

OVERVIEW

- **Deaths due to nutritional myopathy in suckled calves**
- **Outbreak of haemonchosis in pre-weaned lambs**
- ***Trueperella pyogenes* as a cause of porcine abortion**

GENERAL INTRODUCTION

Monthly mean temperatures were 0.7 °C above average, with daytime temperatures up to 2 °C above average in the east and south. Rainfall was below average particularly in the south-east with 68 per cent of average overall. It was a sunny month except in the far north and the Northern Isles, with 115 per cent of average sunshine overall.

DISEASE ALERTS

The following conditions were reported by SRUC VS disease surveillance centres in November 2021. Given similar climatic and production conditions, they could also be important this year.

- **Systemic pasteurellosis in hogs due to *Bibersteinia trehalosi*** Outbreaks were recorded in all areas of Scotland and possible predisposing factors included a recent move to better grazing, exposure to tick borne fever and incomplete vaccination course. Significant gastrointestinal worm burdens were identified in all cases and may have contributed to increased disease susceptibility.
- **Osteodystrophy in turkey poults** Rations that are not correctly balanced/supplemented to supply the correct amount of calcium and phosphorus can lead to poor skeletal mineralisation and increased susceptibility to fractures in rapidly growing birds. Birds with fractures or severe deformities should be humanely culled.

CATTLE

Nutritional and metabolic disorders

Five, four-month-old Aberdeen Angus calves became dull, lethargic and easy to catch in the field. Treatment with antibiotics and oral fluids was unsuccessful and the fifth calf to die was submitted for postmortem examination. The group comprised forty cows with calves at foot and only Aberdeen Angus calves born to heifers were affected. Calves sired by the Limousin bull or born to cows were clinically normal. Generalised carcass pallor and firm kidneys with pale cortices were the main findings and analysis of vitreous humour confirmed azotaemia with a urea result of 55.5 mmol/l (serum reference range (RR) 4 – 8 mmol/l). It was noted that myoglobinuria resulting from nutritional myopathy can be a cause of nephrosis. Liver trace element analysis confirmed hyposelenosis (0.49 mg/kg dry matter (DM): RR 0.9-1.75 mg/kg DM) and low vitamin E (2.32 umol/kg fresh tissue (FT): RR >5 umol/kg FT) supporting a diagnosis of white muscle disease. Hypocuprosis was also detected and relevant for the surviving calves (213 umol/kg DM, RR 314 – 7850 umol/kg DM). Histopathology detected widespread acute myofibre degeneration and chronic active tubular damage confirmed the suspected diagnosis. There is no clear explanation as to why only the Aberdeen Angus calves from the heifers were affected. However, they were the last group to calve and would have been fed the unmineralized winter ration longest. The remaining calves were treated with vitamin E and selenium and no further cases were reported. The group has access to minerals while at grass and the plan is to mineralise the silage ration next winter.

Generalised and systemic conditions

A 15-year-old Aberdeen Angus cross cow died after a 48-hour period of malaise and was submitted for postmortem examination. It was the second of three animals to die in a two-week period from a group of cattle grazing away from home. Ticks were known to be present, but none were detected on the carcass. The subcutaneous fat was yellow tinged and there was blood in the milk. The liver was orange, the spleen swollen and friable and a small volume of dark red urine was present in the bladder. Liver analysis ruled out copper toxicity as the cause of death. Histopathology described diffuse hepatic centrilobular necrosis most likely secondary to anaemia/hypoxia plus eosinophilic granular casts in the renal cortex/medulla suggestive of haemoglobinuria. A fourth cow died three weeks later after the group had returned home and showed clinical signs of ataxia, tremor and aggression for 12 hours prior to death. Postmortem examination findings included pyelonephritis, jaundice and a nutmeg liver which was

considered to have developed as a result of circulatory failure secondary to anaemia. Splenic tissue from both cows tested PCR positive for *Babesia divergens*. As is usually the case in outbreaks of babesiosis the calves in the group remained clinically unaffected throughout.

Alimentary tract disorders

A recently calved Holstein heifer developed dysentery and died. Postmortem examination revealed interlobular oedema particularly in the caudal lung lobes, and a pale swollen liver. The abomasum contained 3.5 litres of fine sand, but the pylorus was not completely obstructed. Removal of the sand revealed significant areas of irregular ulceration most marked around the pylorus but also present along the edges of the abomasal folds (Fig 1). The proximal two thirds of the small intestine were dilated with fluid and gas as a result of complete obstruction by a bolus of sand. Intestinal content was scant distal to this. Sand bedded cubicles and calving yards were in use, but it was not clear why this animal had consumed so much sand. An outbreak of abomasal sand impaction in dairy cattle suspected to be associated with mild metabolic acidosis has been described¹ but the aetiology remained unknown in the current case with only one animal affected.



Figure 1 – Darkly discoloured abomasal ulceration in a dairy heifer with intestinal obstruction secondary to ingestion of sand

Nervous system disorders

An outbreak of diarrhoea in one-month-old Holstein calves was suspected to be due to salmonellosis and

treated with antibiotics. Four calves subsequently became lame in one hind leg three of which improved with further treatment. The fourth deteriorated, started to knuckle on the right hind leg and was euthanased for investigation of the problem one month after the initial treatment was given. Muscle atrophy was evident over the right pelvis and upper right hind leg, but no swelling was detected in the joints and no muscle or joint lesions were noted on postmortem examination. Small, localised areas of yellow discolouration were found in the tissues surrounding the right sciatic nerve and the rostral section was swollen and oedematous in comparison to the left (Fig 2). Histopathology revealed haemorrhage and degenerative change within the nerve giving a final diagnosis of perineuritis and neuritis secondary to injection site reaction. A review of injection technique was planned.



Figure 2 – Sciatic neuritis causing thickening in the nerve on the right as a result of injection site reaction

Skin diseases

Two Limousin calves from a 130-cow herd were born weak and unable to rise. One was submitted live at two days-of-age and found to be dull, salivating and periodically jerking its head upwards. The skull appeared domed and the skin was wrinkled and thickened. There were no significant findings on postmortem examination and histopathological changes were confined to the skin and brain. A diffuse, moderate orthokeratosis with extensive intracorneal and intraepidermal pustule

formation was consistent with a diagnosis of congenital hyperkeratosis. Multifocal areas of epidermal necrosis and ulceration occasionally extended into the dermis and bacteria colonised the necrotic epithelium. Neuropathology revealed vacuolation which was most severe in the hippocampus with a symmetrical distribution in the midbrain and medulla. A genetic cause was suspected, however further investigation was declined.

SMALL RUMINANTS

Toxic conditions

A one-year-old North Ronaldsay ewe and a two-year-old North Ronaldsay ram appeared lethargic for 24 hours prior to death. Liver tissue from the ewe was submitted and found to contain 37,600 μmol copper/kg DM (reference range 314 – 7850 μmol /kg DM). Histopathology findings supported a diagnosis of chronic copper toxicity with periportal hepatic necrosis and necrosis of the renal collecting duct epithelium in association with golden granular pigment confirming haemolysis. The sheep were kept on grass fields and had no access to their traditional shoreline grazing. North Ronaldsay sheep evolved to subsist on a predominantly seaweed-based diet that is very low in copper. As a result, they are highly efficient at absorbing copper putting them at risk of chronic copper toxicity when managed inland.

Parasitic diseases

Following lambing a group of 260 ewes with lambs at foot were set stocked on fields that had not been grazed by sheep for many years. In early August some lambs were noted to lose condition, several developed submandibular oedema, and five died over a five day period. There was no evidence of diarrhoea and parasite burdens had not been monitored due to the perceived low risk nature of the grazing. Postmortem examination of a four-month-old Suffolk lamb revealed that the carcass was thin and pale with submandibular oedema and body cavity effusions suggesting anaemia and hypoalbuminaemia. Thirty-five thousand *Haemonchus contortus* worms were recovered from the abomasum and a faecal egg count detected 145,350 strongyle eggs per gram. The lambs were treated with ivermectin, weaned and moved to a different field. The ewes remained on the pasture and targeted selective treatment based on regular monitoring for anaemia was advised. It was assumed that *Haemonchus contortus* had been introduced to the field with the ewes leading to parasitism of the lambs and a build-up of infectious larvae on the grass over the course of the summer.

Generalised and systemic conditions

A five-month-old Texel ram lamb was submitted for postmortem examination after it became the second to die from group of 25. It was reported to have been dull for one week and had died two days after being treated for suspected pneumonia. A large blood clot was found in the abdomen originating from two areas of focal haemorrhage in the mesentery. Histopathology detected a diffuse vasculitis dominated by small mature lymphocytes in all tissues examined. Ovine herpesvirus 2 (OHV 2) was detected by PCR at a low CT of 17.65 indicating a high viral load. It was postulated that this may have been the cause of the vasculitis. However, infection with OHV 2 is considered to be ubiquitous in sheep so a definitive connection cannot be made. Sheep are usually considered to be asymptomatic carriers but it has recently been suggested that the virus is responsible for sporadic cases of systemic necrotizing vasculitis.²

Mammary diseases

A one-year-old Texel cross ewe was euthanased on welfare grounds following progressive enlargement of the left udder over a period of several months. Mammary tissue was submitted for histopathology which detected moderately hyperplastic ducts interspersed by dense interlacing streams of spindle cells (myofibroblasts/fibroblasts) consistent with mammary fibroadenomatous hyperplasia. This is a rare condition in sheep but has been previously described in a three-month-old Chios lamb.³ The aetiology has not been fully elucidated but is likely to be associated with hormone imbalances.

Skin diseases

Severe orf infection was reported affecting three 27-month-old beltex tups. The animals were full brothers having been derived from embryo transfer. The lesions had developed over two to three months and secondary infection/flyes were proving difficult to control. The most severely affected animal was euthanased to investigate any potential underlying causes that could have resulted in immunosuppression. Extensive orf lesions were present on the head, neck, left ventral thorax, brisket and right fetlock. The local lymph nodes were reactive and enlarged and bacteriology produced a mixed growth from the skin of which *Dermatophilus congolensis* and *Streptococcus dysgalactiae* were considered the most significant isolates. Testing of pre-mortem blood samples confirmed neutrophilia, anaemia, hypoalbuminaemia and hyperglobulinaemia all of which were considered to be a result of chronic infection. Screening for border disease virus and *Anaplasma phagocytophila* proved negative. Orf virus vaccine had been administered to all three animals as lambs but only protects against infection for a limited time. PCR testing of scab material confirmed the

presence of parapox virus DNA and typing showed it to be wild type strain. It was suggested that repeated injury caused by fighting would have prevented the lesions from healing and allowed infection to be maintained.

PIGS

A minimal disease unit of 350 sows and 25 gilts reported reduced fertility and an abortion rate of 3 per cent. Ten fetuses were submitted from a two-year-old sow that had aborted two weeks early. Nine of the fetuses had ingested meconium and three had an excess of fibrin within the abdominal cavity. *Trueperella pyogenes* was isolated from pooled foetal stomach contents and the detection of acute placentitis and pneumonia associated with coccobacillary bacteria on histopathology confirmed this to be the cause of abortion.

BIRDS

A juvenile male house sparrow (*Passer domesticus*) was observed looking ill in a garden and was found dead the next day. Postmortem examination showed that the bird was emaciated with a large granulomatous mass in its neck and histopathology findings were typical of trichomonosis. The same diagnosis was reached in a juvenile male sparrowhawk (*Accipiter nisus*) that was reported to be very weak prior to death. A 1 cm diameter granulomatous mass was found in the left pharynx with additional smaller lesions on the adjacent upper beak (Fig 3). A further 0.5 cm granulomatous lesion was detected in the crop. Histopathology confirmed trichomonosis and *Salmonella enterica* serotype Typhimurium was also cultured from the lesions. Trichomonosis is most commonly associated with population declines in greenfinch (*Carduelis chloris*) and chaffinch (*Fringilla coelebs*) but is known to infect a range of other passerine species.⁴ Sick birds may be at greater risk of predation with consequent spread of infection to sparrowhawks that use gardens as hunting grounds.

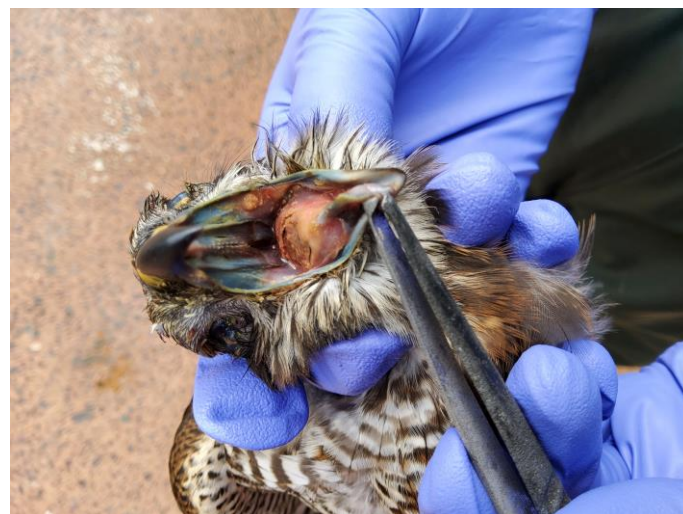


Figure 3 – Trichomonosis with concurrent *Salmonella typhimurium* infection in a sparrowhawk

References:

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