

OVERVIEW

- **Salt poisoning in a recently weaned Highland calf**
- **Cutaneous mast cell tumour in a finishing heifer**
- **Osteogenesis imperfecta in a blue Texel lamb**
- **Tick pyaemia as a cause of young lamb mortality**

GENERAL INTRODUCTION

April was drier and sunnier compared to the 1991 to 2020 period with 79 per cent of average rainfall and 115 per cent of average sunshine. Dry conditions were found particularly in the south-east and north-west. The mean temperature was close to average for the month.

DISEASE ALERTS

The following conditions were reported by SRUC VS disease surveillance centres in July 2022. Given similar climatic and production conditions, they could also be important this year.

- **Idiopathic necrotic enteritis (INE) in suckled calves**
INE most commonly affects six to 12 -week-old beef calves at grass. Clinical signs can range from diarrhoea, respiratory signs and pyrexia to sudden death. Ulcers may be seen on the gums, lips or tongue. Affected calves rarely respond to supportive treatment and have a poor prognosis with death after approximately two to ten days. BVD viraemia and salmonellosis should be ruled out with histopathology required to confirm the diagnosis.
- **Iceberg diseases in early lambing pedigree ewes**
Postmortem examination can be valuable in diagnosing or negating the presence of iceberg diseases. Ewes on good grass that have failed to gain body condition in the four to eight weeks after weaning are good candidates for investigation – if there is no other obvious explanation for the ill thrift. If suspect lesions of ovine pulmonary adenocarcinoma, maedi visna or Johne's disease are found appropriate tissues should be fixed in formalin for histopathological confirmation of the diagnosis.

CATTLE

Nutritional and metabolic disorders

Two Highland calves from a group of 12 were treated for suspected pneumonia shortly after being weaned and housed. One appeared to recover but the other became recumbent and developed opisthotonos. It was euthanased and submitted for postmortem examination where the main finding was severe dehydration with no evidence of infectious disease. Analysis of a pre-mortem blood sample revealed hypernatraemia (Na 199 mmol/l; reference range 135-155 mmol/l) and salt poisoning was considered to be responsible for the neurological signs. Difficulty in accessing water was believed to be the cause as the owner commented that the calves needed to make a little jump in order to reach the trough. (C545455)

Generalised and systemic conditions

A 50 kg stabiliser cross bull calf was born to a heifer following an unassisted calving. Dam colostrum yield was poor, and the calf was fed additional colostrum replacer. It made attempts to suckle but became cold and died at three days-of-age. Postmortem examination detected septic arthritis in most of the limb joints, a swollen liver and cloudy meninges. Cultures were predominantly sterile possibly as a result of antibiotic treatment however histopathology supported a diagnosis of colisepticaemia and confirmed a severe generalised suppurative meningitis. A ZST result of 2 units (target >19 units) confirmed hypogammaglobulinaemia and was considered to be the underlying predisposing factor. This was the second heifer's calf to die in similar circumstances suggesting that there was a need to review heifer management and nutrition to ensure adequate production of good quality colostrum. (C472068)

A neonatal Limousin cross bull calf became increasingly dull and was euthanased at five days-of-age after it became blind. Postmortem examination confirmed bilateral corneal oedema (Fig 1a) with deep ulceration resulting in perforation of the left eye. Superficial erosions were noted around the nostrils and on the dental pad, tongue and upper lips. The navel had broken off flush with the abdominal wall and had an open, wet, purulent appearance. No other abnormalities were detected. Screening for BVD virus proved negative and *Escherichia coli* was isolated from the liver and spleen. Histopathology confirmed a severe suppurative panophthalmitis with retinal detachment, large suprachoroidal haemorrhages and corneal perforation (Fig 1b). Large numbers of Gram negative coccobacilli consistent with *E coli* were seen within the suppurative exudate in the anterior and posterior chambers. This suggested septicaemic spread of bacteria, most likely

from the navel, with localisation in the eye. Hypopyon can be seen in association with bacterial septicaemia but the ocular lesions in this case were unusually severe. (C472126)



Figure 1a – Corneal oedema in a neonatal calf with colisepticaemia



Figure 1b – Panophthalmitis with retinal detachment

Alimentary tract disorders

A 500-cow beef herd reported a year-on-year increasing incidence of white coloured diarrhoea in spring born calves with a high morbidity but low mortality. Aberdeen Angus and stabiliser cows are synchronised and inseminated with fresh wagyu semen from bulls which then run with the cows for the next two months. Calves are tagged, banded, dehorned using paste, injected with vitamin E/selenium plus 1.5ml penicillin/streptomycin within 24 hours of birth and turned out to grass. The cows are fed a 50:50 draff:silage mix pre-calving and after turnout. A farm visit was carried out in April 2023 at which point 80 per cent of four to five-week-old calves were affected and diarrhoea had also been seen in a group of four to five-day-old calves. Only 10 per cent of affected calves required treatment and they responded well to oral rehydration therapy.

A review of the herd's postmortem and laboratory submissions since 2021 found varied diagnoses including abomasal lesions, rumen acidosis, suspect INE, coccidiosis, yersiniosis, attaching and effacing *E coli* and colisepticaemia. In 2023 calf side and laboratory screening for enteric pathogens, including *Yersinia* and *Campylobacter* spp proved negative. The range of presentations are thought to be secondary to an earlier gastrointestinal insult that induces dysbiosis. Biochemistry and haematology results for affected calves were unremarkable, with some raised packed cell volumes attributed to haemoconcentration secondary to dehydration. Grass mineral analysis found no evidence of high molybdenum levels. Mycotoxin analysis was carried out on grass and silage with high levels of Penicillic acid detected in the silage.

There is anecdotal evidence from Australia, and limited experience within SRUC Veterinary Services, that wagyu cross calves are particularly susceptible to dysbiosis, especially following antibiotic use. Both the metaphylactic administration of antibiotics to neonatal calves, and the high penicillic acid levels in the silage were considered predisposing factors for dysbiosis in early life. Investigation and monitoring of diarrhoea in the herd is ongoing.

Respiratory tract diseases

A three-year-old Holstein cow became dyspnoeic and its milk yield dropped from 35 to 5 litres/day. It was treated with antibiotics but died ten days later. Coughing and pyrexia were not reported. It had recently been moved from the high yield robot milked group to the low yield parlour milked group. There had been five earlier deaths from respiratory disease in this group with two postmortem examinations confirming acute *Mannheimia haemolytica* pneumonia. Postmortem examination of the current case detected severe fibrinous pleurisy and

extensive lung consolidation. Additional findings included abomasal ulceration and bilateral 0.5 cm areas of necrosis on the mucosa of the arytenoid cartilages which were considered to be a result of dyspnoea. Bacteriology was unrewarding but *M haemolytica* was detected on PCR of lung and histopathology findings were consistent with pasteurella pneumonia. The farmer reported that cows became very distressed on removal from the robotic milking group and it was postulated that this was predisposing them to pneumonia. In order to reduce this stress, visits to the robot were to be gradually limited before cows moved to the low yielding group. A less abrupt ration change was also planned. (C472089)

Nervous system disorders

A beef herd reported problems with keratoconjunctivitis in two separate groups of cows fed baled silage. Corneal oedema/ulceration and a poor response to treatment with amoxicillin was described. *Listeria monocytogenes* was isolated from one of two swabs submitted and considered significant in relation to the clinical signs. Antibiotic sensitivity testing confirmed that it was sensitive *in vitro* to both penicillin and ampicillin. (C089570)

Skin diseases

A heifer on a beef finishing unit became ataxic and then recumbent within a few days. A firm 30 x 10 cm mass was reported to have appeared overnight on the right thorax and seemed to arise from the ribs or scapula. A biopsy was taken, and histopathology found areas of coagulative necrosis with large numbers of mast cells at the sample margin. Cutaneous mast cell tumours in cattle are rare and are often well-differentiated with few mitoses. The metastatic rate is high and consequently these tumours carry a poor prognosis. The apparent rapid growth in this case may have been due to trauma, necrosis or inflammation of a smaller pre-existing mass that had not been observed. Mast cell degranulation is a possible explanation for the systemic signs. (C090253)

SMALL RUMINANTS

Nutritional and metabolic disorders

Three Cheviot lambs were submitted to investigate overnight mortality of eight neonatal lambs from 300 ewes lambing at grass. All three had stood, passed meconium and had fully inflated lungs. They had good milk clots in their abomasums with milk also present in their intestines. There was no evidence of diarrhoea or other infectious disease. ZST results were very good at 43, >50 and >50 units (target >14 units). Despite this the brown fat was metabolised (Fig 2) in all three cases indicating a diagnosis of hypothermia. This was a one-off event with no ongoing mortality explained by severe wet and windy conditions overnight. (S432300)

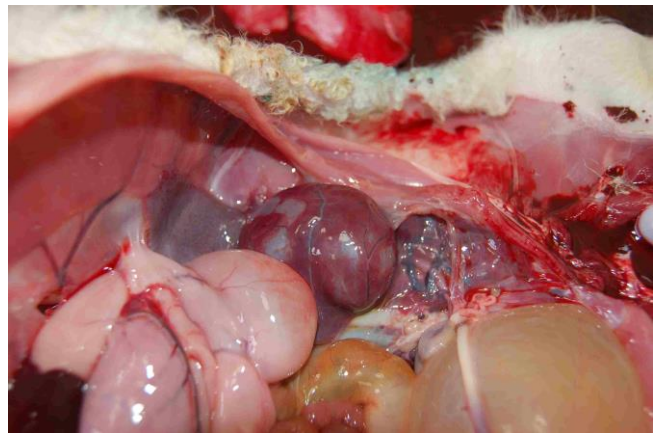


Figure 2 – Metabolism of the renal brown fat in a case of hypothermia in a neonatal lamb

Parasitic diseases

A five-week-old Charolais cross lamb died following a 24-hour history of scour. The carcass was submitted in order to investigate the possibility of nematodiosis. It was reported to be the only case in a group of 20 ewes and 30 lambs that had been turned out two weeks before. The carcass was in good body condition but was faecal stained. There was no milk in the abomasum and the mesenteric lymph nodes were enlarged. The colonic mucosa was inflamed with reddish liquid content. 266,000 coccidial oocysts per gram were detected and speciation showed that 75 per cent were the pathogenic *Eimeria crandallis*. The ewes had been fed a compound feed with added decoquinate since February which will have suppressed excretion of coccidial oocysts. Removal of this low-level challenge may have prevented the lambs developing a degree of immunity leaving them at risk of disease when exposed to significant environmental challenge. (S432327)

Generalised and systemic conditions

Three young lambs were reported to be lethargic and dyspnoeic prior to death. The group of 15 ewes and 24 lambs had been turned out two weeks before. The carcass of a 9kg, three-week-old Texel cross was submitted for postmortem examination. The lungs were mottled and the heart appeared enlarged due to a fibrinous pericarditis and an excess volume of yellow pericardial fluid. There were multiple areas of necrosis/abscessation throughout the myocardium (Fig 3). The liver was swollen and two small abscesses were found in the kidneys. *Staphylococcus aureus* was isolated from the heart, liver, lung and spleen. The grazing was not considered high risk for ticks and none were found on the carcass. However, PCR testing of spleen detected *Anaplasma phagocytophilum* giving a final diagnosis of tick-borne fever and secondary tick

pyaemia. The possibility of tick-borne disease should not be ruled out based solely on the past history of the land. (S432280)

detected but poor navel and environmental hygiene at lambing would be a possible risk factor for hepatic abscessation and consequent bacteraemia. (S230528)



Figure 3 – Myocardial necrosis due to tick pyaemia

Musculo-Skeletal conditions

A neonatal blue Texel tup lamb born to a gimmer that had been purchased in-lamb was submitted to investigate congenital deformities. Postmortem findings included mandibular brachygnathia, incomplete ossification of the skull and bilateral fractures of the ribs, humerus, radius and ulna. The bones were soft and it was easy to bend the long bones. Osteogenesis imperfecta was suspected and confirmed on histopathology which revealed osteopaenia of trabecular and cortical bone, and a failure of normal trabecular bone formation. (S316225)

Nervous system disorders

A live two-week-old aberfield cross lamb was submitted for postmortem examination to investigate an annually recurring problem with recumbency and loss of muscle tone in small numbers of young lambs at grass. The lamb was in right lateral recumbency with reduced proprioception in all four limbs. A deep pain response was present in the hindlimbs only. A thick-walled abscess filled half of the right liver lobe and an abscess was found within the thorax ventral to T6-7. This had caused narrowing of the spinal cord at this level. A second spinal abscess was discovered at T1-2 and *Fusobacterium necrophorum* was isolated from both locations and the liver. No evidence of navel ill was

Skin diseases

A mild outbreak of periocular alopecia and crusting affected a group of 200 beltex cross lambs in autumn. In late February three sheep were noted to have more severe lesions on their heads (Fig 4) and feet which continued to deteriorate despite treatment with antibiotics. Two sheep were euthanased and postmortem examinations were carried out. Bacteriology produced mixed growths including *Bacteriodes* sp and *Fusobacterium necrophorum*. As expected PCR testing of pooled lesions from each sheep was positive for parapoxvirus. A diagnosis of orf complicated by secondary bacterial infection was recorded. It was suggested that the severity of the lesions was due to an abnormal immune response in the affected sheep. No lymph node or bone marrow abnormalities were detected. (S519150)



Figure 4 – Severe orf lesions complicated by secondary bacterial infection