

OVERVIEW

- **Outbreak of cardiac blackleg in suckled calves on rented hill ground**
- **Congenital mast cell tumour in a Hereford calf**
- **Anaemia and death due to *Mycoplasma ovis* infection in lambs**
- **High *Trichostrongylus tenuis* burdens as a cause of ill thrift in red grouse**

GENERAL INTRODUCTION

July was a cool and dull but generally dry month. The mean temperature was 0.6°C below the thirty-year average with 84 per cent of rainfall and 85 per cent of sunshine compared to the period from 1991 to 2020.

DISEASE ALERTS

The following conditions were reported by SRUC VS disease surveillance centres in October 2023. Given similar climatic and production conditions, they could also be important this year.

- ***Mycoplasma wenyonii* infection in cattle**
Mycoplasma wenyonii is a haemotropic bacteria that attaches to the surface of erythrocytes. The epidemiology is poorly understood but transmission via biting flies or blood contaminated equipment such as needles is likely. Infected cattle can be asymptomatic, and it is not clear what triggers disease. Clinical signs can include pyrexia, reduced dry matter intakes, milk drop, and hind limb and teat or scrotal oedema. The latter can result in transient infertility. Haemolytic anaemia, lymphadenopathy and weight loss have also been reported. Diagnosis requires DGGE/PCR testing carried out on an EDTA blood sample. Fly control should continue into autumn to try and reduce the transmission of *M wenyonii*.

- **Tick borne disease in purchased sheep**
Sheep movements in the autumn brings with it the risk of exposing animals to ticks, and the diseases they carry, for the first time. Tick borne fever (*Anaplasma phagocytophilum*) infection of naïve tups can cause temporary infertility and sale dates may not allow sufficient time for purchased rams to recover before being turned out with ewes. Louping ill and tick pyaemia (*Staphylococcus aureus*) can also result in deaths following the introduction of new sheep. The use of ectoparasitic products will reduce the risk of infection but where this is high the purchase of ram lambs for use the following autumn could be considered to allow them time to acclimatise.

CATTLE

Generalised and systemic conditions

Fourteen suckled calves from a group of 37 were found dead in the ten days following the introduction of creep feed. Rumen acidosis was suspected but losses continued following withdrawal of the feed. The cows and calves were grazing an area of unfamiliar rented rough hill ground, but no ticks had been seen. The carcasses of two, five-month-old Charolais cross calves were submitted for postmortem examination. This revealed fibrinous pericarditis and myocarditis plus splenomegaly in both cases. Pleural haemorrhage and interlobular lung oedema were also seen. The findings were typical of cardiac blackleg and *Clostridium chauvoei* was detected on fluorescent antibody testing of the myocardium in both cases. It was cultured from the same site in one calf. Future vaccination of grazing cattle is advised once areas of ground have been identified as high risk for blackleg.

Alimentary tract disorders

A dairy herd reported an outbreak of acute diarrhoea affecting almost 100 per cent of a group of 90 housed calves three of which died. This coincided with a mass influx of starlings into the shed. Fifteen of the calves were slow to recover and two were euthanased after becoming recumbent. Postmortem examination found localised areas of lung consolidation, slightly enlarged orange livers plus pasty faeces in one. Coccidial oocyst counts were low following treatment five days prior to submission however histopathology confirmed large intestinal pathology consistent with significant previous coccidiosis. The remaining 13 continued to improve but 17 days after the initial submission they all developed malodorous diarrhoea. One became recumbent and was euthanased. Enteritis was evident in the mid-jejunum with mucosal thickening, erosion and fibrin deposition. *Yersinia pseudotuberculosis* was cultured, and histopathology confirmed a suppurative enteritis with bacterial colonies consistent with *Yersinia* spp. Some coccidial stages were evident but there was no inflammation associated with them. The starlings were reported to have dispersed but were considered a possible source of *Y pseudotuberculosis* which may have taken advantage of intestines that had already been compromised by coccidiosis.

A three-month old Aberdeen Angus bull calf was treated for suspected pneumonia and showed temporarily improvement. It then deteriorated over the course of a week and died after developing diarrhoea and becoming dyspnoeic. It was the only animal affected from a group of 34 suckled calves. Postmortem examination described evidence of dehydration with multifocal red

raised areas on the jejunal mucosa. The corresponding areas of serosa were inflamed with a large amount of fibrin present. Reddening of the ileum with sloughing of the mucosa was also noted and the caecum and colon contained scant brown liquid. Pneumonia plus ulcerative/necrotising pharyngitis, oesophagitis and laryngitis were also evident. PCR testing of spleen excluded malignant catarrhal fever as the cause and ruled out involvement of BVD and tick-borne fever (TBF). *Salmonella* spp were not isolated on culture of ileum. Histopathology confirmed a necrotising enteritis associated with Peyer's patches in the jejunum and ileum in addition to marked depletion of the bone marrow giving a final diagnosis of idiopathic necrotising enteritis which had previously been identified on the farm. The aetiology of this condition remains obscure but, as in this case, it can cause recurring low-level losses in some herds.

Musculo-Skeletal conditions

A beef herd reported the birth of four abnormal calves from 18 born in spring 2024. Affected calves had been sired by two different Aberdeen Angus (AA) bulls and the dams were either AA or Simmental crosses. A one-week-old heifer calf was submitted and found to have shortening of the long bones and widening of the metaphyses typical of chondrodystrophy. Tendon laxity was also reported in other affected calves. Histopathology revealed disorderly chondrocyte development in the growth plates confirming the diagnosis. Genetic and nutritional causes of chondrodystrophy can appear similar but the findings were comparable to those previously described in nutritional chondrodystrophies of calves. The cows had been housed at the end of October and fed a diet of big bale silage and growing cattle mineral. A few weeks later they changed onto good quality pit silage with a high clover content (five parts silage to one part straw) plus a general-purpose cattle mineral. Liver manganese levels were over 100 $\mu\text{mol/kg}$ dry matter (DM), which is adequate however depending on dam diet the concentration of Mn in the foetal liver can rapidly return to normal in late gestation, while the skeletal lesions fail to resolve.

Urinary tract disorders

A four-month-old AA cross heifer was found dead and submitted to investigate the cause. It was the only loss from a group of 30 cows with calves at foot. It was in good body condition but there was subcutaneous oedema in the inguinal region and the abdomen was distended with over 30 litres of brown serous fluid. A round, fluid-filled structure measuring 10 cm in diameter consistent with a urachal remnant was found at the cranial pole of the bladder (Fig 1). Its anterior end was adhered to the omentum with inflammation at this point. The urachal remnant communicated with the bladder and

leaked fluid into the abdomen. The urachus carries foetal urine from the bladder into the allantoic cavity and should close at parturition. In this case, the urachus had failed to regress at its union with the bladder resulting in a diverticulum which subsequently ruptured. Death is likely to have occurred due to a combination of cardiac arrhythmia and impaired respiration secondary to hyperkalaemia, uraemia, and fluid pressure on the diaphragm and lungs.

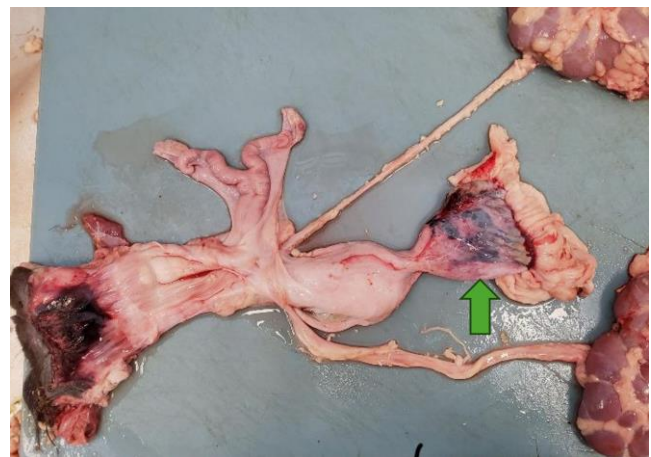


Figure 1 – Urinary tract of a four-month-old beef calf showing the urachal remnant (arrow)

Skin diseases

Three, 18-month-old Holstein heifers developed crusty skin lesions one month after being turned out to good grazing. Beef cross animals in the same group were not affected. The lesions were confined to the nasal planum and white-haired areas. Two cases had been seen in summer 2023 but there was no known access to toxic plants. One heifer didn't respond to treatment and was euthanased and submitted for postmortem examination. There was extensive crusting and sloughing of the skin over the dorsum and hindlegs. No abnormalities were detected on liver histopathology indicating that this was a case of primary photosensitisation. Possible aetiologies can include ingestion of photodynamic plants, mycotoxins, moulds or chemicals but the cause in this case was not clear. The possibility of a familial/heritable predisposition in Holstein cattle was suggested.

A Hereford heifer was born with small subdermal lumps on its head and body (Fig 2). Skin biopsies were collected when it was two weeks-of-age and histopathology confirmed a congenital mast cell tumour. Cutaneous mast cell tumours in cattle are rare and a recent paper has described a genetic mutation resulting in X-linked congenital mast cell tumours in a Holstein calf.¹

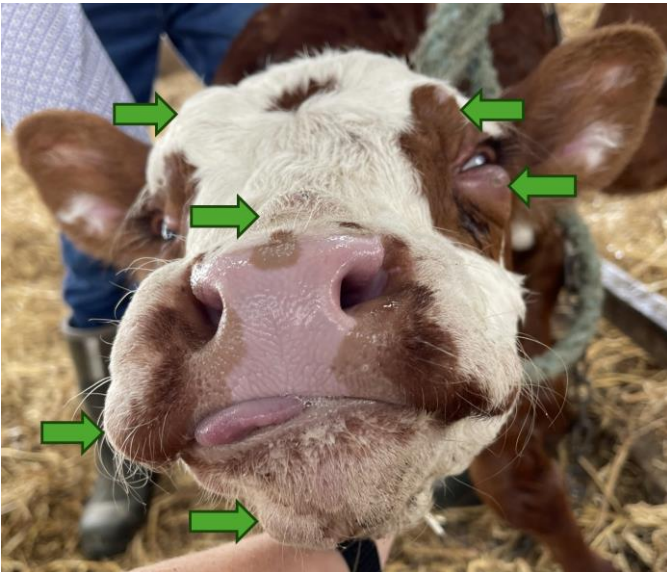


Figure 2 – Congenital mast cell tumours in a Hereford calf (J Boyle)

SMALL RUMINANTS

Nutritional and metabolic disorders

A one-year-old border Leicester ewe was submitted to investigate sudden death. The ewe had been at grass for one month but previously had access to a beet pulp compound mix and a copper drench had been administered before turn out. Postmortem examination found pale mucosae, icteric body tissues and an orange liver. There was free blood within the peritoneal cavity, and a large blood clot contained within the omentum. The source was not immediately obvious but signs of bruising over the hepatic surface of the diaphragm and adjacent liver suggested that a tear in one of the major blood vessels in this area had caused the fatal haemorrhage. Both liver and kidney copper levels were significantly increased at 16,900 and 2,930 $\mu\text{mol/kg}$ dry matter (DM) respectively (reference ranges: liver 314-7850 $\mu\text{mol/kg}$ DM; kidney < 787 $\mu\text{mol/kg}$ DM). Chronic copper loading of the liver may have increased the friability of the tissue and predisposed to the sudden death. A review of feed and copper supplementation was advised.

Parasitic diseases

Two Texel cross lambs from a 170-ewe lowland flock were presented for postmortem examination. Ill thrift, but no diarrhoea was reported and six had died. All lambs had been treated with levamisole ten days prior to submission with little improvement. Both carcasses were emaciated with serous atrophy of the bone marrow and weighed only 8 and 8.5 kg. No adult worms were present in the abomasa, but 44,440 and 45,100 immature worms were recovered. One lamb had concurrent pneumonia

affecting around 20 per cent of the lung parenchyma, and *Mannheimia haemolytica* was isolated from this. The absence of adult worms suggested that levamisole had been effective, however the high immature worm burden indicated very high pasture larval challenge. Further history confirmed that pasture quality was suboptimal, and the field was overstocked both of which will have contributed to poor production.

Nervous system disorders

A hill flock of 300 ewes reported neurological disease in two groups of sheep with a poor response to treatment. Affected ewes had lambs at foot and were found in lateral recumbency over a two-to-three-week period. They appeared to be blind, and opisthotonus was described. Six died and two were submitted for postmortem examination. Both were very thin with obvious brain fluorescence when viewed under ultraviolet light (Fig 3). Cerebrocortical necrosis was suspected and confirmed on histopathology. The initiating factor was not clear and there were no new cases after the ewes were injected with vitamin B1. However, a further case was seen shortly afterwards in a well grown lamb on the same ground.

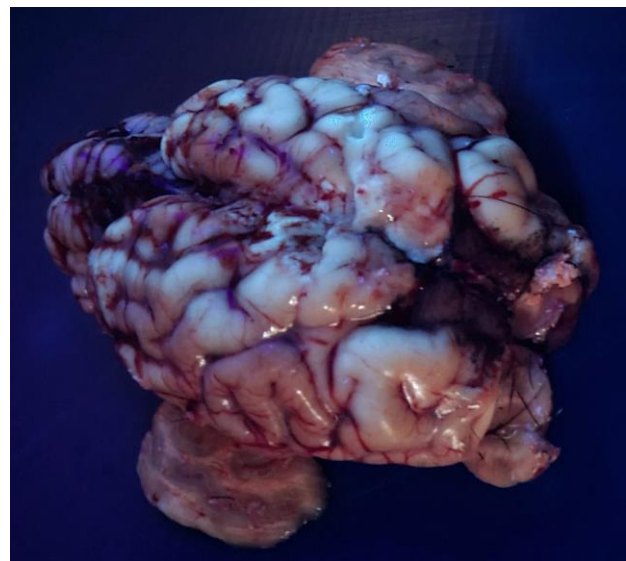


Figure 3 – Brain fluorescence in a ewe with CCN

Circulatory system disorders

Three, two-month-old cross lambs from a group of 25 ewes with lambs at foot died over a 48-hour period and a fourth lamb was euthanased after becoming recumbent. Pre-mortem examination found severe anaemia (PCV 14) with tremors and secondary nervous and respiratory signs. The submitted carcass was in average condition and pale, but with no evidence of haemorrhage. Haematology showed marked polychromasia, anisocytosis plus some crenated cells. Thirty-five per cent of the red blood cells were nucleated and findings

overall were consistent with a regenerative haemolytic anaemia. Histopathology detected hepatic necrosis and white matter vacuolation due to severe hypoxia as a result of the anaemia. The bone marrow was found to be well populated. Testing for TBF, leptospirosis and babesiosis proved negative however infection with *Mycoplasma ovis* was confirmed on DGGE/PCR. *M ovis* can be spread by biting flies or iatrogenically via needles.² The lambs had received a clostridial vaccine 18 days earlier and this may have been the trigger for the outbreak of what is a rarely diagnosed condition.

PIGS

Alimentary tract disorders

Three thin 12-week-old pigs were submitted to investigate ongoing issues with ill thrift in a group of 1400. Diarrhoea was also reported, and 20 pigs had died. The group were housed and vaccinated against *Lawsonia* spp, *Mycoplasma hyopneumoniae* and porcine circovirus 2. A non-antibiotic product containing zinc chelate was being added to the water. This is marketed to reduce the incidence of swine dysentery by preventing the attachment of *Brachyspira hyodysenteriae* to the intestinal villi. One of the pigs was found to have significant pneumonia but the overall findings suggested an intestinal problem. *Brachyspira pilosicoli* was detected on PCR testing of intestinal contents in two of the three pigs and *Salmonella enterica* serotype *Bovis morbificans* was cultured from one. Histopathology described a mild to moderate typhlocolitis with hyperplasia of colonic glands and increased mucus production, consistent with *Brachyspira pilosicoli* infection (porcine spirochetal colitis) in all three. There were no findings typical of salmonellosis and this species is considered of low pathogenicity in pigs.

BIRDS

Generalised and systemic conditions

A pigeon breeder reported poor performance in his flock of 70 birds with two recent deaths. Neither respiratory nor neurological signs were reported but the birds were generally thinner than expected. Homeopathic remedies had been tried with no improvement seen. A yearling and a five-month-old bird were euthanased to investigate the problem. Both had been off colour and were believed to be typical cases. The older bird had very large numbers of *Ascaridia* spp worms in its small intestine (Fig 4). These are generally considered incidental but appeared to be obstructing the lumen in this case. The younger bird had evidence of splenomegaly and slightly loose green faeces. Histopathology identified intrahistiocytic inclusions typical of circovirus infection. It also detected a more generalised coelomitis considered

secondary to immunosuppression induced by the circovirus.



Figure 4 – Ascarid worms in the small intestine of a racing pigeon

Parasitic diseases

Two red grouse (*Lagopus lagopus scotica*) were submitted from an estate with approximately 2000 birds which were failing to thrive. Several birds were reported to be weak and lethargic and both carcasses were very thin with no evidence of food in the crops or gizzards. The small intestine of both birds contained a mass of tapeworm (*Raillietina urogalli*) with uncountable burdens of *Trichostrongylus tenuis* in the caeca. The latter was considered to be the cause of the clinical signs. Anthelmintic treatment was advised, and it was suggested that unfavorable weather could have caused stress and reduced feed intakes leading to an increased susceptibility to parasitism.

WILDLIFE

The carcase of a three-week-old harbour seal (*Phoca vitulina*) was submitted from a rehabilitation centre where it had been admitted two weeks earlier. It was suspected to have been premature and had been doing well until a couple of days before death when it became lethargic with an occasional cough. Postmortem examination found evidence of jaundice and a mottled appearance to the liver. Histopathology confirmed hepatic necrosis and also identified fibrin within the alveoli in multifocal areas of lung. Infection with herpes virus or leptospirosis was suspected and PCR testing was positive for Phocine herpesvirus 1 (PHV-1). There is an age-related susceptibility to infection with PHV-1 with neonates most severely affected. Virus transmission can occur both vertically and horizontally and outbreaks of disease are not uncommon in rehabilitation centres.³

References:

- 1** Jacinto JGP, Muscatello LV, Häfliger IM, *et al.* A Missense Variant in PLP2 in Holstein Cattle with X-Linked Congenital Mast Cell Tumor. *Animals*. 2022; 12(18):2329
- 2** Windsor PA Anaemia in lambs caused by *Mycoplasma ovis*: Global and Australian perspectives. *Animals*. 2022; 12(11): 1372
- 3** Goldstein T, Mazet JAK, Gulland TR *et al.* The transmission of phocine herpesvirus 1 in rehabilitating and free-ranging Pacific harbour seals (*Phoca vitulina*) in California. *Vet Micro* 2004; 103: 131-141