



VLA MONTHLY SCANNING SURVEILLANCE REPORT MAY 2009

Highlights

- **Cases of fasciolosis continue into May**
Reports were mostly from cattle herds and featured chronic disease.
- **Deaths of three cows associated with feeding by products from the human food industry**
This is another in a series of recent cases where the feeding of food waste has caused disease. It illustrates a basic lack of husbandry skills and knowledge on the affected premises
- **Cases of bovine Babesiosis and ovine louping ill indicate increasing tick activity**
- **Botulism in cattle and sheep associated with contact with poultry litter**
This is nothing new but illustrates that livestock owners are still not fully aware of the risks for ruminants associated with poultry litter.
- **Nematodiosis causing deaths in lambs**
- **Salmonella Pullorum responsible for high mortality in chicks in a small backyard flock.**
This case illustrates that backyard flocks are a potential reservoir for this organism
- **The first report of Campylobacter fetus as a cause of abortion in Alpaca in GB**

CATTLE

Reproductive diseases

Bacillus licheniformis abortion

Penrith isolated *Bacillus licheniformis* in pure culture from the stomach contents of a foetus that had inflammatory exudates in the joints. A placentitis was also evident.

Mycotic abortion

Following a series of abortions on a dairy unit, a foetus and placenta were submitted to Winchester for examination. There was gross evidence of thickening of the intercotyledonary tissue and vegetating fungal hyphae were demonstrated in both foetal stomach content and placenta. *Aspergillus fumigatus* was isolated, its source was not evident.

Carmarthen diagnosed mycotic abortion in a Brown Swiss dairy cow, one of six that had recently aborted in a herd of 390. The animals were fed straw, bread and bought-in grass silage, which was found to be mouldy.

Shrewsbury also identified mycotic abortion due to *Aspergillus fumigatus* infection in a dairy herd. Fungal hyphae were detected in the stomach content of a 4 month gestational age foetus and *A. fumigatus* was isolated on subsequent culture.

Congenital Defects

Multiple congenital abnormalities were found in an aborted foetus submitted to Aberystwyth. Seven Limousin cows had aborted within a three month period, out of a group of 40. The foetus was haired and the degree of tooth development was consistent with a near term calf, but the crown to rump length was consistent with a calf at about 7 months gestation. The foetus had a domed head and there was a microphthalmia of the left eye. The wall of the right ventricle of the heart was thickened and there was a ventricular septal defect found of approximately 1cm diameter in the heart. No infectious cause of foetal death was found and histopathological examination of a range of foetal tissues indicated that there were no inflammatory lesions in the foetus. Foetal death appeared to have been due to poor foetal viability due to the foetal abnormalities found.

Alimentary Tract Diseases

Fasciolosis

Fasciolosis continued to be diagnosed in May. Langford investigated seven incidents in dairy and suckler cows exhibiting milk drop, poor body condition and occasionally diarrhoea. They also described an unusual case in which fluke eggs were demonstrated in faeces samples submitted to investigate diarrhoea in five-month old Hereford cross suckler calves.

Starcross diagnosed eight cases of fasciolosis. Three of these involved concurrent infestation with enteric nematodes and in one case Johne's disease.

Fasciolosis was also diagnosed by VLA Aberystwyth in a 10 year old Hereford Cross cow. Twenty heifers and adult cattle in different groups and management systems had died during the housed period and since turnout. Deaths had also occurred in cattle wintered outside. They had received an

unknown flukicide at the end of January and some had been treated again recently. Necropsy revealed lesions consistent with migratory fluke damage.

Rumen Acidosis

The problems which can result from injudicious feeding of by-products from the human food industry were amply illustrated by a case described by Bury. The carcass of an 11-year-old cow that died within hours of first being observed with malaise, sunken eyes and increased respiratory rate, was necropsied. The animal was the third of three to die in a group of 10 kept at grass but fed with hay, silage and potato waffle supplements and had the day before been provided with an increased supply of defrosted pre-cooked pasta. The animal had been treated with antibiotics and a drench to combat acidosis. This and other affected animals were reported to regurgitate a pale brown liquid from their mouth and nose. This particular animal was also reported to have developed bloat rapidly once its illness was recognised. The post-mortem findings and clinical history were consistent with ruminal acidosis arising from a sudden ingestion of an increased volume of rapidly fermentable carbohydrate.

Atypical Johne's disease

A pregnant, pedigree Limousin heifer was submitted to Preston for necropsy having died after a brief period of disease, characterized by dysentery. This heifer was felt to have been losing weight following BTV vaccination a month previously, but it had deteriorated rapidly in recent days. Examination confirmed an acute, mucoid, catarrhal colitis; a moderate degree of fatty liver and a colonic intussusception. Bacteriology was unremarkable and no BVD RNA was detected following PCR examination of tissues. Histology revealed a severe proliferative enteropathy. In conjunction with this a marked adrenal cortical hyperplasia was also seen, indicating chronic stress. Additional staining of the tissues confirmed large numbers of organisms with a morphology consistent with *Mycobacterium avium paratuberculosis*. The infection was severe and unusual as there was no significant lymphoplasmacytic infiltrate.

Respiratory Diseases

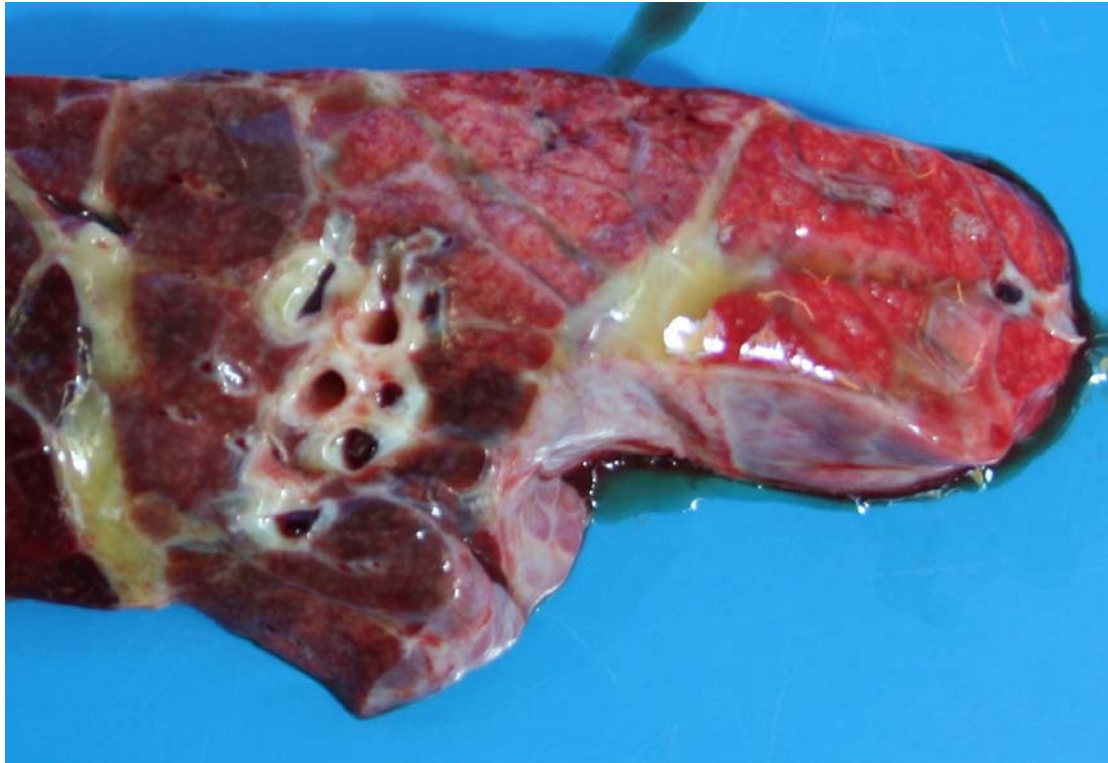
Pasteurellosis

Newcastle received a 12-year-old suckler cow with a history of chronic weight loss prior to death. Post-mortem examination revealed a fibrinous pleurisy, consolidation of the cranioventral aspects of the right lung and interlobular thickening (Fig. 1) typical of pasteurellosis. Cultures of lung tissue yielded a profuse, pure growth of *Pasteurella multocida*.

Bibersteinia trehalosi

Five calves died over 5 weeks on a dairy unit where there were approximately 50 pre-weaned calves at any time. A week-old calf was submitted to Leahurst for post-mortem examination which had been observed with malaise and was treated with antibiotics. It died 24 hours later. Abdominal bloating, grunting and rapid collapse and death have occurred in other calves but diarrhoea has not been a feature. Gross pathological findings were of acute fibrinonecrotic pneumonia and *Bibersteinia trehalosi* was isolated. It was considered likely that stress factors which included crowding, humidity, temperature fluctuations etc had contributed to the pathogenesis.

Figure 1
Lung lesions caused by *Pasteurella multocida* infection



Parasitic bronchitis

Langford identified lungworm (*Dictyocaulus viviparus*) larvae in a faeces sample submitted to investigate respiratory disease in a group of 15, five-month old Jersey heifers.

Other Diseases

Erythropoietic protoporphyria

Penrith diagnosed Bovine erythropoietic protoporphyria in a 9-month-old Limousin heifer that had crusting around the eyes and mouth that was reported to improve on housing. This animal had exhibited neurological signs as a calf and had been treated for presumptive meningitis.

Babesiosis

Penrith supplied some evidence of tick activity in the North West on diagnosing Redwater fever (Babesiosis) in a 9-year-old suckler cow having identified the presence of the causative protozoan parasite in red blood cells in a blood smear. The cow had a heavy tick burden, was anaemic produced red urine.

Conjunctivitis

Starcross examined an eye swab from a 12-month-old Angus cross steer. Over 50 animals in a group of 300 had developed an irritating conjunctivitis

over a period of two weeks. All the animals were vaccinated against IBR and were showing no other significant clinical signs. Routine culture of the swab produced a mixed growth of bacteria including *Moraxella bovis* and *Staphylococcus aureus*. *Moraxella bovis* is the recognised cause of infectious bovine keratoconjunctivitis. The significance of *S. aureus* in this case was unclear.

Hypomagnesaemia

Thirsk received blood samples for downer cow profiles from a dairy farm having problems post-calving. The history was that wasting, milk drop and some nervous signs were seen in three out of approximately 250 animals. Biochemical testing of two affected animals revealed magnesium levels of 0.37 mmol/l and 0.60 mmol/l (reference range 0.7-1.3 mmol/l.) confirming hypomagnesaemia.

In another case hypomagnesaemia was strongly suspected as the cause of the death of two out of a group of 30 adult suckler cows at pasture that had received fertiliser 14 days previously. Vitreous humour levels in one cow were 0.53 mmol/l (reference range: >0.55 mmol/l). The possibility of clostridial involvement with strongly positive muscle samples for *Clostridium novyi* could not be ruled out due to the degree of autolysis.

Clostridial enterotoxaemia

The carcase of a 2 day old dairy heifer was submitted to Preston to investigate neonatal losses in a small dairy herd, where three calves had died shortly after birth. This calf had developed opisthotonus, nystagmus and paddling. Necropsy was unremarkable and histology was undertaken to investigate the clinical presentation of meningitis. A severe and symmetrical encephalopathy was confirmed, consistent with epsilon intoxication. *Clostridium perfringens* is regarded as an uncommon cause of neurological disease in calves.

Botulism

Two 20-month-old Simmental heifers in a group of 17 were found in lateral/sternal recumbency; six hours previously they had both appeared unremarkable and bright. After euthanasia by the veterinary surgeon, both carcasses were submitted to Luddington for necropsy. Apart from reddening of the abomasal mucosa and a few intestinal loops, there were no significant findings. However, intestinal contents tested positive for botulinum toxin type D in one heifer and the causative organism was isolated in the other heifer. The farm was next door to a broiler unit and the cattle owner had seen (and captured on his mobile phone's video) a fox dragging a poultry carcase across the grazing cattle two days previously. The incident was reported to the FSA. A third heifer died a few days later.

SMALL RUMINANTS

Reproductive diseases

Abortion

Penrith diagnosed a case of *E.coli* abortion was diagnosed in a flock that had had a number of abortions and some ewe deaths. Gross examination of the placenta revealed thickened intercotyledonary placentitis with a pinkish exudate that appeared typical of enzootic abortion. However, no

Chlamydophila abortus were demonstrated in smears or by PCR. A profuse pure growth of *E.coli* was obtained from the foetal stomach contents and histopathology of the placenta confirmed placental lesions in association with gram negative bacteria compatible with *E.coli*.

Alimentary Tract Diseases

Fasciolosis

Chronic fluke infestation was diagnosed by Starcross in a mature ewe from a flock that reported that the ewes had been losing weight since last December despite having been drenched with a flukicide and other anthelmintics. A two-tooth ewe was also submitted at the same time and found to have a heavy mixed round worm burden including *Haemonchus contortus*, an unusual finding for the time of year. Advice was given about reviewing pasture management and the flock endoparasitic treatment programme.

Parasitic gastroenteritis

Approximately 10% of recently weaned lambs on one farm were reportedly showing diarrhoea, some with blood in the faeces. Faecal samples examined at Winchester demonstrated a mixed parasite burden including 450 trichostrongyle epg, 500 Nematodirus epg and 346,000 coccidial oocysts pg. Nematodirosis was diagnosed as the cause of death of a 2 month old male Texel lamb submitted to Preston. Nine of a group of 170 lambs had been found dead. On post mortem examination there was evidence of a severe enteritis, with fluid green intestinal contents. Significant numbers of nematodirus worms were seen in small intestinal contents.

Langford also diagnosed Nematodirosis as the cause of death in two-three month old lambs and the disease was diagnosed by both Aberystwyth and Carmarthen, by post mortem and detection of eggs in faeces. In one case *Nematodirus battus* infection caused severe diarrhoea and the sudden death of two, two month old lowland lambs. Five or six lambs had been found dead out of a group of 100, in a flock totalling 1500 ewes.

Enterotoxaemia

Bury reported several cases of Clostridial enterotoxaemia in goats. In one case an adult female Toggenberg goat, which had been acquired one month previously, developed acute diarrhoea, progressing to watery diarrhoea and death despite veterinary treatment within 24 hours. The goat had been vaccinated for clostridial diseases and blue tongue the previous summer. Goats are uniquely susceptible for clostridial enterotoxaemia and may not be protected by vaccination unless recent.

Nervous Diseases

Tetanus

Tetanus was diagnosed on the basis of typical clinical signs, and exclusion of other diseases on post-mortem examination at Penrith. Five lambs were affected out of several hundred. Rubber rings were applied to the tails and scrotum of lambs in the first few days of life. Clinical signs were seen at three weeks of age with lambs found down with hind legs stiff and extended with the head back and frothing at the mouth. The ewes did not receive clostridial vaccination.

Cerebrocortical necrosis (CNN)

A three-month-old lamb was found lethargic, with torticollis and paddling of the legs and was subsequently euthanased and submitted to RVC. It also had marked diarrhoea and was dehydrated. Total worm counts revealed the presence of a moderate to heavy nematode burden in abomasum and small intestines including 8,200 *Nematodirus battus* nematodes. In addition there was auto-fluorescence of areas of the cerebral cortex in a bilateral distribution consistent with cerebrocortical necrosis (CCN) or polioencephalomalacia (PEM) (see Fig. 1). Histopathology of the brain is underway to try to establish an underlying cause.

Botulism

Thirsk diagnosed two outbreaks of botulism in sheep showing clinical signs following exposure to broiler litter which had been spread on their grazing fields.

Louping ill

Louping ill was diagnosed by Aberystwyth as the cause of malaise, neurological signs and sudden deaths in a group of 1-year old Charolais-cross hogs. The affected lambs were predominantly described as looking ill with their ears down and some appeared 'twitchy'. Twenty-six ewe lambs were affected out of a group of 200, six of which had died within a couple of days, in a flock totalling two thousand ewes. Following post mortem of one lamb, histopathological examination of the brain confirmed a severe subacute non-suppurative encephalitis with Louping ill virus immunohistochemical labelling, confirming the diagnosis.

Other diseases

Antifreeze poisoning

Thirsk diagnosed ethylene glycol poisoning as the cause of death of three four-year-old Texel cross ewes in a group of 110 animals. The clinical signs reported comprised photophobia, rocking on their hindquarters, recumbency and eventual death. Fluid was reported to exude from the mouth and nostrils. The source was found to be cooling fluid from an old land rover which had been left in the field.

PIGS

Alimentary Tract Diseases

Iron deficiency anaemia

The carcasses of two, three-week-old piglets were submitted to Starcross investigate an outbreak of diarrhoea. Gross lesions included subcutaneous oedema, fibrin in the abdomen, hydrothorax, pulmonary oedema, generalised carcass pallor and focal pallor of the liver consistent with hepatic necrosis. The findings were suggestive of iron deficiency anaemia, which was subsequently confirmed by liver biochemistry. Rotavirus antigen was also identified as a potential cause of the diarrhoea.

Swine dysentery

Faecal samples were submitted to Thirsk from a 1, 000-sow breeding unit where a pen of 70 gilts developed an outbreak of scouring containing blood

and mucus. About 80% of the gilts, which weighed about 80 kg, were affected. *Brachyspira hyodysenteriae* was confirmed from cultures and from PCR testing. MIC testing revealed the isolates to be fully susceptible to Lincomycin, Tiamulin and Valnemulin. The unit had a high level of biosecurity and the only pigs that do come onto the site were AI stud boars that were kept separately from the sows and the gilts. The source of the outbreak is therefore unknown. The unit had no previous history of swine dysentery.

Respiratory Diseases

Parasitic pneumonia

Bury investigated an outbreak of respiratory disease occurring from eight weeks of age in approximately 25% of 8,000 outdoor reared finishers. Previous submissions had revealed active early PRRSV infection post weaning. One older finisher pig underwent necropsy and had grey-pink consolidation of the lungs. Histological findings were of a subacute to chronic exudative eosinophilic bronchointerstitial pneumonia with numerous nematode profiles indicating parasitic pneumonia, probably caused by *Metastrongylus apri*.

Actinobacillus pleuropneumoniae

Sudden deaths were reported in a large indoor farrow to finish unit affecting eight to nine week old pigs. These were on a wet bed of fully slatted floors in environmentally controlled housing. Four dead pigs were examined at Langford ranging in weight from 15.5 kg to 29 kg. The main findings in all pigs were a number of dark raised consolidated areas mainly in the dorsal part of the lungs with a covering of fibrinous pleurisy. *Actinobacillus pleuropneumoniae* was isolated from all the lungs and was further identified as serotype 3. In the UK APP serotypes 3, 6 and 8 predominate.

Glassers disease

Four live weaner pigs approximately five-weeks-old were submitted to Thirsk for post-mortem examination as part of an investigation into a particularly severe outbreak of Glässer's disease on a 750-sow pyramid which practised two site production. A weekly farrow system was in place and approximately 300 pigs weaned per week into flat decks. Recently, the proportion of gilts in the breeding herd had increased as part of attempts to try and increase the number of piglets born alive. This increase in gilts had coincided with a worsening of disease in the first stage flat decks. The disease consisted of pigs becoming tucked-up, breathing badly with pallor and rapid condition loss within ten days of weaning. Mortality among affected pigs was high and prompt treatment with antibiotics was successful in only a proportion of affected animals. Gross findings on post-mortem examination revealed polyserositis in all four pigs with additionally lung consolidation in two of the four pigs. Culture of the affected areas revealed growths of *Haemophilus parasuis* serotype 10, the most frequently isolated serotype of *Haemophilus parasuis* from the UK archive in a survey published in 2006 (Morris, 2006).

Reference: Morris, S. J., Carrington, L. M., Gutierrez-Martin, C. B., Jackson, G., Slater, J. D., Maskell, D. J., Sargent, C. A., Galina-Pantoja, L., and Tucker, A. W (2006). Characterisation of Field Isolates of *Haemophilus*

parasuis from the UK. *Proceedings of the 19th IPVS Congress, Copenhagen, Denmark 2006*. Volume 1, abstract number 0.38-01.

Other diseases

PDNS

Six of 700 16 to 20-week-old finishers died after short-term recumbency on a 200 sow indoor breeder finisher unit. An affected pig was submitted to Bury, the only one affected in a pen of 30. Rearing pigs were vaccinated for *Mycoplasma hyopneumoniae* and sows were vaccinated for PCV-2. The pig exhibited depression and shivering with a rectal temperature of 104°F. The pig was in good body condition, with slightly enlarged and oedematous lymph nodes and pale kidneys that were, firm to cut, swollen and with dark red pinpoint foci over the renal cortices. Urea concentration in the aqueous humour was high (60.8mmol/l, reference range in serum 2.6 to 8.3mmol/l). These findings pointed to likely PDNS and histopathology confirmed the diagnosis. There was no evidence of PRRSV involvement.

Osteochondrosis dissecans

A nine-month-old breeding boar was submitted to Bury with a history of being “twitchy” for approximately two months and unwilling to walk; neck pain had been suspected. Post-mortem examination revealed severe osteochondrosis dissecans in both elbow joints and milder similar pathology in the right stifle joint with secondary joint changes due to arthritis. In view of the history of twitching, histopathology was performed on the brain which was unremarkable. The clinical signs were likely to have been due to pain from the osteochondrosis dissecans and the presence of lesions in both elbow joints may have masked obvious lameness.

BIRDS

Backyard Flocks

Infectious laryngotracheitis (ILT)

Four chickens were received at Winchester from a small flock with a history of respiratory disease. Purchased birds had been introduced to the flock within the last two weeks. Two of the birds showed caseous material in the upper trachea and histopathological examination of the trachea itself revealed the presence of intranuclear inclusion bodies supporting the likely diagnosis of Infectious Laryngotracheitis (ILT).

Salmonella Pullorum

Salmonella Pullorum phage type 17 was identified by Thirsk as the cause of high mortality among seven-day-old chicks on a small hobby farm of mixed breed chickens including Buff Orpington and other fancy breeds.

Avian TB

A nine-month-old laying hen went “off her legs” ten days before being submitted to Luddington for necropsy. Four other hens in this small backyard flock of nine had shown similar signs in the last 12 months. Necropsy findings included numerous military foci in the liver and spleen, and 10 white masses attached to the intestinal serosa. Leucosis was suspected, but histopathology demonstrated that the lesions were due to a mycobacterial infection, i.e. avian tuberculosis (see figure 2).

Figure 2
Miliary TB lesions in the liver of a 9 month old layer



Commercial Broilers

Aspergillosis

High mortality (7.5%) was reported in a batch of 55,000 11 day old broilers. Miliary caseated white foci were seen on air sacs and in lungs, and on culture *Aspergillus fumigatus* was isolated from lung lesions confirming a diagnosis of mycotic pneumonia. Shavings used to bed the birds had previously yielded *A. fumigatus*.

Ducks and Geese

Duck virus enteritis (DVE)

The carcass of an adult Muscovy duck that had been found dead was submitted to Sutton Bonnington. The duck was one of two Muscovys remaining on a smallholding animal centre. A third Muscovy had died two weeks ago but this was thought to be associated with trauma. Gross post-mortem findings were consistent with DVE and histological examination revealed typical nuclear inclusion bodies in the liver and intestine confirming the disease. Advice on epidemiology, control and vaccination was given.

MISCELLANEOUS SPECIES

Psoroptes cuniculi otitis in rabbits

A large adult rabbit from a small holding had a slight head tilt, ptyalism (hypersalivation) and became recumbent. It did not respond to antibiotic and anti-parasitic treatment and was euthanased 48hours later. Post mortem examination at RVC revealed the presence of a severe bilateral external otitis, which extended into the middle and inner ear on the left side. Bacteriological culture was unfortunately overgrown by post mortem invaders. However, microscopic examination of smears of the exudate demonstrated the presence of multiple live ear mites (*Psoroptes cuniculi*), which were most likely the predisposing factor for the descending otitis.

Campylobacter abortion in Alpaca

Two of three abortions occurring recently in a group of 30 alpacas, on a farm with no sheep were submitted to Bury for investigation. In the first a single focal area of placental necrosis was noted. The affected dam was noted to have a swollen tongue with a diphtheritic membrane. *Campylobacter fetus fetus* was isolated from the placenta and foetal stomach contents of this and a subsequent submission with severe fibrinonecrotic placentitis. Recent case reports focus on the identification of Neospora in tissues of aborted fetuses and abortion associated with BVD and *Encephalitozoon cuniculi*. This is believed to be the first case of Campylobacter associated abortion in alpacas identified in the UK.

WILDLIFE

Adenovirus enteritis in Red Squirrel

Several Red squirrels (*Sciurus vulgaris*) were submitted from the North of England. One animal died from adenovirus enteritis making three cases of this disease diagnosed this year from a small area in North Cumbria. We are only beginning to build up information on this disease and it appears to be able to cause localised outbreaks with deaths occurring over several months, however we know that affected populations have recovered, possibly through immigration and we have not seen the disease recurring in the same locality. There is increasing evidence that the disease can cause significant mortality in captive red squirrel populations. A single case of squirrel pox was also diagnosed.

VLA FARM INVESTIGATIONAL VISITS MAY 2009

Reason for Farm Visit	Number of farm visits
Animal health & welfare	3
Human & animal health & welfare	2
Human health only	2
Other projects	