110
	Florfenicol	Kidney	0/244
B2A	Anthelmintics	Liver	0/368
	Avermectins	Liver	0/218
B2B	Coccidiostats	Liver	0/119
B2C Pesticide screen	Pyrethroids	Kidney fat	0/81
	Carbamates	Liver	0/5
B2D	Sedatives	Kidney	0/37
		Liver	0/131
B2E	NSAIDs	Kidney	0/46
B2F	Glucocorticoids	Liver	1/52 (1.9%)
	Carbadox	Liver	0/12
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	1/85 (1.2%)
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/155
B3C Heavy metals	Metals	Kidney	0/19
B3D	Mycotoxins	Liver	0.79

Sheep

Group	Analyte	Matrix	Number of non-compliants / analyses (% non-compliant)
A2	Thyrostats	Urine	0/72
A3 Hormones	Gestagens	Kidney fat	0/67
	Steroid screen 1	Urine	34/444 (7.7%)
A4 Hormones	Zeranol	Urine	0/94
A5	Beta-agonists	Liver	0/250
A6 Annex IV	Chloramphenicol	Kidney	0/137
	Nitrofurans	Kidney	0/217
	Nitroimidazoles	Kidney	0/103
B1 Antimicrobials	AMS1	Kidney	1/1864 (0.1%)
	AMS2	Kidney	0/9
	AMS4	Kidney	0/92
	Florfenicol	Kidney	0/220
B2A	Anthelmintics	Liver	5/1340 (0.4%)
	Avermectins	Liver	2/536 (0.4%)
B2B	Coccidiostats	Liver	0/294
B2C Pesticide screen	Pyrethroids	Kidney fat	0/489
	Carbamates	Liver	0/34
B2D	Sedatives	Liver	0/80
		Kidney	0/8
B2E	NSAIDs	Kidney	0/46
B2F	Glucocorticoids	Liver	0/22
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	0/113
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/512
B3C Heavy metals	Metals	Kidney	8/51 (15.7%)
B3D	Mycotoxins	Liver	0/15

Goats

Group	Analyte	Matrix	Number of non-compliants / analyses (% non-compliant)
A2	Thyrostats	Urine	0/1
A3 Hormones	Gestagens	Kidney fat	0/1
	Steroid screen 1	Urine	0/1
A5	Beta-agonists	Liver	0/1
A6 Annex IV	Chloramphenicol	Kidney	0/1
B1 Antimicrobials	AMS1	Kidney	0/1
B2A	Anthelmintics	Liver	0/1
B2B	Coccidiostats	Liver	0/1
B2E	NSAIDs	Kidney	0/2
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Kidney fat	0/1
B3B Pesticide screen	Organophosphorus compounds	Kidney fat	0/1

Eggs

Group	Analyte	Species	Number of non-compliants / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	Barn hen	0/11
		Caged hen	0/5
		Free range hen	0/202
		Organic hen	0/10
		Quail hen	0/1
	Nitrofurans	Barn hen	0/8
		Caged hen	0/4
		Free range hen	0/159
		Organic hen	0/11
	Nitroimidazoles	Barn hen	0/9
		Caged hen	0/8
		Free range hen	0/151
		Organic hen	0/14
		Quail	0/1
B1 Antimicrobials	AMS1	Barn hen	0/5
		Caged hen	0/3
		Free range hen	0/229
		Organic hen	0/6
		Quail	0/1

Group	Analyte	Species	Number of non-compliants / analyses (% non-compliant)
B1 Antimicrobials	AMS2	Barn hen	0/9
		Caged hen	0/5
		Free range hen	0/114
		Organic hen	0/11
		Quail	0/1
	AMS3	Barn hen	0/14
		Caged hen	0/9
		Free range hen	0/154
		Organic hen	0/18
	Florfenicol	Free range hen	0/140
	Tiamulin	Barn hen	0/3
		Caged hen	0/3
		Free range hen	0/25
		Organic hen	0/4
B2A	Anthelmintics	Free range hen	0/200
	Fipronil	Free range hen	0/200
B2B	Coccidiostats	Barn hen	0/39
		Caged hen	0/28
		Free range hen	0/606
		Organic hen	1/43 (2.3%)
		Quail	0/2
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Barn hen	0/3
		Caged hen	0/3
		Free range hen	0/86
		Organic hen	0/4

Poultry

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
A3 Hormones	Steroid screen 2	Broilers	Liver	0/609
		Broilers	Serum	0/90
		Ducks	Liver	0/7
		Hens	Liver	0/32
		Turkeys	Liver	0/65
A5	Beta-agonists	Broilers	Feed	0/238
		Broilers	Liver	0/489
		Ducks	Feed	0/2
		Ducks	Liver	0/7
		Hens	Feed	0/10
		Hens	Liver	0/26
		Turkeys	Feed	0/17
		Turkeys	Liver	0/50
A6 Annex IV	Chloramphenicol	Broilers	Muscle	0/772
		Ducks	Muscle	0/10
		Hens	Muscle	0/41
		Turkeys	Muscle	0/36
	Nitrofurans	Broilers	Feed	0/329
		Broilers	Muscle	0/633
		Ducks	Feed	0/4
		Ducks	Muscle	0/9
		Hens	Feed	0/14
		Hens	Muscle	0/44
		Turkeys	Feed	0/27
		Turkeys	Muscle	0/43
	Nitroimidazoles	Broilers	Feed	0/331
		Broilers	Serum	0/1075
		Ducks	Feed	0/3
		Ducks	Serum	0/13
		Hens	Feed	0/15
		Hens	Serum	0/27
		Turkeys	Feed	0/24
		Turkeys	Serum	0/65

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
B1 Antimicrobials	AMS1	Broilers	Muscle	0/1364
		Ducks	Muscle	0/12
		Hens	Muscle	0/88
		Turkeys	Muscle	0/92
	Florfenicol	Broilers	Muscle	0/199
		Turkeys	Muscle	0/1
	AMS2	Broilers	Muscle	0/622
		Ducks	Muscle	0/7
		Hens	Muscle	0/36
		Turkeys	Muscle	0/62
	Tiamulin	Broilers	Muscle	0/13
B2A	Anthelmintics	Broilers	Liver	0/355
		Ducks	Liver	0/6
		Hens	Liver	0/33
		Turkeys	Liver	0/57
B2B	Coccidiostats	Broilers	Liver	3/1553 (0.2%)
		Hens	Liver	0/23
		Turkeys	Liver	2/76 (2.6%)
B2C Pesticide screen	Pyrethroids + Carbamates	Broilers	Fat	0/12
		Broilers	Liver	0/101
		Ducks	Liver	0/6
		Hens	Liver	0/15
		Turkeys	Liver	0/12
B2E	NSAIDs	Broilers	Liver	0/7
		Broilers	Muscle	0/2
		Ducks	Liver	0/6
		Hens	Liver	0/10
		Turkey	Liver	0/5
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Broilers	Fat	0/42
		Broilers	Liver	0/292
		Ducks	Liver	0/5
		Hens	Liver	0/14
		Turkeys	Liver	0/10

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
B3C Heavy metals	Metals	Broilers	Liver	0/13
		Broilers	Muscle	0/97
		Ducks	Muscle	0/4
		Hens	Muscle	0/4
		Turkeys	Muscle	1/7 (14.3%)
B3D	Mycotoxins	Broilers	Liver	0/17
		Hens	Liver	0/1
		Turkeys	Liver	0/1

Fish muscle & skin

Group	Analyte	Species	Number of non-compliants / analyses (% non-compliant)
A3 Hormones	Methyltestosterone	Trout	0/6
A6 Annex IV	Chloramphenicol	Salmon	0/200
		Trout	0/15
	Nitrofurans	Salmon	0/197
		Trout	0/5
	Nitroimidazoles	Salmon	0/206
		Trout	0/8
B1 Antimicrobials	AMS1	Salmon	0/119
		Trout	0/8
	AMS2	Salmon	0/39
		Trout	0/8
	AMS3	Halibut	0/1
		Salmon	0/204
		Trout	0/7
	Florfenicol	Salmon	0/101
B2A	Anthelmintics	Halibut	0/1
		Salmon	0/128
		Trout	0/5
	Avermectins	Salmon	0/110
		Trout	0/5
B2C Pesticide screen	Pyrethroids	Salmon	0/145
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Salmon	0/12
		Trout	0/4
B3B Pesticide screen	Organophosphorus compounds	Salmon	0/44
B3C Heavy metals	Metals	Salmon	0/25
		Trout	0/3
B3D	Mycotoxins	Salmon	0/9
		Trout	0/3
B3E	Dyes	Salmon	0/250
		Trout	3/59 (5.1%)

Milk

Group	Analyte	Species	Number of non-compliants / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	Cattle	0/978
		Goats	0/11
		Sheep	0/2
	Dapsone	Cattle	0/48
		Goats	0/1
		Sheep	0/1
B1 Antimicrobials	AMS1	Cattle	1/616 (0.2%)
		Goats	0/6
		Sheep	0/2
	Florfenicol	Cattle	0/257
		Goats	0/3
		Sheep	0/1
	AMS2	Cattle	0/291
		Goats	0/3
		Sheep	0/2
	AMS3	Cattle	0/363
		Goats	0/5
	AMS4	Cattle	0/219
		Goats	0/2
	Cefquinome	Cattle	0/153
		Goats	0/4
	Ceftiofur	Cattle	0/105
		Goats	0/2
B2A	Anthelmintics	Cattle	0/486
		Goats	0/9
		Sheep	0/1
	Avermectins	Cattle	0/498
		Goats	0/6
		Sheep	0/2
B2E	NSAIDs	Cattle	0/199
		Goats	0/5

Group	Analyte	Species	Number of non-compliants / analyses (% non-compliant)
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Cattle	0/39
		Goats	0/2
B3B Pesticide screen	Organophosphorus compounds	Cattle	0/43
		Sheep	0/1
B3C Heavy metals	Metals	Cattle	0/48
B3D	Mycotoxins	Cattle	0/43

Game

Group	Analyte	Species	Matrix	Number of non-compliants / analyses (% non-compliant)
A2	Thyrostats	Deer	Liver	0/3
		Deer	Urine	0/1
A3 Hormones	Steroid screen 2	Deer	Liver	0/7
		Deer	Urine	0/1
A5	Beta-agonists	Deer	Liver	0/11
A6 Annex IV	Nitroimidazoles	Deer	Kidney	0/1
		Deer	Muscle	0/4
B1 Antimicrobials	AMS1	Deer	Kidney	0/22
B2A	Anthelmintics	Deer	Liver	0/5
		Partridge	Liver	0/3
		Pheasant	Liver	0/4
		Red Grouse	Liver	0/10
B2B	Coccidiostats	Partridge	Muscle	0/6
		Pheasant	Muscle	0/4
B2C Pesticide screen	Pyrethroids	Deer	Kidney fat	0/5
B2D	Sedatives	Deer	Liver	0/2
B2E	NSAIDs	Deer	Kidney	0/3
		Deer	Liver	0/1
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	Deer	Kidney fat	0/7
B3C Heavy metals	Metals	Deer	Muscle	0/6
		Partridge	Muscle	0/5
		Pheasant	Muscle	0/5
		Wild deer	Kidney	1/1 (100%)
		Wild deer	Muscle	0/104

Bees honey

Group	Analyte	Number of non-compliants / analyses (% non-compliant)
A6 Annex IV	Chloramphenicol	0/9
	Nitrofurans	0/8
	Nitroimidazoles	0/3
B1 Antimicrobials	AMS1	0/19
	AMS2	0/8
	AMS3	0/19
	AMS4	0/17
	AMS5	0/17
B2C Pesticide screen	Pyrethroids	0/13
B3A Pesticide screen	Organochlorine compounds and polychlorinated biphenyls	0/15
B3B	Organophosphorus compounds	0/16
B3C Heavy metals	Metals	0/15
B3F	Amitraz	0/12
	Naphthalene	0/12