SRUC Veterinary Services Monthly Report for July 2021

OVERVIEW

- **Deaths due to babesiosis in beef cows.**
- **Cerebrocortical necrosis in unweaned lambs.**
- **Respiratory signs in chickens associated with an inadequate environment.**

GENERAL INTRODUCTION

The mean temperature for July was 1.8 °C above the long-term average, making it the third warmest July in a series from 1884. Maximum temperatures were 2 to 3 °C above average across most central and western parts. Scotland as a whole had 67 per cent of average rainfall and 125 per cent of average sunshine. Only the east coast and the Northern Isles had a duller month than average.

DISEASE ALERTS

The following conditions were reported by SRUC VS disease surveillance centres in October 2020. Given similar climatic and production conditions, they could also be important this year.

- ***Histophilus somni* septicaemia in beef youngstock**
  The clinical presentation of *H somni* septicaemia can be very variable ranging from found dead to signs of respiratory disease, lameness and/or neurological disease. The diagnosis should not be ruled out based solely on negative bacteriology results as the organism can be challenging to culture, even in the absence of antimicrobial therapy. Histopathology and/or PCR testing is often required to confirm the diagnosis.[1]

- **Ruminal acidosis in sheep following dietary change**
  Stocking on cereal stubble or introduction of hard feed are risk factors for ruminal acidosis in autumn. Increased intakes of carbohydrate may also predispose to outbreaks of systemic pasteurellosis due to *Bibersteinia trehalosi,* or losses due pulpy kidney. Vaccination with a multivalent clostridial/pasteurella vaccine should be considered to manage this risk.

CATTLE

Nutritional and metabolic disorders

A 16-month-old, Aberdeen Angus heifer was presented for investigation of sudden death. It was the second animal to die from a group of 50 cattle that were housed on a diet of silage, straw and potatoes. The rumen contained a very large number of potatoes and there was a well demarcated bloat line in the oesophagus. Twenty-four hours after death the rumen pH was 4.7 consistent with a diagnosis of acidosis. There was no history of the diet being altered but a new batch of potatoes had been introduced.

Parasitic diseases

A four-year-old stabiliser cow was submitted for postmortem examination after it became the third to die in five days from a group of 35 cows with calves at foot. It was noted to be dull, lethargic, hypothermic and slightly unsteady the previous day and had been treated with B vitamins, NSAIDs and antibiotics. A number of ticks were found on the carcase which was pale and yellow-tinged. The bladder was empty but red fluid, consistent with urine, had pooled in one of the kidneys. Organisms suspicious of *Babesia* sp were detected on a blood smear and PCR testing carried out on blood and spleen proved positive for *Babesia divergens* confirming the diagnosis. The cattle were grazing a field containing a lot of bracken in an area where babesiois had been diagnosed in previous years. Moving to a field with less tick habitat was advised. Hypocuprosis was also diagnosed based on a liver copper result of 162 umol/kg dry matter (DM) (reference range 314 to 7850 umol/kg DM). It has previously been suggested, but not proved, that concurrent copper deficiency may reduce the therapeutic value of imidocarb.[2]

Generalised and systemic conditions

Blood was submitted from a homebred Limousin cross heifer that presented with tachypnoea, pyrexia, purulent nasal discharge and corneal opacity. Malignant catarrhal fever (MCF) was suspected as the group were grazing fields recently stocked with sheep. Ovine herpesvirus 2 was detected on PCR confirming the diagnosis. No other animals were affected. The heifer improved and gained weight with symptomatic care but remained blind. Recovery from MCF is rare but has been reported and the corneal oedema often fails to resolve.[3] These animals remain persistently infected but the risk of horizontal transmission to other cattle is believed to be low.

Musculo-Skeletal conditions
A ten-week-old double muscled calf born to a Limousin cross dam and a Limousin sire developed an abnormal hindlimb gait at six to seven weeks-of-age. Some knuckling, weakness and a tendency to hold the hindlimbs underneath the body were described and the calf walked with the front limbs held stiffly in extension. The herd consisted of 20 spring and 100 autumn calving cows and reported two similar calves in the previous three years. In all cases it was the more extreme double muscled calves that were affected. The dam of the submitted calf was an older cow that had reared unaffected calves in previous years. There was no response to treatment with antibiotics or vitamin E/selenium and the calf was euthanased after continuing to deteriorate. No evidence of spinal abscessation or osteomyelitis was detected on postmortem examination. Histopathology identified dorsal subdural chronic active haemorrhage and dural fibroplasia, extending from C4 to T4. This was considered to be consistent with focal trauma most likely related to vertebral injury or instability. Further investigation of any similar cases in the herd has been advised.

Renal diseases
A group of 25 Wagyu cows and calves were turned out to grass and within a few days three calves developed clinical signs of salivation and ataxia progressing to recumbency and death after around 10 days. Postmortem examination of two calves, aged two and three months, identified severe ulcerative lesions in the oral cavity, larynx, forestomachs and abomasum (Fig 1). One calf also had a haemorrhagic typhlitis and foci of necrosis were evident in the liver of the other. Histopathology suggested ruminal acidosis as a possible predisposing factor for systemic spread of bacteria and fungi which was supported by a rumen pH of 4.9 in both calves. The calves had access to a cereal based creep feed but were reported to be only eating small quantities. Extensive chronic fibrosing and histiolymphocytic tubulointerstitial nephritis was also detected in both calves. It was not possible to definitively distinguish the lesions from those of white spotted kidney (WSK), a consequence of bacterial nephritis in young calves, and secondary infection superimposed on renal tubular dysplasia, an inherited condition in Wagyu cattle. Calves with the latter develop overgrown hooves[4] which were not apparent here perhaps due to the young age of the calves. Screening for the two recognised pathogenic variants of the Claudin 16 gene in Wagyu cattle was recommended for further investigation.[5]

Figure 1 – Necrotic omasitis and abomasal ulceration in a wagyu calf

Skin diseases
A purchased Limousin bull was turned out with cows and developed scrotal swelling and hindlimb oedema within the next few days (Fig 2). It was removed from the field and replaced by two other purchased Limousin bulls which developed the same clinical signs. The cows and a Hereford bull were unaffected. EDTA blood samples were collected in order to screen for infection with *Mycoplasma weyonnii* but DGGE (denaturing gradient gel electrophoresis)/PCR testing proved negative. The clinical signs went on to resolve and fly bites, contact with an irritant plant, or transient photosensitisation were suggested as possible explanations.

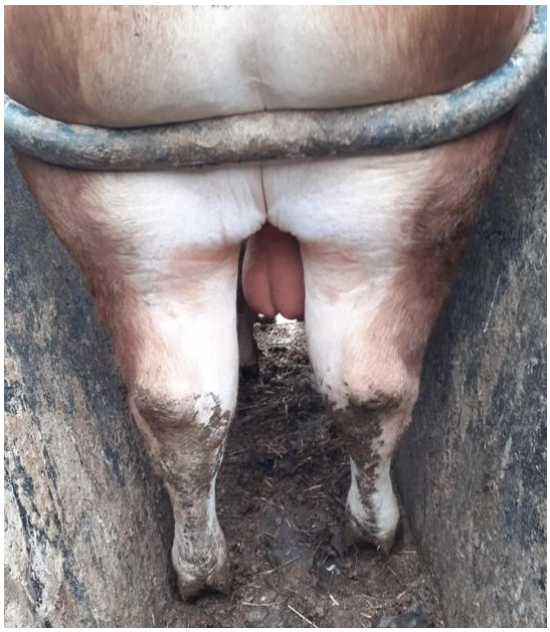

Figure 2 – Hindlimb oedema of unknown aetiology in a Limousin bull (Chris McGregor, Tinto Vets)

SMALL RUMINANTS

Nervous system disorders

An albendazole drench was administered to a group of 168 unweaned mule lambs at the start of June as a prophylactic treatment against nematodirosis. Approximately one month later two lambs died rapidly after developing diarrhoea. A third lamb was also diarrhoeic but presented with neurological signs including opisthotonos and bruxism over a period of three days prior to death. The remaining lambs were then treated with oral moxidectin and seven days later a three-month-old lamb was found scouring and aimlessly wandering just before death. The carcase was submitted for postmortem examination and total worm counts indicated that the recent anthelmintic treatment had been successful. The brain fluoresced under ultra-violet light and histopathology detected laminar necrosis consistent with a diagnosis of cerebrocortical necrosis (CCN). Diagnoses of CCN in lambs peak at three and six months of age which may reflect ruminal dysbiosis with increased numbers of thiaminase-producing bacteria associated with factors such as diet changes at weaning.

CCN was also diagnosed in a flock of 250 crossbred ewes that reported the loss of three ewes and three lambs all of which presented with blindness and incoordination progressing to recumbency and death. The lambs were all from one group of 60 ewes with lambs at foot while the ewes were grazing different fields. A similarly affected three-month-old Texel cross lamb was submitted live and central blindness was confirmed based on a positive pupillary light reflex and a negative menace response. A moderate worm burden was found on postmortem examination and the brain autofluoresced when viewed under ultra-violet light. CCN was confirmed on brain examination which revealed severe laminar cerebrococortical necrosis. No predisposing factor was identified in this case.

A 14-month-old Teeswater ram was submitted for postmortem examination following a short history of pyrexia, circling and ataxia. A 3 cm diameter necrotic lesion was found on the left side of the head. This extended through the full thickness of the skin and a layer of purulent material was found overlying the bone of the cranium, which was discoloured to a depth of 2-3mm suggesting osteomyelitis. Multiple 2 to 3 mm abscesses were present throughout the lung parenchyma with a caudo-dorsal distribution. Haematogenous meningitis and pneumonia secondary to bacteraemia from the skin lesion was considered the most likely explanation and histopathology confirmed bacterial meningitis. The cause of the skin lesion was unknown, but an injury sustained through fighting was considered a possibility.

PIGS

Generalised systemic diseases

A two-year-old, kunekune pig became wobbly and slow to rise. It deteriorated over the next 48 hours becoming pyrexic, dyspnoeic and recumbent before death. The carcase contained a large quantity of fat and was very autolysed with no significant findings on postmortem examination. However, *Erysipelothrix rhusiopathiae* was cultured from the brain and erysipelas septicaemia was considered a credible explanation for the clinical signs. This is one of the most commonly diagnosed diseases of pigs kept on smallholdings. The organism is ubiquitous in soil and can be harboured by other species that may be sharing the same ground such as turkeys, wild birds and sheep. Vaccination is recommended but it has been estimated that only 57 per cent of pigs on smallholdings are protected in this way.[6]

BIRDS

Poultry

200 chickens were adopted from a premises where they had been housed in dusty, poorly ventilated accommodation. Around 10 per cent were reported to have respiratory signs but were otherwise bright, eating and laying normally. A representative bird was euthanased to investigate the problem. Excess clear mucus was detected in the trachea but bacteriology and DGGE/PCR testing failed to detect any pathogens. Histopathology described a chronic lymphoplasmacytic and catarrhal tracheitis, rhinitis and sinusitis. This was considered indicative of chronic irritation of the respiratory tract and most likely due to long term exposure to the dusty environment.

A 10-year-old brahma chicken was submitted for postmortem examination with a history of having a distended crop. However, the cause of the abnormal appearance was found to be a loosely connected chain of round tumours at the thoracic inlet unrelated to the crop (Fig 3). It was not clear which tissue they had arisen from, but histopathology suggested that thymic carcinoma was the most likely diagnosis.

Figure 3 – Tumour masses at the thoracic inlet of a chicken

References:

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