

## OVERVIEW

- **Enterotyphlocolitis in a Limousin heifer with malignant catarrhal fever**
- **Chronic copper toxicity in lambs**
- **Deaths due to acorn toxicity in Scottish blackface ewes**

## GENERAL INTRODUCTION

The 6<sup>th</sup> and 7<sup>th</sup> of October proved to be the wettest two-day period on record for Scotland overall. This was followed by Storm Babet later in the month with 150 to 200 mm of rain in the worst affected areas. While the east of Scotland experienced its wettest October on record the south-west was drier than average with the overall rainfall figure for the whole country 118 per cent of the 1991 to 2020 average. The mean temperature was 0.2°C above average and the sunshine figure 93 per cent of average.

### DISEASE ALERTS

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

- **Pneumonia outbreaks in housed beef cattle**  
Multiple pathogens are often involved, and predisposing factors may include poor ventilation and mixing of animals. Investigation is useful to determine antibiotic sensitivities and inform future vaccination policy.
- **Plant poisonings in sheep following snowfall**  
*Rhododendron* and *Pieris* spp are the species most commonly ingested. Clinical signs include vomiting and abdominal pain and the detection of typical leaves in the rumen confirms the diagnosis.
- **Schmallenberg virus as a cause of deformed lambs**  
Congenital deformities including arthrogryposis, vertebral column and central nervous system abnormalities can occur following infection of naïve ewes with Schmallenberg virus (SBV) during the second month of gestation.

## CATTLE

### Generalised and systemic conditions

A thriving seven-week-old suckled calf was found dead at grass. There were no other losses in the group of 14 cows with calves at foot. Postmortem examination identified serous pleural and pericardial effusions plus dramatic interlobular pulmonary oedema (Fig 1). These findings suggested clostridial enterotoxaemia type D (pulpy kidney) as the cause of death which was further supported by the detection of epsilon toxin in ileal contents. Histopathology did not provide any further evidence of enterotoxaemia or an alternative cause of death. It was considered that this was a peracute presentation which proved fatal prior to the development of brain lesions.



**Figure 1 – Interlobular pulmonary oedema in a calf with clostridial enterotoxaemia type D**

A yearling Limousin cross heifer housed in a single pen within a shed containing other cattle developed scour and was treated with non-steroidal anti-inflammatories. It was the only animal affected. It appeared brighter for 48 hours but then became anorexic and was treated for suspected pneumonia. Blood was noted in the faeces, and it was found dead the following morning. No evidence of pneumonia was detected on postmortem examination. The liver was swollen, and enterotyphlocolitis was apparent. The most severe lesions were found in the distal jejunum where there was distinct reddening of the mucosa on either side of the mesenteric attachment (Fig 2) and enlargement of the mesenteric lymph nodes. Further inflammation was found at the caecal-colon junction and there were petechial haemorrhages on the colonic mucosa. Histopathology revealed a vasculitis in the affected areas with severe mucosal damage resulting from ischaemia. The spleen tested PCR positive for

ovine herpesvirus 2 confirming a diagnosis of malignant catarrhal fever. The possibility of previous contact with sheep was confirmed.



**Figure 2 – Ovine herpesvirus 2 arteritis in the jejunum of a yearling heifer with malignant catarrhal fever**

#### **Musculo-Skeletal conditions**

Investigation was carried out to identify the cause of pyrexia and reduced feed intakes +/- scrotal and hindlimb oedema in housed bulls aged 16 to 18 months. Cases were seen in three different groups with an overall prevalence of around 50 per cent. Clinical signs appeared to resolve whether or not treatment was given. EDTA blood samples were submitted from five affected animals and *Mycoplasma wenyonii* was detected by DGGE (denatured gradient gel electrophoresis)/PCR in only one. However, given the typical clinical presentation this positive result was considered sufficient to determine that *Mycoplasma wenyonii* infection was the cause of the group problem. Fertility assessments were carried out on four bulls two of which failed confirming the potential for this condition to have a significant economic impact. Fly control should continue into autumn in order to try and reduce the transmission of *M wenyonii*.

#### **Renal diseases**

An 18-month-old fattening heifer was described as off colour with a nasal discharge and abdominal discomfort for a few days prior to sudden death when being loaded into a crush. The submitted carcass was thin with signs of dehydration and a strong uraemic smell. The kidneys felt firm and the renal pelvises of both were dilated by purulent material. Histopathology described a mixture of acute and chronic changes with active necrosis and inflammation associated with the presence of bacteria. Lesion distribution was consistent with an ascending infection and bacteriology produced a mixed growth of

*Bacteroides* species and *Escherichia coli*. The renal pathology and vitreous humour urea level (49.9 mmol/l, >7.3 mmol/l is suggestive of clinical disease) fully explained the weight loss but not the cause of sudden death which remained undetermined.

#### **Skin diseases**

Cutaneous lymphoma was diagnosed histologically from skin biopsies collected on farm from a three-year-old Holstein cow that had developed multiple, raised hairless lesions over a three to four-day period. The lesions were mainly concentrated around the head and neck area (Fig 3). There did not appear to be any other associated clinical signs and no evidence of milk drop. APHA were notified but did not request any further testing. Spontaneous cases of cutaneous lymphoma are reported in cattle and only a single animal was affected.



**Figure 3 – Cutaneous lymphoma in a Holstein cow (photo courtesy of PVS)**

### **SMALL RUMINANTS**

#### **Nutritional and metabolic disorders**

On-farm postmortem examination of a pet lamb revealed generalized icterus and a bronze liver. Chronic copper toxicity was suspected and confirmed on analysis of liver and kidney with results of 14,000  $\mu\text{mol/kg}$  dry matter (DM) (reference range 314-7850  $\mu\text{mol/kg}$  DM) and 1,850  $\mu\text{mol/kg}$  DM (reference range <787  $\mu\text{mol/kg}$  DM) respectively. There had been other deaths in the group and the excess copper was a result of the lambs having access to cattle feed. The copper content of sheep feed

should be less than 15 mg/kg but the equivalent maximum limit for cattle is 30 mg/kg. The liver copper result was below the threshold that requires cases to be reported to Food Standards Scotland.

#### **Toxic conditions**

Four Scottish blackface ewes were found dead with a week of being gathered from the hill and split into groups for tupping. Postmortem examination of one ewe revealed subcutaneous oedema and petechiation. Further oedema was noted within the mesentery and there was a serous pericardial effusion with petechial haemorrhages on the epicardium. A large number of ripe acorns were found in the rumen which together with the carcass oedema and a vitreous humour urea result of 106 mmol/l suggested acorn toxicity as the cause of death. Histopathology findings of extensive acute renal tubular necrosis confirmed this to be the case. The field boundary was adjacent to woodland.

#### **Generalised and systemic conditions**

A north country Cheviot shearling tup was found dead approximately three weeks after purchase. Postmortem examination findings suggested bacterial septicaemia and a combination of bacteriology and histopathology confirmed *Staphylococcus aureus* to be the cause. *Anaplasma phagocytophilia* DNA was detected on PCR testing of spleen. The tup had been purchased in south-west Scotland and transported to Caithness. It was hypothesised that it may not have been exposed to tick borne fever prior to its relocation making it susceptible to tick pyaemia. Two other tups purchased from the same area were unaffected at the time of submission.

#### **Alimentary tract disorders**

A Valais blacknose tup died following an episode of acute onset dyspnoea. The oesophagus was found to be distended and impacted with dry ingesta resembling sugar beet. Similar material was found in the cranial trachea and nasal passages. The group had been handled that day for clipping and access to unsoaked sugar beet was possible.

A farmer reported that a group of 30 ewes had poor appetites following abdominal endoscopy. Most improved with time but a Texel gimmer appeared anaemic 12 days post-surgery and was euthanased. Postmortem examination found that the endoscopy wound was clean and there was no evidence of peritonitis. The carcass was generally very pale and the liver was firm. The abomasum and small intestinal contents were liquid and black and an irregular area of deep ulceration at the pylorus was found to be the source of the haemorrhage. Histopathology confirmed severe centrilobular necrosis in the liver which was most likely a result of acute hypoxic injury secondary to the anaemia.

#### **Skin diseases**

Swabs were submitted from the conjunctiva of three sheep in order to investigate an increasing incidence of ovine keratoconjunctivitis (OKC). Affected animals were reported to be rubbing their heads on fences and their flock mates. There had been no response to administration of topical antibiotics. *Mycoplasma conjunctivae* was detected by PCR in two cases and is the most commonly diagnosed cause of OKC.

#### **PIGS**

##### **Generalised systemic diseases**

Two 28-day-old piglets were submitted from a closed high-health herd. The piglets were from a litter of 18, eight of which had died over a nine-day period. A further four were ill and had been treated with antibiotics. Affected piglets were described as lethargic, ataxic and cyanotic with death occurring within a few hours of onset. Postmortem examination revealed septic arthritis affecting numerous joints in the first piglet with no significant lesions detected in the second. Bacteriology confirmed *Streptococcus suis* type 1 septicaemia to be the cause of death following its isolation from one of the affected joints and from multiple tissues including the brain of piglet two