



## **VLA Monthly Surveillance Report for PIGS December 2008.**

*Defra Food and Farm Group funds the VLA's pig surveillance work as part of the Veterinary Surveillance Strategy*

### **Highlights**

- Porcine proliferative enteritis and gastric ulceration identified in wasting pigs with signs suspicious of PMWS/PCVAD
  - Swine influenza outbreak in growing pigs
    - Postweaning diarrhoea reported.
  - Mulberry Heart Disease seen sporadically
    - Erysipelas in outdoor breeding gilts.
- Polyarthritis due to *Streptococcus dysgalactiae equisimilis* in preweaned piglets

## **Alimentary Diseases**

### **Wasting and scour in suckling pigs associated with iron deficiency and *Isospora suis***

Iron deficiency anaemia and coccidiosis were diagnosed in piglets wasting from 10 to 14 days of age on a 165 sow indoor breeder finisher unit. Approximately 26 were affected in a batch of 340 preweaned piglets. Most litters had one to two affected pigs that appeared to waste and later scour. Litters from all parities of sow were affected and litter sizes were satisfactory with good weight viable pigs at birth. Six live piglets in fair and poor body condition were submitted, two of which were scouring and three of which appeared pale. Packed cell volumes in the pale piglets ranged from 23 to 27% (reference range 37 to 50%) and serum iron ranged from 1.7 to 3.3 mmol/l (reference range 11 to 32mmol/l). The history indicated that piglets were injected with iron at two days old and the possibility that piglets were being accidentally missed or under-dosed was investigated. No obvious problem was identified, however following submission and identification of iron deficiency anaemia, the problem began to resolve. In addition, the two scouring piglets were found to have histopathological lesions of the small intestine consistent with infection with *Isospora suis*. No other enteropathogens were identified.

### **Rotavirus infection and opportunistic *E. coli* O149 (Abbotstown) enteritis**

Increased incidence of scour, coughing, joint ill and sneezing in pre-weaned pigs in the second or early third week of life was reported on a 900 sow indoor herd. There was no agalactia in the sows and pigs were viable at birth. Approximately half of 40 litters were affected with variable numbers of pigs showing signs within each litter. Five live 12-day-old piglets in quite poor body condition were submitted. The findings were mixed with scouring in three piglets, navel abscesses in two and carpal scabs of varying severity were present in all pigs. In one, skin lesions were suggestive of resolving greasy pig disease. Investigations into the cause of scour revealed chronic atrophic enteritis consistent with rotavirus which was detected in intestinal contents. Atrophic enteritis with villus stunting leads to malabsorption and illthrift. A pure and profuse growth of *E.coli* Abbotstown (serotype O149: K91, K88ac) was isolated from the small intestine of one scouring pig which had histological evidence of an attaching and effacing bacterial infection. No PRRSV was detected.

### **Postweaning colibacillosis suspected to be due to suboptimal environmental conditions.**

Enteric colibacillosis exacerbated by environmental factors was suspected to be the cause of wasting and scour in about 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; 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.

### **Possible suboptimal hygiene and pathogenic *E. coli* (Abbotstown) associated with deaths in young piglets**

Six neonatal piglets were submitted from a litter of 12 from a gilt that farrowed on a Friday. Over the weekend all 12 died. The herd consists of 65 sows farrowing in batches and in the most recent batch of six sows, thirty piglets died from three litters. The farrowing area was bedded with straw. Three of the carcasses were moderately autolysed while the remaining three were severely autolysed. One of the three fresher piglets died from hepatic trauma and intra-abdominal haemorrhage. Pigs 1, 2 and 6 however had enteritis characterised by watery to bloody intestinal contents admixed with gas bubbles from which haemolytic *E.coli* Abbotstown (serotype O149:K91, K88ac) was isolated. Control measures were recommended including improved hygiene, preventative antibiotic treatment at birth, and over the longer term, vaccination of sows with an *E. coli* vaccine.

### **Investigations into increased wasting in rearing pigs**

Two farms were investigated where increased numbers of wasting pigs raised concerns that an upsurge in PMWS/PCVAD was occurring despite PCV2 vaccination of sows. In both cases, other causes of disease were found with no evidence of problems due to PCVAD. These re-emphasise the importance of fully investigating unexplained disease problems and are described below:

### **Porcine Proliferative Enteritis (PPE) clinically mimicking Porcine Circovirus Associated Disease (PCVAD)**

Porcine proliferative enteropathy was found to be the cause of wasting from 17 weeks old onwards on a 550 sow indoor breeder finisher unit. Approximately eight pigs were affected in each batch of 400, and about half of these died. Sow vaccination for PCV2 began in 2007 and its use coincided with a reduction in post weaning mortality from 7% to 4%. In the five weeks prior to submission, mortality had increased back up to 6% and there was concern that the wasting was due to PCV2 associated disease. Six typical cases were submitted and in all six there was scour with thickening, reddening and corrugation of the distal third of the small intestine of varying severity. In some, there was also multifocal diphtheresis of the small intestinal mucosa and in the most severely affected, there was confluent necrosis of the superficial mucosa in the distal third of the small intestine. In all the pigs, the mucosa of the caecum and colon was slightly thickened and, in some, cores of rubbery yellow material were present in the caecum (fibrinonecrotic material). Intracellular acid-fast curved rods were visible in MZN-stained smears from the small intestinal mucosa, consistent with PPE. However, in view of the concern that PCV2-associated disease was involved, histopathology was performed and revealed lesions characteristic of porcine proliferative enteropathy due to *Lawsonia intracellularis*. No evidence of PCV2-associated disease was found in the lymph nodes or intestinal sections examined.

### **Gastric ulceration clinically mimicking Porcine Circovirus-Associated Disease (PCVAD)**

Three ten-week-old rearing pigs showing signs of wasting and going pale were submitted live. There had been a history of wasting disease on the unit approximately 12 months earlier which had come under control when sows were vaccinated against circovirus. From approximately July 2008 problems had started to re-occur and the last two batches of 300 pigs had seen an increase in morbidity, illthrift and paleness to approximately 5-10%. Two of the three pigs submitted were pale in colour and the third pig had a pendulous abdomen. Gastric ulceration was present in all three pigs and haematology confirmed a regenerative anaemia, consistent with haemorrhage from the gastric ulcers. Histopathology and IHC ruled out the involvement of PMWS and PRRSV.

### **Respiratory Diseases**

#### **Deaths in sows on a unit recently affected with swine influenza**

A sow which farrowed approximately 12 days prior to death showed malaise for approximately seven days and was treated with antibiotics; she had a temperature of 39.6°C, an increased respiratory rate and as there had been a recent swine influenza outbreak on the unit, the sow was suspected to be suffering from respiratory disease. Post mortem examination revealed a severe metritis with three retained piglets, a peritonitis and severe gastric ulceration with haemorrhage. A second sow dying on the same unit, also suspected to be due to the effect of the influenza outbreak, had a massively distended pericardial sac and a suppurative pericarditis with other lesions consistent with death due to heart failure. These two submissions emphasise the importance of post-mortem examination in accurately recording the reasons for sow mortality and assessing the impact of different disease conditions.

#### **Concurrent PRRSV and Glasser's disease**

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.

#### **Swine influenza in rearing pigs**

An outbreak of swine influenza was diagnosed on an outdoor unit close to another where the disease had been seen. Coughing and meningitis-like signs were reported in approximately 300 of 3,000 seven and a half-week-old weaners. Fifteen pigs died in the two weeks prior to submission and the problem was increasing with a poor response to antibiotic treatment. Two

fresh plucks were submitted; in one multifocal pinpoint haemorrhages were scattered over the surfaces of the lungs and there was very minor focal consolidation of the left middle lung lobe. In the second pluck cranioventral purple consolidation involving all lung lobes was present with an EP equivalent score of 45 and tracheobronchial lymph nodes were pale and enlarged. The lesions in the first pluck were suggestive of a septicaemia and *Streptococcus suis* 2 was isolated, consistent with the clinical signs of meningitis and sudden deaths reported from the farm. The second pluck was more likely to be representative of the respiratory disease reported from the unit; *Streptococcus suis* 2 was also isolated from this pluck and histopathology revealed a bronchointerstitial pneumonia with a necrotising reaction within the bronchioles raising the possibility of swine influenza virus which was confirmed by immunohistochemistry although swine influenza virus was not isolated.

## **Musculoskeletal Diseases**

### **Severe lameness due to osteochondrosis dissecans in a breeding boar**

A breeding boar was euthanased due to chronic lameness in front and hind limbs. Post mortem examination revealed bilateral femoral head epiphysiolysis and other milder changes typical of osteochondrosis dissecans were visible in both shoulder joints. In addition, excess synovial fluid was present in hock and elbow joints and *Mycoplasma hyosynoviae* was detected by PCR which was undertaken on synovial fluid; this organism is associated with infectious synovitis and arthritis in pigs and was causing mild lesions in this boar.

### **Infectious arthritis associated with *Streptococcus dysgalactiae equisimilis* in suckling piglets.**

Swollen joints and fading pigs at 17 to 20-days-old were described in an unspecified number of litters on an outdoor breeding unit. Three dead pigs were submitted and all had 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 described, and from internal sites. This organism is occasionally isolated from suppurative lesions or septicaemic individual pigs, it is less usual to find it causing disease in a group. Risk factors for disease include poor hygiene, poor colostral intake and anything predisposing to skin or mucous membrane trauma allowing entry of the organism.

## **Systemic Diseases**

### **Mulberry Heart Disease causing sudden deaths in weaners**

Dead pigs were submitted to investigate post-weaning scour in five-week-old pigs on flat decks; approximately 30% of 700 pigs were affected with seven deaths over six days. Although the main clinical problem on farm was diarrhoea, in two submitted pigs there were fluid effusions in the body cavities with marked fibrin stranding, enlargement of the liver, pulmonary oedema and multifocal subepicardial, subendocardial and intramural haemorrhages within the heart. No significant bacteria were isolated and histopathology revealed widespread haemorrhage, microangiopathy and myocardial necrosis, which together with the gross findings, pointed to mulberry heart disease.

### **Systemic Erysipelas in outdoor gilts.**

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. 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. Following diagnosis, booster erysipelas vaccination three weeks pre-farrowing was begun and there have been no further problems. It is not clear why the problem occurred as the gilts received an initial vaccination course pre-service, the limited incidence means that a one-off problem with administration cannot be ruled out.

### **Polyserositis associated with isolation of an unidentified *Haemophilus* species**

A small Saddleback breeder reported increased mortality in pigs aged from 10 weeks through to 6 months; four of 30 were found dead with loss of condition in four others. Post mortem examination of a 10 week old casualty revealed polyarthritis, peritonitis and pericarditis. Heavy pure growths of a *Haemophilus* species were recovered from lung, liver and spleen. This organism is similar to *H. paraphrophilus* (associated with endocarditis in humans). The isolate has been sent for further identification by molecular (16S) typing. Notification of the full identification of this organism will be reported here.