SRUC Veterinary Services Monthly Report for March 2024

OVERVIEW

- **Granulosa cell tumour in a Simmental heifer**
- **Congenital porencephaly in a Limousin calf**
- ***Salmonella* and *Campylobacter* spp abortions in sheep**

GENERAL INTRODUCTION

The mean temperature for March was 5˚C which is 0.6˚C higher than the 1991 to 2020 average. The north-west Highlands and Western Isles had a dry month with above average sunshine figures whereas for the east of Scotland and along the south-west coast March was wetter and duller than average. Rainfall and sunshine figures for Scotland as a whole were 90 and 104 per cent of the thirty-year average respectively.

DISEASE ALERTS

The following conditions have previously been reported by SRUC VS disease surveillance centres in June. Given similar climatic and production conditions, they could also be important this year.

- **Lungworm in cattle**
  Dictyocaulus viviparus will survive the winter both on the grass and in small numbers within the lungs of carrier animals. Following turn out these will seed the pasture and infection can be a combination of newly produced and overwintered larvae. These will cycle through naïve animals leading to potentially significant numbers of infectious larvae on the grass by early summer. Coughing at grass particularly in first season grazing animals should be investigated through the submission of blood (clotted and EDTA) and faecal samples to rule lungworm in or out.

- **Delayed swayback in lambs**
  Copper is required for normal development of the central nervous system both in utero and during the neonatal period. In cases of delayed swayback lambs that were normal at birth become progressively ataxic on their hind limbs at any time between one week and several months of age. Reduced supplementary feeding in mild winters can increase the risk. Diagnosis requires blood/liver copper analysis. Histopathology of the brain and spinal cord can be useful especially in cases where supplementation has been given.

CATTLE

Reproductive tract conditions
A two-year-old Simmental heifer became anorexic and hypothermic, deteriorated rapidly and died. It had been purchased one year earlier and was the only loss from a group of eight. The conjunctivae and viscera particularly the lungs were very pale. A large volume of free blood plus blood clots was found in the abdomen and the mesenteric lymph nodes were haemorrhagic. The source of the fatal haemorrhage was a 20 x 15 cm ovarian mass (Fig 1). The contralateral ovary appeared inactive. Histopathology confirmed the mass to be a granulosa cell tumour. Affected cows may have no clinical signs as in this case or may show nymphomania and abnormal udder development. Conception has been reported following ovariectomy of the neoplastic ovary.[1]

Figure 1 – Granulosa cell tumour in a Simmental heifer

Nervous system disorders
A three-day-old Limousin heifer calf was submitted alive in order to investigate an ongoing issue with the birth of blind calves in a 90-cow pedigree beef herd. The herd calved all year round and 13 affected calves had been born with no seasonal pattern identified. The herd was BVD accredited and closed apart from the occasional purchase of a bull. Artificial insemination was frequently used and affected calves were suspected to have been sired by four different bulls. The submitted calf was able to stand but slightly ataxic with a wide-based stance. Pupillary and menace reflexes were absent, and it had reduced mentation overall. Following euthanasia examination of the brain found anterior, dorsal and lateral porencephaly (Fig 2) within the cerebral hemispheres. Bluetongue was ruled out as a differential diagnosis based on the history and in consultation with APHA. This

presentation has been described in a small number of pedigree Limousin herds and genotyping is in progress at the University of Bern to investigate a possible genetic cause.

Figure 2 – Porencephaly in a neonatal Limousin calf with a suspected genetic aetiology

A five-month-old Limousin heifer was found dead and submitted for postmortem examination. It was the only loss from a group of 14 cows with embryo transfer calves at foot. The animals were housed and the calves receiving creep feed. The calf had been growing well but intermittent unilateral ear droop was reported. The epithelium of the left middle ear was thickened, and bacteriology produced a profuse pure growth of *Pasteurella multocida.* This has been reported as a cause of otitis media in cattle via extension of otitis externa, colonization from the auditory tube, or bacteremia. Severe autolysis prevented confirmation of the cause of sudden death.

Circulatory system disorders

An 18-day-old Limousin cross heifer calf was reported to be dull, pyrexic and passing fresh blood in its faeces. It was treated with antibiotics, NSAIDs and intravenous fluids but died within three days. Postmortem examination showed the carcase to be very pale with multiple petechial and ecchymotic haemorrhages on the viscera, body wall and muscles. The blood was noted to be very watery with no evidence of clotting activity and there was marked haemorrhage around injection sites. The findings resembled those found in cases of bovine neonatal pancytopaenia however the dam was too young to have received Pregsure® vaccination and it had not been used historically in the herd. The calf had been sired using semen from a bull that had previously been used in the herd without any issues. Laboratory testing ruled out both BVD virus and salmonellosis as the cause of the haemorrhagic diatheses. Histopathology of bone marrow revealed only scant numbers of haematopoietic cells with the remainder of the marrow consisting of adipose tissue confirming marked trilineage hypoplasia. A very small number of similar cases have been identified over the years that have no association with the use of Pregsure®. They are considered most likely to be acquired, maternal antibody related or potentially associated with repeated vaccine use. A genetic disorder could not be ruled out.

SMALL RUMINANTS

Generalised and systemic conditions

Mannheimia haemolytica was diagnosed as the cause of death in four to six-week-old lambs in two south-west flocks. In both cases the lambs were still housed, and the death of 1 of 45 and 2 of 13 lambs was reported. Ewes had received a clostridial/pasteurella booster vaccination prior to lambing but no vaccines had been administered to the lambs yet. Postmortem examination found fibrinous pleurisy in both cases (Fig 3) with additional lung consolidation in one. *Mannheimia haemolytica* pneumonia or septicaemia was reported from all areas of Scotland during March and is associated with the immunity gap that occurs following waning of short lived colostral antibody protection in lambs that are yet to receive a primary course of vaccine.

Figure 3 – Fibrinous pleurisy caused by *Mannheimia haemolytica* in a lamb

Reproductive tract conditions

A flock submitted foetuses and placentas from five dams in order to investigate an abortion storm affecting one group of 120 ewes. They had been housed for around 10 days and were due to start lambing in four weeks. At the time of submission 60 ewes had aborted. There were no issues in the earlier lambing ewes that had been housed four weeks previously, nor in the hoggs that were

still at grass. All the ewes were vaccinated against EAE and toxoplasmosis and had been on dairy grazing prior to housing. Once inside they were fed silage and ewe nuts. *Salmonella enterica* serotype Montevideo was isolated from the foetal stomach contents in all cases. The source of infection was not known. Experimental infection with *S.* Montevideo has shown that ewes infected at 12 to 14 weeks of gestation go on to abort while those infected later do not.[2] This may explain why only one group of ewes was affected. Samples were submitted from a foetus to investigate the cause of abortion in four ewes. Gram negative curved rods suspicious of *Campylobacter sp* were seen on a Gram smear of foetal stomach contents but *Campylobacter sp* were not recovered on selective bacterial cultures. This may occur if the bacterium has become non-viable. Histopathology identified bronchopneumonia and placentitis consistent with an infectious cause of abortion. Further staining demonstrated Gram negative curved rods associated with inflammation in both the lung and placenta confirming a diagnosis of *Campylobacter* sp abortion. The flock had used a campylobacter vaccine for eight years but had ceased in the past two. *Campylobacter* sp. can cause distinctive lesions on the foetal liver (Fig 4), but this is uncommon. Isolation of *Campylobacter* sp from the foetal stomach contents is diagnostic with *C fetus* identified most often. Isolation from the placenta may represent environmental contamination and further evidence, such as histological lesions of bacterial placentitis, is required to confirm the diagnosis.

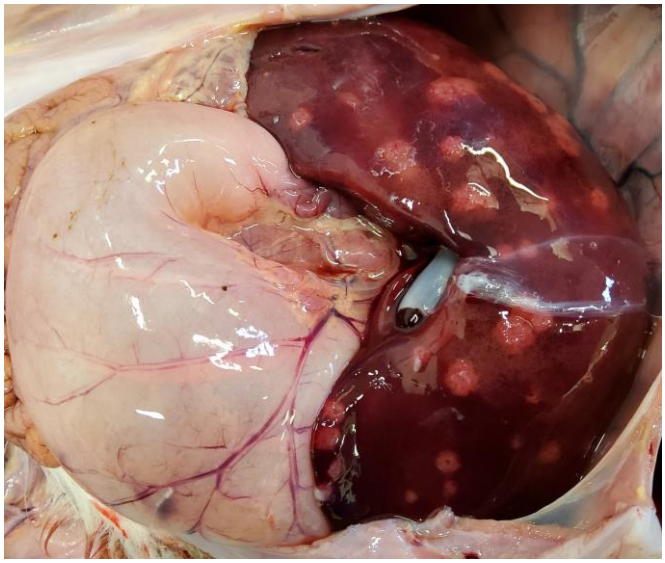

Figure 4 – *Campylobacter* sp lesions on the liver of an ovine foetus

Circulatory system disorders

A four-day-old Suffolk lamb was submitted from a 460-ewe upland flock experiencing high neonatal mortality. Weak lambs and inappetant ewes with poor milk supply resulted in the use of artificial colostrum in some cases. Postmortem examination findings of jaundice (Fig 5) and red urine suggested a diagnosis of haemolytic anaemia and histopathology of bone marrow, liver and spleen detected extensive evidence of erythrophagocytosis by macrophages. The colostrum product was marketed as suitable for lambs but did contain bovine colostrum. Anti-sheep red blood cell antibodies may be present in bovine colostrum and are a known cause of immune mediated haemolytic anaemia in neonatal lambs. Other possible aetiologies include administration of medications including antibiotics, but it may also be primary and idiopathic. It was not possible to definitively prove the cause in this case, but further investigation of the weak lamb/poor ewe milk supply issue was advised.

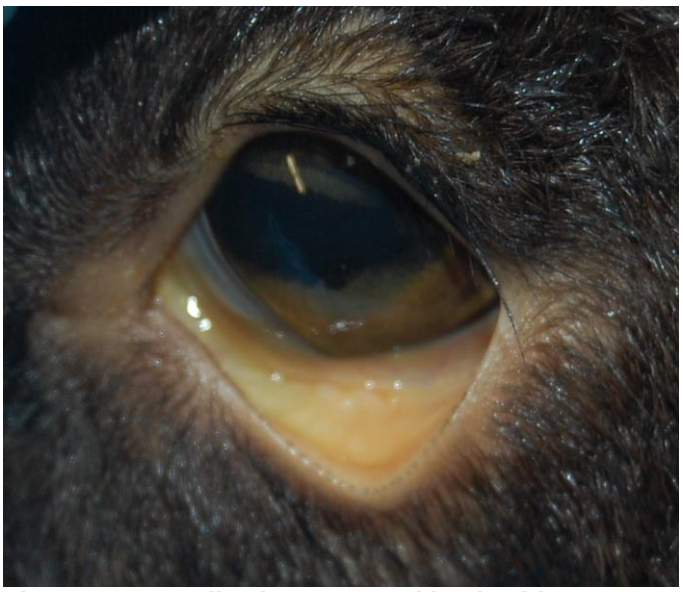

Figure 5 – Jaundice in a neonatal lamb with autoimmune haemolytic anaemia

BIRDS

A flock of 220 Lohman brown layers was established in November 2023 via the purchase of 16-week-old pullets. Over the next three to four months 35 birds died with some noted to be ill prior to death and others found dead. A single carcase submitted in January returned a diagnosis of egg peritonitis. Three further carcases were submitted in March to try and establish a pattern to the ongoing losses. Bird one was very thin and had an intestinal obstruction caused by an entangled bolus of vegetation. This was considered to be a one-off case. The carcase of bird two had been scavenged and the intestines were missing however histopathology found no evidence of infectious disease. Bird three exhibited splenomegaly and multiple fine speckles on the

liver surface. Large numbers of ascarid worms were found in the intestines and a normal egg was present in utero. *Escherichia coli* was isolated in pure growth from the heart and liver. Feather loss was noted around the vent of this bird and the owner was aware of feather pecking. The birds were housed in a polytunnel with access to an outside run and there were concerns about heat stress. Feather pecking and cannibalism can act as entry routes for *E coli* and it was considered that the main issue related to housing and management rather than primary infectious disease in this case.

References:

1 Okawa H, Tomiki M, Ishida T *et al.* Clinical diagnosis of a bovine granulosa cell tumour in a Holstein cow using plasma anti-Muellerian hormone concentration: a case report. *J App Animal Res* 2017: 45(1): 529-32

2 Wray C, Linklater KA. Salmonella in Domestic Animals. Salmonella in sheep: Chapter 12: 209-18. CABI Publishing, eds Wray C, Wray A.