THE APHA VIC SHREWSBURY NEWSLETTER

PROVISION OF ACCURATE DISEASE SURVEILLANCE DATA

The background herd/flock, animal, clinical and epidemiological information that you, as veterinary practitioners, provide on the submission forms for samples and animals submitted to APHA is vital for disease surveillance. It is entered into the same disease surveillance database as the VIOs then enter the diagnoses reached, or record that no diagnosis was reached and the possible reasons for that. The information is essential both to describe potential new and (re-)emerging threats, and to monitor the characteristics of endemic diseases, for example to determine whether there are changes in clinical presentation and age or type of animal affected. Please can we remind you to include the numbers in different groups when known (whole group, affected including dead, dead). Where more than one clinical sign is present, please can you rank these in order (1 being main) on the submission form and also indicate the duration of clinical signs in the sampled animals. We appreciate the time spent completing submission forms fully; the benefits for practitioners are informed interpretation of results and better ability to suggest further investigation in the VIO laboratory reports, assisting more rapid resolution of disease problems in your clients’ livestock. Also, the data is often used in our surveillance reports and newsletters when describing findings. These reports are found via the following link: https://www.gov.uk/government/collections/animal-disease-surveillance-reports.

SEASONAL ALERT: KLEBSIELLA SEPTICAEMIA OUTBREAKS IN PIGS

Updated disease information on outbreaks of septicaemia in pigs due to infection with Klebsiella pneumoniae subspecies pneumoniae (Kpp) is now available for veterinarians and pig keepers on this link: http://ahvla.defra.gov.uk/documents/surveillance/diseases/klebsiella-vets.pdf. This is a seasonal alert to be aware of the possibility of Kpp outbreaks which have been diagnosed between May and September each year from 2011 to 2015 with outbreaks now confirmed on 16 commercial pig farms in England. They have mostly been in East Anglia, with one outbreak in 2014 in the Starcross region and one in 2015 in the Thirsk region. The most consistent features are rapid death (often with pigs just found dead) of preweaned pigs on outdoor units from ten-days-old to weaning in multiple litters with lesions typical of septicaemia from which Kpp is isolated in pure growths. The clinical signs of sudden death are non-specific and further investigation, including post mortem examination and culture, is essential to confirm a diagnosis of Kpp septicaemia.

Bank Holidays

Monday 2nd May – Closed
Monday 30th May - Closed
MONTHLY REPORT – MARCH 2016

CATTLE

Alimentary disease

Two cases of K99 E. coli infection were recorded, both in dairy calves. Affected animals were reported to develop diarrhoea within the first day of life on the one farm and within the first week of life on the second. At the time of submission there was low morbidity in each herd.

There was a similar prevalence of rotavirus (17 premises) and cryptosporidiosis (16 premises), often in mixed infection. Unusually coronavirus was identified on 4 farms as the sole pathogen.

Suspected persistent BVDv infection was identified in three animals on separate premises, each reported to be between 6 and 9 months old and in poor condition.

BVDv was also identified in a 4 day old calf examined postmortem. The animal weighed only 28 kilograms and had almost no body fat. Pneumonia and scouring were also a feature and cryptosporidiosis were detected. An ongoing problem of calf mortality was reported in animals born to purchased heifers, with no vaccines having being employed. Twelve of 20 calves born were reported to have died.

Nine diagnoses of coccidiosis were made. In five cases bloody diarrhoea was a feature. The age range was 3 weeks to 6 months for eight of the cases, but the ninth was in yearling dairy heifers on a rearing premises. The animals were well grown but 2 of a group of 4 developed diarrhoea with frank blood. No salmonellae isolated and a count of 58,350 oocysts per gram confirmed coccidiosis.

There were four outbreaks of Salmonella Dublin infection. Three were in dairy calves up to three weeks of age and in two of the cases cryptosporidiosis was also diagnosed. In a Cheshire herd 100% morbidity was reported in the calves with pneumonia and poor condition also a feature, and there was a poor response to antibiotics. Up to half of the calves were reported to have died.

The fourth outbreak of salmonellosis due to S. Dublin was in a Somerset dairy herd of 150 cows. Four dairy cows were reported to have severe diarrhoea, with some passing mucosal casts, and one animal died.

Salmonella Mbndaka infection was identified in two herds, both cases occurring in scouring neonatal dairy calves. In one Shropshire herd the deaths of 20 of 60 calves were reported, rotavirus infection was also confirmed. The second herd was in Staffordshire where two of around 20 calves scouring by two to three days old. S. Mbndaka and cryptosporidiosis infections were confirmed.

Salmonella Anatum was isolated from the faeces of a diarrhoeic dairy cow, one of five reported to be affected in a Somerset dairy herd. This Salmonella species has regularly been identified in the area and is considered associated with infection in wildlife.

Rumen fluke eggs (12 cases) were again more commonly found than liver fluke eggs (8 cases) in faeces samples (both present in 4 cases).

Salmonella Typhimurium dtU302 infection was identified in 1 week old suckler calves on an Anglesey farm where systemic salmonella infection by the same organism was also recently diagnosed in neonatal lambs. Five of 10 calves were reported to be diarrhoeic with two deaths.

There were 53 diagnoses of Johne’s disease.

Abortion

Two aborted calves were submitted from a dairy farm of 160 cows. Three abortions occurred within a few days of the herd being vaccinated. Trueperella (Arcanobacterium) pyogenes was isolated from one; this is a recognised cause of sporadic abortion in cattle. E. coli was isolated in pure culture from
the second; *E. coli* is considered a potential cause of opportunistic infection and abortion. No other pathogens were demonstrated.

A single case of *Bacillus licheniformis* infection was diagnosed in a Somerset dairy herd.

**Neospora** infection was identified by PCR in a calf aborted at 8 months gestation. It was reported to be a sporadic abortion in a Dorset herd with a recent history of BVD infection. Infection was also demonstrated in a Holstein-cross suckler cow, a single abortion in a herd of 50.

**Respiratory disease**

Two cases of IBR were diagnosed. One was in fattening animals where only one animal was reported affected with clinical signs of pneumonia including nasal discharge and pyrexia. In the second case disease was reported in six month old calves with pneumonia, ocular and nasal discharges. Both diagnoses were made by PCR identification of BoHV-1 virus. *Pasteurella multocida* was also isolated from lung tissue submitted in the second case from an animal examined postmortem by the practitioner.

**Interstitial pneumonia** was confirmed by histopathological examination of the lung from an 8 week old Holstein calf examined postmortem by the practitioner. It was one of two which died unexpectedly two weeks apart in a south Cheshire dairy herd. Both had shown no previous signs of ill health. The calf was found recumbent struggling to breathe before it died. At postmortem examination the practitioner reported diffuse reddening of the lungs. No pathogens were isolated by bacterial culture and PCRs for viral pathogens were negative, but on histopathology there was evidence of interstitial pneumonia. The cause, as with many cases of interstitial pneumonia, was uncertain. Although it can be a feature of some infections including occasionally RSV, the reaction can be triggered by a systemic insult including some mycotoxins.

There were two diagnoses of RSV infection. One was in a group of 15 month old Limousin heifers. Four animals were reported to be off colour with high temperatures and signs of pneumonia. The second outbreak was in unweaned dairy cross calves on a fattening unit. Ten of 15 were affected with two deaths despite treatment with antibiotics and anti-inflammatories. Postmortem examination of one of the casualties was performed by the practitioner who reported pneumonic pathology. RSV was confirmed in both cases by PCR testing.

**Mycoplasma bovis** was the only pathogen identified on postmortem examination of a six month old purchased fattening animal. Two other animals had recently died in the accommodation where mixed age animals were reared together. Postmortem examination confirmed consolidation in ventral areas of lung lobes with multiple pale 1 to 2 mm foci throughout, and bullae were present in the caudal lobes. No other pathogens were identified although the animal had been treated with antibiotics.

Persistent mortality in unweaned dairy calves was investigated by postmortem examination of a recently dead animal by the practitioner who reported microabscessation of anteroventral areas of the lung. *Trueperella pyogenes* was predictably isolated in culture consistent with chronic secondary bacterial infection.

**Systemic disease**

**Malignant catarrh** was diagnosed by detection of ovine herpesvirus-2 by PCR in blood from an adult Swedish Red in a Somerset dairy herd. The animal presented with bilateral corneal opacity, a profuse ocular discharge, pyrexia and abortion.

A suckler calf aged 21 days was reported to present with pyrexia, ‘lung crackles’, pyrexia of 104.4°F and unilateral epistaxis. There was no known trauma. Haematology was undertaken which identified a platelet count of 22 x 10⁹/l (reference interval 100-800 x 10⁹/l) and a white cell count of 0.6 x 10⁹/l (reference interval 4-12 x 10⁹/l); a differential white cell count was not possible. The dam of the calf had been vaccinated with ‘Pregsure’ in the past and the clinical and haematological signs were considered strongly suggestive of bovine neonatal pancytopenia (BNP).

Two calves were examined postmortem from a dairy herd. Ten calves were reported to have died in the previous two to three months with acute onset nervous signs. This was usually fitting, leading to
their deaths, usually within 5 to 10 minutes of the onset of signs although one calf died after 24 hours of showing clinical signs. The calves were typically around 2 to 3 weeks old when affected and were otherwise well, having drunk their milk at the last time of feeding. The postmortem examinations of both animals showed very similar pathology with navel infections, polyarthritis (‘joint ill’) (Figure 1: Profuse fibrinous joint exudate in a 2 to 3 week old calf, a sequel to navel infection.) and meningitis evident by yellow-red slightly turbid CSF.

Figure 1: ‘profuse fibrinous joint exudate in a 2 to 3 week old calf, a sequel to navel infection’

A fibrinous peritonitis was also present in one (Figure 2: Fibrinous peritonitis). The findings were consistent with navel infection leading to septicaemia and subsequently meningitis and polyarthritis.

Figure 2: Fibrinous peritonitis

SMALL RUMINANTS

SHEEP

Reproductive disease

As spring continues there are many submissions from aborted sheep with the usual suspects EAE, toxoplasmosis and campylobacter frequently identified. We seem to be having more isolations of
campylobacter this year, however we won’t know the final numbers until the end of the lambing season. Nationally the incidence of diagnosis of campylobacter appears to go in a 3 year cycle. Both Campylobacter jejuni and Campylobacter fetus fetus can cause abortion and weak lambs.

A few notable cases are detailed below.

Multiple abortions were reported in a large flock of over 1500 ewes with 35/200 of the early lambing flock aborting. Both EAE and Campylobacter fetus fetus were identified. Replacement ewes are purchased each year and no vaccines are used. A range of pathology was seen in the 13 foetuses submitted, including severe mumification, autolysis, poor wool cover and liver enlargement. In one there were fibrin strands in the thoracic fluid and partially inflated lungs. Lesions consistent with EAE were visible on the placentas and 4/6 were positive for the acid fast intracellular organisms.

In one outbreak of EAE in an unvaccinated flock of 175 ewes, only 12 live lambs were produced from the first 30 ewes to lamb. In a second 30/600 ewes aborted.

10/265 ewes housed for 10 days were aborting and weak lambs were born. Both Campylobacter jejuni and toxoplasmosis were identified. Ten percent of a flock of 85 vaccinated ewes had aborted by three weeks before term. Campylobacter fetus fetus was cultured from the foetal stomach contents. Isolating aborting ewes from those still in lamb, together with mixing of future replacements before tupping, was recommended.

Listeria monocytogenes was identified on five separate holdings as a cause of abortion. One incident was a recently established lowland flock where 10/250 ewes in the same section of the shed aborted. A second flock reported 8/180 ewes had either aborted or produced weak lambs which died soon after birth. Distended abdomens were also seen in a number of lambs.

15/280 ewes were reported to be off colour and die within 24 hours. PME by the PVS found two dead autolysed lambs within the uterus and no signs of parturition. Culture from the ewe and foetal tissues identified mixed flora of E coli and Streptococcus spp. In one case of this, and cases of rotten lambings can be unrewarding. Sometimes there is an association to vaginal prolapse possibly leading to a breakdown in the cervical plug which allows ascending bacterial infection.

Sudden onset of failure of milk let down was reported in a lowland flock where 40/300 ewes were affected. Blood sampling for energy, protein and trace elements was all normal. A visit to the farm confirmed the ewes were in a good body condition and typical cases had markedly engorged udders with either partial or complete failure of milk let down. Signs generally resolved by between two and seven days after lambing. By the end of lambing almost 60% of the flock had been affected. Similar cases are reported most years and the cause is as yet not understood. A hormonal failure seems to be involved, but another managemental or environmental factor appears to initiate these flock “outbreaks”. The impact on affected flocks can be significant due to lambs receiving insufficient colostrum. There are also the increased labour and costs associated with supplementing lambs with colostrum and milk and due to an increased risk of mastitis in affected ewes.

**Alimentary disease**

A neurological problem in artificially reared lambs, on a milking sheep unit, where 25/70 lambs had died, resulted in the submission of 3 typical cases for PME. There were 700 young lambs on the holding which were split into smaller groups, only one of which was affected. The lambs were fed via an automatic milk machine with concentrate feed, hay and straw available. The problem started at about two weeks of age. The lambs developed a fine tremor, appeared cold, became progressively weaker and died over a period of about a week. On PME the lambs were in good condition with a small amount of faecal matter at the tail. In the rumen of one lamb there was a large amount of milk and pasty material in the rumen and abomasum with no roughage. In both lambs there was marked enteritis with enlargement of the mesenteric lymph nodes. A small area of collapsed lung was present in one lamb. Bacteriology of the brain tissue identified Listeria spp on enrichment culture. Clostridial toxin testing was negative and no enteric pathogens were detected. Histopathology of the brain revealed mild focal non suppurative encephalitis thought to be a response to a previous bacteriaemia. There was no evidence of CCN listeriosis or clostridial enterotoxaemia. Discussions with the histopathologist suggested that the presence of large amounts of milk and concentrate in the rumen with no fibre could have resulted in a lactic acidosis which could have explained the neurological
Increasing the availability of roughage to the lambs was suggested although both hay and straw were provided.

A mesenteric torsion, leading to dilation of the small intestine and caecum, was identified on PME of a 23kg, 6 week old Texel lamb which had been found dead. It was still on its dam and had access to ad lib creep. The group were turned out to pasture for the first time 5 days prior to submission. This diet change could have led to excessive fermentation, due to increased carbohydrate, in the lower gut and perhaps was the trigger factor for the torsion.

From a group of 8 cade lambs purchased from market two weeks prior, two died within the first 5 days, with a further two dying overnight prior to submission. They were in poor to emaciated body condition with faecal staining at the hind legs. There was no abdominal fat and no milk present in either animal, with scant intestinal contents. No enteric pathogens were identified. Concerns were raised about the amount of milk being supplied to the lambs (150 ml QID) and checking reconstitution rate was advised.

A fifth of a group of 100 lambs was affected with sudden onset profuse yellow scour at 2-3 days old and 10 had died. Lambs received oral antibiotic at birth. E coli K99 was cultured from the submitted faeces sample which was resistant to several antibiotics, including spectinomycin. Good hygiene and attention to colostrum intakes should be used rather than routine use of antibiotics to prevent outbreaks like this.

A WEC of 950 eggs/gram and rumen fluke eggs were detected in a faeces sample from a group of ewes from Powys which were in poor body condition and not milking well. The PVS was alerted to the problem when the farmer reported increased incidence of joint ill in the lambs, thought to be secondary to poor colostrum supply.

A coccidial oocyst count of 799,000 oocysts/gram was detected in the faeces of a 6 week old Suffolk lamb with acute onset diarrhoea. In a second submission three week old Texel lambs were reported to be dull with some scour and 349,500 oocysts were detected.

**Respiratory disease**

Sixty two month old lambs from a group of 100 were showing respiratory signs and five had died. Coughing and nasal discharge were seen from about 2 weeks old and response to treatment with antibiotics was good. The lambs were at grass with their dams and received ad lib creep. They also received an Ovivac–P vaccination a month ago and were treated for coccidiosis at the same time. On PME the lamb was well grown but in poor body condition. There was fibrous material and cereal grains in the rumen. Approximately 50% of both lungs were dark red and consolidated, in the cranioventral area. The pleura was cloudy. Mannheimia spp was cultured from the lung and Mycoplasma ovipneumoniae was also identified. A significant worm burden was confirmed which is the likely cause of the poor body condition, and treatment of the remainder of the group was recommended.

**Metabolic disease**

**Pregnancy toxaemia** was identified as the cause of deaths on two holdings. On the first farm investigations by the PVS and VIO found that there was insufficient trough space for all the ewes to feed at once, poor quality forage, insufficient forage and concentrate provided and possibly poor feeding behaviour by the younger ewes. Hill breed sheep are notoriously slow to get used to supplementary feed and the lack of trough space will have resulted in low feed intakes. The ewes were in poorer condition than normal at housing and a high worm egg count in the faeces was also detected.

On the second holding the Easy Care ewes were at grass and 60/500 were in poor condition with several deaths. Supplementary hay and cereal/protein feed were supplied and the ewes were running over an extensive area of grazing. The hard feed was supplied via two 3-in-1 feeders which the ewes could access all day and were intended to take small amounts often during the day. An investigative farm visit revealed that due to the extensive nature of the farm the distance the ewes would have had to travel to reach the feed was probably excessive for animals late in gestation. Grouping the ewes,
according to BCS into two fields and increasing the feeding stations was suggested to increase intakes. However this could result in an increased stocking density over the lambing period which may cause other issues.

Significant losses were reported in a north Wales flock. Marked ketosis and low albumins were seen in blood samples from ewes on the holding where over 100 ewes and 500 lambs died in the flock of 1000 purchased ewes. Condition scores in the ewes were 1½ to 2 and submission of a ewe to WVSC Aberystwyth found her to be in poor body condition with reduced rumen content. Lambs were reported to be born alive but became weak and lethargic after a few days. ZST results were low for 2/4 lambs tested. There were repeated discussions with the PVS about the welfare of the animals on this holding and an APHA advisory farm visit was offered to the farmer but was declined. Enforcement action has been taken by VFS (formerly AH) and the local authority following a complaint by the general public at the same time as the submissions were received by APHA.

**Systemic disease**

Three four day old lambs were submitted to investigate the cause of watery mouth in a flock of 500 Texels, where 8 lambs from the first batch had died at 3-4 days old following typical clinical signs. Lambs received iodine treatment and antibiotic when they were moved to the individual pens for mothering. The ewes were in good condition and milking well. On PME all the lambs had marked wetness around the chin and a full abomasum. There was fibrin present in one joint of lamb 1 with pneumonia, pleurisy and possible meningitis. Lamb 2 had evidence of generalised septicaemia, and lamb 3 marked peritonitis, pleurisy and pericarditis. E coli was cultured from multiple sites although ZST testing showed good colostrum absorption. It was suggested that the lambs could have been acquiring infection in the window prior to navel dipping.

**Musculoskeletal disease**

Joint fluid samples were submitted from lambs with marked joint effusion and lameness, with 5/100 affected. Streptococcus dysgalactiae equisimilis was cultured which was resistant to tetracycline which was one of the antibiotics used for treatment. Streptococcus dysgalactiae was cultured from joint swabs from two additional farms. On one of the farms 40 lambs were reported to be affected with joint ill.

**Toxicity**

**Copper toxicity** was suspected in a Texel yearling which was being fed on lamb creep due to a history of jaundice, dark red urine and death. Fixed liver was submitted which showed evidence of severe sub acute necrotising hepatitis with cholestasis. Rhodanine staining showed accumulation of red brown granules consistent with copper in the swollen hepatocytes, supporting the diagnosis.

**GOATS**

An 8-year old goat was losing condition and scouring for several days. Examination for endoparasite eggs in faeces was unremarkable and the goat had not improved with antibiotic treatment. Biochemistry showed a very low albumin level of 9.0 g/l (reference range 29-43). **Johne's disease** is commonly identified as a cause of hypoalbuminaemia and subsequent testing for Johne’s antibodies by ELISA was positive. Serological screening of the rest of the group of 6 found one other seropositive goat.

Six out of a group of 100 dairy goats had aborted full term kids. **Listeria monocytogenes** infection was diagnosed by the isolation of the organism in pure culture from foetal stomach contents.

Q fever was diagnosed by placental examination from an aborted goat. A total of 8 animals aborted over a period of less than 1 week. The placenta had typical gross pathology with reddening and purulent clots/plaques on intercotyledonary areas. The characteristic MZN-positive intracellular inclusions of *Coxiella burnetii* were identified microscopically and diagnosis was confirmed by PCR on the placenta and foetal fluid. The subsequent submission of 4 placentae from goats which kidded normally also proved positive; numerous MZN inclusions with morphology typical of *Coxiella burnetii* were identified microscopically. This finding indicates that infection can be acquired by animals in
contact with aborting animals and that the organism may be present in normal kiddings. Aspects of the zoonotic potential of Q fever were discussed with the owner who will institute a vaccination program for the 600 animal herd.

**BIRDS**

**BACKYARD FLOCKS**

**Marek’s Disease** was suspected in a bantam which had been noticed becoming weak and unsteady on its legs. It had lost condition over several days before death. Histological examination of sciatic nerve tissue showed multiple lymphomatous infiltrates consistent with Marek’s Disease. Only one other bird was present on the premises.

**MISCELLANEOUS**

One out of a group of three adult llamas died following several days of lethargy and weight loss, progressing to recumbency before death. **Impaction of the proximal ascending colon** with dried sand-like material was found at post-mortem examination. Similar material was also present in C3 which would have also led to a functional obstruction. There was increased content within the first stomach due to the material in C3.

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