REGIONAL VETERINARY LABORATORIES REPORT

February 2025

Regional Veterinary Laboratories (RVLs) carried out necropsy examinations on 916 carcases and 357 foetuses during February 2025. Additionally, 1,829 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 February 2025.
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 February 2025.

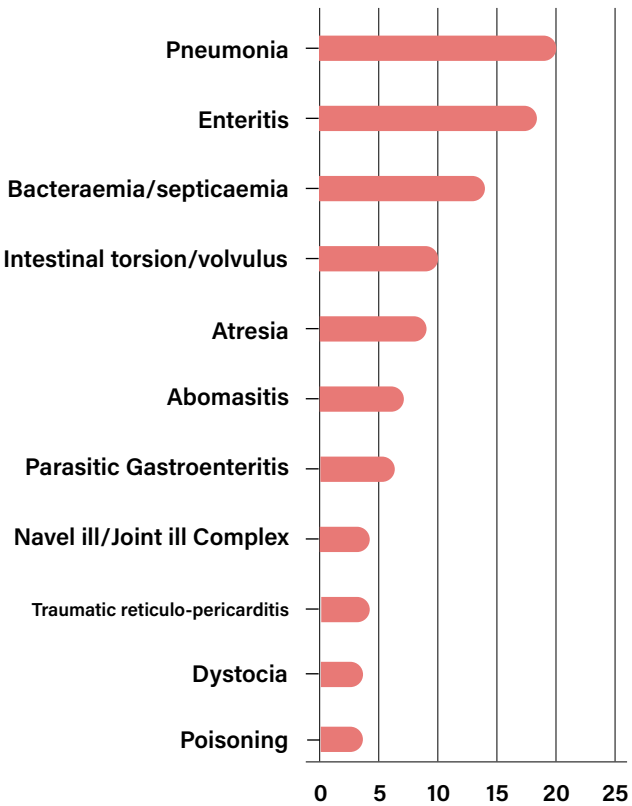

Table 1: **The most common diagnoses in cattle submitted for necropsy in February 2025.**

Gastrointestinal Tract

Perforated abomasal ulcer

An 18-month-old bullock, which had died after a period of anorexia, was referred to Kilkenny RVL. On necropsy, the carcase was very dehydrated. There was severe fibrinous peritonitis, the source of which was a perforated abomasal ulcer.

Figure 1: **Deep abomasal ulcer with perforation in a calf. Photo: Aideen Kennedy.**

A six-week-old Limousin-cross suckler calf was submitted to Limerick RVL with a history of colic. Necropsy revealed a ruptured abomasum with contents present in the abdominal cavity. The abomasal mucosa was inflamed with marked oedema and multifocal pinpoint haemorrhages and ulcers. *Sarcina* bacteria with emphysema, oedema, and haemorrhage were observed on histopathology, a diagnosis of abomasitis and abomasal bloat was made. *Sarcina* are fastidious Gram-positive anaerobic bacteria that occur in cubical packets of eight or more cells and may grow at low pH. They are seen in the abomasal mucosa of lambs or calves found dead or dying after a short illness characterised by bloat. *Sarcina* may colonise feeding utensils and automatic feeding systems if hygiene is sub-optimal, and proliferate in the abomasum when there is an excess of fermentable carbohydrate there, which is usually attributable to management factors. This could result if a degree of bloat develops following ingestion of a large volume of milk. *Sarcina* ferment sugars, producing carbon dioxide, which can prolong bloat, potentially reducing mucosal perfusion. Practical advice is limited to maintaining good hygiene when preparing and handling milk feeds for young ruminants, reviewing milk replacer preparation and feeding regimes, and preventing the contamination of all feeds with soil. Because of their unique microscopic appearance as cuboidal clumps, *Sarcina* bacteria acquired their name from the '*sarcina*', which was the Latin word for the backpack worn by Roman soldiers.

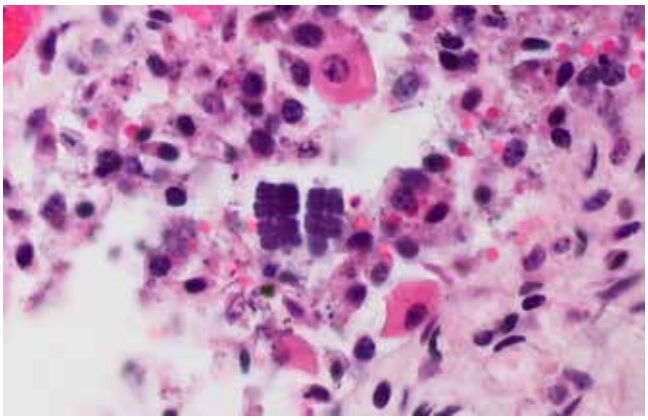

Figure 2: ***Sarcina*** **sp. in cubical packets. Photo: Brian Toland.**

Atresia jejuni

A three-day-old calf with a suspected gastrointestinal blockage was submitted to Kilkenny RVL. On post-mortem examination, there was an atresia affecting the jejunum.

Figure 3: **Atresia jejuni in a calf. Photo: Aideen Kennedy.**

Respiratory Tract

Pneumonia

A bullock was submitted to Kilkenny RVL with a history of respiratory signs, against a background of cohort animals having previously been diagnosed with pneumonia. On necropsy, approximately 70 per cent of the lungs were consolidated, with microabscessation in the consolidated regions. Caudally, the lungs felt rubbery. There were focal areas of suspected necrosis. *Trueperella pyogenes* was detected by culture. This opportunistic bacterium is related to miscellaneous pyogenic infections in animals. A great variety of clinical manifestations have been attributed to *T. pyogenes* infections in domestic animals, including pneumonia. *Mannheimia haemolytica* and *Pasteurella multocida*, whose role in bovine respiratory disease is well-established, were detected by polymerase chain reaction (PCR).

Urinary/Reproductive Tract

Schmallenberg virus

A number of suspected cases of Schmallenberg virus (SBV) have been examined in foetal and neonatal calves. SBV deformities commonly include arthrogryposis (bent limbs, fixed joints), kyphosis (curving of the spine that causes a bowing or rounding of the back), scoliosis (sideways curve of the spine), torticollis (twisted cervical spine), brachygnathia (short jaw), hydranencephaly (cerebral tissue absent to varying degrees due to viral infection during brain development and remaining space filled with cerebrospinal fluid), and cerebellar dysgenesis (abnormal development). If naive ruminant animals are infected with this midge-borne virus during the early to mid-stages of pregnancy (estimated to be 40-120 days gestation in cattle and 20-80 days gestation in sheep) they may subsequently abort or give birth to malformed offspring. Differential diagnoses for foetal deformities include: genetic factors, teratogenic plants, nutritional deficiencies, and other viruses, e.g., border disease virus, bovine virus diarrhoea virus and bluetongue virus. It is important to remember that calves and lambs can be exposed to SBV in utero and be born with a normal appearance but with compromised immunity, growth, and survival rates. Bluetongue has not been detected in Ireland but causes similar signs and presentations. It is extremely important that presentations like this are screened for Bluetongue and not just presumed to be due to Schmallenberg virus.

Figure 4: **Deformities due to Schmallenberg virus. Photo: Brian Toland.**

Athlone RVL examined an eight-month-gestation bovine foetus from a first calver. The delivery was assisted. The calf was small and there was severe arthrogryposis of all four limbs, kyphosis, hydranencephaly, and severe cerebellar hypoplasia. Ribs 2-5 on the left side were fractured, probably due to the difficult delivery. Antibodies to SBV were detected in the foetal pleural fluid and PCR for SBV on brain tissue was positive. The PCR finding is considered diagnostic.

Figure 5: **A bulldog dwarf calf with congenital bovine chondrodysplasia. Photo: Aoife Coleman.**

Congenital bovine chondrodysplasia

Athlone RVL examined a full-term stillborn calf with obvious deformities. This was a case of congenital bovine chondrodysplasia, also known as bulldog calf syndrome. This is characterised by disproportionate bone growth with a consequential short and compact body, resulting from a shorter spinal column and appendicular skeleton. Also, severe facial defects including palatoschisis (cleft palate) and shortening of the viscerocranium (facial bones) can be present, with lingual protrusion and doming of the cranium. In this case, scoliosis was also noted. There are different phenotypes of this condition. The laboratory service encourages submission of any deformed ovine or bovine foetuses/perinates for post-mortem.

Figure 6: **Shortening of the viscerocranium in a bulldog dwarf calf. Photo: Aoife Coleman.**

Schistosomus reflexus

Athlone RVL examined a calf with the schistosomus reflexus deformity, which had been delivered by caesarean section. This fatal congenital disorder, predominantly seen in ruminants, is characterised by features such as: spinal inversion, ankylosis of limbs, lung and diaphragm hypoplasia, and thoracoschisis. Further anomalies recorded in this condition include scoliosis, cleft palate, and abnormalities of the digestive and urogenital systems. The key initiating event is a failure of closure of the midline of the abdomen, leading to the spine arching severely and the foetus presenting the abdominal and thoracic organs on the outside of the body.

Figure 7: **Schistosomus reflexus in a foetal calf. Photo: Aoife Coleman.**

Mycotic abortion

Athlone RVL examined a bovine foetus aborted at eight months with placenta submitted. The foetal membranes were thickened, leathery, and grey in appearance, with a fibrinous yellow exudation around the base of the cotyledons. There was a focally extensive area of dermatitis around the orbit of the calf. *Aspergillus* sp. was identified on foetal culture and intralesional fungal hyphae with branching consistent with *Aspergillus* species was demonstrated on histopathology. A diagnosis of mycotic abortion was applied. Mycotic abortions are a recognised cause of abortion, most frequently seen over winter and early spring. Fungi may also be isolated from the stomach contents, placenta, and skin lesions in affected foetuses. Isolation must be correlated with microscopic and gross lesions to exclude contamination after abortion, highlighting the value and importance of submission of foetal membranes with abortion cases. Fungal pathogens are sporadic causes of abortion and may be associated with the feeding of poorly-conserved forage or the use of contaminated bedding. The occurrence is usually sporadic but, exceptionally, may involve 10 per cent of the herd.

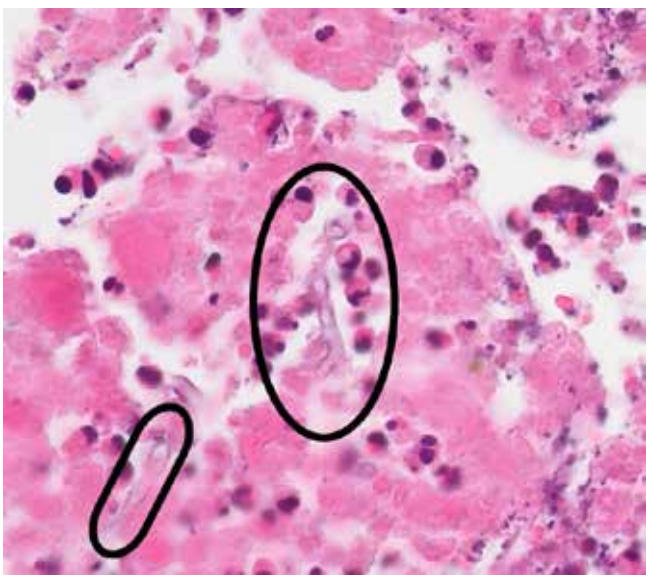

Figure 8: **Fungal hyphae in a case of mycotic abortion. Photo: Aoife Coleman.**

Congenital diaphragmatic hernia

Athlone RVL examined a full-term stillbirth referred for post-mortem examination. There was a congenital diaphragmatic hernia with herniation of the foetal liver into the thoracic cavity, resulting in hypoplastic foetal lungs.

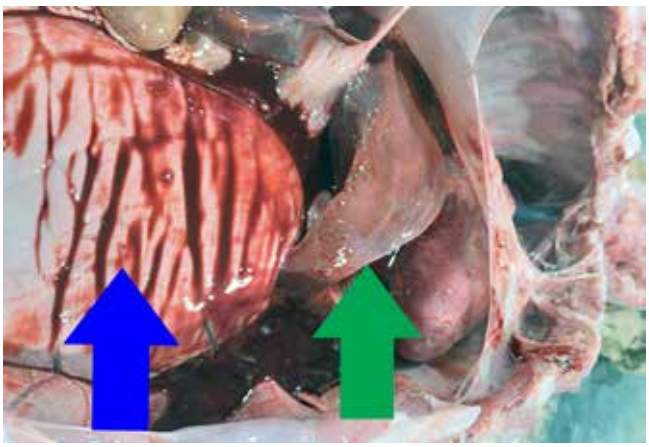

Figure 9: **Herniated foetal liver (blue arrow), resulting in hypoplastic foetal lungs (green arrow). Photo: Aoife Coleman.**

Cardiovascular System

Traumatic reticulo-pericarditis

A three-year-old Friesian cow that had died suddenly was submitted to Limerick RVL; the cow was recently dried off and had been treated ten days previously for suspected pneumonia. A 10cm piece of wire that had penetrated the reticulum, diaphragm, and heart was discovered at post-mortem examination. Fibrinous 'bread and butter' pericarditis was disclosed. A diagnosis of traumatic reticulo-peritonitis and pericarditis or 'hardware disease' was made.

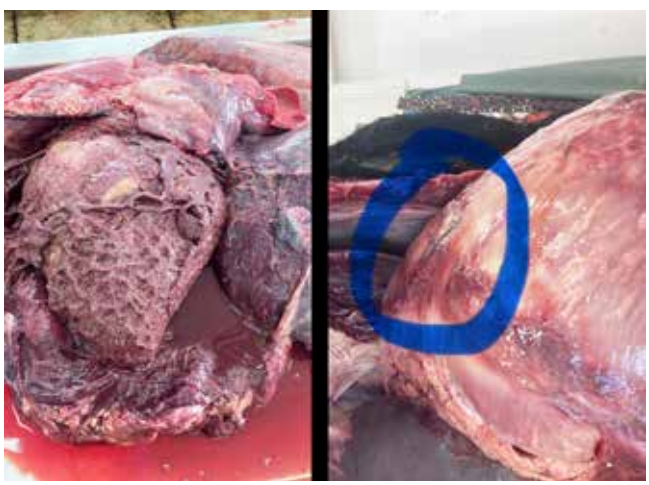

Figure 10: **Fibrinous 'bread and butter' pericarditis (left) due to a wire penetrating from the reticulum (right). Photo: Brian Toland.**

Athlone RVL examined a seven-year-old cow with a history of having been found sick and treated with anti-inflammatories but found dead the following morning. There was a near-term fresh foetus in the gravid uterus. The dam's reticulum and liver were adhered to the abdominal surface of the diaphragm and there was a localised chronic fibrous peritonitis. There was a thick fibrous tract from the reticulum, through the diaphragm, extending to the pericardial sac and a 12-15cm length of wire, presumed to be tyre wire, was found in this tract. The pericardial sac was markedly distended with a very large blood clot. It is presumed the wire penetrated a large cardiac blood vessel or the myocardium resulting in severe pericardial haemorrhage, cardiac tamponade, and sudden death. A diagnosis of traumatic reticulo-pericarditis resulting in cardiac tamponade was made.

Figure 11: **Wire (arrow) found in a fibrous tract running from the reticulum to the pericardial sac. Photo: Denise Murphy.**

Poisonings

Lead toxicity

Two one-month-old calves were submitted to Kilkenny RVL. They had showed neurological signs, blindness, and convulsions prior to death. On necropsy, there were multifocal haemorrhages on the surfaces of the kidneys and the thymus. These changes are sometimes seen in cases of lead poisoning but are not pathognomic, and testing of tissue samples (kidney, liver, or both) is required for confirmation. Gross lesions are often absent in cases of lead poisoning. Renal and hepatic lead concentrations were elevated in both cases. The source was subsequently identified as old paint on a wooden barrier. Old painted wood from a roof approximately 50 years old was used as a kick barrier in a new shed and it is believed to be the source. The private veterinary practitioner has advised removal of the timber.

Figure 12: **Haemorrhage on kidneys and thymus in case of lead toxicity. Photo: Aideen Kennedy.**

Miscellaneous

Abscessation

Sligo RVL examined an 11-month-old bullock with a history of recurrent bloat. On post-mortem examination, there was severe, fibrinopurulent peritonitis with a large abscess in the cranial abdomen containing an estimated 10 litres of pus. There were multifocal adhesions in the lungs. Abdominal abscessation with peritonitis was diagnosed as cause of death. This is a likely sequel to polyserositis and a chronic umbilical abscess. It is relatively unusual to see peritonitis of this severity at this age except when caused by a perforation of the gastrointestinal tract which was not detected in this

instance. An immunosuppressive disease in the herd such as chronic parasites, BVD, copper deficiency, or tick-borne fever should be considered if there are other instances of unusual disease.

Sheep

Pneumonia and bacteraemia/septicaemia were the most common diagnoses at necropsy in sheep in the RVLs during February 2025.

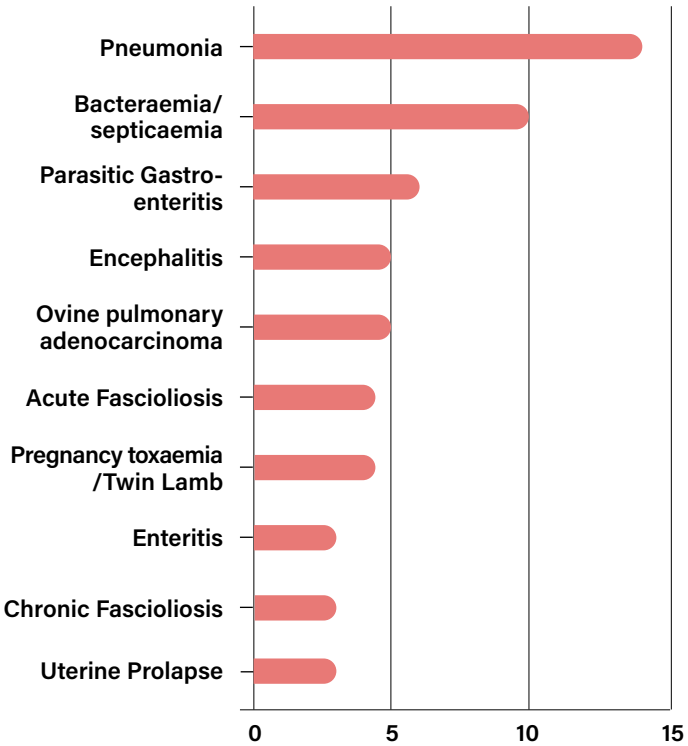

Table 2: **The most common diagnoses in sheep submitted for necropsy in February 2025.**

Gastrointestinal Tract

Clostridial enterotoxaemia

Twin Texel-cross lambs one-week-old that had died suddenly were submitted to Limerick RVL. Clostridial disease was suspected, and the ewes are not vaccinated. Necropsy revealed fibrin clots in the pericardial sac of both lambs which is suggestive of clostridial disease. Epsilon toxin was detected by enzyme-linked immunosorbent assay (ELISA) which is produced by *Clostridium perfringens* type B and D strains, and causes enterotoxaemia, a highly lethal disease. A review of vaccination protocols was indicated, with use of a multivalent clostridial antitoxin recommended. Vaccinating ewes six weeks before lambing provides passive protection for lambs up to eight weeks of age.

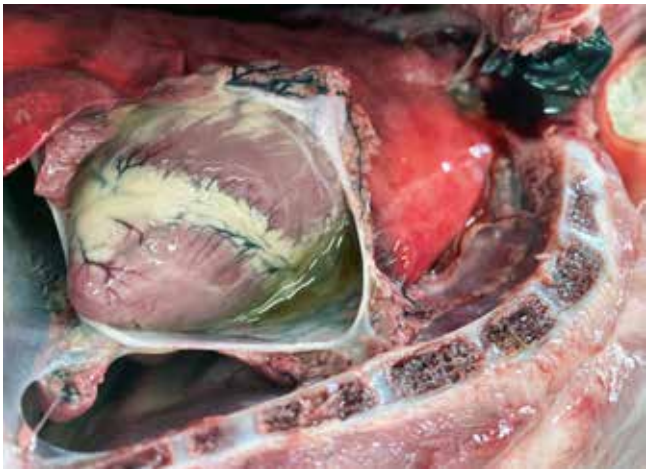

Figure 13: **Fibrin clots in the pericardial sac of a lamb which is suggestive of clostridial disease. Photo: Brian Toland.**

Metastatic Adenocarcinoma

Limerick RVL examined a Belclare-cross Suffolk ewe which was submitted as part of the Thin Ewe Survey currently being carried out by the RVLs. Post-mortem examination revealed ascites and generalised peritonitis. The walls of the large and small intestines were thickened with the serosal surfaces covered in multifocal pinpoint white nodules. The rumen, reticulum, omasum, abomasum, and diaphragm were covered in grape-sized white nodules. A diagnosis of metastatic adenocarcinoma was made on histopathology. Adenocarcinoma is a form of cancer that originates in the glandular cells lining certain organs and is characterised by the abnormal growth of these cells.

Abomasitis

A five-week-old lamb was found dead and submitted to Kilkenny RVL. On examination, there was a marked emphysematous and oedematous abomasitis. *Sarcina* bacteria were visible on examination of the abomasum on histopathology. *Sarcina* has been reported to be associated with emphysema and oedema of the abomasal wall, mucosal hyperaemia and haemorrhage, and rupture of the abomasum, particularly in artificially-reared calves. Until more is known of the specific risk factors for the involvement of *Sarcina* in sheep, practical advice is limited to maintaining good hygiene, especially for artificially-reared lambs.

Figure 14: **Emphysematous and oedematous abomasitis in a five-week-old lamb. Photo: Aideen Kennedy.**

Respiratory Tract

Pneumonia

Kilkenny RVL examined a two-year-old ewe that was having difficult in standing for the previous two weeks. Examination of the lungs detected pneumonia with multifocal, variably-sized, purulent foci in the right and left lung lobes. There were focal areas of the visceral pleura adhered to the thoracic walls. *T. pyogenes* was detected by culture. This opportunistic bacterium is linked to miscellaneous pyogenic infections in animals. A great variety of clinical manifestations has been attributed to *T. pyogenes* infections in domestic animals, including pneumonia.

Figure 15: **Pale consolidation in a lung of a ewe with OPA. Photo: Rebecca Froehlich-Kelly.**

Ovine pulmonary adenocarcinoma

A four-year-old ewe with a history of dyspnoea was submitted to Sligo RVL. On post-mortem examination, the lung presented with pale consolidation affecting approximately 70 per cent of the lung. On histopathology, there were multifocal, well-demarcated areas in which alveoli were lined by cuboidal-to-columnar neoplastic epithelial cells as typically seen in Jaagsiekte, or ovine pulmonary adenocarcinoma (OPA). The presence of Jaagsiekte sheep retrovirus was confirmed by PCR.

Figure 16: **Cross section of the lesion in a lung of a ewe with OPA. Photo: Rebecca Froehlich-Kelly.**

Cardiovascular System

Haemangiosarcoma

Athlone RVL examined a three-year-old, triplet-bearing ewe with a history of being treated by the flock owner after being noticed sick. It had been recumbent and refusing feed, and was found dead the following morning. On post-mortem examination, the carcase was pale. There was blood free in the abdominal cavity and a large retroperitoneal haemorrhage involving the left kidney and adrenal gland, and an adjacent blood-filled cystic structure. The mediastinal lymph nodes were enlarged and there were multifocal, white and black, circular, variably-sized masses and areas of haemorrhage in the lung lobes. There were three fresh foetuses in the gravid uterus. Histopathology of the blood-filled abdominal lesions showed a haemangiosarcoma with metastasis to the lung.

Figure 17: **Haemangiosarcoma. Photo: Denise Murphy.**

Goats

Clostridial enterotoxaemia

A three-week-old goat was submitted to Kilkenny RVL for necropsy. There had been four sudden deaths in the flock. There was a fibrin clot in the pericardial sac. On opening the skull, there was mild coning of the cerebellum. The intestinal contents were liquid. *C. perfringens* alpha and epsilon toxins were identified. Clostridial enterotoxaemia was diagnosed, and a review of vaccination protocols was advised.