Main issue
AHVLA Disease Surveillance Report
April 2014

- *Helcococcus ovis*: potential novel cause of bovine abortion
- *Mannheimia haemolytica* pneumonia in lambs
- Glässer’s disease in growing pigs
- Pullorum disease in backyard flocks

CATTLE

Systemic disease

**Lymphosarcoma:** Suspicion of enzootic bovine leucosis (EBL), a notifiable disease, was reported for further investigation at Shrewsbury. The two-year-old Montbeliarde heifer had shown signs suggestive of upper respiratory tract disease, similar to IBR, within a few days of vaccination. It had initially responded to steroidal and non-steroidal treatments but deteriorated and was euthanased. A postmortem examination was undertaken by the practitioner, with retropharyngeal lymph nodes reported to be enlarged and masses present on the epiglottis. Histopathology was undertaken on samples of lymph node, trachea and conjunctiva from the heifer, revealing lymphoproliferative pathology which was considered indicative of lymphosarcoma. EBL was ruled out.

Diseases of reproductive system

**Abortion:** *Helcococcus ovis* was isolated in pure growth, after prolonged incubation, from the foetal stomach contents of an aborted foetus at Penrith. The calf was aborted at about six and a half months’ gestation in a herd of 360 dairy cows where eight abortions had been reported in the previous 12 months. The identity of the bacterium was confirmed by 16S RNA sequencing. *H. ovis* is a slow-growing gram-positive facultative anaerobic coccus. It was first described in 1999 when it was isolated from a sheep although there are no records of it causing abortion in that species; infection has since been identified in cattle, having first been isolated from a case of bovine valvular endocarditis (Post and others 2003). *H. ovis* has
subsequently been identified associated with bovine metritis (Locatelli and others 2013). This case is thought to be the first indication that H. ovis may cause bovine abortion.

**Nervous disease**

**Hypomagnesaemic tetany:** Thirsk investigated the sudden onset of neurological episodes in three- to four-month-old suckler calves. Blood samples were submitted from four of the animals which, when disturbed, were described to have seizures and fits lasting for about one minute, after which they returned to normal. The dams were Limousin cross cows which were fed only silage, and there was no creep feed for the calves. The magnesium concentrations were significantly below the reference interval for three out of four calves, with the lowest 0.28 mmol/l (reference interval 0.7–1.3 mmol/l). These results were considered diagnostic of ‘hypomagnesaemic tetany’. The AHVLA comments that this is a potential problem in unsupplemented calves as the demand for magnesium in rapidly–growing calves outstrips the available magnesium in milk.

**Diseases of skin and the mammary gland**

**Mycoplasma bovis mastitis:** Shrewsbury investigated two unusual outbreaks of mastitis associated with Mycoplasma bovis infection in dairy herds of 211 and 223 cows. The cases occurred only in the dry cows, mostly between 10 and 20 days after the administration of intramammary antibiotic and teat sealant. Six cows were affected in the first herd with eight cows in the second, and in most of the cows all four quarters were mastitic. The milk from the affected quarters had a thick consistency and resembled calf scour or porridge. Other than mastitis, the cows showed no clinical signs.

| ![Porridge-like consistency of mastitic milk sample associated with Mycoplasma bovis infection.](image) |

Culture of milk samples was attempted from each of the herds but resulted in no bacterial growth; however, after 72 hours beta-haemolysis was detected on the blood agar plates. Selective broth cultures indicated likely
mycoplasmal infection and *Mycoplasma bovis* was subsequently identified using DGGE/PCR technique. Treatments were attempted but none was successful in the first herd where all of the affected animals were culled. A few of the cows were considered to have responded in the second herd, although most were culled. The origin of infection in each herd could not be determined. The animals had been dried off in two batches in the first herd and on four separate dates in the second herd. In neither herd were other manifestations of mycoplasmal infection reported at the time of the outbreak. However, in one of the herds, postmortem examination was undertaken by the practitioner on a first calved heifer soon after the mastitis outbreak arose. The animal had severe pneumonic pathology with abscessation, and both *Mycoplasma bovis* and *Trueperella pyogenes* were identified.

**Musculoskeletal disease**

**Colisepticaemia:** RVC Surveillance Unit investigated the deaths of neonatal calves in two suckler herds. In the first five calves in a housed group died over a three day period. Anorexia, dehydration and recumbency were reported but there had been little evidence of scour. Postmortem examination revealed polyarthritis with thick yellow fibrin tags present within the joints (Fig. 1A).

The navel was thickened with a small amount of thick green material within the stump. There was also a purulent meningitis and hypopyon (Fig. 1B+C).
*Escherichia coli* was isolated in septicaemic distribution, with the umbilicus considered to be the likely route of infection. Testing for BVD virus infection was negative and the zinc sulphate turbidity (ZST) test indicated sufficient transfer of antibodies.

Postmortem examination of a six-day-old calf from the second herd also identified polyarthritis and omphalitis. Bacterial cultures identified septicaemic distribution of *Providencia* species, which are opportunistic Gram-negative enterobacteria which occasionally cause infection, usually in immunocompromised individuals. The calf was negative for BVDV infection. Colostral status could unfortunately not be assessed as the carcase blood was not of sufficient quality. Improving the hygiene in the housing and prompt treatment of calves’ navels was advised for both herds.

**SMALL RUMINANTS**

**Neurological disease**

*Listeriosis*: Listeriosis was a common diagnosis during April at a number of laboratories. In lambs, presenting signs included ataxia, stargazing, twitching and becoming comatose. Due to previous antibiotic therapy interfering with bacterial cultures, diagnosis was confirmed in all cases by histological examination of the brain which revealed multifocal subacute histiocytic and purulent panencephalitis. Sporadic cases of Listeriosis are seen in grazing animals with no access to silage.

In adult ewes, presenting signs included twitching, ear droop, head tilt and appearing drunk. *Listeria monocytogenes* was cultured from the brain stems. A common feature of the postmortem examination was reduced, slightly dry, fibrous rumen content resulting from cranial nerve paralysis affecting the swallowing reflex and limiting fluid intake.

Encephalitic *L. monocytogenes* infections in sheep are associated with feeding silage or haylage containing high numbers of the bacterium. Soil incorporation and high silage pH (>5) predisposes to this. Other moist preserved feeds are also a risk for listerial growth. Outbreaks associated with the introduction of poor quality silage may occur within 10 days. Control is primarily by removing the implicated feed from the diet.

**Enteric disease**

*Redgut*: A five month old lamb submitted to Carmarthen was one of two found dead in a group of 300 lambs that had been grazing a freshly seeded ley with recent lush grass growth. The intestinal tract, from proximal duodenum to terminal colon, was dilated, congested and friable with a torsion at the root of the mesentery of approximately 180°.

In a second case, postmortem examination of a three-week-old Texel lamb at Penrith revealed reddened small and large intestines. The small intestine
contents were bloody and the large intestine contents semi-liquid with a profuse amount of gas. No clostridial toxins or Salmonella spp were detected. The case was diagnosed as redgut, despite the absence of mesenteric torsion or displacement. In such cases it is postulated that distension of the large intestine is sufficient to cause obstruction of the cranial mesenteric artery and vein, alternatively that the displaced intestines returned to their normal position due to postmortem gas development.

Redgut or intestinal volvulus is a sporadic condition which typically affects sheep with a diet high in readily fermentable carbohydrates such as lush pastures. The ingesta pass more rapidly into the intestinal tract and fermentation continues in the large intestine. The reduction in volume of the rumen and reticulum, coupled with an increase in intestinal tract volume, leads to an instability which allows increased movement progressing to torsion of the intestinal tract. The condition is fatal once the torsion exceeds 180°. Losses can be reduced/ prevented by either intermittent grazing or not grazing high risk pastures such as those with lush growth, particularly legumes.

**Johne’s Disease in goats**

Three adult goats were presented for postmortem examination following a period of ill thrift and forty deaths in a herd of 400 dairy goats. Johne’s disease was confirmed on ileal mucosa smears, demonstrating acid alcohol-fast bacilli with morphology typical of Mycobacterium avium ssp paratuberculosis. Once diagnosed, measures are aimed at control of disease in the herd rather than eradication.

Control (or damage limitation) is based on a combination of vaccination, judicious hygiene, culling, snatching kids and feeding pasteurized colostrum/milk replacer. Vaccination is aimed at reducing the level and impact of the disease by reducing the number of animals with clinical disease and the degree of excretion.

**Reproductive disease**

**Tick Borne Fever:** this was confirmed at Penrith by detection of Anaplasma phagocytophilum DNA by PCR testing of EDTA blood samples taken from aborting ewes from a hill flock. Other infectious causes of abortion had been ruled out by examination of a fetus and placenta. The flock had been affected with low levels of abortions each year and ticks had been seen on one aborting ewe. The PCR test for Tick Borne Fever is still under development and not yet available commercially.

**Respiratory disease**

**Mannheimia haemolytica** was a common cause of death in lambs submitted to Winchester, Carmarthen, Starcross, Penrith and Shrewsbury. Typical
postmortem findings were of acute pneumonia with lung consolidation and fibrin deposits on the pleural surface.

In one case 25 lambs displayed nasal discharge, lethargy and respiratory distress and 5 died. Affected lambs were treated with long acting tetracycline. The ewes had received a full primary course of a combined clostridial and Pasteurella vaccine before lambing. The lambs were born inside and turned out within 24 hours. *M. haemolytica* was isolated from lung and spleen. Passive immunity to pasteurellosis is reported to persist for up to 4 weeks after birth in lambs from ewes vaccinated with conventional *Pasteurella* vaccines provided there is sufficient colostrum ingestion; however, the timing of vaccination of ewes pre-lambing, colostrum quality and intake can influence the level of maternally derived immunity. High levels of challenge and concurrent disease in the lambs can also contribute to an outbreak. Consequently there is a range of reasons why outbreaks can occur, despite vaccination of the ewes.

**PIGS**

*Alimentary Disease*

**Late outbreak of enteric colibacillosis in growers with active PRRS virus infection**

Enteric colibacillosis was diagnosed at Bury St Edmunds as the cause of six sudden deaths from a group of 180 8-week-old pigs in flatdecks in which some diarrhoea had been noticed. The pigs were vaccinated for *Mycoplasma hyopneumoniae* and PCV2, but not for PRRS. Gross findings were similar in all three pigs, which were dehydrated and had significant fluid enteropathies mainly affecting the small intestines without mucosal lesions. This was suggestive of enteric colibacillosis which was confirmed by the isolation of enteropathogenic *Escherichia coli* strain E57 (serotype O138:K81) in pure profuse growths from the small intestines. This diagnosis is unusual at this age, as it is more usually seen in neonatal pigs or immediately post-weaning. Changes in management, pig flow, accommodation, hygiene or antimicrobial treatments might predispose to this late occurrence. Interestingly, none of the pigs were in good body condition and PRRS virus was detected in one, raising the possibility that a PRRSv challenge post-weaning had debilitated pigs and predisposed to disease.

**Clostridial disease causing neonatal enteritis on two units**

Clostridial enteritis accounted for nearly a third of the cases of enteric disease diagnosed in preweaned pigs by AHVLA in 2013 as shown in Figure 1. A 2014 outbreak is described below.

![Figure 2: Diagnoses made by AHVLA in sucking pigs with enteric disease in 2013](image)
Two live affected piglets were submitted to Starcross from an outdoor breeding herd experiencing an outbreak of severe diarrhoea in gilt litters at around 4-5 days of age. The piglets were in fair body condition and both had grey-yellow pasty diarrhoea. The herd was vaccinated for PRRS, erysipelas and clostridial disease. Other than watery yellow intestinal contents, gross pathology was unremarkable. Laboratory testing revealed *Clostridium perfringens* beta toxin in the small intestinal contents of both piglets and histopathology revealed mucosal necrosis with adherent fibrinonecrotic debris, supporting a diagnosis of clostridial enterotoxaemia due to *Cl. perfringens* type C.

**Respiratory Disease**

**Porcine reproductive and respiratory syndrome causing pneumonia with *Haemophilus parasuis***

Porcine Reproductive and Respiratory Syndrome (PRRS) was diagnosed with *Haemophilus parasuis* pneumonia in pigs submitted at 13-weeks-old from a large indoor finisher unit on which there had been a recent increase in mortality to two to three pigs per day, with low grade cough and loss of condition. Three plucks were submitted with moderate-to-severe lung consolidation. The most severe had all lung lobes affected, including the dorsal aspects. Two of the plucks also had chronic pericarditis and one showed a pleurisy. *H. parasuis* was isolated from two of the lungs and PRRS virus was detected by both PCR and immunohistochemistry in the lung of one pig. The PRRS virus was associated with pneumonic lesions indicating that it was playing a role in the disease process. The pigs were not vaccinated for PRRS virus.

**Outbreak of Glässer’s disease and acute meningitis due to *Haemophilus parasuis***

Five dead seven to eight-week-old pigs were submitted from an indoor rearing site that filled from two sources and had increased mortality. Seventeen deaths occurred in the two weeks prior to submission from 1000 pigs from source A. From source B, 38 deaths occurred over the same period from 1000 pigs. The main signs were persistent coughing with on-farm post mortem examinations revealing polyserositis. A fibrinous polyserositis was present in three of the pigs and *H. parasuis* was isolated confirming a diagnosis of Glässer’s disease. The pigs were being treated with potentiated sulphonamide, with little response and resistance to this antimicrobial product was detected. This demonstrates the value of obtaining a diagnosis and isolate for antimicrobial sensitivity testing in such outbreaks. One pig was
severely anaemic due to a deep haemorrhaging gastric ulcer, accounting for its death. In the fifth pig, in which there was exudate visible on the brain surface, *H. parasuis* was isolated from the meninges confirming a meningitis due to this organism. No viral involvement was detected.

**Nervous disease**

**Type A2 congenital tremor in litters of young sows**

Two live neonatal piglets were submitted to Bury St Edmunds from a unit on which congenital tremor was reported in a small number of parity one and two litters on an outdoor unit. In affected litters, all piglets had congenital tremor but the piglets were well and none had died. The pigs submitted with congenital tremor were strong, bright and alert and were not pyrexic. One in particular had an obvious repetitive tremor which worsened with stimulation and disappeared at rest. Histopathology confirmed moderate deficiencies of stainable central myelin relative to peripheral myelin in Luxol fast blue preparations; all these findings were consistent with congenital tremor type A2. Congenital tremor can occur with porcine notifiable disease, most notably Classical Swine Fever. There were no clinical features in this affected herd to raise suspicion of notifiable disease as the cause of congenital tremor and pigs derived from the unit were performing well post-weaning.

**MISCELLANEOUS AND EXOTIC FARMED SPECIES**

**Enteric disease**

**Ruminal acidosis in reindeer**

Ruminal acidosis was the likely cause of the clinical signs which included recumbency, diarrhoea and malaise in a twelve-month-old reindeer. Other signs included tachypnoea, tachycardia and head pressing. Serum biochemistry revealed marked acidosis and hyperkalaemia; it was euthanased due to a failure to respond to treatment. Postmortem findings included the presence of a large volume of both forage and grain in the rumen and haemorrhage in the abomasum. This case highlights the problem of providing appropriate nutrition to domestic reindeer which together with high levels of husbandry and care, is required to avoid potentially serious health problems. As well as ruminal acidosis, clostridial enterotoxaemia has also occasionally been associated with feeding excessive amounts of fermentable carbohydrates. Feeding proprietary concentrates specifically formulated for reindeer is strongly recommended rather than using other concentrate formulations produced for small ruminants or cattle. Dietary changes should be made slowly as sudden changes can lead to gastrointestinal disturbances and anorexia often in animals that are trying to adapt to very different management and environmental conditions to those they are accustomed to.

**Fibroma in an alpaca**
A rapidly growing mass was surgically removed from the gingiva caudoventral to the left lateral incisor of a four-year-old alpaca which histologically was consistent with a fibroma. In a study investigating a series of 40 neoplasms in alpacas and llamas, cutaneous and mucocutaneous fibroma/fibropapilloma were found to be the commonest category (Valentine and Martin 2007). The study found that neoplasia is relatively common in camelids and also that differences exist between llamas and alpacas regarding prevalence of neoplasia, tumour type and age at diagnosis.

**BIRDS**

*Ducks and Geese*

**Aspergillosis**

A three year old female Indian Runner duck failed to run one morning and was noted to be lethargic. In addition its respiration appeared laboured and increased so veterinary assistance was promptly sought. Unfortunately the duck collapsed whilst being examined and died shortly afterwards. Another flock member had died a week previously, after showing similar signs over a longer period and suffering a similar bout the year before. This individual also reportedly lost its ability to vocalise towards the end. Postmortem examination revealed a large granuloma overlying the bronchial bifurcation, and thickened air sacs. Yellow-white lesions were present diffusely throughout the lung tissue, particularly affecting the caudal areas. These lesions were up to 60mm in diameter and many of the larger ones were cavitated and displayed mineralisation within their walls. Very little normal lung tissue remained. Bacterial culture confirmed the presence of *Aspergillus* sp. within lung swabs. Avian aspergillosis primarily affects the respiratory tract and involvement of the trachea/syrinx can result in an altered ability to vocalise. The most common species, *Aspergillus fumigatus*, can be a contaminant of feed and bedding, and damp weather conditions and suboptimal ventilation and hygiene can increase the likelihood of disease. Disease in individual adult birds can be triggered by stress factors, decreased immunity, inadequate nutrition and the presence of other systemic disease.

**Backyard flocks**

**Pullorum disease**

The deaths of five chicks out of a group of forty prompted the submission of two for postmortem examination. The chicks came from a rare breed farm where the eggs were sent away to be hatched and returned as day old chicks. On return the young chicks soon developed drooped wings and faecal matting of the vent area and died within one day of developing these clinical signs. The problems had typically been seen in one breed, but not in other breeds on the same holding. Postmortem examination revealed the chicks to be in emaciated body condition with a pale orange swollen liver, and dry
peritoneum and subcutis, consistent with cachexia and starvation. *Salmonella* Pullorum was cultured from the liver of each bird. AHVLA considered that the isolation of *S. Pullorum* (pullorum disease) fitted with the clinical history and highlighted the importance of eradicating the organism from parent birds and the potential of affected birds to remain carriers. In a separate incident, approximately two weeks after forty out of 44 purchased eggs were hatched on a smallholding, six chicks died after developing white/brown diarrhoea. Adult birds on the same premises were unaffected. At postmortem examination there were no gross lesions other than evidence of diarrhoea but *S. Pullorum* was isolated from liver and intestine. Both of these incidents also illustrated the potential for horizontal transmission of the organism between chicks during or after hatching.

**Game birds**

**Yolk sac infection in partridges**
Following the delivery of a large consignment of day-old red-legged partridge chicks, more than 600 had died within 48 hours with others appearing slow and lethargic. Postmortem examination revealed enlarged yolk sacs filled with dark green liquid, suggestive of yolk sac infection. In contrast the yolk sac of an apparently healthy control chick was unaffected. The body weight of the healthy control was also between 70% and 100% higher than the affected birds. *E. coli* was isolated from the yolk sacs and livers of the affected chicks. Antibiotic sensitivity testing revealed resistance to ampicillin, trimethoprim and tetracyclines. Yolk sac infections are often considered to be due to issues with hygiene at the hatchery or during early transport.

**Quail disease**
A tentative diagnosis of ulcerative enteritis associated with *Clostridium colinum* was made in adult quail submitted from a small flock in which several birds had died. The clinical signs reported were non-specific, with birds becoming dull and “fluffed up” prior to death. The gross pathology included ecchymotic haemorrhages over the serosal surface of the intestines, with liquid, necrotic intestinal contents and focal circular necrotic ulcers in the mucosa of the small intestine. Anaerobic culture of the small intestinal contents was unrewarding but the histopathology findings (including multifocal fibrinonecrotising and granulocytic enteritis) supported a diagnosis of clostridial enteritis associated with *C. colinum*. Quail are particularly susceptible to this disease, hence its common alternative name of quail disease. Infection is acquired by the ingestion of contaminated feed, faeces or litter.
References


This summary is produced by the AHVLA and is drawn from reports provided at the time of reporting by the AHVLA laboratories at Aberystwyth, Bury St Edmunds, Carmarthen, Langford, Lasswade, Leahurst, Newcastle, Penrith, Royal Veterinary College, Shrewsbury, Starcross, Sutton Bonington, Thirsk, Weybridge and Winchester. AHVLA monthly reports are available online at [http://www.defra.gov.uk/ahvla-en/category/publications/disease-surv/surv-reports/](http://www.defra.gov.uk/ahvla-en/category/publications/disease-surv/surv-reports/)