Animal & Plant Health Agency

SRUC

Great Britain cattle quarterly report, disease surveillance and emerging threats

Volume 29: Quarter 1 (January – March) 2025

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Introduction and overview

This quarterly report reviews disease trends and threats for the fourth quarter of 2025 (Q1), January to March. It is compiled using data available at the time of writing. 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 Cattle Expert Group 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 https://www.gov.uk/government/publications/information-on-data-analysis

Dairy sector update

Prices: The average Great Britain (GB) farmgate milk price Dairy markets | AHDB in February stood at 45.79 pence per litre up from in 39.19 ppl in February 2024, representing a 16.8% increase year on year. The milk price to feed ratio has been elevated at 1.50 throughout the first two months of 2025, up from 1.20 for the same period next last year, indicating improved profitability. Most milk product wholesale prices are also elevated compared to the same quarter last year with bulk cream averaging 2,626.67£/tonne [+30% year-on-year (y-o-y)], unsalted butter averaging 6,056.67£/tonne (+26% y-o-y), mild cheddar averaging 3,990.00£/tonne (+13% y-o-y) and 2,040.00£/tonne (-4% y-o-y).

Production: GB milk deliveries (Marginal year-on-year increase for GB milk production in June | AHDB) through Q1 remained buoyant, reaching 1.0% up on the same quarter in 2024. January increased by 2.0%, March 2.7% and February by 1.2% when adjusted for annualising versus 2024's leap year. Most recent volume figures for April show a 6.0% year-on-year increase, with volumes remaining elevated into May.

Trade: Total export volume for 2024 was 1.22 million tonnes, a marginal decline of 3,900t (0.3%) from 2023 2024 dairy trade review: growth continues for cheese exports | AHDB. Exports to the EU picked up by 8800t (0.8%) so declines were driven by non-EU nations. Despite this, cheese and curd, whey, yogurt, milk and cream exports grew in 2024. Lower exports of powder by 37,500t (26.7%) and butter by 10,600t (19.5%) dragged down overall exports.

Demand: Dairy demand has been mixed, dependent on category Dairy Retail performance – 22 March 2025 | AHDB . During the 52 weeks ending 22 March 2025, volumes of cow's dairy declined by 0.5% year-on-year. Spend on cow's dairy grew 2.0% year-on-year, driven by growth in average prices of 2.5%. Lamb sector Prices: GB deadweight lamb prices have moved sideways, against seasonal norms,

Beef sector update

Prices: GB deadweight prime prices GB deadweight cattle prices | AHDB rose significantly week-on-week throughout Q1 of 2025. The all-prime average reached 679p/kg in the week ending 29 March, representing a +191pence per kg increase on the year and a 253p/kg rise on the 5-year average. Cull cow prices have also shown similar growth; the -O4L cow price reached 526p/kg in the same week. The drivers of these exceptionally strong prices are located primarily on the supply side, as herd declines through the northern hemisphere impact on the number of prime cattle available for beef production.

Production: Beef production in the first quarter of 2025 was 3.4% below Q1 levels last year, totalling 225,000 tonnes. This has been primarily driven by a reduction in throughput, with prime cattle slaughter from Jan-March down 2.5% on the year, and cow slaughter down 4.3%. UK average prime cattle carcase weights have also been slightly down throughout the initial months of 2025 (-1%), potentially as the high beef prices brought more cattle forwards.

Trade: Beef imports for the first 2 months of 2025 totalled approximately 47,000 tonnes, 13% lower in volume compared to the same period last year Beef and lamb February trade update: Value of beef exports rise in line with growing UK beef price as volumes ease | AHDB . This reduction in volumes has primarily come from Ireland, with Irish imports down 16% (6,000 tonnes) on the year. Beef exports for Jan to Feb are down 12% on the year to 20,600 tonnes, however values are up 12% to £110 million, reflecting the exceptionally strong GB beef prices.

Demand: For the 12-week period to the 23 March total consumer spend on beef at retail was up 4.4% whilst volumes fell 0.8% Red meat retail performance - 23 March 2025 | AHDB. Despite the increase in average price of beef; mince, diced beef and steaks all saw growth during this period.

Acknowledgment for the dairy and beef updates: Grace Bolton AHDB.

Bluetongue serotype 3 (BTV-3) update

The first case of the 2024-2025 vector season was confirmed in a ram in Norfolk on 26 August 2024. The affected animal presented with inappetence, ulcers in the mouth, mild crusting around the nostrils, and lameness in one leg. The total number of confirmed cases in GB by the end of March for the season, was 256. Images of the clinical signs can be found here: Clinical signs of bluetongue | AHDB

Different disease presentations for BTV-3 in cattle began to be detected from mid-January 2025 in herds from which calves were submitted to APHA Bury St Edmunds. These disease presentations are described below.

‘Dummy’ calves infected in utero with BTV-3

Bury St Edmunds received several submissions from suckler herds between January and March for investigation of abortions, stillbirths, and weak-born calves. ‘Dummy calves’, characterised by an inability to stand and/or suck, blindness, listlessness, and stargazing, were commonly described. Bluetongue virus (BTV) status of the herd varied, with some holdings already confirmed as BTV-3 positive premises, and others with no apparent prior clinical signs. Some herds experienced a combination of fertility issues; with poor scanning rates (likely to be due to both reduced bull fertility and early gestational loss), fetopathy, and poor-doing calves described.

Several neonatal calves were submitted. Gross examination of the brains identified porencephaly or hydranencephaly in seven calves, generally with preservation of the cerebellum, and consistent with in-utero infection with BTV (Figures 1 and 2). This type of gross pathology was seen during the BTV-8 outbreak. Based on clinical suspicion, and location of the farm within the restricted zone, they were reported to APHA field services. PCR testing was undertaken, and statutory samples were PCR positive for BTV-3 in all seven calves. Tests for Schmallenberg virus (SBV) and pestiviruses (including Bovine Viral Diarrhoea virus (BVDV)), as other potential causes of porencephaly or hydranencephaly, were all negative.

BTV can cause resorption in early pregnancy, hydranencephaly ‘dummy’ live-born calves when infected in mid-pregnancy, or mildly affected calves with meningoencephalitis to clinically normal calves when infected in late gestation (Maclachlan and Osburn 2017). ‘Dummy’ calves in particular present a welfare concern, as the lack of cerebral cortices results in a lack of cognition and special senses. A seven-day-old calf presented with a corneal ulcer, assumedly from injury as it was blind. Difficulty sucking in the first 24 hours of life, resulting in failure of passive transfer if unaided, also leads to early infections such as pneumonia, seen in another calf examined. Brain lesions were variable from milder cavitation to almost complete loss of cerebral tissue, therefore, some affected calves may be reared with appropriate extra management but likely not beyond calfhood. They should be regularly assessed to ensure good welfare is maintained. Stargazing appears to be an indicator of more severely affected calves, for which euthanasia should be strongly considered.

A few of the suckler herds were severely impacted. Retrospective interviews with the farmers revealed that in the most severely affected herds, less that 50 percent of the breeding females had produced a viable calf by the end of the spring calving season.

Bluetongue virus is a notifiable disease. Suspicion of bluetongue virus in animals must be reported to the Animal and Plant Health Agency on 03000 200 301 in England, on 03003 038 268 in Wales, and to the local Field Services Office in Scotland. Further guidance and information are available on the Ruminant Health & Welfare site, Bluetongue: information and guidance for livestock keepers (GOV.UK) and on Bluetongue: how to spot and report it (GOV.UK).

Figure 1: severe hydranencephaly in a calf infected in utero with BTV-3. The cerebral hemispheres are reduced to thin, fluid-filled membranes which collapse on sectioning of the skull, whereas the thalamus, midbrain, and cerebellum are well-preserved

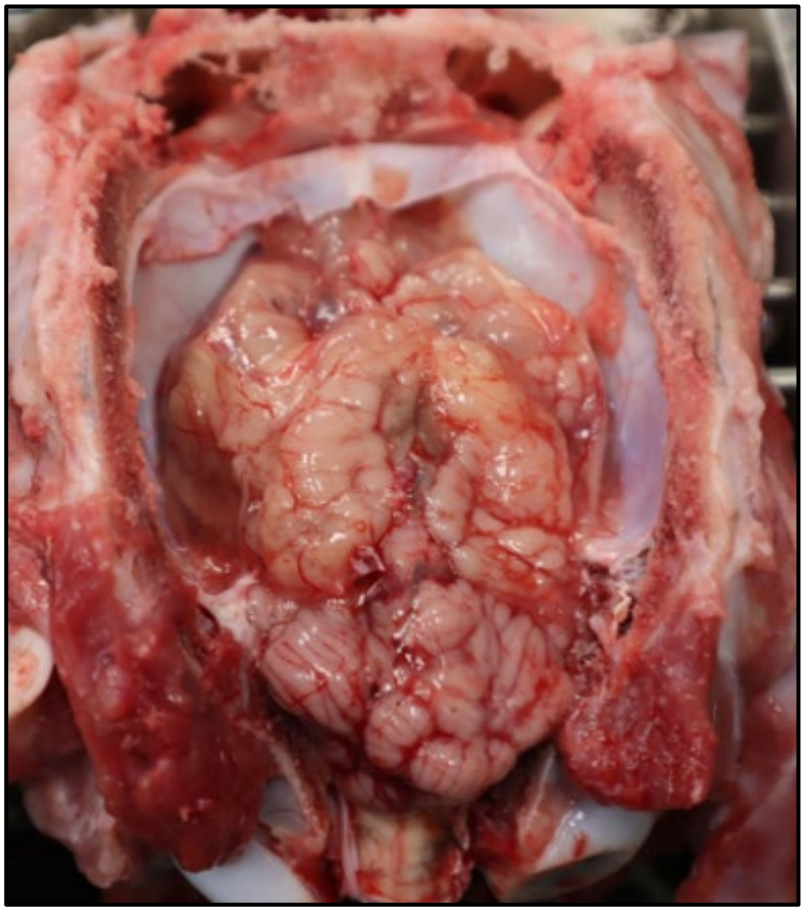

Figure 2: a milder case of porencephaly in a BTV-3 positive calf infected in-utero

Cattle disease surveillance dashboard outputs

The most frequent diagnoses from carcase submissions made in Q1 of 2025, compared to Q1 in 2024, and Q1 for 2015 to 2024 inclusive, through the Great Britain (England, Wales, and Scotland) scanning surveillance network, are illustrated in Table 1. These can be interrogated further using the interactive cattle disease surveillance dashboard which was launched in October 2017.

Table 1: Great Britain scanning surveillance 10 most frequent carcase submission diagnoses in Q1 of 2025, Q1 of 2024, and Q1 for 2015-2025

10 most frequent carcase diagnoses Q1 2025	10 most frequent carcase diagnoses Q1 2024	10 most frequent carcase diagnoses Q1 2015-2025
1. Pneumonia due to *Pasteurella multocida*	1. Pneumonia due to *Mycoplasma bovis*	1. Pneumonia due to *Mycoplasma bovis*
2. Pneumonia due to *Mycoplasma bovis*	2. Pneumonia due to *Pasteurella multocida*	2. Cryptosporidiosis
3. Cryptosporidiosis	3. Pneumonia due to *Mannheimia haemolytica*	3. Pneumonia due to *Pasteurella multocida*
4. Pneumonia due to *Mannheimia haemolytica*	4. Cryptosporidiosis	4. Pneumonia due to *Mannheimia haemolytica*
5. Pneumonia – not otherwise specified	5. Pneumonia due to BRSV	5. Pneumonia – not otherwise specified
6. Pneumonia due to BRSV	6. Pneumonia due to *Histophilus somni*	6. Hypogammaglobulinaemia
7. Rotaviral enteritis	7. Rotaviral enteritis	7. Pneumonia due to BRSV
8. Colisepticaemia	8. Pneumonia – not otherwise specified	8. Digestive disease due to other causes (not listed)
9. Pneumonia due to *Histophilus somni*	9. Colisepticaemia	9. Rotaviral enteritis
10. Digestive disease due to other causes (not listed)	10. Navel ill +/- joint ill	10. Colisepticaemia

As for 2024, the ‘pneumonia not otherwise specified’ cases included embolic pneumonia associated with udder cleft dermatitis. Two cows from a large dairy herd, that were milking

1750 cows, were euthanised and submitted to investigate acute illness affecting five cows in total, of which two had died. Affected cows have been of varying ages and at different stages of lactation. All had a history of going off their feed, and having exhibited milk drop, high temperatures, and panting, with no response to antibiotic and anti-inflammatory treatment. At postmortem examination (PME), both cows had striking pathology within the thoracic cavities, with one cow having a severe pleuropneumonia with abscessation (Figure 3), and the other having consolidated lung tissue with necrotic areas, and a severe pericarditis. The distribution of lung lesions was suggestive of embolic spread of infection. Both cows also had udder skin lesions consistent with udder cleft dermatitis (UCD) (Figure 4), and it is likely that these lesions were the original foci of infection leading to the haematogenous spread of bacteria to the lungs.

Embolic pneumonia secondary to UCD has been reported in the literature (Millar et al. 2017, Turner et al. 2017). The causes of UCD are not well understood, but individual risk factors include breed, udder forequarter size, udder conformation, and increasing parity. It is recommended that prompt topical, and sometimes systemic, treatment is instituted for UCD lesions at an early stage in disease. An investigation into udder cleft dermatitis cases at a herd level was advised.

References:

Millar, M., Foster, A., Bradshaw, J., Turner, A., Blowey, R., Evans, N. and Hateley, G. (2017), Embolic pneumonia in adult dairy cattle associated with udder cleft dermatitis. Veterinary Record, 180: 205-206. https://doi.org/10.1136/vr.j954

Turner, A., Wood, S. and Millar, M. (2017), Two cases of embolic pneumonia associated with udder cleft dermatitis in dairy cattle from the same farm. Vet Rec Case Rep, 5: e000453. https://doi.org/10.1136/vetreccr-2017-000453

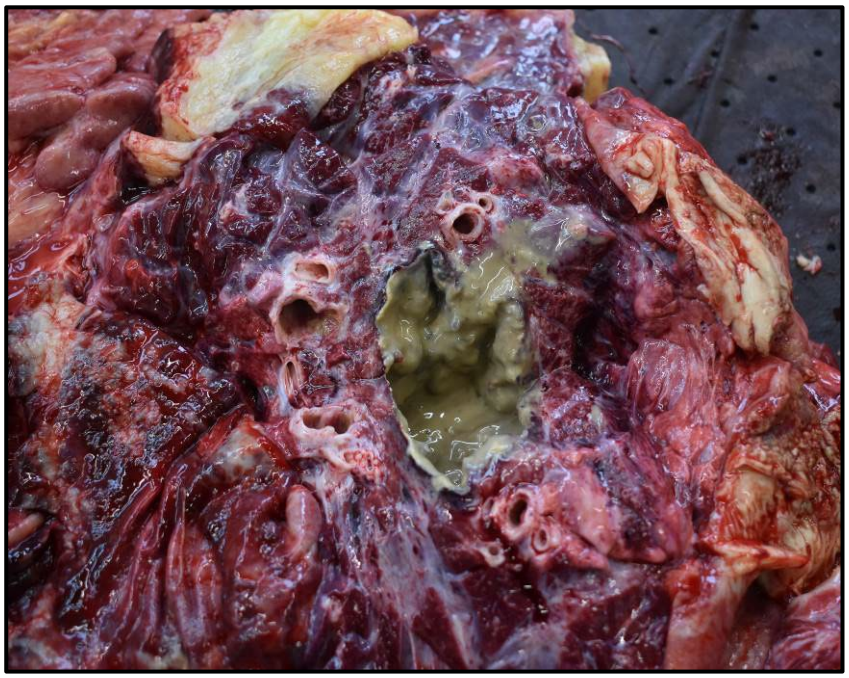

Figure 3: lung consolidation and abscessation in a cow with embolic pneumonia

Figure 4: healing skin lesions in a cow with udder cleft dermatitis

New and re-emerging diseases and threats

Changes in disease patterns and unusual diagnoses

Systemic disease

Malignant catarrhal fever in a first lactation cow

An adult cow was submitted for postmortem examination having died after a five-day period of illness, which included having pyrexia and ulcerative mouth lesions. Since vesicular disease could not initially be ruled out, suspicion of BTV and FMD had been reported to APHA field services prior to submission. Suspicion of both was negated on official testing.

Gross post-mortem examination found ulcerative lesions of the oral cavity (shown in Figure 5), hard palate, laryngeal mucosa, teats and vulva. Systemic disease was indicated by increased pericardial fluid with fibrin, and changes surrounding the brain. Histopathology confirmed ulcerative, necrotising inflammation with presumed vasculitis of the examined skin sections, and renal vasculitis, and was consistent with malignant catarrhal fever (MCF), caused by infection with ovine herpesvirus 2 (OvHV-2). Positive OvHV-2 PCR results were obtained confirming MCF as the cause of illness and death in this cow.

Figure 5: an ulcerated lower lip with a grey-cream plaque-like coating due to MCF

Grass tetany in suckler cows

Four cows from a group of 21 sucklers at grass died over one week in January. All had calved in October and were grazed since with no supplementary feed. One was seen thrashing prior to death, and the submitted cow had muscle fasciculation and tremoring, exhibited circling behaviour, and appeared distressed with froth at the mouth. Following discussion with a VIO, samples of blood, aqueous and vitreous humour were obtained by the private vet within hours of death, and the carcase and samples were submitted the next day to Bury St Edmunds VIC. Gross postmortem findings were unremarkable and potential causes of neurological disease were investigated. Serum magnesium was measured at 0.5mmol/l, consistent with clinical hypomagnesaemia (<0.7mmol/l) and the cause of neurological signs in this cow. Histopathology of the brain was unremarkable and other differential diagnoses such as ketosis, lead poisoning, and listeriosis were excluded on testing. Grass tetany in suckler cows is most common in spring calving herds, predisposed by inadequate magnesium in fast growing grass and demands of lactation, however, the condition can be seen any time of the year, and in housed cattle fed a magnesium deficient ration.

Digestive system disease

Yersiniosis cases update

Yersiniosis cases were reported in Q4 2024 and continued to be detected in Q1 2025. Both Shrewsbury and Starcross Veterinary Investigation Centres diagnosed the condition, with both beef and dairy cattle affected. Pathology was typical of this disease, with small intestinal mucosal thickening and in one case, presence of a creamy mucoid exudate. In the case of the early-lactation heifer submitted to Shrewsbury VIC, 50% of the group were displaying diarrhoea and three deaths had been reported. In addition to changes to the

small intestines, there was evidence of subsequent peritonitis and *Yersinia pseudotuberculosis* was isolated from liver, spleen and intestinal content, with septicaemic spread additionally confirmed by histopathology. The fungal abomasitis which was present raised the suspicion of an underlying immunosuppression, which is likely to have increased the susceptibility to yersiniosis.

Neonatal calf diarrhoea due to cryptosporidiosis and rotavirus

Two beef-cross artificially reared calves aged 14- and 17-days-old were submitted to investigate ongoing issues with neonatal calf scours on a dairy farm. Four calves were scouring from a group of seven, and two had died. Calves were initially managed in individual pens and fed dam's colostrum and transition milk for the first five days. They were then gradually moved onto milk replacer and, once moved into group pens, were fed via an automatic feeding machine. Dams were vaccinated against *Cryptosporidium parvum* during pregnancy. At PME, both calves were in fair condition, with diarrhoea and evidence of dehydration. *Cryptosporidium* spp. (likely to be *C. parvum*) was detected from both, as well as from two faeces samples submitted from other calves in the group. Rotavirus was also detected from one calf and the two additional faeces samples. The graph in Figure 6 shows that the diagnosis of cryptosporidiosis in Q1, as a percentage of diagnosable submissions has increased since 2018, with Q1 2025 being the highest.

Control of calf scours centres on ensuring adequate intake of high-quality colostrum, good hygiene of calf housing and feeding equipment, and isolation of affected calves to reduce infectious load in the environment. Vaccination of dams can also be used to aid in control of several enteric pathogens (rotavirus, coronavirus, K99+ *E. coli* and, more recently, *Cryptospordium* spp.). However, since these vaccines aim to reduce clinical signs by enhancing passive immunity, rather than by preventing infection or faecal shedding, they must be used as part of an integrated control protocol focusing on excellent hygiene and colostrum provision.

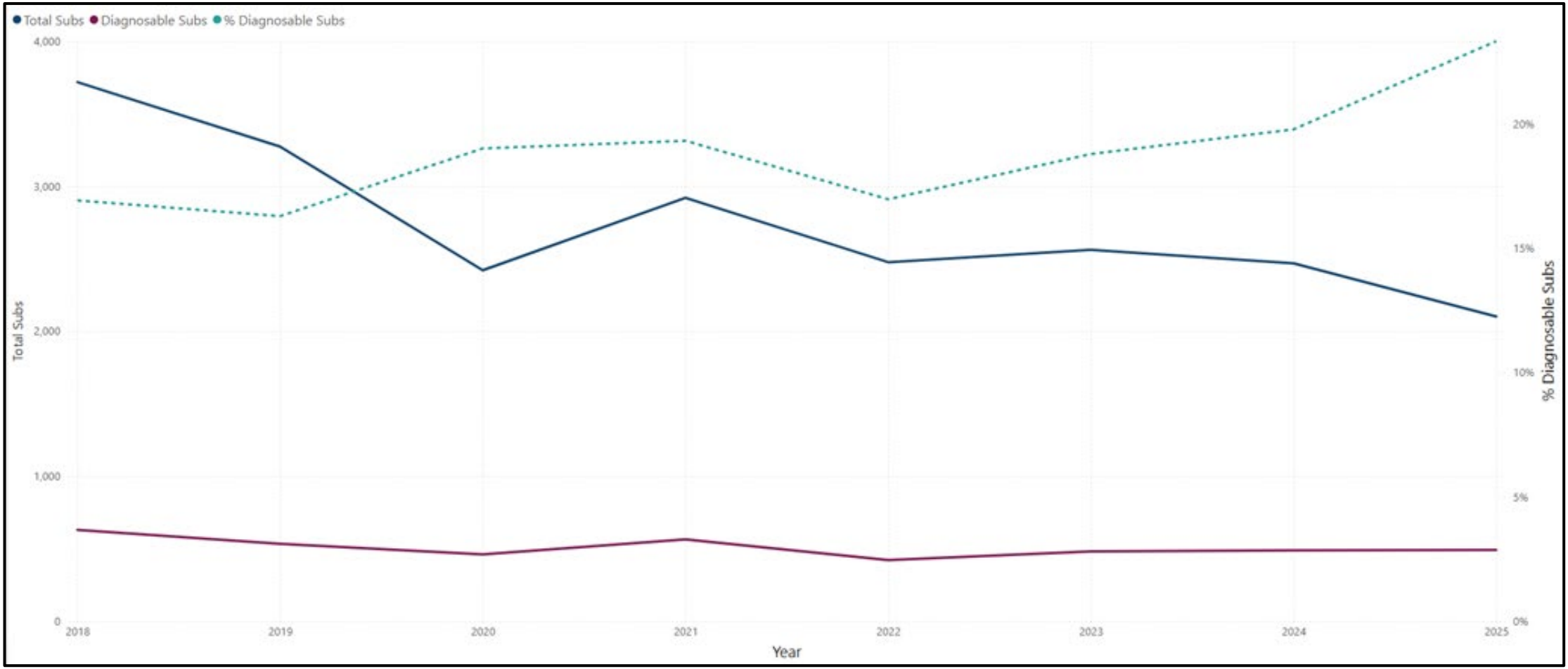

Figure 6: Cryptosporidiosis as percentage of diagnosable submissions for 2018 to 2025 is shown in the graph above, with an increase from 17% in 2018, to 22% in 2025

Calves with digestive disorders and concurrent disease manifestations

Digestive problems in young calves can be the cause of death *per se*, and additionally they can be a 'trigger' to other disease manifestations. There were examples in recent cases investigated at Shrewsbury Veterinary Investigation Centre. Three calves were examined postmortem from a rearing unit where 30 of 140 were reported to be poorly-thriven. The rumen contents of each calf consisted of brown short fibre, and the rumen liquor pH ranged from 5.0 to 5.4. In addition to having acidic contents, and variably marked rumen mucosal thickening, one of the calves had a severe chronic caseo-suppurative pneumonia; *Mycoplasma bovis* infection was confirmed. Another calf had ulcerative and necrotic lesions of the larynx, in addition to myocarditis and pericarditis; *Histophilus somni* was isolated from the heart lesions. Investigation of calf mortality in a dairy herd involved postmortem examinations of two very well grown calves of 74 and 88kg, which were about to be weaned. A marked fibrinous pleuropneumonia (Figure 7), pericarditis and peritonitis were identified in both, and *Mannheimia haemolytica* infection was confirmed by bacteriology. The pH of the rumen contents, which were lacking fibre, was 5.0 and 5.5. The introduction of chopped straw at an earlier age was going to be implemented to try to reduce the chances of recurrence. On a third farm a seven-month-old fattening calf was found dead unexpectedly, while three others in a group of 360 homebred Stabilisers were unwell. The rumen was distended with gas and much moist cereal content, having a liquor pH of 4.6. In addition, a very large blood clot weighing approximately 7kg was found within the mediastinum, close to the heart and larger vessels. The postmortem findings indicated death due to vascular rupture associated with rumen acidosis, and a review of the composition of the diet and its feeding was recommended.

Good dietary management from birth, through weaning, and in ruminating calves, is undoubtedly key to ensuring optimal weight gain in young animals and to help reduce the susceptibility to other diseases. Advice on feeding and managing calves is available at https://ahdb.org.uk/knowledge-library/calf-management .

Figure 7: Fibrinous pleuropneumonia in a dairy calf with concurrent ruminal acidosis

Enteritis and pneumonia caused by acute BVD in a suckler calf

A six-month-old suckler calf died despite supportive treatment after a four-day illness charactered by anorexia, sunken eyes, and passing blood from the anus. Another calf had died two weeks previously after showing similar clinical signs in a housed group of 15 cows with 15 calves at foot. No vaccines were used. The significant PME findings included ulceration of the tongue and mucosa of the oesophagus (Figure 8), abomasum, and small intestine and haemorrhagic content in the distal gastrointestinal tract.

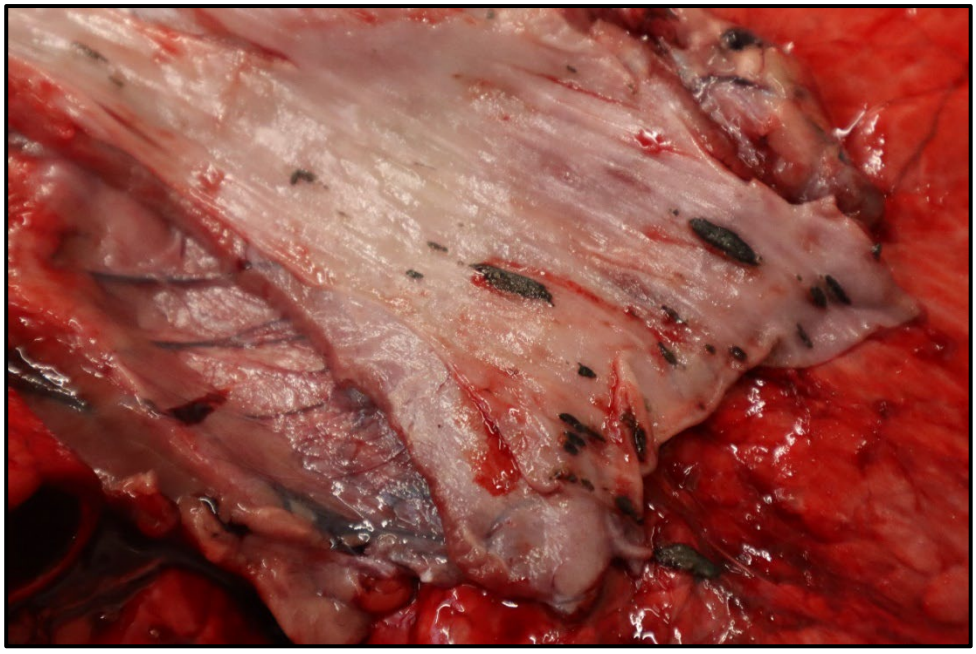

Figure 8: Linear oesophageal ulcers in a calf with acute BVDV infection

PCR testing of spleen was positive for BVD Type1. Brain immunohistochemistry demonstrated labelling for BVDV antigen limited to capillary endothelium suggesting acute, transient BVDV infection, rather than persistent infection. In PI animals, labelling for BVDV antigen within neurons would normally be expected. Fatal cases of acute BVD may closely resemble mucosal disease at post-mortem. Further herd-level investigation into BVD was recommended.

Respiratory system

BRSV and *Mycoplasma* pneumonia in a steer

Two sudden deaths in a group of 40 housed youngstock aged 10-20 months were described on a beef suckler farm, one week apart. A third calf examined by the private vet, which had lethargy, pyrexia, nasal discharge, and harsh lung sounds was treated for pneumonia with some clinical improvement. Mild nasal discharge and coughing were

noted in the remainder of the group. The submitted steer, found dead the next day, was one of a group of 20 purchased from market four weeks earlier. Vaccinal history was unknown, and it had not been treated, with no clinical signs noted prior to death.

Multiple erosions were noted in both nostrils and both lungs were purple with bilateral cranioventral consolidation. There was a 20cm diameter bulla in the right caudal lobe, suggestive of infection by bovine respiratory syncytial virus (BRSV), which was subsequently detected by PCR. *Mycoplasma bovis, Mycoplasma dispar,* and *Ureaplasma diversum* were also detected in the lungs by PCR. Detection of *Mycoplasma bovis* is clinically significant, whereas the role of *M. dispar* in respiratory disease is unclear and *U. diversum* is not thought to be clinically significant when isolated from lung tissue. No significant bacterial pathogens were cultured from the lungs and no underlying BVDV was detected in the spleen.

The most detected *Mycoplasma* spp in cattle are *Mycoplasma bovis*, *Mycoplasma dispar*, and *Mycoplasma alkalescens*. The significance of mollicutes other than *M. bovis*, such as M. dispar, is uncertain, and the APHA Mycoplasma team and the Cattle Expert Group are continuing to investigate their likely significance.

Infectious bovine rhinotracheitis (IBR) gE bulk milk serology

Tables 2 and 3 show the proportion of National Milk Records (NMR) bulk milk samples testing positive for IBR gE antibody (used for herds vaccinating with a gE deleted IBR vaccine), by ELISA, by country and NUTS region respectively. This data is kindly provided under agreement from National Milk Records (NMR) to support the collection of disease surveillance information across GB. NMR provide milk and blood serology testing for endemic disease in cattle. Testing is carried out primarily at the request of vets. Most of the samples tested will be routine quarterly surveillance (‘monitoring’) and a few may be part of a clinical disease investigation (‘diagnostic’) but these are not differentiated in Tables 2 and 3. The values indicate a high level of, and widespread, IBR exposure in England, Scotland, and Wales. In line with agreed APHA reporting, the number of samples tested is not shown. For further information on this data please contact vetenquiries@nmrp.com.

Notes about the tables:
1. Where blank (‘ ‘), no samples were tested.
2. Where ‘0%’, samples were tested but there were no positive results.
3. In some cases, samples are not geo-referenced. They are included in the GB total only and as such the percentage positive by country may not equate to the GB percentage positive.

Table 2: Proportion (%) of bulk milk samples testing positive for IBRgE antibody by ELISA, by country and quarter 2023 to 2025* (*to date)

Year	2023				2023	2024				2024	2025
Quarter	Q1	Q2	Q3	Q4	Q1-Q4	Q1	Q2	Q3	Q4	Q1-Q4	Q1
GB	73.3%	74.5%	83.9%	81.9%	78.2%	74.9%	52.6%	63.0%	71.7%	65.4%	60.0%
England	73.2%	73.1%	84.5%	81.5%	77.9%	74.5%	52.3%	62.1%	70.4%	64.7%	59.0%
Scotland	100.0%	94.4%	88.2%	94.7%	94.4%	100.0%	89.5%	80.0%	87.5%	89.4%	73.7%
Wales	70.1%	83.9%	77.4%	83.0%	77.9%	73.5%	46.3%	67.6%	80.8%	67.0%	66.7%

Table 3: Proportion (%) of bulk milk samples testing positive for IBRgE antibody by ELISA in England by NUTS region and quarter 2023 to 2025* (*to date)*

Year	2023				2023	2024				2024	2025
Quarter	Q1	Q2	Q3	Q4	Q1-Q4	Q1	Q2	Q3	Q4	Q1-Q4	Q1
East Midlands	72.8%	66.2%	89.0%	77.5%	76.3%	75.0%	54.7%	60.3%	74.3%	66.0%	64.5%
East of England	40.0%	33.3%	61.5%	50.0%	46.2%	60.0%	16.7%	10.0%	33.3%	29.5%	41.7%
North East	100%	100%	100%	100%	100%	100%	100%		0%	71.4%	100%
North West	73.1%	71.1%	83.4%	83.6%	77.8%	74.9%	58.1%	64.6%	73.9%	67.8%	63.0%
South East	55.6%	70.8%	61.1%	70.8%	64.5%	68.4%	38.9%	35.7%	64.0%	53.9%	30.0%
South West	73.1%	71.6%	83.0%	80.8%	77.0%	71.0%	45.0%	60.2%	65.9%	60.4%	53.4%

West Midlands	75.8 %	81.4 %	89.9 %	84.2 %	82.4 %	78.0 %	57.0 %	66.9 %	75.9 %	69.4 %	62.8 %
Yorks and Humber	95.5 %	84.0 %	94.1 %	90.9 %	90.7 %	95.7 %	74.1 %	76.2 %	85.7 %	82.6 %	73.1 %

Acknowledgements for the IBR data: Eamon Watson MRCVS, NMR Product Manager and Karen Bond MRCVS, NMR Veterinary Team Lead

Musculoskeletal system

No significant trends this quarter.

Urinary system

No significant trends this quarter.

Nervous system and organs of special sense

Cerebrocortical necrosis (CCN) in dairy calves

Four Aberdeen Angus cross dairy calves presented with nystagmus, head pressing and opisthotonos. Veterinary assistance was sought for the third and fourth cases, which were treated with vitamin B12, corticosteroids and antibiotics. One died later the same day, and the other failed to improve and was euthanased 24 hours after the onset of clinical signs.

Both carcases were submitted for postmortem examination, which detected an area of abomasal ulceration in the first and localised lung microabscessation in the second. These were considered incidental findings. Rumen pH results of 6.4 and 6.1 ruled out acidosis as a contributing factor. Cerebrocortical necrosis (CCN) was suspected; both brains fluoresced under ultraviolet light and histopathology findings of laminar polioencephalomalacia confirmed the diagnosis. The group comprised four-to-five-month-old calves on a diet of calf nuts and hay. No obvious predisposing factors for CCN were apparent in the history suggesting that a more detailed investigation was required to identify any underlying issues.

Skin disease

Skin nodules in an adult dairy cow

An adult dairy cow presented with milk drop, reduced ruminal activity, dehydration and multifocal skin lumps over the body and neck, some of which were hairless. Notifiable

Lumpy Skin Disease could not be ruled out by the private vet and suspicion was raised to APHA field services however was negated based on the clinical history. A lump was removed via biopsy and submitted to APHA for histological review. Histological findings were consistent with a diagnosis of epitheliotropic lymphoma. Cutaneous lymphoma in cattle can be associated with underlying Enzootic Bovine Leukosis Virus, also a notifiable disease and the case was discussed with APHA field services who again ruled out disease on clinical grounds. A review of nodular skin disease in cattle can be found here: Nodular skin disease in cattle

Circulatory disease

No significant trends this quarter.

Reproductive system – abortion, stillbirth, and congenital deformities

The most frequent diagnoses from abortion and stillbirth submissions made in the first quarter (Q1) of 2025, compared to Q1 in 2024, and Q1 for 2015 to 2025 inclusive, through the Great Britain (England, Wales, and Scotland) scanning surveillance network, are illustrated in Table 4. These can be interrogated further using the interactive cattle disease surveillance dashboard which was launched in October 2017.

Table 4: Great Britain scanning surveillance 10 most frequent abortion and stillbirth submission diagnoses in Q1 of 2025, Q1 of 2024, and Q1 for 2015-2025

10 most frequent abortion diagnoses Q1 2025	10 most frequent abortion diagnoses Q1 2024	10 most frequent abortion diagnoses Q1 2015-2025
1. Fetopathy due to *Trueperella pyogenes*	1. Fetopathy due to *Trueperella pyogenes*	1. Fetopathy diagnosis not listed
2. Fetopathy diagnosis not listed	2. Fetopathy or stillbirth due to Schmallenberg virus	2. Fetopathy due to *Trueperella pyogenes*
3. Fetopathy due to *Bacillus licheniformis*	3. Fetopathy due to fungi	3. Fetopathy due to *Bacillus licheniformis*
4. Fetopathy due to fungi	4. Fetopathy or stillbirth due to congenital abnormality	4. Fetopathy due to *Neospora* infection
5. Fetopathy due to *Neospora* infection	5. Fetopathy due to *Bacillus licheniformis*	5. Fetopathy due to fungi

6. Fetopathy due to *Listeria* sp	6. Fetopathy due to *Neospora* infection	6. Fetopathy due to *Listeria*
7. Fetopathy or stillbirth due to congenital abnormality	7. Fetopathy due to *Listeria*	7. Fetopathy or stillbirth due to congenital abnormality
8. Fetopathy due to IBR/IPV	8. Fetopathy diagnosis not listed	8. Fetopathy due to *Salmonella* Dublin
9. Fetopathy due to *Salmonella* Dublin	9.Fetopathy due to *Salmonella* Dublin	9. Fetopathy with BVD detected in the fetus
10. Fetopathy or stillbirth due to Schmallenberg virus	10. Fetopathy due to *E. coli*	10. Fetopathy due to *E. coli*

Abortion linked to mouldy bedding or feed

Bovine abortions due to infections by fungi and *Bacillus licheniformis* were reported by several Veterinary Investigation Centres (VIC) during this quarter. Abortion linked to mouldy bedding or feed was a common diagnosis over the winter housing period. Mycotic abortions are often sporadic and opportunistic however small outbreaks can occur when widespread feed spoilage is present. Submission of placenta in these cases is often key in confirming the diagnosis. In one case, five abortions had been recently experienced in the group of 20 suckler cows. The placenta was coated in cream-coloured deposits over both the cotyledons and intercotyledonary tissue, and a small number of cream-coloured circumscribed plaques were also present. Examination of the fetus, and cultures and fungal microscopy of foetal stomach content were unremarkable. However, histopathology identified a mycotic placentitis. In another similar case, a calf was submitted after being born ten days early and dying shortly after birth. This group of 100 cows had also experienced six abortions and another premature calving. Again, the submitted placenta appeared grossly abnormal with thickening and lichenification of the intercotyledonary tissue which was coated in a cream-coloured purulent exudate. Similarly, tissue cultures from the calf were unremarkable however placental culture identified *Aspergillus fumigatus* in purity and placental histopathology confirmed mycotic placentitis.

Bovine abortions due to fungal, and *Bacillus licheniformis* infections

At Shrewsbury VIC, a fetus and placenta were examined to investigate two abortions within the previous 12 days. Spoilt feed was reportedly sorted and not fed. However, there was marked thickening and distinct plaques on much of the intercotyledonary areas of the placenta, and multiple raised pale lichenified lesions on the fetus skin, particularly noticeable over the head (Figure 9). *Aspergillus fumigatus* was isolated from the stomach contents, on selective media, confirming mycotic infection.

Investigation in Carmarthen of a sporadic abortion in a suckler herd of 30 cows similarly identified marked thickening and inflammation of the placenta, and in this case, histopathology revealed severe necrotising fibrinosuppurative placentitis, with vasculitis and intralesional fungal hyphae. An abortion at five months gestational age in a dairy herd of 70 was also examined, and again intercotyledonary leathery grey thickening of the placenta was evident. *Bacillus licheniformis* was isolated from the calf's stomach content with histopathology supporting this to be the cause.

Fungi, *Bacillus licheniformis* and *Listeria monocytogenes* are widespread in the environment and are potential contaminants of stored feeds. Infection is often associated with the feeding of poor-quality forage, although feeds such as brewer's grains and other straights may become contaminated. Such poorer quality feeds could be fed to other animals on farms if there is no alternative food source, but pregnant animals should be fed good quality forage and other feeds, if available, to reduce the risk of further disease.

Abortions are a significant economic loss, and although sporadic occurrences in breeding cattle are inevitable, if the prevalence of abortions increases, diagnostic testing should be encouraged. The action level for investigation will vary depending on the herd type and calving pattern. The reporting of all abortions to the Animal and Plant Health Agency, and the isolation of the affected cow, the aborted calf and its placenta, is a requirement of The Brucellosis Order (England) 2015 and equivalent legislation in Wales and Scotland.

Figure 9: Multiple pale lichenified lesions on the skin of a bovine fetus aborted due to a fungal infection

A selection of abortion cases investigated by SRUC-VS

A pedigree beef herd with 20 Aberdeen Angus cows experienced a series of four abortions between two and eight months of gestation. The herd used natural service, bred its own replacements and was BVD vaccinated. Two fetuses were examined with no evidence of infectious disease on initial investigation. Histopathology revealed multifocal necrotising

hepatitis in both plus necrotising placentitis with vasculitis in one. Subsequent PCR testing of stored fetal liver proved positive for bovine herpesvirus 1 (BoHV-1) with Ct values of 17.46 and 11.2 confirming a diagnosis of fetopathy due to BoHV-1. This is an infrequently diagnosed cause of bovine abortion in Scotland. Screening for BoHV-1 is not part of the routine bovine abortion diagnostic package and this case highlights the need to collect a range of fresh and fixed tissues to thoroughly investigate abortion outbreaks without a diagnosis. The source of the virus was not known.

A 250-head dairy herd reported that three heifers had given birth to undersized, full-term calves with arthrogryposis. Umbilicus was received from the third case and tested PCR positive for Schmallenberg virus (SBV) confirming the suspected aetiology. The risk period when in-utero infection can result in fetal deformities extends from 62 to 180 days of gestation in cattle.

A large beef herd submitted the fifth aborted calf for investigation as there were concerns about *Campylobacter* infection following cessation of vaccination. A diagnosis of *Bacillus licheniformis* abortion had been reached in a previous case. A pure growth of *Histophilus somni* was isolated from the fetal stomach contents and histopathology identified a marked pneumonia and suppurative placentitis with vasculitis. *H somni* can be isolated from the reproductive tract of clinically normal cattle but has also been confirmed as a cause of vaginitis and endometritis. Despite this, other studies have suggested that abortion is more likely to occur secondary to maternal bacteraemia than ascending infection.

Arnold-Chiari malformation (ACM)

Arnold-Chiari malformation (ACM) was diagnosed in a neonatal calf submitted for postmortem examination to investigate the cause of malformations at birth. Two calves were submitted for investigation, out of a pen of ten calves; the other eight calves showed no signs of malformation or ill-health. Calf 1 was reported to be recumbent and have hyperflexion of the neck. Calf 2 was reported to have deformities of the hindlimbs. The calves were sired by an 11-year-old bull who had been used previously without issue. Maternal illness was not a feature and there were no recent changes in farm management reported. Both calves were euthanised prior to submission.

Postmortem examination found the hindlimbs of Calf 2 to have completely fused phalanges. The cerebellum of Calf 2 appeared to be poorly separated from the cerebrum. No abnormalities were detected in Calf 1. Testing for BVD and SBV were negative in both calves. Examination of the brain of Calf 2 identified mild to moderate coning of the occipital cortices showing parallel sagittal gyri with dorsoventral dilation of the lateral ventricles. This was also demonstrated in occipital cortices and a mild dilation of the mesencephalic aqueduct was seen. The cerebellum appeared to be formed as normal but smaller in size than expected. No abnormalities were noted in the brain of Calf 1.

Based on examination of the brain of Calf 2, a diagnosis of Arnold-Chiari malformation (ACM) could be made. It was probable that the dilated lateral ventricles and dilated mesencephalic aqueduct reflected secondary changes to the ACM, which is a common finding in these cases. The arthrogryposis noted in the calf was likely related to spina

bifida, a common malformation found accompanying ACM in calves. The aetiology for this condition is unknown although there is a recent paper published suggestive of potential genetic involvement in Holstein cattle:

- Goncalves J, Letko A, Häfliger IM, Cord Drögemüller, Jørgen Steen Agerholm. Congenital syndromic Chiari-like malformation (CSCM) in Holstein cattle: towards unravelling of possible genetic causes. Acta veterinaria Scandinavica. 2024 Jul 4;66(1). Congenital syndromic Chiari-like malformation (CSCM) in Holstein cattle: towards unravelling of possible genetic causes | Acta Veterinaria Scandinavica | Full Text

- Disease surveillance in England and Wales, February 2023. The Veterinary record [2023 Mar;192(5):202-5. Disease surveillance in England and Wales, February 2023

Mastitis

There were no significant trends for this quarter.

Centre of Expertise for Extensively Managed Livestock

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.

Antimicrobial use and resistance

The Veterinary Antibiotic Resistance Sales and Surveillance (UK-VARRS) Report 2023 has recently been published by the Veterinary Medicines Directorate (VMD): Veterinary Antimicrobial Resistance and Sales Surveillance 2023

This latest UK-VARSS report continues to document downward trends in sales of veterinary antibiotics in the UK. In addition, the latest RUMA Targets Task Force report can be found at: RUMA-TTF-Report-FINAL-published-November-19-2024.pdf

The Medicine Hub, a voluntary industry initiative, developed and managed by AHDB, was launched in 2021 and provides a central location for the collection of medicine data, including antibiotic use: Medicine Hub for dairy, beef and sheep farmers | AHDB

Chemical food safety

The latest Chemical Food Safety Reports can be found at: APHA chemical food safety reports (livestock) - GOV.UK

Toxic conditions

Closantel toxicity in a heifer and a cow

Two animals, an eight-month-old heifer and a two-year-old cow were submitted from a beef suckler unit. Both had presented with bilateral central blindness which developed one week after treatment with a pour-on closantel and ivermectin product. Gross findings were minimal. Aerobic cultures ruled out meningitis and kidney lead testing showed minimal levels. Histopathology of brain and eyes in both animals confirmed changes consistent with closantel toxicity. In a second unrelated submission, a nine-month-old suckler calf was one of three affected with blindness approximately ten days after closantel and ivermectin pour-on. Again, gross findings were unremarkable, and histopathology confirmed typical leukoencephalopathy and optic nerve neuropathy. This animal had been clipped along its back line prior to administration. The safety index for closantel is relatively narrow, and prior clipping has been noted in the history of previous cases investigated by APHA as a potential risk factor. Licking of topical applications was also deemed a potential route of intoxication.

Hemlock water dropwort poisoning

A group of 45, 18-month-old Aberdeen Angus cross bullocks were outwintered on a stubble field and fed silage every day. The field backed onto houses, and it was reported that garden waste was occasionally discarded over the fence and that a septic tank had overflowed into it. Two bullocks were found dead in consecutive weeks, followed by six deaths within 24 hours. The cattle were removed from the field and two carcasses were submitted for postmortem examination. In both cases the rumens were well filled, and a handful of white tuber/root fragments (Figure 10) were recovered, which were consistent with hemlock water dropwort (*Oenanthe crocata*). This plant grows in ditches and the tubers contain oenanthotoxin which causes convulsions and acute death with a very low lethal dose. It was advised to check ditches and wet areas of the field for evidence of the plant, as this was a more likely source of the tubers than garden waste.

Figure 10: Fragments of the tubers of Hemlock Water Dropwort found in the rumen of a bullock which died of Hemlock water dropwort poisoning

Horizon scanning

International Disease Monitoring (IDM) horizon-scanning activities monitor for major, notifiable, or new and re-emerging animal disease outbreaks worldwide. This is done to provide an early warning and to assess the risks they may pose to the United Kingdom (UK), particularly for those diseases which impact on animal health and welfare, international trade, public health, or wider society. IDM also assess the risk that animal diseases might come into the UK through the trade in animals or animal products (legal or illegal), through movements of wildlife, or through the movement of fomites and vectors such as insects which may carry infectious disease. These outbreak assessments are used to guide decisions how to manage or reduce the risks and are published on the web: Animal diseases: international and UK monitoring. Shown below are some of the outbreak assessment information and horizon scanning outputs from Q4 2024 and Q1 2025.

Bluetongue virus in Europe: Please see Page 2. Further information can be found at: Bluetongue virus in Europe. Figure 11 shows the WOAH data for Europe for September to December 2024.

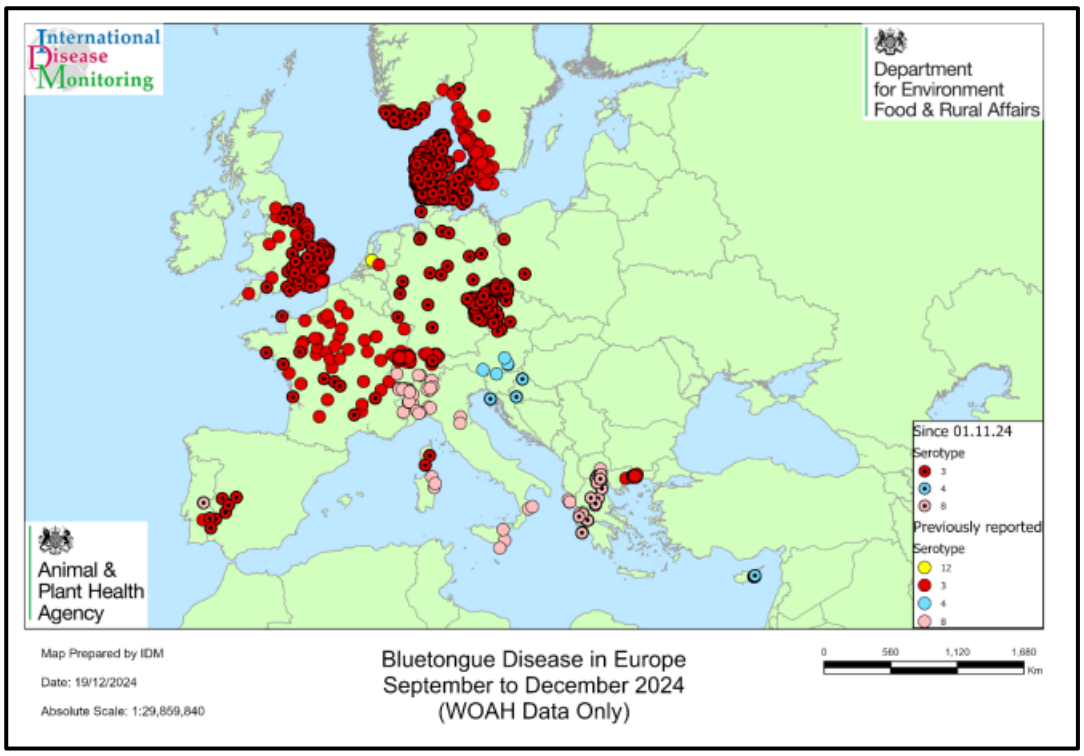

Figure 11: WOAH data for Bluetongue Disease in Europe from September to December 2024

Epizootic Haemorrhagic Disease (EHD): France, Spain and Portugal reported outbreaks of EHD (serotype 8) in Q3 and Q4 2024. Epizootic haemorrhagic disease in Europe

Foot and Mouth Disease (FMD): On 10 January 2025, Germany reported Foot and Mouth Disease in water buffalo to WOAH. The outbreak assessment can be found here: FMD_in_Germany_Preliminary_Outbreak_Assessment.pdf

Links to information on differential diagnoses can be found here:
Differential diagnosis of diseases causing oral lesions in cattle - Holliman - 2005 - In Practice - Wiley Online Library
Differential diagnosis of oral lesions and FMD in sheep

Influenza A (H5N1) of avian origin in domestic livestock in the USA

On 25 March 2024, the United States of America (USA) made an immediate notification to the World Organisation for Animal Health (WOAH) of an outbreak of influenza A of avian origin (H5N1) affecting dairy cattle in Texas. The outbreak strain, a high pathogenicity avian influenza (HPAI) virus strain, belonged to clade 2.3.4.4b, genotype B3.13. This genotype has never been detected outside of the Americas. New cases of this continued to be detected in different states in the USA during this quarter. Further information can be found here: Influenza A (H5N1) of avian origin in domestic livestock in the USA - GOV.UK

APHA publications of interest

Monthly APHA disease surveillance reports can be found at this link: APHA disease surveillance monthly reports - GOV.UK (www.gov.uk) and Disease surveillance in England and Wales, February 2025

SWINSON V; REICHEL R; PITTALIS L; BIDEWELL C; WIGHTON H (2025)
Brain lesions in BTV-3-positive calves in England (letter).
Veterinary Record 196 (5) 192-193 https://doi.org/10.1002/vetr.5293

APHA focus articles in the Veterinary Record can be found at: APHA focus articles in the Veterinary Record - GOV.UK (www.gov.uk) including a recently published surveillance focus article on Nodular skin disease in cattle (wiley.com)

The 2023 edition of the *Salmonella* in animals and feed in Great Britain (previously called *Salmonella* in Livestock Production in GB) has been published and is now available here: Salmonella in animals and feed in Great Britain 2023

MASTIN A; Gubbins S; Ashby M; PAPADOPOULOU C; WADE C; Batten C (2023) BTV and EHDV – what's new and what do I need to know? Veterinary Practice: InFocus 4th October 2023. BTV and EHDV – what's new and what do I need to know? - Veterinary Practice (veterinary-practice.com)

OTTER A; SCHOCK A; PAYNE J (2023) A form of hepatogenous copper poisoning in fattening cattle associated with the ingestion of mouldy straw. Vet Record Case Reports 11 (2) 2592. A form of hepatogenous copper poisoning in fattening cattle associated with the ingestion of mouldy straw - Otter - 2023 - Veterinary Record Case Reports - Wiley Online Library

JEWELL N; SWINSON V; HAYMAN C; MARTINDALE L; BRZOZOWSKA A; Mitchell S (2023) Laboratory diagnosis of gastrointestinal nematodes in first-grazing season cattle. Veterinary Record 192 (9) 364-36 Laboratory diagnosis of gastrointestinal nematodes in first-grazing-season cattle - Jewell - 2023 - Veterinary Record - Wiley Online Library

OTTER A; BRZOZOWSKA A (2022) Pneumonia in adult cattle, *Veterinary Record 5/12 March 2022 191-193* Pneumonia in adult cattle (wiley.com)

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 also works on behalf of the Scottish Government and Welsh Government.