REGIONAL VETERINARY LABORATORIES REPORT

December 2024

Regional Veterinary Laboratories (RVLs) carried out necropsy examinations on 656 carcases and 225 foetuses during December 2024. Additionally, 1,297 diagnostic samples were tested to assist private veterinary practitioners with the diagnosis and control of disease in food producing animals. This report describes a selection of cases investigated by the Department of Agriculture, Food and the Marine's (DAFM) veterinary laboratories in December 2024.
The objective of this report is to provide feedback to veterinary practitioners on the pattern of disease syndromes at this time of the year by describing common and highlighting unusual cases. Moreover, we aim to assist with future diagnoses, encourage thorough investigations of clinical cases, highlight available laboratory diagnostic tools, and provide a better context for practitioners when interpreting laboratory reports.

Cattle

Pneumonia and enteritis were the most common diagnoses at necropsy in cattle in the RVLs during December 2024.

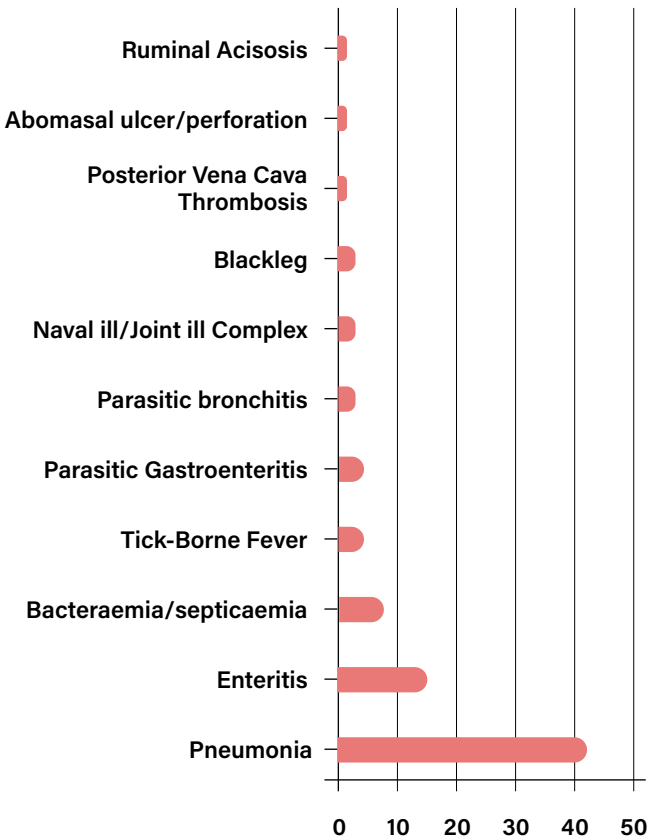

Table 1: **The most common diagnoses in cattle submitted for necropsy in December 2024.**

Gastrointestinal Tract

Perforated abomasal ulcer

A six-week-old calf had been treated for diarrhoea and had improved, before deteriorating and dying. The calf was submitted to Kilkenny RVL. On necropsy, there was severe fibrinous peritonitis. The source was a perforated abomasum ulcer. There were other non-perforated ulcers. There were very limited amounts of intestinal contents. No underlying causative agent was identified on laboratory tests or histopathology. Losses due to perforated abomasal ulcers are usually isolated incidents and the majority of confirmed cases are found dead. Risk factors can include stress, concurrent disease, prolonged use of certain drugs, erratic feeding schedule/feed management etc.

Figure 1: **Perforated abomasal ulcer in a calf. Photo: Aideen Kennedy.**

Enterocolitis

Athlone RVL examined a nine-month-old weanling heifer with a history of sudden death. Carcase preservation was very poor with advanced tissue autolysis, rendering histopathology impossible. The small intestinal contents were very fluid and haemorrhagic, and faeces were very loose. There was thick bile in the gall bladder suggesting recent inappetence. Parasitic egg counts in the intestinal contents and faeces were not significant. *Clostridium perfringens* alpha toxin was detected in intestinal contents; however, as this toxin can be found in the GIT of healthy animals, it was not thought significant. *Yersinia pseudotuberculosis* was isolated from faeces following cold enrichment and a conclusion of enterocolitis caused by *Y. pseudotuberculosis* was made. *Y. pseudotuberculosis* can be carried by a range of animals including cattle, rodents and birds. Animals that are stressed from concurrent low nutrition or parasite burdens are more likely to be affected by yersiniosis. It is often seen in winter and early spring in cattle grazing wet, waterlogged, or recently flooded pastures.

Figure 2: **Colitis due to *Y. pseudotuberculosis* in a weanling heifer. Photo: Denise Murphy.**

Athlone RVL examined an 11-month-old bull with a history of having been treated for pneumonia. There was marked bilateral enophthalmia, suggesting dehydration. There were petechial haemorrhages and ulceration of the abomasal mucosa, oedema of abomasal folds, and brown fluid contents. There were loose, brown, proximal small intestinal contents, and haemorrhagic ileal and caecal contents with clots of frank blood. There was a diphtheritic membrane on the colonic mucosa and foul-smelling haemorrhagic colonic contents. The liver was enlarged and jaundiced. The animal also had bilateral, anteroventral pulmonary consolidation with multifocal-to-coalescing caseous necrotic lesions on cross section, suspicious for *Mycoplasma bovis*. Several bacterial agents and bovine herpesvirus 1 (BHV-1) were detected in the lungs by polymerase chain reaction (PCR). Culture of intestinal contents and faeces proved negative and PCR for *Salmonella* spp. was negative. The histopathology of the colon showed a multifocal-to-coalescing, severe, fibrino-necrotic colitis with microthrombi and myriads of coccobacilli bacterial colonies which, following gram stain, were identified as gram negative. The findings were highly suggestive of *Yersinia* spp. infection. Antibiotic therapy was likely to have negatively affected the isolation of the organism.

Johne's disease

A first-lactation cow was submitted to Limerick RVL with a history of weight loss and diarrhoea. On necropsy, post-mortem changes were advanced, which may have obscured gross signs of disease, but some thickening of the caecal mucosa was observed, and intestinal contents were very liquid. *Mycobacterium avium* subspecies *Paratuberculosis* (MAP), the causative organism of Johne's disease, was detected by culture.

Respiratory Tract

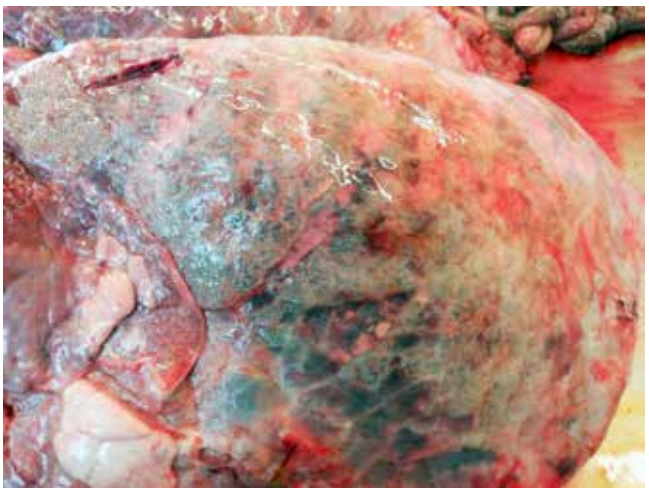

Figure 3: **'Ground glass' emphysema due to parasitic bronchitis in a weanling. Photo: Aideen Kennedy.**

Parasitic bronchitis

Three six-to-eight-month-old weanlings were submitted to Kilkenny RVL. They had been treated with oral anthelmintics a couple of days previously as they had been coughing. All three had marked interstitial pneumonia with 'ground glass' emphysema. All had lungworms (*Dictyocaulus viviparus*) visible in the airways. There were also areas of consolidation cranially. One of the animals also had a very large abscess with purulent material tracking from the liver towards the umbilicus, from which *Trueperella pyogenes* was cultured. The abscess was likely a remnant of a calfhood omphalophlebitis. In addition to the lungworm, *Mycoplasma bovis* and *Histophilus somni* were also identified. A review of respiratory disease control measures (including lungworm control) on the holding of origin was recommended.

Figure 4: **An abscess between the liver and umbilicus in a weanling, likely a remnant of omphalophlebitis. Photo: Aideen Kennedy.**

Pneumonia

Athlone RVL examined two two-month-old dairy calves, one of which had died suddenly, and the other had been treated by the herd owner with antibiotics for a cough and was found dead the next morning. It was the fifth loss in the batch of calves. There were similar gross findings in both calves at post-mortem examination. There was bilateral subpleural and interlobular emphysema with anteroventral pulmonary consolidation and a caudo-dorsal 'meaty' consistency. *Pasteurella multocida* was isolated from the lung on culture and a positive respiratory syncytial virus (RSV) PCR result with a low cycle threshold (Ct) value was detected in both calves. The histopathology was consistent with a broncho-interstitial pneumonia with bronchitis, hyaline membranes, and neutrophil exudation. A conclusion of a viral pneumonia caused by RSV and secondary bacterial infection was made.

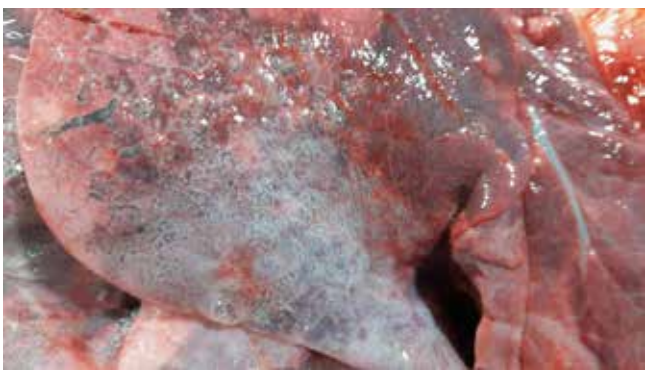

Figure 5: **A close view of 'ground glass' emphysema due to respiratory syncytial virus infection in a weanling. Photo: Denise Murphy.**

Urinary/Reproductive Tract

Abortion

Neospora caninum and *T. pyogenes* were the most commonly detected abortifacients in bovines in the final three months of 2024. It must be noted that the aetiology of bovine abortion is broad and is not always due to an infectious aetiology, thereby the diagnostic success rate may appear low; however, appropriate laboratory testing, submission of clinical and vaccination history, epidemiological information, and proper sampling all increase the chances of reaching an aetiologic diagnosis if an infectious agent is present. An aborted foetus, placenta, and maternal serum samples constitute the standard requirement for an abortion submission. Inclusion of the placenta is critical in the diagnosis of some mycotic and bacterial abortions where the placenta is the primary tissue affected. On many occasions, submission from several abortions may be needed to reach a definitive diagnosis.

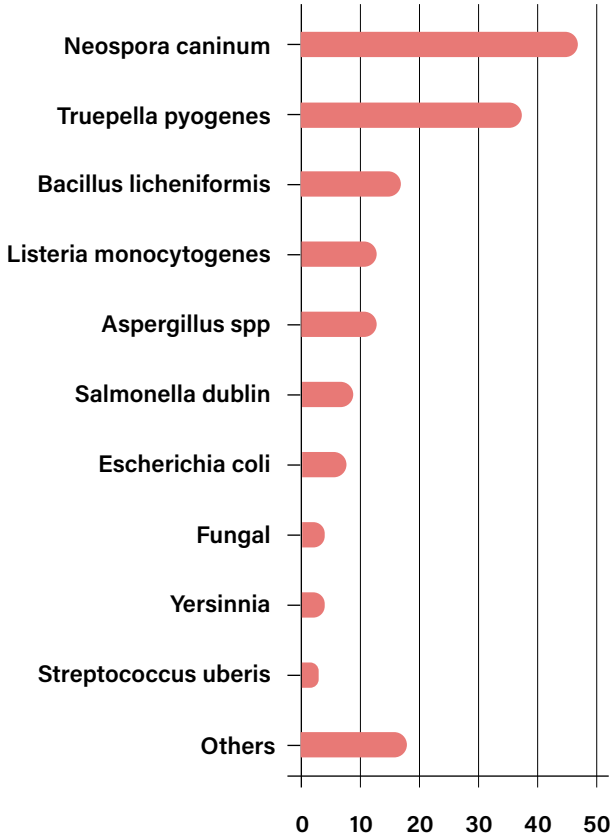

Table 2: **The most commonly detected abortifacients in cattle in the final three months of 2024.**

Mycotic abortion

A seven-months-gestation foetus was submitted to Kilkenny RVL. There had been one previous abortion in the herd. *Aspergillus* sp. was identified by culture from foetal stomach contents. A milk sample from the same herd showed *Aspergillus* sp. on culture also. Fungal abortions occur from the fourth month of pregnancy to term, and are most common in winter. It is believed the fungi gain entry through the oral or respiratory tracts and travel haematogenously to the placenta. The accompanying placentitis is often severe and necrotising. No placenta was submitted in this case.

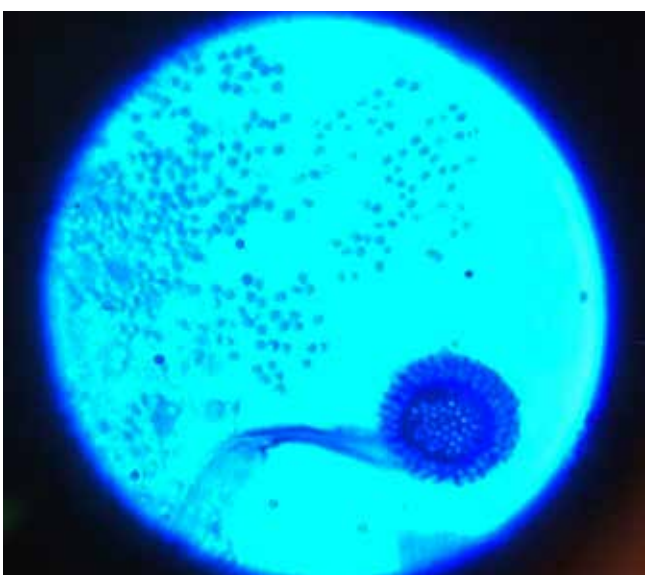

Figure 6: ***Aspergillus* sp. detected in milk. Photo: Aideen Kennedy.**

Cardiovascular System

Visceral Blackleg

An eight-month-old bull was found dead and submitted to Kilkenny RVL. The carcase was autolysed, and there was a fibrinous pericarditis, with areas of the myocardium appearing blackened. *Clostridium chauvoei* fluorescent antibody technique (FAT) results were positive. A review of vaccination protocols was advised with use of a multivalent clostridium vaccine recommended. Blackleg-type lesions in muscles that are not palpable by external examination, such as the myocardium or diaphragm, should be borne in mind as a differential diagnosis in cases of sudden death.

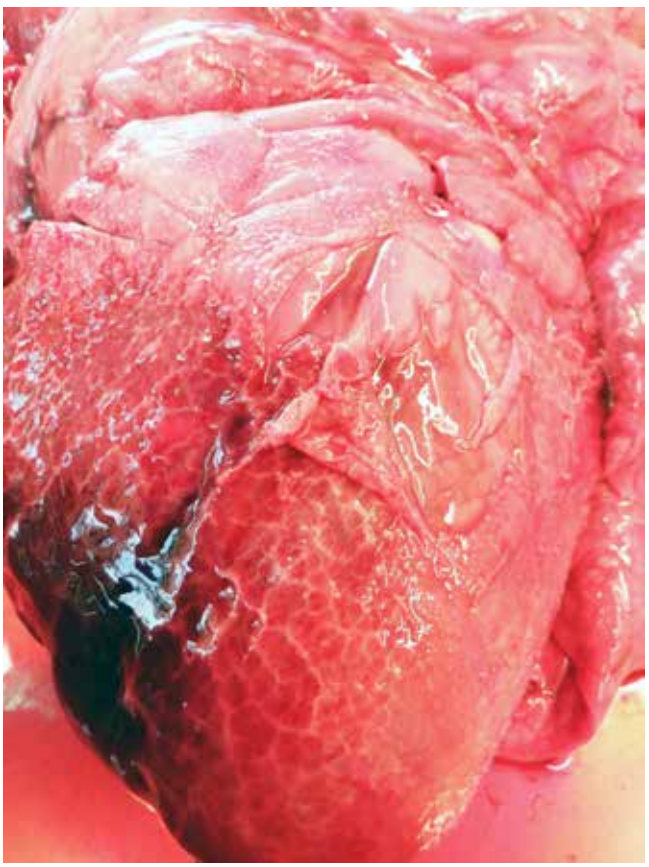

Figure 7: **'Bread-and-butter' pericarditis in a case of 'visceral blackleg' in the myocardium. Photo: Aideen Kennedy.**

Vena cava thrombosis

Athlone RVL examined a four-year-old cow that had been noticed sick over a week earlier and was treated by the herd owner for suspected actinobacillosis ('timber tongue'). The cow had seemed to respond, but then died unexpectedly. There was a 15cm long thrombus in the caudal vena cava and the liver was autolysed. There were multifocal haemorrhagic/necrotic foci throughout all lung lobes. Cultures of the lungs and liver were unrewarding, which was unsurprising given the animal had been treated with antibiotics. A conclusion of posterior vena cava thrombosis with septic pulmonary thrombo-embolism was made.

Figure 8: **A thrombus from a case of posterior vena cava thrombosis in a cow. Photo: Denise Murphy.**

Babesiosis

Sligo RVL diagnosed babesiosis ('red water') in a heavily pregnant 30-month-old heifer that had been purchased at the start of November. At post-mortem examination, there was icterus, anaemia, and haemoglobinuria with friable hepatomegaly. Large quantities of DNA sequences specific to *Babesia divergens* were detected systemically by PCR technique and coinfection with *Anaplasma phagocytophilum* (tick-borne fever) was confirmed by the same method. The heifer had access to both housing and pasture in the three-week period after being moved.

Sheep

Bacteraemia/septicaemia and parasitic gastroenteritis were the most common diagnoses at necropsy in sheep in the RVLs during December 2024.

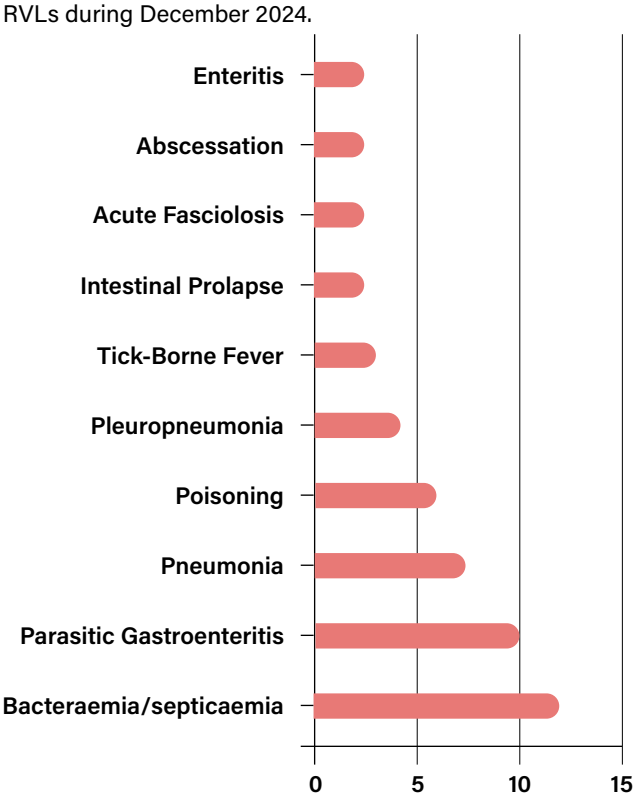

Table 3: **The most common diagnoses in sheep submitted for necropsy in December 2024.**

Respiratory Tract

Bacteraemia/septicaemia

Two lambs submitted to Kilkenny RVL were discovered to have congested and oedematous lungs, and one had a severe fibrinous oesophagitis. A third lamb had scant intestinal contents. *Bibersteinia trehalosi* was cultured from multiple organs of each lamb, suggesting a bacteraemia/septicaemia. One lamb had very high strongyle egg count, one had a moderate count; examination of faecal samples from cohorts was advised and a review of parasite control recommended. Systemic *B. trehalosi* infections typically affect six-to-nine-month-old lambs with outbreaks usually occurring between October and December. Control is best achieved by vaccination; however, parasitic gastroenteritis, stress, and nutrition issues can cause animals to become susceptible despite appropriate vaccination.

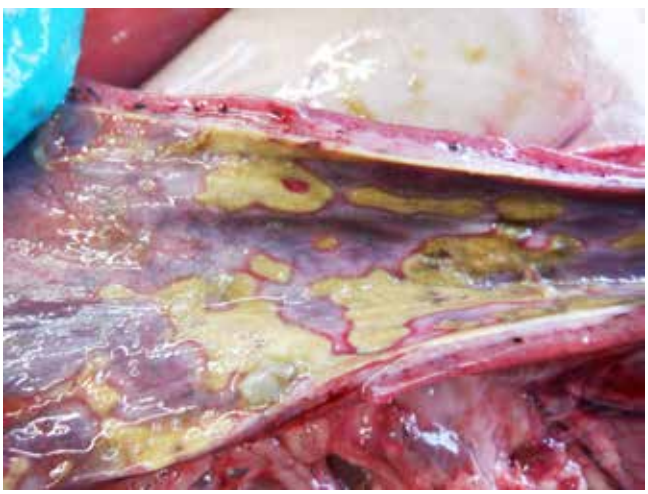

Figure 9: **Oesophagitis due to systemic *Bibersteinia trehalosi* infection in a lamb. Photo: Aideen Kennedy.**

Pneumonia, parasitic bronchitis, and parasitic gastroenteritis

A lamb was submitted to Limerick RVL with a history of sudden death. Necropsy disclosed gross signs of congested, consolidated pneumonia. One large lungworm was found in the trachea and *P. multocida* was detected in lung tissue. There were liquid small and large intestinal contents and faecal egg counts of 700 eggs per gram (EPG). A diagnosis of pneumonia, with parasitic bronchitis and parasitic gastroenteritis as predisposing factors, was made.

Cardiovascular System

Vegetative endocarditis

Sligo RVL diagnosed vegetative valvular endocarditis with sequelae in a six-year-old pregnant ewe. A pathogen suspected to be *Helcococcus ovis* was isolated from the lesions by culture, and confirmed by means of matrix-assisted laser desorption/ionisation-time of flight (MALDI-TOF) mass spectrometry. This is an emerging pathogen associated with bovine valvular endocarditis but it also occurs in sheep.

Alpacas

Neoplasia

An eight-year-old alpaca (*Lama pacos*) had been off form and was submitted to Kilkenny RVL. There was a large volume of fluid in the peritoneal cavity (ascites) and there were multifocal, variably-sized white foci in the lungs and kidneys. *Mycobacterium bovis* culture was negative. Histopathology findings were consistent with neoplasia, and a round cell tumour was considered likely.

Figure 10: **White lesions in the liver of an alpaca. Photo: Aideen Kennedy.**