Animal & Plant Health Agency

SRUC

GB small ruminant quarterly report

Disease surveillance and emerging threats

Volume 27: Quarter 1 – January to March 2023

Highlights

Contents

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Introduction and overview

This quarterly report reviews disease trends and disease threats for the first quarter of 2023, January to March. It contains analyses carried out on disease data gathered from APHA, SRUC Veterinary Services division of Scotland's Rural College (SRUC) and partner postmortem providers and intelligence gathered through the Small Ruminant Species Expert networks. In addition, links to other sources of information, including reports from other parts of the APHA and Defra agencies, are included. A full explanation of how data is analysed is provided in the annexe available on GOV.UK.

APHA's new Endemic Disease Alert System

This is a new component of the communications from our scanning surveillance network and a new system that the APHA will be using, to keep you up to date with significant disease alerts and information, projects, publication of reports and other items. This is independent of the notifiable disease alert system. To receive these notifications please respond to siu@apha.gov.uk, providing your preferred:

- email address you would like us to use
- mobile telephone number if you wish to receive text alerts

We hope that you find this new messaging system to be beneficial and any suggestions or feedback are welcome.

Issues & Trends

Weather

The first half of January continued with the mild, unsettled, and wet theme of the last two weeks of December, with some areas having roughly their average rainfall for the whole of January within the first two weeks. The second half was much drier and colder although temperatures gradually edged upwards in the final week to somewhere near or slightly above average. This was also a particularly sunny January, for the second year in a row.

February overall was milder and drier than average, with high pressure influencing the weather for much of the time. It was unsettled initially, and again for a time from mid-month, but the month was very dry, provisionally being the UK's driest February since 1993. It was also a mild month, especially further north, despite colder spells from 5th to 9th and from 23rd onwards.

March began cold and dry, but from the 8th onwards it was predominantly unsettled with moist, milder air pushing up from the south. For the second week the cold air was at times

reluctant to move away from northern areas, with snow for some areas most especially around the 7th-10th on the northern boundary of the milder air, but from mid-month it was broadly mild everywhere. After transitory fine weather on the 27th, the month ended with a westerly pattern, very unsettled with low pressure close to the UK, maintaining a dull and wet theme.

Figure 1 shows the mean UK Winter (December to February) 2023, temperatures being equal to the average for 1991 -2020 in most parts of the country and slightly above average in some eastern parts and a few smaller areas in the west.

Figure 2 shows the mean UK Winter (December to February) 2023, rainfall being well below the average for 1991 -2020 in most parts of the country.

Quoted from: [Climate summaries - Met Office]

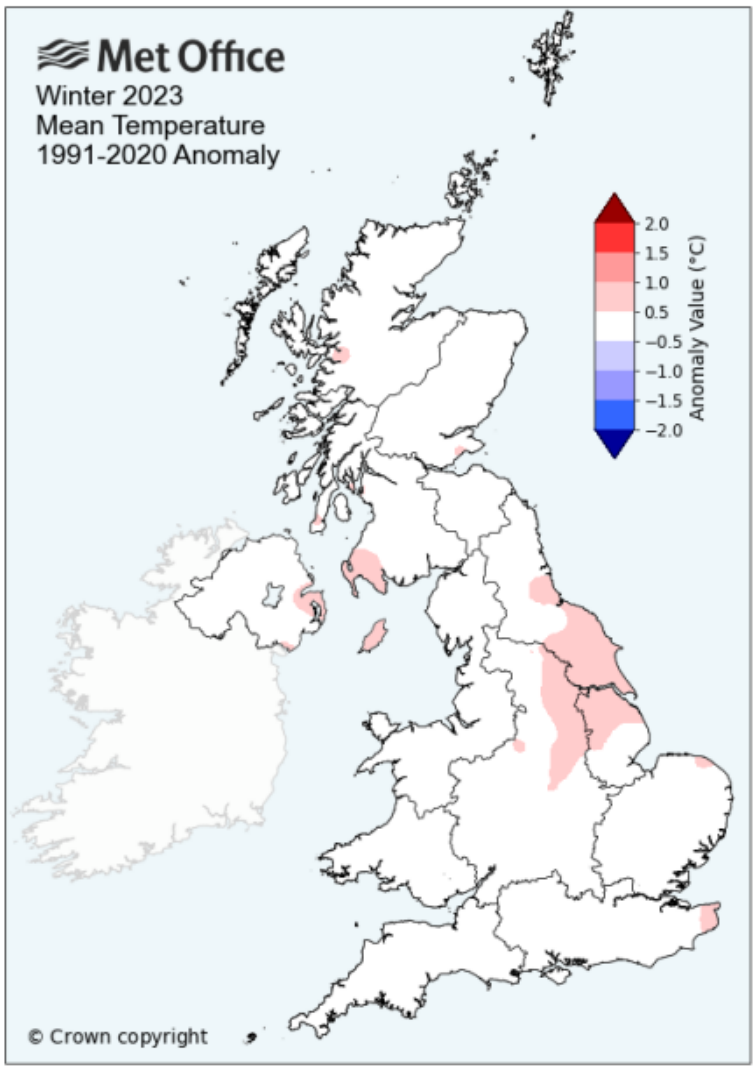

Figure 1: Winter 2023 mean temperature compared to 1991-2020 averages

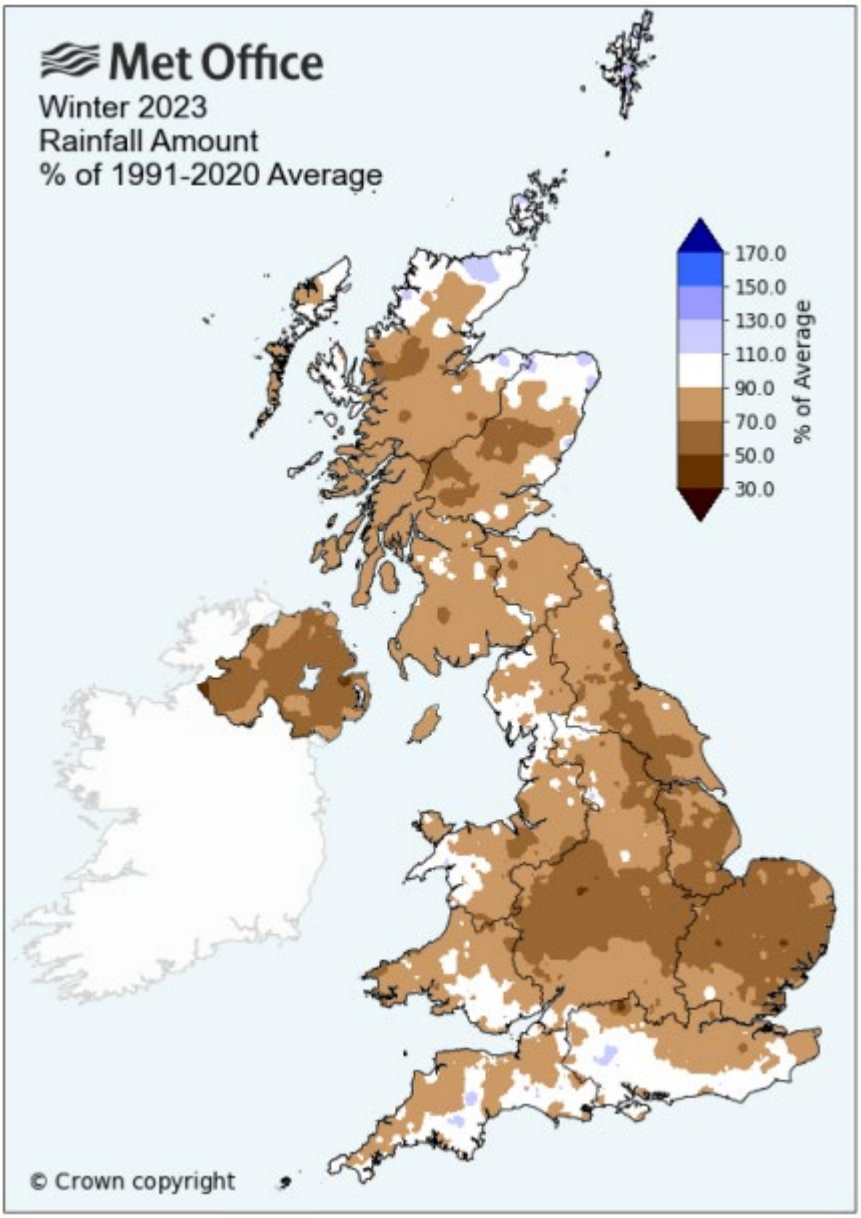

Figure 2: Winter 2023 rainfall amount as % 0f 1991-2020 average

Industry

AHDB lamb market updates:

- **Prices:** For the week ending 1st April, GB deadweight old season lambs were 7.0p higher year-on-year (YOY) at 583.1p/kg, following prices rising by over 70p throughout March. This strong price support may have come from increased demand as we approached the religious festivals Ramadan and Easter, followed by Eid. The current price position of GB lamb on the continent may also have added to this through benefitting exports. GB liveweight old season lamb prices also moved above 2022 levels during this time, up 2p/kg YOY at 272.4p/kg for the week ending 1st April.

- **Production:** March's lamb production* ramped up compared to the first two months of the year, totalling 28,500 tonnes. This brought year-to-date (YTD) (Jan-Mar) production to 72,100 tonnes, up 8.0% (5,300 tonnes) on the same period in 2022. UK lamb kill was up 12.8% (359,000 head) YOY at 3.16 million head for the YTD, and adult sheep kill was up 7% (22,100 head) YOY at 328,400 head for the same period.

- **Trade:** Whilst both imports and exports of sheep meat saw month-on-month (MOM) increases in February, by 52% and 5% respectively, the YOY change in trade figures saw the opposite trend. A decrease in exports to the EU, specifically to France and Belgium, contributed greatly to the overall 2% YOY decline in exports, whilst a drop in imports from Ireland and Australia led to a 24% YOY decline in sheep meat imports.

- **Demand:** In the 12 weeks to 19 March, spend on lamb in retail fell 2.4% YOY, while volumes fell by 9.2% over the same period. Prices paid rose by 7.5% on average across all lamb cuts and products as inflation causes price rises. Looking at products specifically, chops was the only category of primary lamb to see volume growth on the year, up 1%, as primary lamb volumes declined by 10.3% YOY.

*Please note that Defra's published sheep slaughter numbers may be revised from the figures shown here and can be accessed direct from their website Latest cattle, sheep and pig slaughter statistics - GOV.UK (www.gov.uk)

Acknowledgment for the lamb updates: Freya Shuttleworth, AHDB

Unusual diagnoses

Leg fractures in Valais Blacknose lambs due to osteogenesis imperfecta

Two incidents have recently been reported, one from England and the other from Scotland.

Details from the case in England: in the last 3 years three Valais Blacknose lambs in a small flock were reported to have presented with multiple limb fractures within the first eight days of life. Four other lambs had single leg fractures. Histopathology confirmed pathological fractures, with morphology consistent with a diagnosis of osteogenesis imperfecta.

Details from the case in Scotland: a flock of 20 Valais blacknose ewes, which had been established three years earlier, reported at least one neonatal lamb each spring with a fractured leg. Two lambs were euthanased and submitted for investigation – a ewe lamb that was less than one week of age and had fractured both hind legs when running in the pen; and a tup lamb that was found to have fore and hind limb fractures following a gentle

assisted lambing. The carcases weighed 5 and 4.5 kg and were in average body condition but the long bone cortices were very thin. Lamb 1 was found to have bilateral distal metacarpal fractures, plus fractures of the left metatarsal and right femur. Haemorrhage at the fracture sites confirmed that these had occurred pre-mortem. Several ribs were also fractured but it was less clear when this had occurred. The second lamb had fractures of the right radius/ulna and left tibia/fibula. As shown in Figure 3, the right rib cage folded inwards as a result of double fractures of all the ribs, with ribs 2 to 11 on the left also fractured. Osteogenesis imperfecta was suspected and confirmed on histopathology. This condition has previously been described in Valais blacknose sheep in the UK (Anon 2020) and in Stabiliser cattle in the UK (Q2 cattle report 2021) and is a result of deficiency or poor formation of type 1 collagen. Rib ash figures of 18.4 and 11.3 per cent were below the expected 20 per cent value for lambs of this age and consistent with the fragility of the bones. Osteogenesis imperfecta has been reported in a range of species where it can have either a dominant or recessive inheritance (Gold et al, 2019).

ANON. Disease surveillance in England and Wales. *Vet Rec* 2020; 186(18):592-596

GB cattle quarterly report - Disease surveiillance and emerging threats (publishing.service.gov.uk)

GOLD R, POOL RR, EDWARDS EE. Osteogenesis and dentinogenesis imperfecta in a four-month-old English mastiff *Vet Rec Case Rep* 2019; Osteogenesis and dentinogenesis imperfecta in a four-month-old English mastiff (wiley.com)

Figure 3: Double fractures of the ribs, causing folding of the thoracic wall, in a lamb affected with osteogenesis imperfecta. With kind permission, Heather Stephenson, SRUC.

Detection of novel viruses in lambs with skin lesions

A six-month-old lamb was submitted to Starcross Veterinary Investigation Centre to investigate the cause of death. Another lamb had died, and approximately 20 lambs within the group of 60 were losing condition and diarrhoeic. On necropsy the submitted lamb was found to have died from pneumonia caused by *Mannheimia haemolytica* and *Mycoplasma ovipneumoniae*. Histopathological examination revealed chronic parasitic gastroenteritis caused by both worms and coccidia, which would account for the poor condition of the lamb and may have predisposed to the pneumonia.

The lamb also had a dermatitis affecting the lips. Orf (which is caused by parapox virus) was suspected. On Electron Microscopy a parvovirus was detected, but not parapox virus. Histopathological examination of a section of affected skin also resulted in the detection of *Dermatophilus congolensis*. Next generation sequencing revealed the presence of two parvoviruses; a parvovirus related to Flumine parvovirus 21 and a protoparvovirus. On sequencing there was also no evidence of parapox virus. The source of the two parvoviruses was uncertain; river water was one potential possibility as Flumine parvovirus 21 has been detected in river waters. These lambs were at pasture and the only source of water was a stream that runs through the farm. There was a sewage works adjacent to the stream, and sheep drink downstream from the treated sewage discharge point. Overspills of untreated sewage have also been observed.

Similar viruses to this sequenced protoparvovirus have been detected in a child with diarrhoea in Tunisia (Tung et al, 2014), and in the faeces of healthy sheep and goats in Hungary (Reuter et al, 2022). The viruses detected from sheep and goats, including the virus detected in this case, are very closely related to the human virus [99.5% amino acid identity for the NS1 (non-structural protein) and 93.1% for the VP1 (virus capsid protein) for the UK virus]; and according to the literature may have zoonotic potential.

Additional PCR testing of faeces, small intestinal content, liver, kidney, and lung from this lamb (using a PCR developed following the initial sequencing) was positive for protoparvovirus in all samples, indicating systemic infection. Further faecal sampling on-farm of lambs in the same management group revealed positive protoparvovirus PCR results in 3/10 animals, indicating wider circulation in the flock.

Further work is required to establish if this protoparvovirus is present in sheep in other flocks in Great Britain and if it causes any disease or pathology in sheep. If present in other flocks, further epidemiological studies will be required to determine zoonotic or zooanthroponotic potential.

TUNG G. PHAN, KHIRA SDIRI-LOULIZI, MAHJOUB AOUNI, KATIA AMBERT-BALAY, PIERRE POTHIER, XUTAO DENG, AND ERIC DELWART, New Parvovirus in Child with Unexplained Diarrhea, Tunisia, Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 20, No. 11, November 2014

REUTER, G., PANKOVICS, P., LÁSZLÓ, Z. *et al.* Human-stool-associated tusavirus (Parvoviridae) in domestic goats and sheep. *Arch Virol* **167**, 1307–1310 (2022).

Changes in disease patterns and risk factors

Syndromic analysis - Syndromic alerts were raised this quarter for GB for the following diseases:

Increases:

- PGE NOS
- Trauma/fracture NOS (SRUC only)
- Salmonellosis NOS (APHA only)
- Fetopathy due to Toxoplasma (SRUC only)
- Fetopathy due to Campylobacter
- Reproductive Disease not listed (SRUC only)

Decreases:

- Chronic fasciolosis (SRUC only)
- Coccidiosis
- Fetopathy due to Chlamydia abortus (APHA only)
- Sheep Scab (SRUC only)
- Ectoparasitic disease caused by lice

Parasitology

Nematodirus Forecast

Cases of Nematodirus were confirmed in submitted lambs from England in March.

As for the previous year, APHA will assist the Sustainable Control of Parasites in Sheep (SCOPS) with the production of a Nematodirus Forecast service (https://www.scops.org.uk/forecasts/nematodirus-forecast/). The SCOPS Nematodirus Forecast will be active from late February onwards. The forecast map is updated daily, using data from 140 weather stations (provided by the Met Office), tracking changes in risk throughout the spring and early summer. The interactive Google map allows farmers and advisers to select the nearest or most representative weather station, and it then provides advice on how to relate the predicted risk to their farm, treatment options, and possible management actions. Sheep farmers should consult their vet or adviser regarding local risks and treat lambs if they are deemed to be at risk.

Parasitic Gastroenteritis not otherwise specified (PGE NOS)

The number of diagnoses of PGE NOS for this quarter showed a significant increase, with 128 submissions with this diagnosis compared to 102 for the equivalent quarter the previous year. Figure 4 shows the increase in the incidents of parasitic gastroenteritis as percentage of diagnosable submissions in quarter 1 2023, compared to the equivalent quarters in 2019-2022. Increases were seen in both the England and Wales, and Scotland figures compared to 2022.

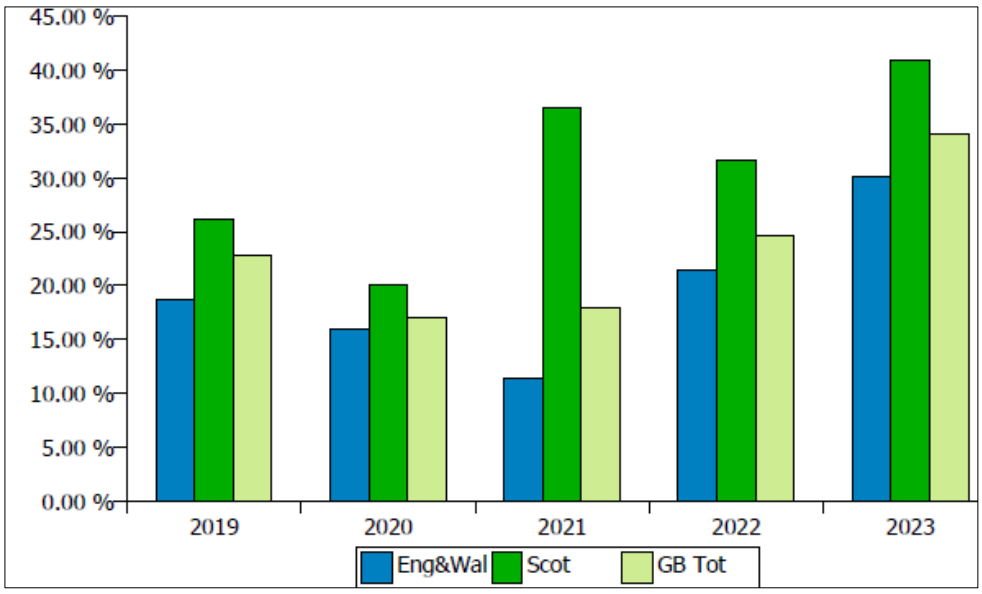

Figure 4: Incidents of PGE NOS in Sheep in quarter 1 as % of diagnosable submissions

Coccidiosis

For this quarter, the number of submissions where coccidiosis was diagnosed showed a significant decrease with 9 diagnosed, compared to 26 for the equivalent quarter the previous year. Figure 5 shows the significant decrease in incidents of coccidiosis as percentage diagnosed in quarter 1 compared to the equivalent quarter in previous years. Decreases were seen in England and Wales, and Scotland figures.

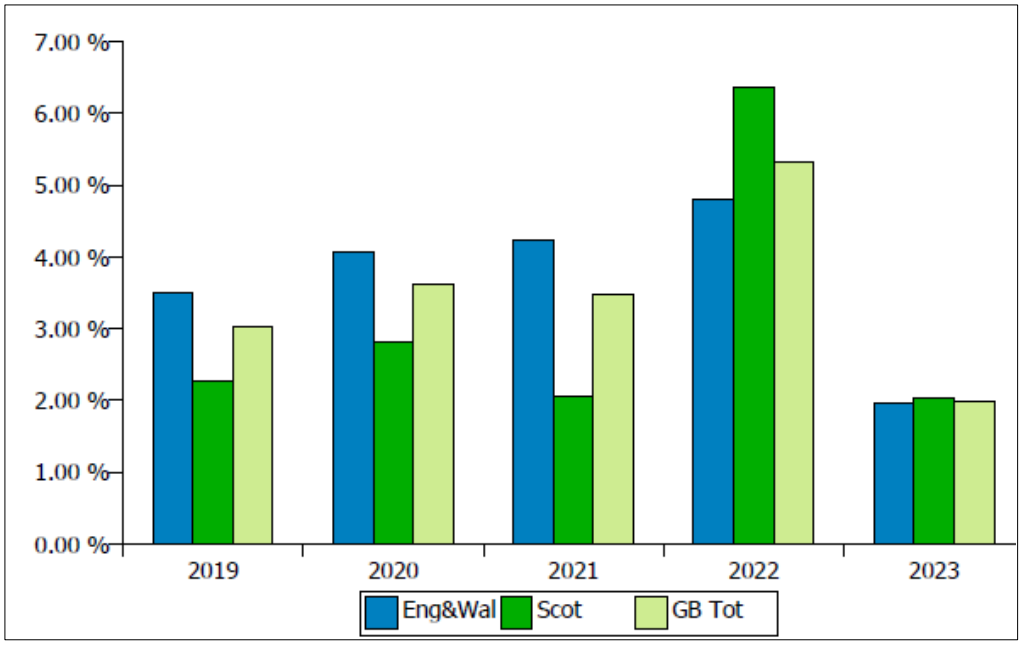

Figure 5: Incidents of Coccidiosis in Sheep in quarter 1 as % of diagnosable submissions

Cryptosporidiosis

The number of submissions diagnosed with this condition has decreased from 10 in 2020, to 6 in 2021 and 2022, and just one case this quarter. The numbers are small and therefore not statistically significant. Figure 6 shows the decline of the percentage diagnosed, with very low levels this quarter in England and Wales, and none in Scotland.

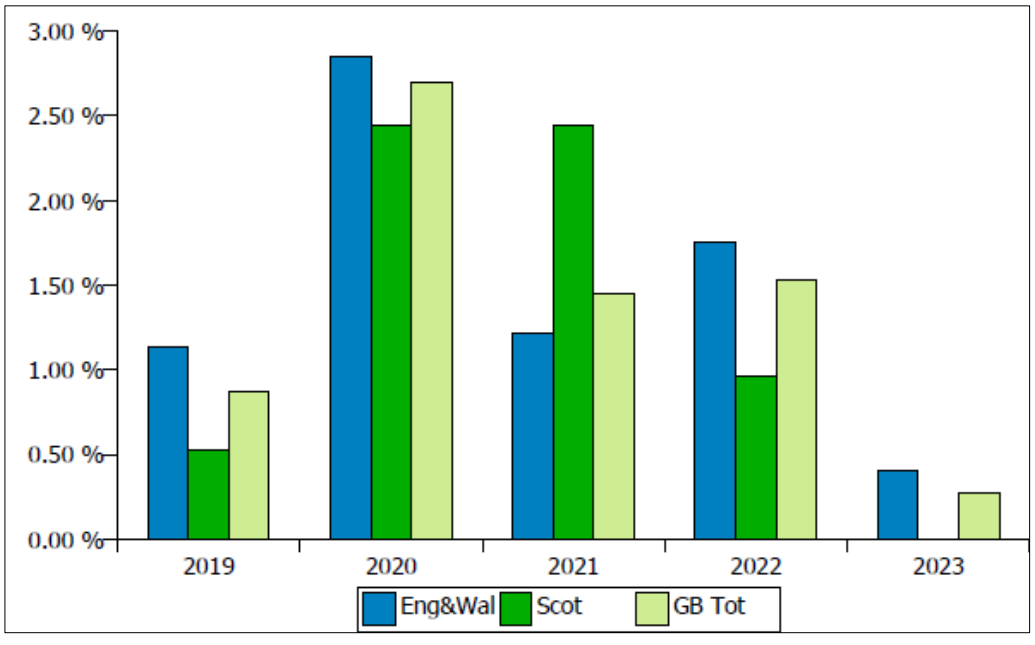

Figure 6: GB incidents of Cryptosporidiosis in Sheep in quarter 1 as % of diagnosable submissions

Systemic disease

Trauma / fracture not otherwise specified (NOS)

There was an increase in the percentage of cases diagnosed with trauma or fracture NOS for this quarter. The change was significant for SRUC figures. Trauma / fracture NOS during quarter 1 2023 was recorded most commonly in adults and then in neonatal lambs as shown in Figure 7, with a range of other age groups being represented. Figure 8 shows that the main presenting sign recorded most frequently was ‘found dead,’ with a range of other clinical signs also being recorded as the main presenting sign.

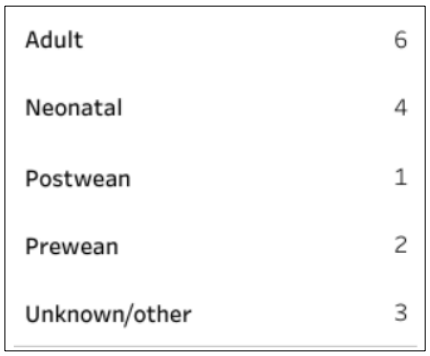

Figure 7: Age categories of diagnoses of Trauma / fracture NOS during quarter 1, 2023.

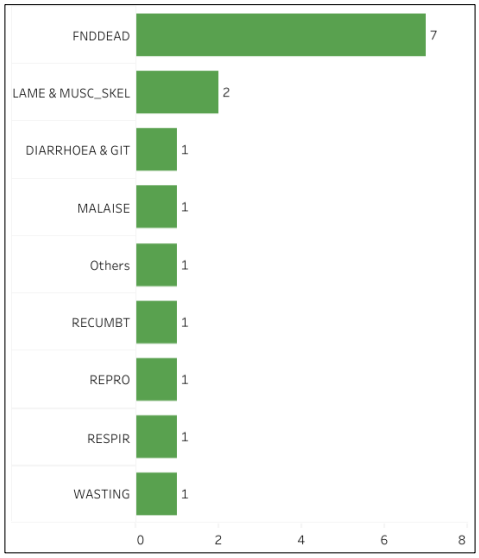

Figure 8: Primary clinical sign recorded for diagnoses of Trauma / fracture NOS during quarter 1, 2023.

Salmonellosis not otherwise specified (NOS)

There was an increase in diagnoses of Salmonellosis NOS this quarter with 10 (1.47%) incidents reported in 2023 compared to 7 (0.90%) in 2022. All 10 cases were reported by APHA. The most reported serovar was *Salmonella enterica* subspecies *diarizonae* 61:k:1,5,(7), typically being detected in association with other enteric pathogens.

Two cases of enteric / systemic listeriosis

A dead ewe was submitted for postmortem examination to investigate the cause of sudden death, where four ewes had died over the previous three to four days in a group of 70, all with no premonitory clinical signs. All the sheep were reported to be in a good condition, were outside and being fed hay and concentrates; some of the hay had been spoilt/mouldy. There was faecal soiling and blood around the perineum and on the tail of the dead ewe. Gross examination found congested lungs and the abomasum contained brown, very watery fluid. There were signs of inflammation with multiple discrete roughly circular ulcers of up to 4mm diameter, and generalised reddening of the abomasal mucosa as shown in figure 9. The small and large intestine had light-brown fluid content, and there was some caecal ulceration/reddening. The mesenteric lymph nodes were enlarged and reddened. *Listeria monocytogenes* was isolated from the lung and liver in very heavy growths, and from the faeces using enrichment culture. These findings were consistent with a listerial enteritis and septicaemia, and were diagnosed as the cause of death. In this case, spoilt forage was the possible source, although a worm egg count of 700 Trichostrongyle-type eggs per gram indicated that abomasal and intestinal damage from a worm burden could have facilitated listerial enteric infection and subsequent systemic invasion.

Figure 9: Abomasitis secondary to listerial enteritis and septicaemia in a sudden death ewe

In the second case, the carcase of a four-year-old ewe was submitted, with a history of two ewes dying recently, after rapid onset lethargy and bloody pasty scour. Four animals in the flock were scouring, and there had been two abortions. At post-mortem examination, the abomasum was reddened and had a cobblestone appearance. Fine fibrin stranding was present over the cerebral hemispheres. *Listeria monocytogenes* was isolated from the brain and liver in pure culture. The appearance of the abomasal mucosa was suspicious of endoparasitism, however histological examination confirmed a severe, mulitfocal, acute, necrotising, haemorrhagic, suppurative abomasitis, which was characteristic of Enteric Listeriosis. This is usually attributed to feeding poorly conserved or spoiled forage and a review of group nutrition was advised.

Circulatory disease

No significant trends were identified this Quarter.

Skin disease

Sheep scab due to *Psoroptes ovis*

Although a syndromic alert indicates a decrease in sheep scab diagnoses by SRUC in quarter 1, compared to the previous 5 years, the overall number of diagnoses made by APHA and SRUC combined this quarter was very similar to the equivalent quarter the previous year (34 diagnoses in Q1 2023 compared to 33 diagnoses in Q1 2022). Figure 10 shows the similar level of cases, as percentage diagnosed, with sheep scab in Quarter 1 compared to the equivalent quarter in 2022, which was slightly decreased compared to 2020 and 2021.

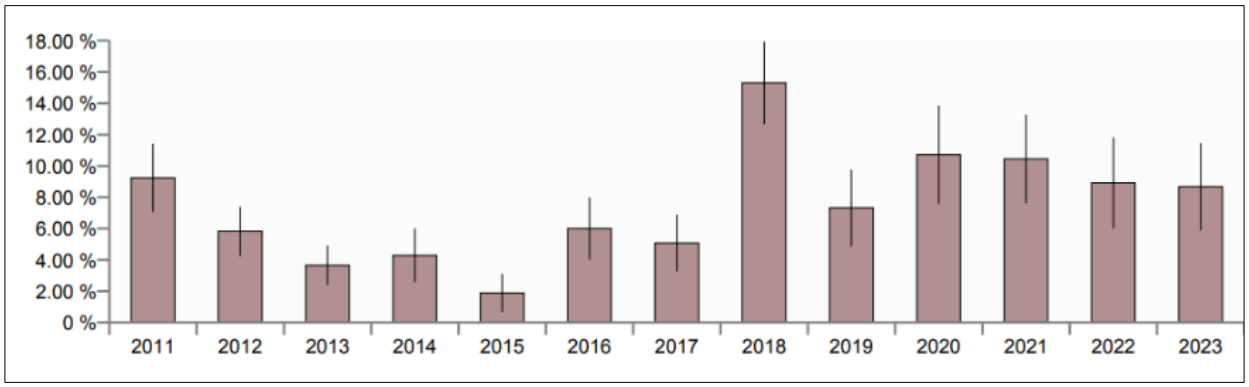

Figure 10: GB incidents of Sheep scab for quarter 1 as percentage of diagnosable submissions.

Wales continues to be overrepresented, as demonstrated by Figure 11. This is likely to be due to the continuation of free ectoparasite testing for sheep showing clinical signs of sheep scab in Wales, which is now being offered all year round. It is funded by the Welsh Government. Further information about this free testing can be found here (Scab testing in Wales -English version / Scab testing in Wales - Welsh version).

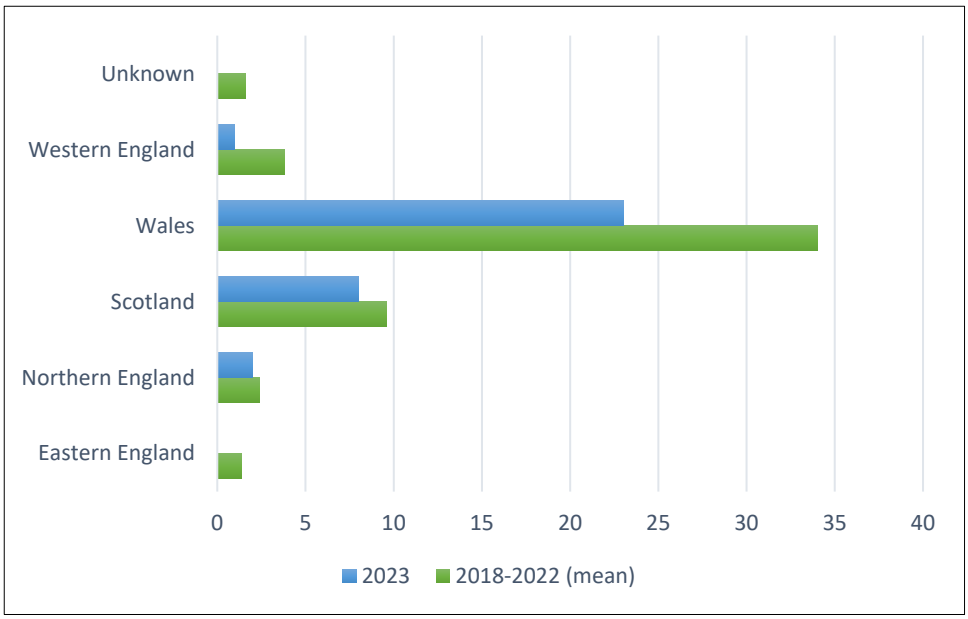

Figure 11: Sheep scab diagnoses by region, Quarter 1 2023.

Squamous cell carcinoma

A small lump was noticed on the ear of a Dorset Poll ewe, which had a granulomatous appearance and bled easily. The lump grew to the size of a satsuma and recurrent bacterial infections were noted, so the ear was amputated, and the lesion was submitted for histopathology. Findings were consistent with a low-grade squamous cell carcinoma (SCC). In sheep, commonly the ears are affected, and the risk of development increases with age. There are several factors that are associated with the development of SCC, including prolonged exposure to ultraviolet light, lack of pigment within the epidermis, and lack of hair or a very sparse hair coat at the affected sites. Therefore, geographic location and climate (UV light exposure) and anatomic location will greatly influence the incidence. Given the amputation, recurrence was deemed unlikely.

Negated notifiable disease case, diagnosed as orf

Swollen heads, severe peri-oral lesions, and salivation in seven lowland sheep had triggered an investigation of possible Bluetongue virus by the APHA field team. After Bluetongue was negated, scabs were submitted for testing. Electronmicroscopy detected Parapox virus, and histology identified severe secondary bacterial infection, with immune histochemical labelling also confirming a diagnosis of orf.

Respiratory disease

No significant trends were identified for respiratory disease for Q1 2023. The trends for Maedi visna and parasitic pneumonia are discussed below.

Maedi visna

There have been elevated GB numbers of Maedi visna diagnoses during quarter 1 over the last three years as shown in figure 12. This year there was an increased number of diagnoses in England and Wales.

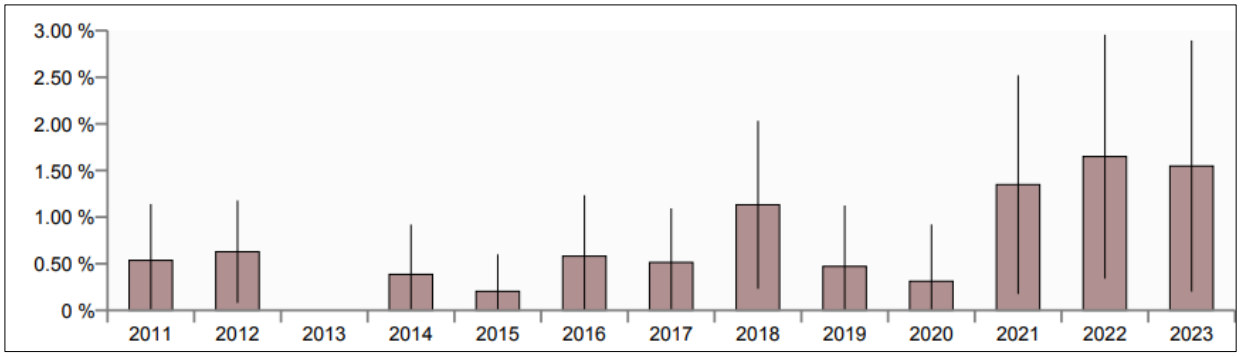

Figure 12: GB incidents of Maedi Visna for quarter 1 as percentage of diagnosable submissions.

Parasitic pneumonia

There was a moderate increase in parasitic pneumonia diagnoses this quarter, with increases in in England and Wales, and Scotland as shown in figure 13.

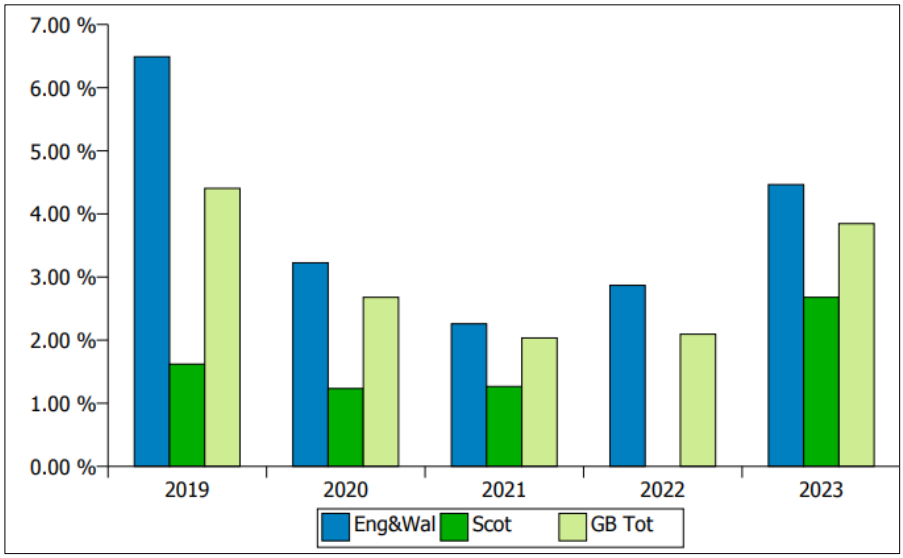

Figure 13: GB incidents of Parasitic Pneumonia in Sheep in quarter 1 as % of diagnosable submissions

Enteric disease

Apart from parasitic gastroenteritis (discussed under Parasitology above) there were no significant increases for Q1 2023. The significant decreases are also discussed above.

Reproductive disease

Fetopathy due to Campylobacter

The number of abortion incidents due to Campylobacter increased from 100 in quarter 1 2022 to 127 this year. Figure 14 shows the significant increase in percentage diagnosed for quarter 1 this year, compared to the equivalent quarters in 2022 and 2021. Increased feeding of root crops, and wetter and muddier conditions, may have contributed. A full analysis of the abortion figures will be done in the next quarter.

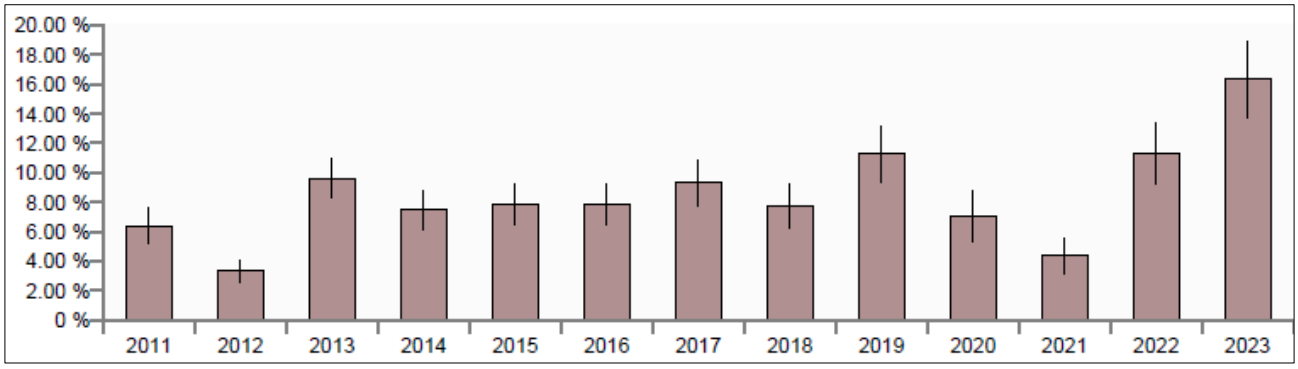

Figure 14: GB incidents of Campylobacter fetopathy in Sheep in quarter 1 as % of diagnosable submissions

Multiple causes of abortion in one flock, including BVD virus

Some abortion outbreak investigations yielded more than one pathogen. Eleven abortions in a group of 164 ewes prompted the submission of six fetuses. *Campylobacter fetus fetus* was isolated from all six, antibodies to *Toxoplasma gondii* were demonstrated in one fetal fluid sample, and surprisingly BVD virus type 1 was demonstrated by PCR in one of the lambs' spleens. In another submission both Border Disease virus and campylobacteriosis were identified.

Urinary disease

No significant trends were identified this Quarter.

Corynebacterium renale causing genito-urinary infection in two separate cases

One ewe in a small flock of 40 showed clinical signs of malaise and purulent vaginal discharge. She died the following day, and a field postmortem examination revealed an enlarged left kidney with a dilated renal pelvis and micro-abscesses throughout the renal tissue. Bacteriology yielded a mixed growth, including *Corynebacterium renale*, and histopathology showed a severe necrotising bacterial infection, likely ascending from the ureter. *C. renale* is a well-recognised cause of genito-urinary infections in ruminants, although cases are more common in cattle than sheep. Cystitis and nephritis most often follow parturition.

A three -year-old Lleyn ewe from a group of 100 was noticed to be thin and lethargic with a haemorrhagic vaginal discharge. It was housed and treated with antibiotics and NSAIDs but, continued to deteriorate and died 48 hours later. The owner suspected an impending abortion outbreak following ingestion of poor-quality silage and submitted the carcase for investigation. The kidneys were enlarged, with pinpoint purulent lesions scattered over the cortex and extending into the parenchyma. The renal pelvises were dilated and filled with red urine and large blood clots. The ureters were also dilated, and the bladder was large and difficult to empty. When pressure was applied a thick bloody discharge and clotted blood trickled slowly from the vulva. Bacteriology detected *Proteus* species and *Corynebacterium renale* group bacteria from both kidney and urine. Histopathology confirmed a severe suppurative pyelonephritis and sufficient damage to cause death through renal insufficiency. Ascending infection was considered the most likely pathogenesis in this case.

Musculoskeletal disease

No significant trends were identified this Quarter.

Nutritional myopathy in a 5-day-old lamb

A 5-day-old Texel lamb was submitted to the Nottingham Postmortem Centre to investigate a period of panting and then found dead. Three other lambs in the group showed similar clinical signs. The following gross changes were recorded:

The heart had severe subacute circumferential subendocardial degeneration, necrosis and mineralisation as shown in figure 15. Severe diffuse subacute congestion and multifocal acute ruptures were present in the liver. There was a marked haemo-abdomen and marked diffuse congestion and oedema of the lungs as shown in Figure 16.

The histopathology of the heart identified a subacute process with degeneration and necrosis of the myocardiocytes, accompanied by dystrophic mineralisation and fibrosis. The changes within the liver and the lung were secondary to the cardiac insufficiency.

Analysis of the liver detected a copper deficiency, while the selenium concentration was within reference range. Myocardial necrosis secondary to copper deficiency has been described in cattle, but not in the sheep.

Testing for vitamin E was not possible on the available samples. The macroscopic and microscopic finding are suggestive of white muscle disease in this case. The significance of the copper deficiency is not clear, and testing of more animals in the group, for trace elements was advised.

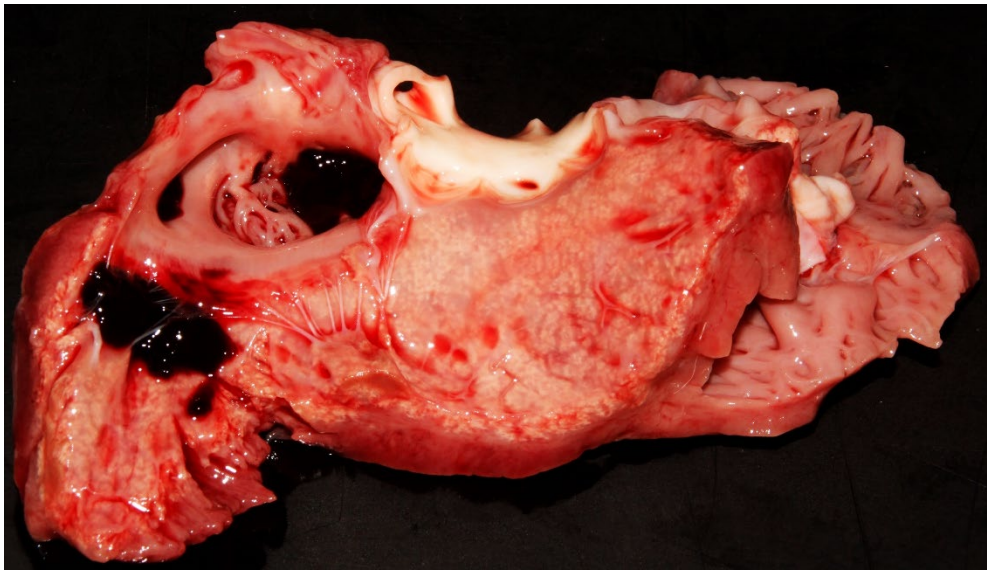

Figure 15: Degeneration, necrosis and mineralisation of the ventricle in a 5-day-old lamb with nutritional myopathy.

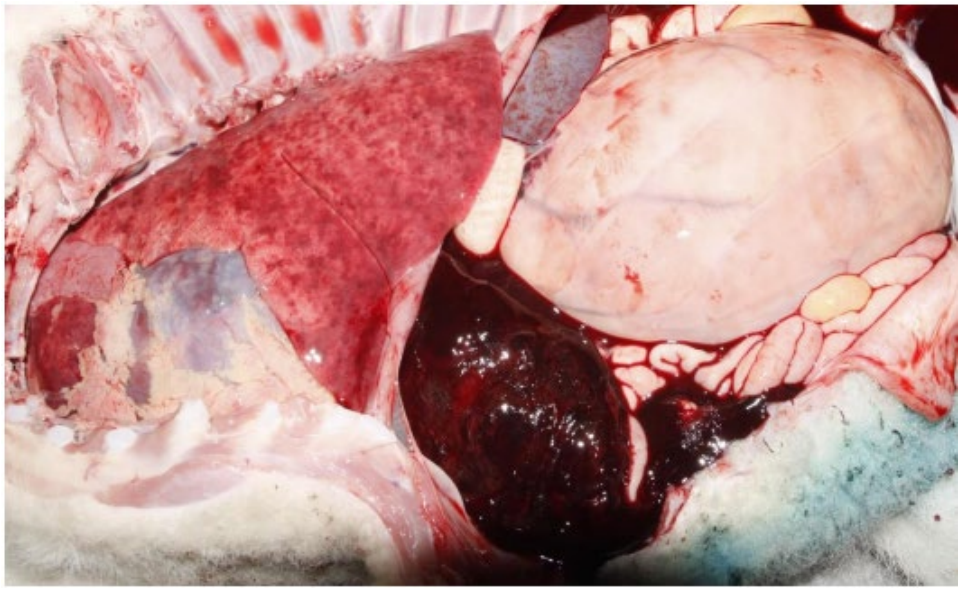

Figure 16: Haemo-abdomen, with congestion and oedema of the lungs in a 5-day-old lamb with nutritional myopathy.

Arthritis due to Streptococcus dysgalactiae subsp. dysgalactiae

Diagnoses of arthritis due to *Streptococcus dysgalactiae* subsp. *dysgalactiae* decreased this quarter with 2 (0.30%) incidents recorded compared to 7 (0.96%) in 2022. This continues the downward trend reported during 2022. APHA recorded the biggest decrease in case numbers, only diagnosing a single case in 2023 compared to 6 in 2022.

E. coli Joint Ill in Neonatal Lambs

Two lambs were submitted to investigate recent forelimb and hindlimb stiffness at two to three days of age, in lambs of a lowland flock. The lambs also had ataxia and blindness in one or both eyes. All lamb navels were dipped at birth with iodine, iodine spray was repeated 24 hours later. All lambs routinely received a long-acting amoxicillin injection at birth to prevent watery mouth. Postmortem findings included multiple joints with arthritic changes including, yellow purulent material, yellow viscous joint fluid, and fibrin. Joints affected included the atlantooccipital joint in both lambs as shown in figure 17. The carpus, elbow, and stifles were also affected. One lamb had hypopyon of one eye as shown in figure 18.

These lambs had infectious polyarthritis or joint ill due to a non-haemolytic *E. coli*. The arthritis of the atlantooccipital joint seen in both lambs likely explained the tetraparesis and ataxia seen. The hypopyon was likely due to the same systemic *E. coli* infection.

The *E. coli* was resistant to ampicillin, tetracycline, and amoxicillin and therefore extremely unlikely to respond to the amoxicillin treatment given at birth. Whole flock prophylactic antibiotic treatment is not recommended to control joint ill, due to increased risk of development of resistance. Reviewing neonatal lamb management and optimising the cleanliness of the lambing environment was advised to reduce sources of infection.

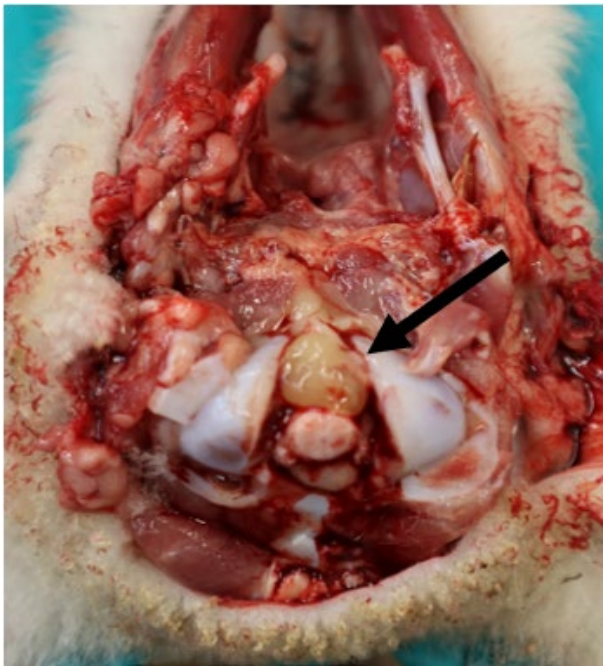

Figure 17: Black arrow pointing to pus in the atlantooccipital joint of a lamb with E coli septicaemia and joint ill.

Figure 18: Hypopyon in two-day-old lamb with E coli septicaemia and joint ill.

Diaphragmatic muscular hypertrophy and rupture

A Texel shearling ewe was submitted to VIC Thirsk after being unexpectedly found dead at the point of lambing. Postmortem examination revealed a partial tear of the diaphragm around the hiatus, with haemorrhage into the abdominal and thoracic cavities. Histopathology revealed generalised muscular hypertrophy of the diaphragm, with discrete foci of necrosis, haemorrhage, and fibroplasia; typical of cases of diaphragmatic rupture and/or haemorrhage in sheep of this breed and its crosses previously described by Waine and Others (2019).

A second case of diaphragmatic rupture was also reported this quarter by Carmarthen VIC. A 7cm diameter tear in the diaphragm, with localised haemorrhage and prolapse of intestines into the pleural cavity, was identified as the cause of death of an adult Beltex ewe.

Both cases reported mild laryngeal chondritis lesions affecting the arytenoid cartilage. This has been proposed as a possible risk factor for this condition, with upper respiratory airway resistance potentially playing a role in lesion development. In the case submitted to Thirsk VIC it was also speculated that increased intra-abdominal pressure from the gravid uterus may have contributed.

WAINE, K., STRUGNELL, B.W., HOWIE, F., SWINSON, V. AND MILLAR, M. (2019), Diaphragmatic lesions and fatal haemorrhage in Texel sheep. The Veterinary Record, Case Report, 7: e000745.

Nervous disease

No significant trends were identified this Quarter.

Poisoning

The most recent chemical food safety report is available on GOV.UK.

APHA chemical food safety reports (livestock) - GOV.UK (www.gov.uk)

Suggested nephrotoxicity resulting from consumption of oxalate-containing plants

Samples were received from a post-lambing ewe that was euthanased after a two-week period of weight loss followed by collapse. In total, four from the group had died, with two more showing clinical signs. A high worm egg count and low selenium were detected, the latter being a common sequalae to gut damage from PGE. Liver histology revealed negative energy balance and kidney changes suggested nephrotoxicity resulting from

consumption of oxalate-containing plants. Acorns are a common source of oxalates (Rahman et al, 2013).

RAHMAN, M.M., ABDULLAH, R.B. AND WAN KHADIJAH, W.E. (2013), A review of oxalate poisoning in domestic animals: tolerance and performance aspects. Journal of Animal Physiology and Animal Nutrition, 97: 605-614.

Pieris sp. toxicity in ewes after straying into a garden

Five ewes from a group of 36 were found to be ataxic and weak, the day after straying into a neighbouring garden. Two became terminally recumbent, with dyspnoea in one, prior to death. Postmortem examination detected haemorrhages within the connective tissues of the neck and on the epicardium, endocardium, and pancreas. The lungs were markedly congested. *Pieris* sp. leaves were found within the rumen confirming plant toxicity as the cause of death. *Pieris* sp. contain grayanotoxins which bind to cell membrane sodium channels in the heart, skeletal muscles and nerves; leading to a state of depolarisation. The toxic dose of plant material in cattle and goats is 0.2-0.6 per cent of body weight (ARC 1980), and there was sufficient leaf material within the rumen to suggest that the ewe had ingested a significant amount. The prognosis for the clinically affected sheep was poor but supportive treatment such as administration of activated charcoal and intravenous fluids was suggested. Monitoring for signs of aspiration pneumonia was also advised.

ARC (1980) The Nutrient Requirements of Ruminants. Commonwealth Agricultural Bureaux. Farnham Royal, UK. pp184-185

Centre of Expertise for Extensively Managed Livestock (COEEML)

The COEEML was developed by APHA to address potential surveillance gaps for extensively managed animals. Extensive management of livestock potentially makes regular or close inspection for disease detection more challenging. The Centre is based at the APHA Veterinary Investigation Centre in Carmarthen; however, it is a Great Britain-wide resource and forms part of the wider veterinary surveillance system operated by APHA. For more details, please see the COEEML pages on the Vet Gateway.

TSE

Surveillance for transmissible spongiform encephalopathies (TSEs) is carried out in the United Kingdom in animals susceptible to the disease. This includes cattle, sheep, and goats. The main aim is to monitor trends in disease incidence and prevalence, to evaluate the effectiveness of TSE disease controls.

There are two categories of surveillance:

Passive surveillance

This is when an animal with clinical signs suspicious of BSE or scrapie is reported to an APHA Office to be investigated. Such cases are slaughtered, and the examination of the brain determines whether the animal was affected by a TSE.

APHA has been recording and analyzing data from reported cases in cattle since the start of the BSE epidemic in 1986, and for scrapie in sheep and goats since this disease became notifiable in 1993.

Active surveillance

The UK carries out active surveillance for TSEs. The UK has:

- tested cattle since July 2001
- tested sheep and goats since January 2002
- conducted a survey in 2007 and 2008 of farmed and wild deer

Updated TSE statistics were published in December 2021

Sheep: TSE surveillance statistics - GOV.UK (www.gov.uk)

Goat: TSE surveillance statistics - GOV.UK (www.gov.uk)

Horizon scanning

Bluetongue (BTV) update

The risk of BTV incursion to the UK in Q1 2023 was low. Animals travelling to or from BTV-affected areas of Europe, and back to the UK, must be vaccinated against both BTV-8 and BTV-4. Further advice on how to spot and report BTV can be found at www.gov.uk/guidance/bluetongue.

Foot and Mouth Disease (FMD) update

In March, these FMD outbreaks were reported: serotype O in Libya (11) and Palestine (one), and serotype SAT 2 in Iraq (seven) South Africa (20) and Türkiye (six). (WOAH data only). There remains a low risk of FMD incursion into the UK from any affected region.

Focus on Brucellosis

During Q1 the PM rooms are busy with abortion submissions, all of which are routinely screened for *Brucella* spp. Brucellosis is a notifiable disease. The UK is officially free of brucellosis (OBF) however, the disease is present in Southern Europe as shown in figure 19, and importation of cattle, risks introduction of the disease. The last outbreak in British cattle was in 2004.

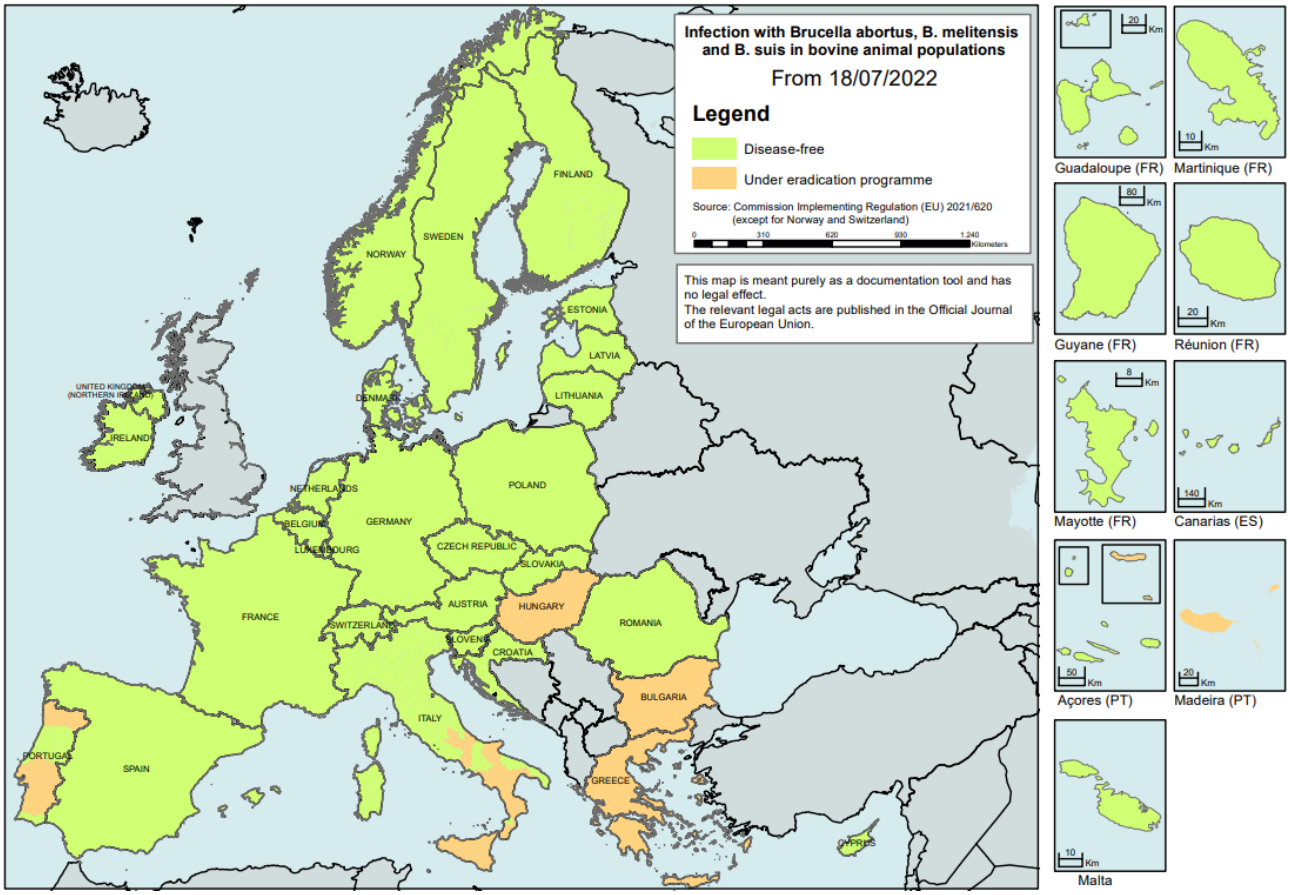

Figure 19: European Commission map showing countries which are under an eradication programme for Brucella abortus, B. melitnesis and B. suis. [*Image from the European Commission (European Commision - Brucellosis Map- 18-07-22)]*

In cattle, the main signs of brucellosis are abortions and premature calf birth.

In sheep and goats, the main signs of brucellosis are:

- abortions in the herd
- swollen udders due to infection of the mammary glands (milk producing organs)
- swollen testicles
- nervousness
- fever

Brucellosis is a zoonotic disease and can spread to humans through contact with infected birth products or vaginal discharge, or from drinking raw milk from infected animals.

Publications

APHA Staff

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Lambs die in dog attack, as cost of worrying rises by 50%.
Farmers Weekly 5th April 2023
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Q fever – a zoonotic disease with underestimated consequences.
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https://www.vettimes.co.uk/article/q-fever-a-zoonotic-disease-with-underestimated-consequences/

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Resistance to extended-spectrum cephalosporins in Escherichia coli and Salmonella enterica isolated from food-producing animals: Ecological study from selected national surveillance programs.
Preventive Veterinary Medicine 206
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https://doi.org/10.1186/s12917-022-03293-6

Statement regarding use of this material

This publication is available at:

https://www.gov.uk/government/collections/animal-disease-surveillance-reports

Any enquiries regarding this publication should be sent to us at SIU@apha.gov.uk

http://apha.defra.gov.uk/vet-gateway/surveillance/index.htm

The Animal and Plant Health Agency (APHA) is an executive agency of the Department for Environment, Food & Rural Affairs, and works on behalf of the Scottish Government and Welsh Government.