



VLA MONTHLY SURVEILLANCE REPORT DECEMBER 2008

Highlights

- Increased case fatality rate in outbreaks of winter dysentery in cattle – *Outbreaks of winter dysentery in previous years have shown a very low case fatality rate. The current outbreaks appear to show an increased fatality rate, the cause of which is not clear but may be related to increased virulence of the causative coronavirus*
- Fasciolosis continuing to be a widespread cause of disease in cattle and sheep – *Many outbreaks demonstrate signs of both acute and sub-acute disease demonstrating continuing exposure to infected pasture. In many cases there is no history of attempted preventive measures*
- A further case of psoroptic mange in cattle – *The outbreaks to date have been centred in South Wales and the purchase of potentially infected cattle appears to be an important risk factor*
- *Bibersteinia trehalosi* septicaemia causing losses in lambs
- Atypical PCV-2 related disease in pigs – *Primary hepatitis is an unusual pathological presentation of this syndrome*
- Riboflavin deficiency in broilers
- Ergotism in water buffalo – *Ergot infested grain may be related to the poor growing conditions in 2008*

CATTLE

Reproductive diseases

Listeria monocytogenes abortion

Carmarthen identified *Listeria monocytogenes* as the cause of a 7 month abortion in a five year old Friesian cow which had been housed for six weeks and was receiving baled silage. No diagnostic lesions were noted in the foetus but *L. monocytogenes* was isolated from foetal stomach content. This was the second abortion in a week in a herd of 260.

Bury also diagnosed a case affecting two suckler cows in a group of 16 which aborted within two weeks of each other.

BVD Abortion

BVDV type 1 was identified using an RT-PCR on viscera from a 24 kg foetus, submitted to Shrewsbury. It was the second calf to be aborted in a group of 6 purchased heifers which were unvaccinated.

Langford identified BVD virus type 1 by PCR in the spleen of a fetus aborted at a gestational age of 5 months. This was a single abortion in a 200 plus cow suckler herd. On another a 4-7 month old fetus from an aborting dairy cow was positive for BVD following PCR examination of the spleen

Alimentary tract diseases

Winter dysentery

Langford diagnosed bovine coronavirus as the cause of bloody scour in a dairy cow. Eight animals had been affected and one was submitted for post mortem having passed large quantities of blood. There was a large volume of fresh blood in the distal colon at post mortem and the carcass was very pale suggesting death from anaemia. Coronavirus was not detected in the faeces but IHC on histological sections identified active coronavirus infection with typical targeting of intestinal glandular epithelium. In another case with a history of acute dysentery acute and convalescent serum samples were submitted from two animals. These showed significant increases in percent positivity titres for bovine coronavirus consistent with a diagnosis of Winter Dysentery.

The cases reported in the last quarter of 2008 have shown an increased case fatality rate compared to those experienced in recent years. The cause of this is not known however changes in the virulence of the circulating viral strain cannot be ruled out.

Fasciolosis

There were numerous diagnoses of fasciolosis during December. Diarrhoea and weight loss were the most common presenting signs although Langford described a case in a six year old Jersey cow which exhibited submandibular *oedema*. Carmarthen described a case of subacute fasciolosis in a six month old Simmental cross calf, one of six to die in a group of 30 on a 400 cow suckler unit. These calves had been purchased and some had been in poor condition.

Following a history of liver condemnations due to fluke, five faecal samples were received at Winchester from a 100 cows suckler herd for fluke egg

examination. All five samples were positive confirming patent fasciolosis in the herd.

Starcross also diagnosed four incidents of fasciolosis. Rumen fluke (*Paramphistomum cervi*) infestation also detected on three occasions.

Parasitic gastroenteritis

Carmarthen diagnosed severe parasitic gastroenteritis in a six month old Friesian heifer. This was one of eight heifers that were showing loss of condition. The animal was emaciated and an abomasal wash revealed 30,000 nematode worms, 60% of which were *Trichostrongylus axei* and 40% *Ostertagia ostertagi*.

Salmonellosis

Winchester diagnosed salmonellosis in a 9-week-old Holstein/ Friesian bull calf was submitted for post mortem examination with a history of scouring and pneumonia. Three animals had died from a group of 40 with 10 others affected. Post mortem examination revealed severe catarrhal inflammation of the mid small intestine and a severe bilateral lung bronchopneumonia and pleurisy. *Salmonella Dublin* and *Mannheimia spp.* were isolated

Respiratory Diseases

Acute Interstitial Pneumonia

An outbreak of acute interstitial pneumonia (AIP) affecting three groups of calves on one farm is under investigation by Penrith. The farm had been visited in November, three weeks prior to the respiratory disease outbreak, following the diagnosis of *Histophilus somni* thromboembolic meningoencephalitis in a 6-month-old calf. No further cases of *H.somni* TEME were seen, but an explosive outbreak of acute respiratory disease occurred at the beginning of December affecting different age groups of homebred suckler calves. Six of ninety calves died despite rapid treatment with antibiotics and non-steroidal anti-inflammatory, with approximately 30 calves affected in total. Some evidence of exposure to RSV and PI3 virus was detected but because of the inconsistency with the histological findings further investigations into the pathology are in progress.

Bibersteinia trehalosi and Histophilus somni

Pneumonia to *Bibersteinia trehalosi* and *Histophilus somni* was diagnosed as the cause of death of a two year old Friesian heifer which had calved in September. Two heifers out of a group of 80 had developed clinical signs of severe respiratory disease and both had died. Necropsy at Carmarthen revealed 60% of the total lung volume affected with either patchy or complete consolidation. No evidence of viral involvement was identified either by fluorescent antibody tests or histology.

IBR

The carcass of a six-month-old Limousin cross beef finisher animal was submitted to Thirsk following sudden death of two of the group of 30 of which 20 have shown clinical signs of difficulty breathing. The main finding in this animal was of a marked furry, green diphtheritic fibrinous membrane overlying the mucosa of the trachea over much of its length. IBR virus was confirmed by FAT on swabs taken from the trachea and in addition, culture of lung

resulted in the isolation of *Arcanobacterium pyogenes* and *Pasteurella multocida*. This submission is typical of a number that have been received at VLA Thirsk recently.

The carcasses of two milking heifers were submitted to Preston for post mortem to investigate a severe outbreak of respiratory disease in which eight fresh lactating heifers had died over a 2 week period. They originated from a 250 cow dairy herd, which had purchased 60 in calf heifers from France in the early summer. Only the imported animals were affected, even though a common air space was shared with the remainder of the herd. The primary clinical presentation was of ocular and nasal discharge, with a number of animals developing recumbency. Post-mortem of two affected animals revealed a necrotising tracheitis with BHV1 identified by IHC on histological sections confirming IBR.

Lungworm

The carcase of a first lactation Brown Swiss heifer was submitted to Sutton Bonnington for post-mortem examination with a history of malaise and weight loss. The heifer had been treated with antibiotics four-five weeks previously after a drop in milk yield and a second course was administered due to the lack of improvement. Another cow in the herd was affected. Post- mortem examination revealed a patent lungworm infection with concurrent chronic bacterial bronchopneumonia.

Other Diseases

Bracken Poisoning

An outbreak of bracken poisoning was diagnosed in a group of 35, nine month old Welsh Black heifers, on a beef rearing unit. The first affected heifer had subcutaneous ecchymotic haemorrhages throughout the carcass, and on the serosa of the viscera and in the lungs. (Fig 1). *Bibersteinia trehalosi* was cultured in septicaemic distribution.

Figure 1

Ecchymotic haemorrhages in the lungs in a lamb with concurrent bracken poisoning and septicaemia



A subsequent necropsy on another animal revealed similar haemorrhages on the serosa, but in addition, free blood in the abdominal cavity and large

necrotic infarcts in the liver. The animals had been fed haylage containing a large amount of bracken. The diagnosis was confirmed by blood sampling of a further five animals that showed a severe neutropaenia and thrombocytopaenia.

Mycoplasma wenyoni

Mycoplasma wenyoni was identified by DGGE in an EDTA blood sample submitted to Penrith from an adult dairy cow with signs of swollen, rubbery, hot teats, swollen lower hind limbs, pyrexia and milk drop. Three animals were reported to be showing similar signs.

Psoroptic mange

Psoroptic mange was diagnosed by Carmarthen affecting both cows and calves from one holding. The animals had been bought in over the summer from various farms and markets. One calf showed crusting lesions over tail-head and down the back legs over the summer. It was treated twice with moxidectin. Since housing, more lesions were evident in the group. In one Belgian blue calf, approximately 20% of its body was covered in crusting lesions. In contrast to previous cases there were not profuse numbers of mites. Treatment under the cascade with a synthetic pyrethroid product was recommended and it was strongly advised to check its efficacy by sampling after treatment.

SMALL RUMINANTS

Reproductive diseases

Border Disease

Winchester investigated poor conception rates in a ewe flock in which 81/187 were barren at scanning. Nine barren ewes were bled and 5/9 gave a positive Border disease antibody test result suggesting that the virus was circulating. BDV had not previously been confirmed in the flock and investigations continue to identify a source, possibly a purchased ram.

Alimentary tract diseases

Yersiniosis

Three six-month old mule lambs were submitted to Shrewsbury for post-mortem examination. Three hundred lambs had been purchased eight weeks prior to presentation and vaccinated for pasteurellosis and wormed. There had been five deaths over several days. There was considerable faecal contamination of the carcasses. Post-mortem revealed the mucosa of the proximal colon and caecum to be reddened and haemorrhagic in one lamb and there was slight thickening and haemorrhagic reaction in another. On direct culture *Yersinia pseudotuberculosis* was isolated. Histopathological examination of intestinal tissues confirmed the presence of a bacterial colonisation with organisms consistent with *Yersinia*.

Fasciolosis

Outbreaks of fasciolosis continued causing severe losses in some flocks. Shrewsbury investigated an incident on one farm where eight out of 90 ewes had been found dead at grass over a period of four days. On another farm eight ewes out of 200 on hill pasture had died over the period of a week with

no signs of illness. They had not received supplementary feed and had not been recently treated for endoparasites or liver fluke.

Preston reported both acute and chronic fasciolosis, with variable and sometimes unusual presenting clinical signs. In a group of 38 9-month old finishing lambs, 14 died within a week of housing. Most were found dead, but some were reported to have shown respiratory signs. On post mortem examination there was a severe fasciolosis with a large volume of serosanguinous fluid in the peritoneal cavity, and an extensive peritonitis, with numerous fibrin clots. The respiratory signs noted prior to death were likely to be tachypnoea due to profound ascites and peritonitis.

Langford diagnosed acute and subacute fasciolosis as the cause of death of 30 ewes in a 400 ewe flock due to lamb in mid February. The flock was at grass with access to big bale silage. All ages of ewes were said to have been affected and diarrhoea was not a feature. Most ewes dying were said to be in good condition.

Listeriosis

Systemic and enteric listeriosis was diagnosed as the cause of six deaths in a flock of 159 month-old Texel lambs. The lambs were fed on finisher pellets and fodder beet when housed two weeks previously. In one of three submitted lambs, small white nodules (1-2 mm) were detected in the mucosa of the small intestine. The other lambs had evidence of septicaemia, which was seen as widespread pinpoint haemorrhages and ecchymoses, and small patches of red/purple discolouration in the lung lobes. *Listeria monocytogenes* was isolated from the affected lung tissue.

Parasitic Gastroenteritis

Winchester investigated ill thrift in a group of 40 lambs and one was submitted for post mortem examination. A total worm count undertaken on the abomasum identified 21,900 worms which were predominately *Teladorsagia circumcincta* and *Trichostrongylus axei*. *Nematodirus battus* and *Trichostrongylus* species were also identified in the small intestine.

The carcass of an 8-month-old lamb was received from a small flock where two lambs had died with a history of wasting in a group of five. In this case a faecal worm egg count revealed 66,000 epg and a total abomasal worm count of 12,000 mainly *Teladorsagia* worms. This lamb also showed areas of congestion and consolidation in the lung tissue which was approximately 90% affected, and a mixed growth of *Mannheimia haemolytica* and *Bibersteinia trehalosi* were demonstrated in septicaemia distribution.

Rumen Acidosis

A 9-month-old Lleyn ewe lamb in a group of 120, gathered for dipping, showed respiratory distress and submandibular oedema just before she entered the dip. She became cyanotic and died within the hour. Post-mortem examination at Leahurst revealed rumenal acidosis. Rumenal acidosis was also diagnosed in a 7-year-old Lleyn ewe, one of a group of 20 fat ewes, housed 10 days before they were due to lamb. After a week, this ewe was found collapsed.

Respiratory Diseases

Winchester diagnosed two incidents of *Bibersteinia* infection. In the first, six well-grown lambs were found dead in a group of 1,300 shortly after they were

turned out onto turnips. One 9-month-old lamb was submitted for post mortem examination and showed severe lung congestion and oedema with widespread change consistent with a septicaemia/toxaemia. *Bibersteinia trehalosi* (formerly *Pasteurella trehalosi*) septicaemia was confirmed. In the second flock, the sudden deaths of 7/200 fattening lambs over a 10-day period again resulted in the submission of a carcase for examination and *Bibersteinia trehalosi* was again isolated in pure culture.

Other diseases

CCN

Penrith diagnosed thiamine dependent cerebrocortical necrosis were a 9-month-old Swaledale lamb that had shown neurological signs, prior to euthanasia. A high worm egg count was also demonstrated. It was the only lamb to be affected in a group of 200.

Listeriosis

The carcase of a 21-month-old Jacob ram was submitted to Winchester for post mortem examination with a history of nervous signs, 3/50 in the same group had shown similar signs. Brain tissue microbiology resulted in the growth of *Listeria monocytogenes* confirming the presence of Listeria encephalitis in this animal.

Ovine infectious keratoconjunctivitis

Starcross investigated a severe problem of ovine infectious keratoconjunctivitis that had affected approximately 200 out of 500 sheep. The problem had first been noticed in early September when 10/20 ewes had presented with epiphora and mild conjunctivitis. There had been an initial good response to antibiotics but the condition had continued to spread. PCR testing had confirmed the presence of *Mycoplasma conjunctivae*, a known cause of this condition.

PIGS

Alimentary tract diseases

Brachyspira pilosicoli

The problem of a low grade scour spreading through a group of approximately 300, 14-week old growing pigs was investigated by Langford. It was reported that at least 40 were affected. *Brachyspira pilosicoli* was isolated from a typical faecal sample.

On another unit Swine Dysentery was confirmed following the isolation of *Brachyspira hyodysenteriae* from a faecal sample collected from 16-week old pigs with diarrhoea. 12 out of 50, 16-week old pigs were said to be affected.

Colibacillosis

Enteric colibacillosis exacerbated by environmental factors was suspected to be the cause of wasting and scour affecting 200 of 1,600 six-week-old pigs in outdoor tents in groups of 90, the scour was seen from four and a half weeks of age and ten deaths occurred. Four live and two dead pigs were submitted to Bury; all were hairy and dehydrated and in poor or very poor body condition. Three of the pigs had gross evidence of enteric disease and

profuse growths of a variety of enteropathogenic *E.coli* were isolated. The body condition of the pigs suggested that problems began soon after weaning and environmental factors such as chilling may have played a role in predisposing to, or exacerbating, disease. No involvement of PRRSV or PCV-2 was identified.

Porcine proliferative enteropathy

Bury diagnosed porcine proliferative enteropathy as the cause of wasting from 17 weeks old onwards in a 550 sow indoor breeder finisher unit. Approximately eight pigs were affected in each batch of 400, and about half of these died. Post-mortem examination of six affected pigs revealed thickening, reddening and corrugation of the distal third of the small intestine of varying severity and intracellular acid-fast curved rods were visible in MZN-stained smears from the small intestinal mucosa, consistent with PPE. No evidence of PCV2-associated disease was found.

Atypical PCV-2 Associated Disease

An unusual manifestation of PCV-2 infection was described by Winchester affecting a single 6-month-old pig on an outdoor unit. It was profoundly jaundiced with an enlarged orange coloured liver. Immunohistochemistry confirmed severe and widespread PCV-2 infection of hepatocytes, the jaundice thought to be due to hepatocyte swelling and necrosis with mechanical obstruction of normal bile flow.

Respiratory Diseases

Haemophilus parasuis and PRRS

A single fresh pluck was submitted to investigate coughing in growers arriving on a rearing unit two to three weeks earlier; 10 had died from a group of 200. The submitted pluck showed a lobar pneumonia with generalised fibrinous pleurisy and pericarditis suggestive of Glasser's disease, which was confirmed by the isolation of *Haemophilus parasuis*. In addition, PRRS virus was detected by PCR in lung tissue and histopathology revealed a subacute severe diffuse bronchointerstitial pneumonia with alveolar necrosis and type 2-pneumocyte hyperplasia suggesting that the PRRSV was significant in the respiratory disease.

Other diseases

Erysipelas

Three lactating gilts in a batch of 120 on an outdoor breeding herd showed malaise and diamond-like skin lesions which responded well to antibiotic treatment. Most of the piglets in two of these litters died rapidly and one two-week-old pig was submitted to Bury for post-mortem. The necropsy revealed marked purpling of the skin of the snout and ear extremities, subtle multifocal pinpoint haemorrhages in the subcutis of the abdomen, a mottled slightly enlarged liver and fibrin stranding in the peritoneal cavity. Pure growths of *Erysipelothrix rhusiopathiae* were isolated from the liver and spleen consistent with swine erysipelas.

Streptococcus dysgalactiae equisimilis

Swollen joints and fading pigs at 17 to 20-days-old was described in an unspecified number of litters on an outdoor breeding unit. Three dead pigs

were submitted to Bury and post mortem revealed all to have arthritis with excess turbid synovial fluid. One pig also had omphalitis and vegetative endocarditis affecting the left atrioventricular valve. *Streptococcus dysgalactiae equisimilis* was isolated in pure and profuse growth from lesions and internal sites.

BIRDS

Broilers

Riboflavin deficiency

Riboflavin deficiency was diagnosed in four submissions of broiler chickens aged 8, 11, 13 and 19 days, with a history of stunting, lameness and reluctance to move. Curled toe paralysis was clinically suspected in the three younger flocks. Mild oedema of sciatic nerves was noted at post mortem examination was accompanied with histological features consistent with riboflavin deficiency included moderate to marked Schwann cell hyperplasia with numerous mitotic figures and focal intraneural oedema.

Supplementation with multivitamins was reported to have been very effective with 75% of the flock apparently responding within 24hours.

Marek's Disease

Skin samples were submitted from broilers rejected at an abattoir because of folliculitis. Histopathology revealed quite extensive lymphoid infiltrates in some areas of the skin. These were largely perivascular and admixed with a number of inflammatory cells. Without molecular techniques it was not possible to be absolutely certain that this was Marek's disease. However in one section of three examined, the extent of the infiltrate was sufficiently marked to suggest this condition.

Commercial Layers

Infectious laryngotracheitis (ILT)

ILT was diagnosed in a house of 32000, 77 week old caged-layer pullets from a farm which had previously experienced the disease. The clinical history of respiratory signs and a sudden increase in mortality and post mortem lesions with blood and fibrin casts occluding the trachea were consistent with ILT which was also confirmed histologically.

Blackhead

Classical blackhead hepatic "target" lesions and caecal cores were seen in a flock of 24000, 24 week old free range layers with a slight increase in mortality and slight drop in egg production. Post mortem examination revealed multiple random round to oval shaped lesions on the liver surface and throughout its substance. Focal caecal ulceration and formation of caecal cores were also present in some carcasses.

Bordetella Avium

Winchester received a chicken from a small flock with a history of swollen heads and "gumming up" of the eyelids. Some of the birds had recovered following antibiotic treatment. Only mild lesions were found in the respiratory tract of the bird but bacterial culture yielded a growth of *Bordetella avium* from the ovary. This organism is principally recognised as a cause of upper

respiratory disease in turkeys but can also cause similar signs in chickens. Although it was confirmed in the ovary of this bird it may also have been present in mixed growth in the upper respiratory tract. Its presence in the flock suggested that there was an opportunity for the organism to act as a pathogen in causing respiratory signs in the future.

Turkeys

Ornithobacterium rhinotracheale infection

Deep pectoral myopathy (Oregon disease) was detected as an incidental finding (figure 2) in a three-month-old turkey submitted to Thirsk to investigate 40% cumulative mortality since day1 in a group of 100 turkeys. Affected birds showed wasting and some developed swollen heads. The post-mortem investigation revealed the presence of septicaemia and peritonitis with *Ornithobacterium rhinotracheale* and *Mycoplasma synoviae* identified. Winchester also investigated a problem of respiratory disease (snicking) in samples received from an 8,000-bird turkey flock. Bloods were serologically negative for *Mycoplasma* spp, but bacterial culture yielded a growth of *Ornithobacterium rhinotracheale* (ORT) from the nasal cavity of one bird.

Figure 2
Deep pectoral myopathy in a three month-old turkey



MISCELLANEOUS SPECIES

Blackleg in a Black Buck

A two-year-old male Black Buck (*Antelope cervicapra*) was lame on the rear right leg. It was sedated for examination and an open wound with swelling of the surrounding tissue was found. The following day the animal was unable to stand and died. Post-mortem examination at Luddington revealed extensive ecchymotic haemorrhage, emphysema and oedema affecting the

right quadriceps. The affected muscle was positive by FAT for *Clostridium chauvoei*. Confirming a diagnosis of blackleg.

Lungworm in Red Deer

Severe lungworm infestation was the cause of death of a yearling female red deer. 6/40 had shown signs of gradual weight loss and three had died. Clumps of *Dictyocaulus viviparus* worms were present in the mouth, pharynx, trachea and bronchi. The unit is run organically. This case illustrates the importance of monitoring for parasitic conditions on organic units, so that treatment can be instigated before losses occur.

Ergotism in Water Buffalo

Langford diagnosed ergot poisoning and concurrent malnutrition in a herd of water buffalo following the submission of 4 carcasses over a period of 2 weeks. The animals had shown ill-thrift, and necrotic skin lesions were described on the fetlocks with some animals developed curling of the ear tips and tail-tip necrosis. No classic lesions of gangrene were seen. Examinations for BVD and salmonellosis proved negative. Ergot was found in a bag of silage submitted at the same time.

Risk assessment indicated no threat to the food chain since the herd consisted of rearing animals only. In addition the silage feeding had ceased and the animals would not be sold until the summer of 2009

Fasciolosis in Alpaca

Langford diagnosed subacute fasciolosis in an eight-year old alpaca from a group of nine which had developed increased respiratory rate prior to death 10 days later. Numerous mature flukes and haemorrhagic tracts were present within the liver. Profound ascites within the abdomen and fluid within the thoracic cavity had significantly compressed the lungs and compromised respiratory function.

A further adult alpaca from a small group of nine also showed significant ascites as well as pericardial and pleural fluid. There were multiple pale fibrous tracts within the liver consistent with a chronic hepatitis likely to be due to severe fasciolosis.