SRUC Veterinary Services Monthly Report for May 2025

OVERVIEW

- **Tick borne diseases continue to contribute to losses in both cattle and sheep**
- **Early cases of nematodirosis in north-east Scotland**
- **Myelomeningoencephalitis due to suspected picornavirus infection in artificially reared lambs**

DISEASE ALERTS

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

Haemonchosis in ewes and lambs

August and September are the peak months for diagnoses of haemonchosis with all ages of sheep at risk. Weakness, anaemia, ill thrift, submandibular oedema or sudden death are possible presenting signs. Diarrhoea is not a feature unless there is an additional significant mixed nematode burden. *Haemonchus contortus* worms are visible on the abomasal mucosa and their fecundity can result in very high strongyle egg counts. If postmortem material is unavailable the diagnosis can also be made following peanut agglutinin straining of strongyle eggs recovered from faeces. *H contortus* eggs fluoresce when viewed under ultra-violet light in this test.

Spironucleosis in pheasant poults

Outbreaks of disease can occur shortly after the transfer of birds from rearing to release pens and are triggered by the stress of handling, transportation and introduction to a new environment. Pens that have been used in previous years are higher risk. Affected birds are dull, diarrhoeic and can lose weight rapidly.

GENERAL INTRODUCTION

May was the sunniest since records began and the seventh warmest with all areas of Scotland recording a mean temperature above the thirty-year average. It was drier than usual in the east with 90 per cent of rainfall overall.

CATTLE

Nutritional and metabolic disorders

Fixed and fresh tissues, blood and urine were received from the second dairy cow to die post turn out. Both animals were described as pale and weak with evidence of haematuria plus blood in the milk. Haematology confirmed a normocytic, normochromic anaemia with no sign of regeneration. The presence of haemosiderin within the spleen and kidney on histopathology suggested haemolytic anaemia and hepatocellular changes were indicative of a toxic insult and a chronic rather than an acute time course. Further testing failed to detect evidence of either *Mycoplasma wenyonii* or *Candidatus Mycoplasma haemobos*. Liver copper was above the reference range at 12631.6 umol/kg dry matter (DM) (reference range 314-7850 umol/kg DM) indicating a degree of copper loading. Kidney copper was also above the reference range at 526.4 umol/kg DM (ref range 141 – 314 umol/kg DM) confirming a release of copper from the liver at some point prior to death.

Haemolysis secondary to chronic copper toxicity was recorded as the cause of death despite the unusually low liver copper level. Copper loading can occur over a prolonged period of time. Further monitoring and a copper audit of the ration was advised.

Part-funded by the Scottish Government as part of its Public Good Veterinary Advice Services

Parasitic diseases

A group of six, 18-month-old Holstein heifers was turned out to grass and two weeks later one was found standing apart. It felt cold to touch, appeared mildly ataxic and was unresponsive to stimuli. It was treated with intravenous fluids, NSAIDs and vitamins but died the following morning. The farm had grazed cattle on this field previously without any issues. The heifer was in good condition, but the conjunctivae and gingivae were pale. Five engorged ticks were found on the upper medial hind legs. There were petechial haemorrhages within the tissues of the neck and blood splashing on the visceral pleura. Rumen fill was poor and the large intestinal contents were liquid with evidence of haemorrhage distally. The caecal mucosa appeared roughened and there were petechiae on the mucosa of the colon and rectum. The coccidial count was very high at 331,000 oocysts per gram (opg) and speciation detected exclusively pathogenic species with 53.6 per cent *Eimeria zuernii*, 38.2 per cent *E alabamensis* and 8.2 per cent *E bovis*. Spleen tested PCR positive for *Anaplasma phagocytophila*. It was presumed that the heifer had been naïve to tick borne fever and that the consequent immunosuppression in combination with significant coccidial challenge had overcome any immunity it had previously developed.

Alimentary tract disorders

The carcase of a neonatal Hereford cross male suckler calf was presented for postmortem examination. It had appeared bloated the previous day and died despite being treated empirically. A neonatal calf from the same farm of 900 suckler cows had been diagnosed with congenital small intestinal atresia the previous month. Postmortem examination of the second calf identified a fibrinous peritonitis and marked distension of the small intestines proximal to the distal jejunum. Membranous atresia causing a complete obstruction was detected at this point and the distal intestines were empty as a result (Fig 1). It was not possible to confirm whether or not the affected calves had been sired by the same bull. The aetiology of the condition is unclear with two theories proposed - vascular compromise resulting in ischaemia and failure of intestinal development or a failure of the intestinal lumen to recanalise after week six of gestation. The latter is a more plausible explanation for cases of membranous atresia and sporadic genetic events may predispose to the condition.

Figure 1 – Distension of the proximal small intestines due to congenital intestinal atresia in a Hereford cross calf

A two-month-old Aberdeen Angus heifer from a group of 30 cows and calves became unwell two days after being turned out to grass. A few calves had developed diarrhoea while housed and they were all treated with an anti-coccidial drench at turn out. The submitted calf had a persistent pyrexia, diarrhoea and a cough. It was treated on three occasions but died nine days after the initial presentation. Postmortem examination revealed fibrinous peritonitis and lung consolidation with microabscessation in the cranial lobes. Multiple circular red lesions were found on the small intestinal serosa (Fig 2) with corresponding ulceration of the mucosal surface.

Figure 2 – Jejunal and ileal serosal changes in a case of idiopathic necrotising enteritis

The terminal ileal wall was markedly thickened and necrotic with coalescing ulcers (Fig 3). No evidence of salmonellosis was detected on bacteriology and screening for BVD antigen was negative. Lung tissue was PCR positive for *Mycoplasma bovis* and *Mannhaemia haemolytica* consistent with the pathology seen. Histopathology confirmed small intestinal ulceration associated with vascular thrombosis and colonies of bacteria with further evidence of thrombosis in the rumen and liver. Idiopathic necrotising enteritis (INE) was recorded as the cause of death. This is a diagnosis of exclusion with the signalment and clinical signs in this case typical of the condition.

Figure 3 – Necrotic ileal mucosa in a case of idiopathic necrotising enteritis

Nervous system disorders

A 300 cow suckler herd submitted an Aberdeen Angus cross calf that had been born convulsing and euthanased on farm. Its twin was stillborn and was not examined. Postmortem examination of the brain was unremarkable however histopathology found lesions consistent with cerebellar abiotrophy. These included multifocal Purkinje cell ectopia and loss particularly in the vermis. Three days later a set of twin Aberdeen Angus cross calves were submitted. One had been born dead and the other was unable to stand and exhibited opisthotonus. Both brains were examined histologically and no lesions detected. It was conceded however that mild lesions of cerebellar abiotrophy couldn't be ruled out. Unfortunately, it was not possible to ascertain which bull had sired these calves. The herd had been established three to four years previously by the purchase of cattle from various sources but were now breeding their own replacements. A dominant genetic mutation is a recognised cause of bovine familial convulsions and ataxia in Aberdeen Angus cattle and their crosses[1] and has been described in the UK.

Circulatory system disorders

A four-year-old Aberdeen Angus cross suckler cow was submitted for postmortem examination after it became the second cow to be found dead in a field within 48 hours. It was suckling a four-week-old calf, and no signs of illness had been observed. The cattle were grazing the land for the first time and ticks had been observed. Together with postmortem examination findings of jaundice and splenomegaly this raised suspicions of babesiosis and *Babesia divergens* was detected on PCR of spleen. Calves less than around nine months-of age have an innate resistance to babesiosis possibly due to an early Th1 immune response localised in the spleen.[2]

SMALL RUMINANTS

Parasitic diseases

Four lambs aged six to eight-weeks from three farms in the north-east were diagnosed with nematodirosis between the 6th and 8th of May. This is unusually early for this area and was likely a result of the exceptionally warm spring weather. No further deaths due to nematodirosis were recorded in that region during the rest of May with a total of six diagnoses across Scotland as a whole.

Generalised and systemic conditions

Bibersteinia trehalosi septicaemia was diagnosed as the cause of death in a two week-old lamb that had been found dead. Several deaths in this age-group were reported and on examination a large number of ticks was found on the submitted carcase. There was evidence of splenomegaly and a single liver abscess adhered to the diaphragm. *B trehalosi* was isolated in systemic distribution and PCR testing of spleen was positive for *Anaplasma phagocytophilum* confirming tick borne fever as a possible predisposing factor. Systemic pasteurellosis is more commonly diagnosed in weaned lambs. Given the number of ticks on the lamb it is interesting to note that it has recently been shown that further tick infestation on an already immunosuppressed host does not lead to a greater degree of immunosuppression.[3]

The carcase of a four to five-day Texel cross ewe lamb was submitted to investigate a significant level of neonatal lamb mortality in a flock of 100 ewes. Ninety per cent of the ewes had lambed and 50 lambs had been lost. The submitted lamb was reported to be a typical case and had stood and suckled unassisted after birth. It appeared off colour three days later and died the following day despite treatment with antibiotics. The carcase was sunken eyed and faecal stained. The brown fat had been metabolised however milk was present in the abomasum and intestines at the time of death. The mesenteric lymph nodes were markedly enlarged, and the faeces were pasty. *Salmonella enterica* serotype *typhimurium* was isolated from the liver, lung and ileum. Surprisingly, neither abortions nor ewe ill health were reported. The possibility of other underlying issues contributing to the lamb losses could not be excluded based on the examination of one carcase. The isolation of *S typhimurium* at lambing time poses a significant zoonotic risk.

Respiratory tract diseases

The carcases of two, four-day-old Kerry hill lambs were submitted to investigate lamb losses in the first week of life. The mortality rate in lambs born to the 60 Kerry hill ewes was higher than for lambs born to the 140 commercial ewes. Affected lambs became weak and died within the first week of life. Postmortem examination found consolidated cranioventral lung lobes, poor rib strength (Fig 4) and thinning of the long bone cortices. ZST results of 3.1 and 10.0 units (reference range >14 units) indicated hypogammaglobulinaemia and *Mannheimia haemolytica* was isolated in pure growth from the lungs. A nutritional issue in the ewes during late pregnancy was suspected, however they had been on good grass with supplementary concentrate feed from eight weeks pre-lambing at a rate of 500g/head/day increasing to 750g/head/day. Further history revealed that sheep scab had been diagnosed in the Kerry Hill ewes resulting in them being dipped three weeks prior to lambing. It was postulated that this could have adversely affected skeletal development and colostrum quality in this group.

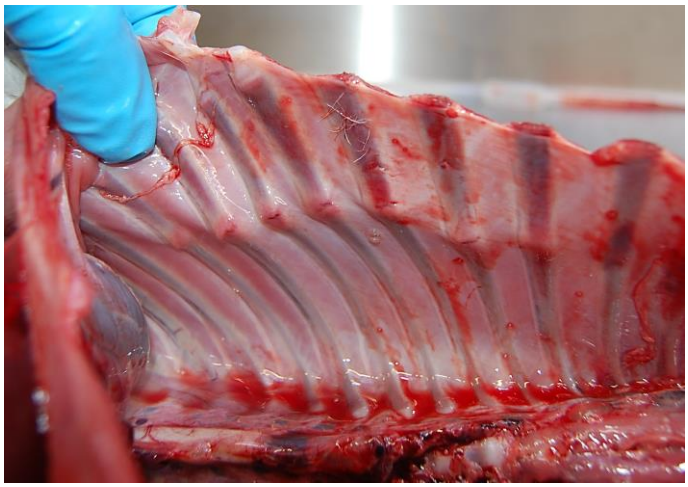

Figure 4 – Poor bone strength in a neonatal lamb making it easy to fracture the ribs postmortem

Nervous system disorders

Samples were received from two hoggs that underwent postmortem examination on-farm to investigate cases of weakness and abnormal gaits leading to recumbency with opisthotonos and seizures prior to death. Neuropathology was suggestive of an infectious aetiology, but it was not possible to examine the whole brain and interpretation of the submitted tissue was hindered by autolysis. PCR testing of a pre-mortem EDTA blood sample detected *Anaplasma phagocytophilum*, and brain tissue was PCR positive for louping ill virus. Louping ill serology detected a predominance of IgM consistent with a recent infection. The affected flock was in a known louping ill area where tick challenge was expected. Co-infection with TBF and louping ill was also diagnosed in Cheviot hoggs in south-east Scotland where it is a more unusual finding. Infection of naïve animals with TBF can increase the severity of concurrent louping ill. This scenario was potentially more likely in the second case.

Several pet lambs from a group of 100 died following a three-to-five-day history of progressive neurological signs including intention tremors, generalised weakness and nystagmus. The carcase of an 18-day-old cross lamb was examined postmortem which confirmed abomasal bloat and rupture as the ultimate cause of death. No brain pathology was observed but histopathology identified a marked, multifocal to coalescing, non-suppurative myelomeningoencephalitis with glial nodules, tentative neuronophagia and karyorrhectic debris within blood vessel walls. Moderate, multifocal, lymphohistiocytic infiltrates were evident in the dorsal root ganglia. The lesions were most severe in the caudal brain/spinal cord and considered consistent with picornavirus infection as described by Forth *et al.*[4] Artificial rearing and failure of passive maternal antibody transfer have been cited as possible predisposing factors. The majority of the lambs in the group were triplets which are at higher risk of hypogammaglobulinaemia.

PIGS

A 19-week-old pig was submitted from a housed breeding to finishing unit with a total of 4,500 stock. Postmortem examination was requested to investigate an increased incidence of sudden death in finishing pigs with three found dead in the previous week. Pneumonia plus severe necrotic tracheitis were identified and pure growths of *Pasteurella multocida* were cultured from the lung and liver. PCR testing proved negative for both swine influenza virus and PRRS virus. Histopathology confirmed severe fibrinonecrotic and suppurative tracheitis (Fig 5), and a fibrinosuppurative bronchopneumonia with thrombosis. Bacteria consistent with *P multocida* were associated with the pathology in both tissues. Tracheitis is a less common finding in pigs and a range of pathogens has been detected in previous cases including *Pasteurella multocida, Mycoplasma hyorhinis*, *Streptococcus dysgalactiae subsp equisimilis* and *Trueperella pyogenes*.

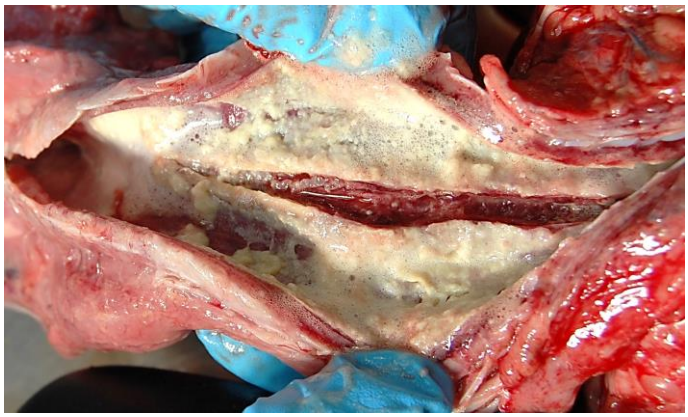

Figure 5 – Tracheitis associated with *Pasteurella multocida* in a finishing pig

BIRDS

Parasitic diseases

Four, four-week-old chicks that had been found dead were submitted from a flock of 60 hens. The findings were similar in all cases with pallor of the viscera and an absence of food in the crop and gizzard. The caecal contents were haemorrhagic in each bird with white cores in one. Coccidiosis was suspected and an oocyst count of 274,400 opg confirmed the diagnosis.

References:

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2 – Zintl A, Gray JS, Skerrett HS, Mulcahy G. Possible mechanisms underlying age-related resistance to bovine babesiosis. *Parasite Immunol*; 2005:27, 115-20

3 – Groenevelt M, Wijburg SR, Sprong H *et al.* Role of tick infestation in the progression of *Anaplasma phagocytophilum* infection in lambs. *Ticks and Tickborne Dis;* 2025: https://doi.org/10.1016/j.ttbdis.2025.102477

4 - Forth LF, Scholes SF, Pesavento PA *et al.* Novel picornavirus in lambs with severe encephalomyelitis. *Emerg Infect Dis*; 2019: 25(5), 963-7