VLA MONTHLY SURVEILLANCE REPORT
FEBRUARY 2005

Highlights

- Listeria monocytogenes causing abortion and iritis in cattle and abortion, encephalitis and enteritis in sheep
- Severe outbreak of MCF investigated
- Strep. uberis the most common isolate from mastitis submissions
- High post-weaning mortality in pigs investigated
- Infectious Bursal Disease causes losses in a flock of 8-9 week old layer pullets
- Further deaths of wild birds associated with Salmonella typhimurium PT56

CATTLE

Reproductive diseases

Endometritis
An endometritis was reported in a dairy cow, which had been treated for anoestrous using a hormone releasing intravaginal device. Culture of the discharge at Langford subsequently produced a heavy growth of Bacillus licheniformis.

Abortion
A fetus of approximately 250 days gestation from a ten year old beef cow was submitted to Leahurst for necropsy examination. Listeria monocytogenes was identified as the cause of abortion. Listeria is associated with sporadic cases of abortion.

Shrewsbury also reported two incidents of listerial abortion. The organism was isolated from foetal stomach contents of an aborted calf, the only loss in a herd of 40 sucklers. It was also recovered from a fetus aborted at 7 months gestation, the fourth abortion in a group of 30 dry cows.

BVDV associated abortion was diagnosed, using RT-PCR on lymphoid tissue, in an aborted foetus from a beef suckler heifer submitted to Preston.

Histological examination of the heart showed severe myodegeneration and necrosis with a minimal leucocytic infiltrate. Whether this is associated with
BVDV infection or the result of foetal stress or in-utero vitamin E/Selenium deficiency is unknown and investigations are continuing.

**Enteric diseases**

**Parasitic Gastroenteritis**
Truro diagnosed concurrent liver fluke and parasitic gastroenteritis in a group of out-wintered nine-month-old beef calves. Liver fluke was also diagnosed in two Jersey cows from one herd, one of which had concurrent Johne's disease. Parasitic gastroenteritis was also diagnosed in single suckled calves at foot with coughing cows, investigation of the dams revealed lungworm larvae in faeces samples. High Trichostrongyle worm egg counts confirmed parasitic gastroenteritis as the cause of scouring and weight loss affecting yearling dairy heifers in two incidents reported by Langford.

**Fasciolosis**
Shrewsbury reported incidents of disease on 7 farms, 2 in Shropshire, 2 in Cheshire, 1 each in Derbyshire, Staffordshire and Denbighshire. Only a few animals were reported to be affected on most farms although in one case around 20-25% of a group of 2¼ year old fattening stock were reported to be slow to finish and with loose faeces. On one of the Cheshire farms fasciolosis was identified in one of six suckler calves reported to be 3 months old with diarrhoea and weight loss.

**Johne's Disease**
Langford reported 12 incidents of Johne's disease all diagnosed from the examination of faeces samples from typical clinically affected animals. One was a Limousin bull, the remainder were Holstein dairy cows. In one submission four faeces samples were submitted from scouring cows in a 280 head dairy herd and all were found positive. In total 20 cows in this herd were reported to have shown clinical signs consistent with the disease.

**Malignant Catarrhal Fever (MCF)**
A reminder of the impact MCF can have was provided by a case investigated by Carmarthen in which, ten steers out of a group of 28 and one cow out of a group of eight (four of which were culled shortly after exposure) had died. Losses started about ten days after the animals were removed from a pen next to a group of sheep, mainly chronically lame store lambs. The initial cases presented with diarrhoea, dyspnoea, very high temperatures and some had conjunctivitis. Most of these early cases died about two days after the onset of signs. The later cases did not have diarrhoea and some had the more typical 'head and eye' form with corneal opacity. One animal is still alive after 28 days although it has head tremor and corneal opacity. Most had terminal neurological signs. The diagnosis was made by serology and by PCR and histopathology on one carcase received for necropsy. Sheep were identified as the most likely source of the herpes virus infection.

**Salmonellosis**
Langford reported the incidence of Salmonellosis to be greatly reduced with no cases of *S. Dublin* encountered. Carmarthen also reported far fewer
cases and attributed this to the concomitant fall in fasciolosis. Nationally the number of incidents in January and February (35) is lower than 2004 (42). The annual incidence is showing a significant fall compared to 2003 (Fig 1).

**Fig. 1**
VIDA Incidents of Salmonellosis dublin in Cattle (as a percentage of diagnosable submissions)
England and Wales Jan-Dec 1999 - 2004

Vertical bars indicate 95% confidence limits.

Carmarthen also investigated a case of acute onset post calving scour and pyrexia affecting one three-year old Holstein cow in a herd of 300 which was found due to *S. Anatum*.
In another herd *S. Typhimurium* PT56 was the cause of post calving dysentery affecting one cow in a dairy herd of 120.

**Winter Dysentery**
Luddington investigated a dairy herd which had experienced an episode of transient diarrhoea. Three paired serum samples taken from affected cows were tested for corona virus (ELISA) and two of these showed a significant seroconversion for the virus. This result in conjunction with the clinical signs supported a diagnosis of winter dysentery.
Sutton Bonington also investigated an outbreak of suspect winter dysentery in 18 of 22 Charolais suckler cows and calves of varying ages. Pyrexia, haemorrhagic diarrhoea and in some of the younger cattle haemorrhagic and mucoid nasal discharges were seen clinically.

**Tyre Wire**
RVC diagnosed traumatic reticuloperitonitis in animals in three separate herds. The affected animals showed a wide age range with one six and one four year old cow being affected together with an 18 month old steer. Lesions were related to the path of the wire however in two of the cases there was evidence of septic embolic spread to other organs.
Sutton Bonington also diagnosed the condition at post-mortem examination of an adult 4½-year-old Holstein x Friesian cow which was submitted for investigation of milk drop and weight loss over a period of several weeks. The farm of origin was reported to have lost up to 6 individuals under similar circumstances over the preceding 18-month period.
Respiratory Diseases

Truro carried out a post mortem examination on two six-month-old Holstein cross bull calves to investigate a longstanding respiratory problem which resulted in high morbidity and mortality in groups of bought in entire Holstein bull calves. *Pasteurella multocida* was isolated from the lung lesions of one calf and *Haemophilus somnus* was isolated from lung lesions of the other. FAT examination of impression smears of the lung lesions proved positive for RSV antigens in both cases. *Mycoplasma bovis* was also isolated from the lungs of one of the calves underlining the multifactorial nature of the aetiology. Langford also described an outbreak with multifactorial aetiology where pneumonia, with a 4% morbidity and case fatality rate of 50%, occurred in affected a group of 300, 6-8-month old fattening animals housed in groups of 30-45. Three animals were submitted for post mortem examination. The findings were similar in all, with anteroventral pulmonary congestion and consolidation. Subsequently RSV, *Pasteurella multocida* and *Histophilus somni* were all confirmed.

Starcross also remarked that numerous respiratory problems had been reported during the month. RSV infection was identified on four farms. It was the only agent identified on two of these farms. On a third farm it was found together with *Pasteurella multocida* and on a fourth where 30 of a group of four-month-old calves showed high temperatures and coughing rising titres to RSV and BVDV were detected indicating a possible role for the latter in predisposing to the outbreak.

Parasitic pneumonia
Luddington reported a case in which five out of a group of 50 six-month old Friesians developed respiratory signs 3 weeks after housing. Examination of a faecal sample revealed a lungworm larva and serology for *Dictyocaulus viviparus* gave a positive result, thus confirming a diagnosis of lungworm. Prompt treatment was recommended.

Other diseases

Streptococcal Arthritis
*Streptococcus dysgalactiae* was isolated from a joint aspirate of a heifer with swollen painful joints and pyrexia. It was the only affected animal in a group of 50. Streptococcal arthritis is common on lambs but an unusual isolate from septic arthritis in cattle.

Mastitis
Langford reported the number of milk samples was more than double the figure for February 2004 with an average of five milk samples per submission received. 70% of samples were received for the investigation of clinical mastitis. In one case investigated *Strep. agalactiae* was isolated from seven out of 17 (41%) milk samples taken from one herd to investigate high cell counts.
Nationally Strep. uberis was the most frequently isolated pathogen from both clinical and sub-clinical mastitis submissions (Fig.2). It is also worth noting the number of submissions where a diagnosis was not possible because of sample contamination.

Fig.2
VIDA Incidents of Clinical Mastitis
England and Wales Jan-Feb 2005

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Incidents</th>
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<tr>
<td>Strep. uberis</td>
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<td>E coli</td>
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<tr>
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<tr>
<td>A pyogenes</td>
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</tr>
<tr>
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<tr>
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<tr>
<td>Strep. agalactiae</td>
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Metabolic disease
Langford reported numerous diagnoses of ketosis with concurrent Fatty Liver, in dairy cattle this month. Diagnosis was based on elevated BHB’s and NEFA’s. In only two cases, plasma glucose was less than the reference range.

Luddington carried out an investigation in a dairy herd which reported poor conception rates, low levels of milk solid and excessive weight loss post-calving. Six blood samples submitted showed elevated beta hydroxybutyrate (BHB) levels in three samples. NEFA values were all above 1200 mmol/l (reference range 0-600 mmol/l) indicating subclinical ketosis/fatty liver. A review of the transition diet and high yielders ration was recommended. Bury also diagnosed a case of fatty liver in a suckler cow.

Metabolic profiles from two herds investigated by Preston, both with problems of poor production and low milk yields in early lactation, indicated marked negative energy balance in both with clinical ketotosis evident in one. Re-evaluation of the diet and feed management was advised.

Nationally the number of incidents of acetonaemia in England and Wales in January (15) and February (12) is less than the previous year (41 and 13 respectively)

Urine Discolouration
Langford carried out an interesting investigation into an outbreak of urine discolouration in dairy cows. Many cows in a 200 cow dairy herd exhibited sudden onset urine discolouration. Normal urine was passed, but it changed colour on exposure to the air, so much so that the collecting yard and loafing yards were covered with what looked like haematuria. The onset of this urine discolouration was also associated with a 10% milk drop, and coincided with
the introduction of a change in mineral mix. Many affected cows were ketotic, though it was thought that this might have been due to feed reduction. Bloods were taken and half those sampled showed elevated liver enzymes and/or ketosis. Milk production returned to normal following the withdrawal of the suspected feed.

The case was subject to a risk assessment but no threat to the food chain was identified. We would be interested to hear of any other cases of urine discolouration in dairy cattle.

**Listerial Iritis/Conjunctivitis**

Luddington investigated an outbreak affecting 19 out of 26 suckler cows which demonstrated iritis and ocular discharge. Some response to parenteral antibiotics was reported. *Listeria monocytogenes* was cultured from an ocular swab. The condition is usually self-limiting but occasionally complications such as ulceration can occur.

**Cholangiocellular Carcinoma**

Thirsk diagnosed a cholangiocellular carcinoma in a 5-year-old beef suckler cow with a history of ill thrift and diarrhoea. Post-mortem examination revealed a very abnormal liver with severe extensive fibrosis, irregular shape and patches of necrosis in the parenchyma (fig.3). There were also multiple abscesses and a huge irregular fibrous capsule (about 15 cm in diameter) in the area of the hepatic lymph node.

![Fig.3](image)

Bovine Cholangiocellular Carcinoma

**Reproductive diseases**

**Abortion dt S. montevideo**

Aberystwyth investigated an outbreak of abortion caused by *Salmonella Montevideo* infection in Welsh Mountain ewes housed in one of two sheds, housing approximately 600 ewes each. Fifteen ewes had aborted over three weeks, one of which had died. Thirteen cases had been in a pen of around 100 twin-bearing ewes. Considerable environmental contamination was demonstrated with the worst affected pen most heavily contaminated.
Isolates were also recovered from vaginal swabs from three aborted ewes indicating their continued excretion of salmonella. In addition to improved biosecurity and hygiene measures, a review of the feeding and water supply was advised.

**Listeriosis**
Carmarthen investigated an abortion outbreak caused by *Listeria monocytogenes* infection in a flock in which five out of 50 ewes had aborted and two had died; diarrhoea had also been noted. Luddington also diagnosed Listeriosis as a cause of abortion in a group of 50 ewes. The organism was isolated in pure growth from the liver and foetal stomach contents from two lambs. RVC reported an outbreak in which fourteen ewes out of a group of 350 had aborted one to two weeks before they were due to lamb. There was a significant rise in VIDA incidents of listerial abortion in 2004 however the figures for January and February this year suggest that is not being repeated. The same increase was not seen for listerial encephalitis in 2004.

**Campylobacter jejuni**
*Campylobacter jejuni* was isolated in pure culture from the foetal stomach contents from two of three fetuses submitted to Luddington. 15 abortions had occurred in 50 ewes lambing to date from a total of 870. Discoid cream coloured areas in the swollen liver were found on post mortem examination of the fetuses.

**Enteric diseases**

**Listeriosis**
Gastrointestinal listeriosis was diagnosed in a yearling Speckle Face ewe that was presented to Carmarthen for post mortem. It had been recumbent with foul smelling diarrhoea and abdominal pain before being examined by the PVS. *Listeria monocytogenes* was cultured, using selective media, from abomasal and caecal mucosa. The ewe was the fourth to die in a 700 ewe flock. The sheep were at grass and the disease occurred about one month before lambing was due.

**Attaching and Effacing E. coli**
Enteritis due to Attaching and Effacing *E.coli* (AEBC) was diagnosed by histopathological examination of the large intestines of two six-week-old lambs. Every year several lambs in this flock of some 200 ewes are reported to start scouring from 3-4 weeks of age. They then lose weight over a matter of days and some of them die. Coccidiosis was suspected but no coccidial oocysts were found and histopathology of the large intestines showed marked sloughing of the surface epithelium with numerous adherent bacteria resembling *E.coli*.

**Parasitic Gastroenteritis**
Newcastle diagnosed parasitic gastroenteritis in a 10-month-old Shetland lamb with a history of acute haemorrhagic diarrhoea. Nematodirus were
found to be the predominant species with a total small intestinal worm count of 65,000.

**Fasciolosis**

Preston carried out post-mortem examinations on three 10-month-old Texel cross shearling sheep which had been found dead. In total, 5 out of 20 were said to have died. All 3 had evidence of both acute and chronic fasciolosis. Fluke egg counts up to 426 epg and a very heavy trichostrongyle burden were identified.

**Respiratory Diseases**

**Other diseases**

**Listeriosis**

Two incidents of encephalitic listeriosis, one due to *L. monocytogenes* and the other to *L. innocua*, were investigated by Carmarthen. In the former, listerial encephalitis was diagnosed in a four-month-old Poll Dorset ewe lamb, one of two presented for necropsy. They were in a group of 150 lambs that had been housed on a mesh floor and fed on a lamb finisher concentrate diet for three months. The ewe lamb showed convulsions before euthanasia, *L. monocytogenes* was cultured from brain.

**Protozoal Encephalitis**

Sarcocystosis was suspected as the cause of nervous signs in a 7-8-month-old Texel X male lamb necropsied at Shrewsbury. 10 out of 150 had died after initially being unable to rise on the forelimbs, progressing to recumbency and death. Histological examination of brain revealed a mild non-suppurative meningo-encephalomyelitis, although protozoan structures could not be identified in the neuropil. A random pattern of lesions suggested sarcocystis as the most likely interpretation.

**PIGS**

**Reproductive diseases**

**Enteric diseases**

Bury diagnosed colitis associated with *Brachyspira pilosicoli* infection as the cause of diarrhoea and weight loss in 10 of 50 12-week-old housed pigs; three pigs died. Necrotising skin lesions raised the possibility of PDNS but histopathology revealed large coccoid bodies associated with the lesions, consistent with greasy pig disease, and no renal lesions.

Thirsk diagnosed Salmonellosis in ten-week-old pigs. The *Salmonella enterica Typhimurium* isolated could not be phage typed. The pigs also had lymphadenopathy consistent with PCV2 infection. Forty animals in a group of two hundred were affected

In another case *Salmonella Typhimurium phage type 193* was isolated from newly weaned pigs with green watery scour.
Respiratory Diseases

Yersinia pseudotuberculosis
Truro investigated a problem in a breeder/fattener herd where post weaning ill-thrift was associated with respiratory signs. Post mortem examination of one typical clinical case revealed a severe pneumonia. *Yersinia pseudotuberculosis* was isolated in pure culture from a lung site. This case is being investigated further through histological examination of lung and tracheobronchial lymph node.

Post-weaning Mortality of Multifactorial aetiology
Bury investigated a problem affecting a 320-sow breeder/finisher farm which had escalating mortality predominantly in pigs aged from 10 weeks of age. Investigation of mortality data from weaning to finish showed December 2004 mortality was 13% and for January 2005 this had risen to 19%, the highest since the farm records were established in December 2002. Although mortality had been high for two years, it was this rapid increase in mortality in January that prompted the submission of a number of pigs for post mortem examination and a visit to the farm. Although the majority of losses in January 2005 were perceived as finishing pigs in the later stages, further investigation of the data showed that 77% of the 78 pigs dead in January were in the 40 to 70kg group, ie the growers and finishers. Clinical signs described on farm were of PDNS, pneumonia, wasting and found dead. Post mortem examination identified a number of infectious diseases and histopathology confirmed PDNS. A single 16-week-old pig had PCV2 confirmed in the lung histologically and swine influenza H1N2 virus and PRRS virus were isolated. H1N2 swine flu virus and PRRS virus was also isolated from a 10-week-old pig. On farm there were batches of pigs with thumping respiration and severe malaise and others with wasting and skin lesions highly suggestive of PDNS i.e. a mixed disease presentation. Breeder pigs and pigs less than eight to 9 weeks old were largely unaffected with mortality in weaners being 1%. The visit was undertaken to gather further information following a number of reports of increased mortality in finishing pigs. The submission of pigs for post mortem examination enabled identification of a current swine flu outbreak and PRRS virus in finishing pigs which have not been vaccinated. The farm started using live PRRS vaccine end of December/early January 2005 in breeding pigs.

Other diseases
Meningitis
Streptococcal meningitis and septicaemia due to *Streptococcus suis* 2 infection was diagnosed by Bury as the cause of death of two piglets from a group of 100 eight-week-old grower pigs. The organism was isolated from meninges, liver and also joints with a suppurative polyarthritis. In another incident one live four-week-old pig was submitted from a breeder site showing nervous signs that became particularly apparent on handling the pig. Meningitis was a rare problem on the breeder site but was causing 3% mortality in the finishing unit. *Streptococcus suis* 1 was isolated from the meninges confirming streptococcal meningitis.
BIRDS

Poultry

Infectious Bursal Disease (IBD, Gumboro disease)
Gumboro disease was diagnosed in 8-9-week old layer pullets on a unit in which 1,500/11,000 had been lost since placement at day old. The number of deaths attributable to Gumboro alone was not known. The presence of the disease was confirmed by AGP demonstrating antigen in the bursae of affected birds.

Haemorrhagic Enteritis in Turkeys
Haemorrhagic enteritis due to haemorrhagic enteritis virus (HEV, adenovirus) was confirmed in a group of 13-week-old turkey rearing birds. Findings included dark red contents throughout the intestinal tract and sloughing of the mucosa in the upper small intestine. Histology showed a necrotic enteritis associated with bacterial rods, and typical intranuclear inclusions in the spleen. HEV antigen was demonstrated in the spleen. Alpha toxin of Clostridium perfringens and coccidial oocysts were demonstrated in small intestinal contents of one bird.
Winchester also reported an investigation into sudden death of 12 turkeys aged 14 weeks. Post mortem examination of one affected bird revealed typical lesions of haemorrhagic enteritis however laboratory tests failed to confirm the presence of the virus.

Coccidiosis
Coccidial infections due to Eimeria necatrix and Eimeria tenella were seen in 31 week-old broiler breeder pullets and 23 week old caged layer pullets respectively. These birds were submitted with a history of sudden drop in egg production and increased daily mortality.
Post mortem examination revealed ballooning of mid to lower intestine with light white plaques in areas of the serosal surface in the first case. Large numbers of E.necatrix schizonts were present in wet smears. A distended blood-filled caeca with large numbers of E.tenella schizonts was observed in the second case.

Waterfowl
Winchester received a group of day old and 1 week old ducklings from a unit in which ducklings were placed on a weekly basis for growing on. 30% of 150 day old ducklings were reported to have died over a 24 hour period, and 20% of 1 week old ducklings. There had been a recent change of feed which was originally suspected as a possible cause of mortality, but post mortem examination revealed that the day old ducklings had not yet fed. Some of the birds had a striking reddish colouration to the carcase (fig.4) and carbon monoxide poisoning was suspected. Gas brooders were used on the unit. Tests on the blood of one affected bird revealed high levels of carboxyhaemaglobin confirming the diagnosis.
MISCELLANEOUS SPECIES

A worm-like organism ‘coughed up’ by an 18-month-old Lurcher dog was identified by Truro as an adult female *Linguatula serrata*. This is a pentastomid parasite which can be found in the nasal passages and sinuses of dogs. When the parasite’s eggs are ingested by an intermediate host, commonly sheep or cattle or rabbits, they hatch and locate in mesenteric lymph nodes. Dogs can be infected by eating uncooked offals. Human infections with this parasite have been reported.

WILDLIFE

Salmonellosis in garden birds
*Salmonella enterica* Typhimurium PT56 was the cause of three separate cases of “garden bird mortality” reported to Langford. One involved sparrows and two greenfinches. In one of the latter cases sixteen greenfinches had been found dead over a one-month period in a Somerset garden. Three were submitted for examination and *S. Typhimurium* PT56 isolated on direct culture from all.

Streptococcal Seticaemia in a Fox.
A vixen was found dead with haemorrhage from the anus and suspected anticoagulant poisoning. However, a group G streptococcal bacteraemia was diagnosed. Post mortem findings included an infected wound on the vulva, which contained purulent material, and evidence of an associated ascending
urinary tract infection. There were multifocal haemorrhagic lesions throughout the caudal lung lobes, and the kidneys were irregularly shaped and pale. The colon was filled with clotted blood – possibly a consequence of shock. Group G streptococci were isolated from the lung, kidney and vulval wound. Histological findings included renal papillary necrosis associated with bacterial emboli and an embolic pneumonia. Renal failure was indicated by a raised urea concentration of the aqueous humour.