SRUC Veterinary Services Monthly Report for November 2024

OVERVIEW

- **Respiratory disease due to *Mannheimia haemolytica* in weaned dairy calves**
- **Subacute fasciolosis causing sheep deaths in south-west Scotland**
- **Multiple outbreaks of systemic pasteurellosis due to *Bibersteinia trehalosi* in south-east Scotland**

GENERAL INTRODUCTION

The mean temperature in November was 0.2˚C above the thirty-year average at 5.4˚C. While the north-east enjoyed sunny conditions it was a very dull month in the south-west. The whole of Scotland experienced dry conditions with only 53 per cent of rainfall compared to the 1991 to 2020 average.

DISEASE ALERTS

The following conditions were reported by SRUC VS disease surveillance centres in February 2024. Given similar climatic and production conditions, they could also be important this year.

Hypomagnesaemia in suckled calves

Rapidly growing suckled calves between the ages of two and four months are at risk of hypomagnesaemia if they do not have adequate access to creep feed. Affected animals may appear hyperaesthetic or ataxic but can be found dead. Postmortem examination is often non-diagnostic, and differential diagnoses should include clostridial enterotoxaemia and nutritional myopathy. Diagnosis requires bone analysis with a rib calcium:magnesium ratio above 70 (reference range 30 to 70) confirming the diagnosis.

Rickets in hoggs wintered on dairy grazing

Hill lambs wintered on lush dairy grazing are at risk of rickets due to a combination of rapid growth at a time of vitamin D deficiency. A number of animals may be affected, and clinical signs can include stiffness, reluctance to walk, lower limb valgus and recumbency. Widening of the growth plates may be apparent on section of long bones, but histopathology is required to absolutely confirm the diagnosis. The grazing history and presentation are useful in these cases and a response to injection of vitamin D and/or introduction of mineralised feed should be seen.

CATTLE

Generalised and systemic conditions

A dairy herd that historically had excellent calf health reported the death of four calves over a three-week period following non-specific signs of malaise. The carcase of a two-week old Holstein Friesian calf was submitted to investigate the increased mortality rate. It had been treated with NSAIDs and oral fluids with limited response followed 48 hours later by antibiotics and intravenous fluids. There was no evidence of overt infection, but the navel appeared wet. Postmortem examination revealed a severe fibrinous peritonitis (Fig 1) with approximately 15 litres of thick pink/yellow fluid within the abdomen and extensive adhesions between the gastrointestinal tract, body wall and diaphragm. A mixed bacterial growth including E*scherichia coli* and *Bacteroides* species was cultured from the abdominal fluid and liver. The navel was considered to be the point of entry, and a review of navel hygiene was advised.

Figure 1 – Fibrinous peritonitis in a neonatal dairy calf

Respiratory tract diseases

A block calving dairy herd reported that a batch of 150 weaned calves was not doing as well as expected. Several had been treated with antibiotics for suspected pneumonia, two had

died and two had been euthanased. Four hundred calves had been born and the younger groups were unaffected. An intranasal bovine respiratory syncytial virus/parainfluenza 3 virus vaccine had been administered four weeks earlier. A nine-week-old Holstein heifer was treated with antibiotics, steroids and fluids but was found dead the following morning. The carcase was submitted, and postmortem examination found a severe fibrinous pleuritis, epicarditis (Fig 2) and pericarditis. The right lung was firm with interlobular oedema, and hepatosplenomegaly was also identified. Cultures were sterile but *Mannheimia haemolytica* was detected on PCR testing of affected lung and histopathology lesions were consistent with *Mannheimia haemolytica* as the cause.

Figure 2 – Epicarditis due to *Mannheimia haemolytica* in nine-week-old Holstein calf

Reproductive tract conditions

A 48 kg, twelve-hours-old Limousin calf was submitted for postmortem examination as part of an investigation into perinatal mortality in a suckler herd. Twenty-five cows had calved, and five calves were described as lethargic and slow to rise. Three died, two of which, including the submitted calf, had an assisted birth. A large volume of fluid was reported to have drained from its nose and mouth during calving. It was initially able to maintain sternal recumbent but deteriorated rapidly and died. Postmortem examination identified bilateral bruising over the thorax, quadriceps, stifles and diaphragm. A large volume of clotted and free blood was found in the abdomen originating from a tear in the left umbilical artery. Traumatocia was recorded as the cause of death. Histopathology also identified an acute suppurative placentitis and septicaemia likely as result of ascending bacterial infection through the open cervix during a prolonged calving. Slow calving may have been solely due to foetal oversize, however as older dams were predominantly affected it was advised that periparturient calcium status and dam body condition score were reviewed, in addition to bull selection.

Circulatory system disorders

The second Holstein Friesian heifer to die suddenly over the course of two weeks was submitted for postmortem examination. It had given 20 litres of milk the previous day, and appeared healthy at 4am before being found dead at 7.30 am. A walled off abscess measuring 50 x 20 cm was found adjacent to the liver, with adhesions to the liver and diaphragm. It contained liquid pus and had eroded into the caudal vena cava where a thrombus had formed. The liver had a nutmeg appearance consistent with circulatory failure, but there were no abscesses within the parenchyma. Thrombi were identified in the right middle and caudal lung lobes with local haemorrhage associated with the latter. Marked endocarditis of the right atrioventricular valve was also detected. The cause of the abscess was not clear with no evidence of a penetrating foreign body at the time of death. *Fusobacterium necrophorum* was cultured from both the abscess and the endocarditis lesion with a final diagnosis of endocarditis, caudal vena caval thrombosis and pulmonary thromboembolism secondary to cranial abdominal abscessation.

SMALL RUMINANTS

Parasitic diseases

Several outbreaks of sub-acute/chronic fasciolosis were recorded in south-west Scotland during November. Five lambs and two ewes were reported to have recently died from a group of 18 sheep. Affected animals were seen to be lethargic and quickly progressed to recumbency with dyspnoea before death. The carcase of a thin 16 kg five-month-old Romney ewe lamb was submitted. There was generalised carcase pallor and a friable liver with lesions consistent with subacute liver fluke. Large numbers of *Fasciola hepatica* measuring between 3 and 10 mm were identified. The flock had not received any flukicide treatments. A Scottish blackface gimmer was submitted from a second flock where seven animals had died from a group of 100. Ill thrift and submandibular oedema were reported with ewes appearing unwell before death. The submitted carcase was pale with marked subcutaneous oedema and body cavity effusions suggesting hypoalbuminaemia. The liver parenchyma was fibrosed with very large numbers of dead 10 to 15mm fluke present in the bile ducts and gall bladder. Triclabendazole had recently been administered and it was advised that faecal coproantigen testing was carried out after a two-week interval to assess treatment efficacy.

Generalised and systemic conditions

Five sick and two dead sheep were reported ten days after a group of 140 Scottish blackface gimmers were injected with their second dose of a *Chlamydia abortus*/Salmonella vaccine. Several others had developed swellings, some of which had ruptured. The sheep had been handled through a combi clamp and the needles changed periodically. Two carcases were submitted, and the suspected injection sites were located adjacent to the spinous processes over ribs 11 to 13. Yellow tissue necrosis was found subcutaneously and within the muscle layers at these sites. From here extensive cellulitis had tracked ventrally and pockets of fluid, tissue oedema and generalised inflammation were evident (Fig 3). Infection then extended along the ventral body onto the upper legs and the caudoventral neck. The anaerobic bacteria *Peptoniphilus indolicus* was isolated from the cellulitis lesions in both cases. This bacterium has previously been reported from cases of summer mastitis and septic arthritis in cattle often in combination with *Trueperella pyogenes*. Both vaccine bottles were swabbed with sterile cultures in one and no significant isolates from the second. Histopathology found no evidence of intramuscular injection and findings were consistent with an infected injection site rather than a vaccine reaction. Gram positive cocci consistent with *P indolicus* were associated with the lesions and the final diagnosis was severe subacute pyogranulomatous and necrotising cellulitis secondary to injection site infection.

Figure 3 – Cellulitis following *Peptoniphilus indolicus* infection of an injection site

The end of October/start of November showed a seasonal peak in the diagnosis of systemic pasteurellosis due to *Bibersteinia trehalosi* affecting lambs in south-east Scotland. The typical history was of several deaths over a short period of time with clinical signs only observed in a minority of cases. Petechial haemorrhages,

lymphadenopathy and oesophageal ulceration were common postmortem examination findings. Some of the affected lambs were ill thriven with concurrent diagnoses of parasitic gastroenteritis +/- hyposelanosis and/or pine. It was noted that there had been no outbreaks in that area during the same period in 2023.

Respiratory tract diseases

A flock owner complained that April-born Romney cross Cheviot lambs were failing to achieve target growth rates and had been persistently coughing for two months. The lambs were managed in groups of 400 to 500 and moved paddock every two to three days. Four live lambs were submitted to investigate the problem six weeks after treatment with oral ivermectin. Body condition was adequate in one animal with the other three being leaner than ideal. There was no evidence of seroconversion to border disease. Postmortem examination found very minor areas of lung consolidation with *Mannheimia haemolytica* isolated from all four. No lungworms were observed. Mycoplasma DGGE/PCR testing was carried out and confirmed co-infection with *Mycoplasma ovipneumoniae* in both animals tested. Strongyle egg counts ranged from 0 to 550 eggs per gram with 10,700 *Trichostrongyle* spp nematodes recovered from the small intestine of one lamb. Worm counts in the others were low however histopathology confirmed marked parasitic enteritis deemed significant in relation to the poor growth rates. It also revealed tracheitis with diffuse infiltration of lymphocytes and plasma cells into the lamina propria, epithelial hyperplasia, and loss of cilia. These findings were considered to be the explanation for the coughing. *Mycoplasma ovipneumoniae* was the most likely cause, however a viral aetiology could not be excluded.

Death as a consequence of laryngeal chondritis was diagnosed on several occasions with Texel sheep affected predominantly. Cases involved adult animals, lambs and both ewes and tups.

The carcase of a seven-month-old Texel tup lamb was submitted to investigate respiratory issues in a group of eight at grass. It was the second animal to die and had been treated with antibiotics and NSAIDs one week earlier. Swelling of the laryngeal folds caused marked stenosis of the lumen and a 5 to 10 mm abscess was found immediately adjacent to the cartilage within the left laryngeal wall. Over 3 litres of clotted and free blood were found within the right thorax and caudal mediastinum (Fig 4). This had originated from a 2 cm long tear in the caudal vena cava at the level of the diaphragm. Histopathology revealed haemorrhage dissecting the vessel wall with fibrin, low numbers of inflammatory cells and an early fibrovascular response. This suggested that bleeding may have started dissecting the wall from a few hours to two days before vessel rupture occurred. Fatal haemothorax associated with upper respiratory tract pathology has been described previously in the literature although it is usually associated with tearing of the diaphragm rather than the vena cava.

Figure 4 – Fatal unilateral haemothorax secondary to laryngeal chrondritis in a Texel tup lamb