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VIDA diagnoses are recorded on the APHA FarmFile database and SAC Consultancy: Veterinary Services LIMS database and comply with agreed diagnostic criteria against which regular validations and audits are undertaken.

The investigational expertise and comprehensive diagnostic laboratory facilities of both APHA and SAC C VS are widely acknowledged, and unusual disease problems tend to be referred to either. However recognised conditions where there is either no diagnostic test, or for which a clinical diagnosis offers sufficient specificity to negate the need for laboratory investigation, are unlikely to be represented. The report may therefore be biased in favour of unusual incidents or those diseases that require laboratory investigation for confirmation.

APHA VICs have UKAS Accreditation and comply with ISO 17025 standard. SAC C VS have UKAS accreditation at their central diagnostic laboratory and at the Aberdeen, Edinburgh, Perth, Ayr, Dumfries, Inverness, St Boswells and Thurso Disease Surveillance Centres which comply with ISO 17025 standard.

From September 2014 APHA contracted the services of partner Post Mortem providers. From April 2015, these services were provided by the Royal Veterinary College, the University of Bristol, University of Surrey, Wales Veterinary Science Centre and SACCVS. These providers contribute to the VIDA diagnoses recorded on the APHA FarmFile database and comply with agreed diagnostic criteria. To achieve a VIDA diagnosis, all testing must be carried out by a laboratory with ISO 17025 accreditation.
INTRODUCTION

This report contains analysis of animal health and scanning surveillance data and information from APHA, SAC Consulting Veterinary Services (SAC CVS) and non-APHA partner post mortem providers (SAC CVS, University of Bristol, Royal Veterinary College, University of Surrey (four sites), Wales Veterinary Science Centre, Aberystwyth) from the first quarter of 2017 compared to data in previous quarters and years. The network of partner post mortem providers is developing, and the current providers and sites have commenced activity at various times between September 2014 and July 2015. The report is compiled by the APHA Pig Expert Group, and is based on diagnostic submissions as well as on surveillance data and information from other sources. It is planned for the latter two to be expanded with time as other sources of complementary information are included. These scanning surveillance activities aim to provide timely detection of animal-related new and re-emerging diseases and threats. The information contained in this report, and other linked outputs, is used by government, the livestock industry, farmers and vets to maintain awareness and take action to manage risks that may be associated with the identified threats. Further information can be found at: http://ahvla.defra.gov.uk/vet-gateway/surveillance/index.htm.

OVERVIEW

Diagnostic pig submission trends

Total diagnostic submissions from pigs in January to March 2017 were the same as this period in the previous two years, and 8% lower than the same period in the previous five years. There are regional differences in submission levels with those from England being lower this quarter than the previous two and five years as indicated in Table 1. Compared to diagnostic submission data for Q1 in individual years (data not shown), APHA non-carcase submissions for Q1, 2017 are very similar to those for the same quarter in 2013 and 2015; APHA carcase submissions are the same as in Q1, 2016; and SAC CVS carcase submissions are higher than in Q1, 2016. The expansion of areas (APHA, 2017a) offering free carcase collection to post-mortem examination sites within the APHA network may influence the lower submission levels in some geographic regions; communications about the availability of this service have been made again to raise awareness, and uptake.

Table 1: GB Pig Diagnostic Submissions from VIDA January to October (Q1)

<table>
<thead>
<tr>
<th>Country</th>
<th>Carcase</th>
<th>Foetus/Stillborn</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>78</td>
<td>86 %</td>
<td>77 %</td>
<td>11</td>
</tr>
<tr>
<td>Wales</td>
<td>3</td>
<td>300 %</td>
<td>115 %</td>
<td>5</td>
</tr>
<tr>
<td>Scotland</td>
<td>26</td>
<td>208 %</td>
<td>155 %</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>107</td>
<td>103 %</td>
<td>89 %</td>
<td>18</td>
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Other = non-carcase/non-foetus submissions. Unknown = region not given by submitter

The data in the above table show total submissions, then submissions by country and sample type for Q1 of 2017 with a comparison with the same quarter in the previous two (2017 v prior 2) or previous five (2017 v prior 5) years’ submissions.

In Q1, 2017, non-APHA partner post-mortem providers examined nearly 5.5% of carcases submitted from premises in England and Wales. The maintenance of submission levels of carcases in particular to near the levels of prior years is considered important for detection of new and emerging disease and maintenance of expertise. Most commercial pigs are attended by specialist pig veterinarians, many of whom undertake on-farm post-mortem examinations and make diagnoses on the basis of their findings, sometimes supplemented with laboratory testing on samples they collect and often without involving APHA submissions. APHA pig submissions, particularly carcase submissions, are thus already filtered and tend to be from disease outbreaks which are severe, unusual or unresponsive, thus suited to detection of new and emerging threats.
As a consequence of the Syndromic Surveillance Roundtable (AHDB Pork, 2016), discussions have been initiated between APHA, AHDB Pork and the pig veterinary community to develop and trial a methodology for capture of clinical disease incident surveillance data from practitioners to complement VIDA data. This is a project within the Scanning Surveillance Development Programme.

**Diagnostic pig submissions by disease syndrome**

Each diagnostic submission is allocated a disease syndrome based on clinical history and diagnostic findings. Figure 1 shows the syndromes represented in this quarter’s GB diagnostic submissions compared to the same quarter in prior years. As usual, systemic and miscellaneous, respiratory and enteric syndromes were the three main disease syndromes from which submissions were received.

**Figure 1: Throughput of GB pig diagnostic submissions as % by syndrome for Q1 2013-2017**

Respiratory syndrome submissions comprised a lower proportion in this quarter than in the same period in previous years; this is somewhat surprising as the winter months are often associated with more reports of respiratory disease and this syndrome was prominent in the last quarter of 2016. Enteric syndrome submissions remain a significant component which helps underpin surveillance for porcine epidemic diarrhoea in non-suspect cases of diarrhoea.

**NEW AND RE-EMERGING DISEASES AND THREATS**

Monitoring the trends in diagnoses of known diseases cannot, by definition, detect either new diseases or changes in endemic diseases that would prevent a diagnosis from being reached (for example a change in the pathogen that compromised the usual diagnostic test). Such new or emerging diseases would probably first be detected by observation of increased numbers of submissions for clinical and/or pathological syndromes for which a diagnosis could not be reached in the normal way. Submissions for which no diagnosis is reached (DNR) despite testing deemed to allow reasonable potential for a diagnosis to be reached are regularly analysed to look for increases in undiagnosed disease which could indicate the presence of a new or emerging disease. Undiagnosed disease submissions are summarised broadly by the clinical presentation of disease and, once this has been determined by further investigation, the body system affected. Both groups are investigated and trends in the levels are compared over time.

Data recording by APHA and SAC CVS was harmonised from 2007. The Species Expert Group reviews trends in VIDA DNR data each quarter with the aim of providing information on potential new or emerging diseases or syndromes. ‘Prior years’ refers to pooled data for 2012 to 2016 for GB VIDA data.

Supplementary analysis of APHA DNR data is also undertaken using an early detection system (EDS). This uses a statistical algorithm to estimate an expected number of DNR reports and a threshold value. If the current number of DNR reports exceeds the threshold (i.e. exceedance score>1), this indicates that the number of reports is statistically higher than expected. When this EDS identifies categories of submissions where the threshold DNR has been exceeded, the Species Expert Group reviews the data to investigate further. This review may involve assessment of individual DNR submissions. Where this DNR analysis finds no evidence of a new and emerging threat or other issue, the detail of these reviews in response to thresholds being exceeded may not be reported here.
Analysis of Diagnosis Not Reached (DNR) by syndrome and presenting sign

- A total of 17.7% of GB pig submissions in the first quarter of 2017 did not reach a diagnosis following reasonable testing. This was not significantly changed compared to the overall DNR for prior years of 17.5% for the same period in prior years. The overall DNR rate for APHA (15.6%) was not significantly different compared to 18.2% for January to December 2016 in prior years. The overall DNR rate of 21.2% for this period for SAC CVS was not significantly different compared to 15.2% for this period in prior years.

- However, the overall DNR rate for submissions with reasonable testing in Scotland was significantly increased in this quarter to 36.1% compared to 20.3% for the same quarter in prior years. Basic information from VIDA about the undiagnosed Scotland cases was reviewed. Eight of the 15 were foetopathy cases, four of which were from the same premises, and two of which were submissions of bloods only – these are likely to have disproportionately influenced the overall %DNR (the %DNR for reproductive disease was not significantly increased). SAC CVS has reviewed the DNR cases and confirmed that they do not raise concern with respect to new and emerging disease.

- No individual presenting sign or syndrome showed a significant increase in DNR to this quarter in GB, APHA or SAC CVS submissions compared to the same period in prior years.

Analysis of undiagnosed submissions in and up to the first quarter of 2017 has not revealed evidence of a new and emerging syndrome in GB pigs.

ONGOING NEW AND RE-EMERGING DISEASE INVESTIGATIONS

Investigations into possible anthelmintic resistance in sows

An earlier investigation into possible reduced ivermectin efficacy in treating Oesophagostomum species worm infestations was reported in the July to September 2016 quarterly report (APHA 2016a). Subsequent to this, APHA was alerted by another practitioner to a potential issue in a well-managed 300-sow breeder-finisher unit on which sows are kept outdoors in the summer and are housed over winter in straw yards. Sows and gilts farrow indoors in fully slatted farrowing rooms all year round. A reduction in performance of parity two sows was noticed over the last few years and, whilst performance remains good at around 27 piglets/sow/year and good weaning weights, there is room for improvement. Parasite control in sows has for several years involved ivermectin administration on entry to farrowing rooms. The investigation was prompted when in-house worm counts on treated sows detected patent worm burdens. There are several possible explanations for worm egg counts being detectable after ivermectin treatment other than anthelmintic resistance, including that the egg counts before treatment may have been very high, under-dosing, reinfection after dosing and ingestion of eggs from environment post-treatment and passing in faeces without infestation. This was discussed with the APHA parasitology expert, Sian Mitchell and an investigation protocol agreed to undertake faecal egg count reduction testing to assess anthelmintic efficacy in at least 10 individual sows by determining worm egg counts just prior to treatment and again at specified time intervals, sampling the same sows on each occasion. Larval differentiation confirmed that the worms were Oesophagostomum species, likely O. dendatum, the nodular worm which is found in the pig’s large intestine. Early results support reduced efficacy and further investigation and collaboration are planned; there is no laboratory marker for ivermectin resistance and confirmation depends on performing in-vivo infections with material from incidents like this one with suspected resistance. The regular use of anthelmintic in sows and access to paddocks which are not rotated are features which favour development of resistance. APHA would be interested to hear from other practitioners who suspect they are encountering similar issues on pig premises.
Porcine epidemic diarrhoea surveillance

No suspect PED cases have been reported in Q1, 2017, or since PED was made notifiable in England and Scotland. Routine surveillance testing of APHA diagnostic submissions from (non-suspect) diarrhoeic pigs in England and Wales continues under AHDB Pork funding and 674 submissions have been tested between June 2013 and March 2017, without PEDV being detected. Elsewhere no major changes have been reported in relation to the distribution of virulent PEDV.

APHA Bury St Edmunds Veterinary Investigation Centre and colleagues from APHA Epidemiology team participated in a Pig Health and Welfare Council surveillance subgroup PED Desk Top Exercise. The PED data sharing process and contingency plan were tested in the New Year as a virtual exercise. The reporting and sharing of PED incident data by APHA with AHDB Pork worked well and the collaboration of a pig producer and the attending vet provided real farm data for the PED contingency control plan to be tested by AHDB Pork. The electronic animal movement licensing service (eAML2) was used by AHDB Pork to trace pig movements associated with the farm. A number of lessons were learnt and several ongoing items/issues are being addressed by AHDB Pork and other partners on the PHWC surveillance subgroup.

UNUSUAL DIAGNOSES OR PRESENTATIONS

There were a number of unusual diagnoses or presentations this quarter; details of these have been included in monthly APHA or SAC CVS reports; http://www.defra.gov.uk/APHA-en/publication/pig-survreports-monthly/. These will be kept under review to assess whether they justify initiation of emerging disease investigations.

Leptospirosis associated with reproductive disease

Recent investigation on a single pig unit in South West England has diagnosed leptospirosis in breeding gilts with similarity to an incident in 2011 in the same region. A stillborn piglet kidney tested positive for pathogenic leptospires using a group-specific PCR. Follow-up serology showed evidence of exposure to three Leptospira serovars (Icterohaemorrhagiae, Pomona and Bratislava) in eight affected sows – the PCR positive piglet was from a sow with antibody to Pomona. Low Pomona titres were only present in three of eight affected sows sampled, however, it is important to note that MAT titres to leptospiral infection can wane rapidly. There was a previous case in 2011 with antibody to Pomona in pigs with reproductive disease which was associated with infection in small wild mammals in contact with the pigs. This previous wildlife-adapted Pomona infection was in the same region of the country as this current case and that fact, and the limited disease and seropositivity in this outbreak, suggest a similar scenario exists here. The herd is now being vaccinated with a multivalent Leptospira (dead antigens) vaccine which includes all three serovars. Advice was provided about rodent control and how to minimise the risk of zoonotic infection. Leptospirosis is not notifiable or reportable in pigs in the UK. Pig-adapted L. Pomona is considered exotic in UK pigs. Serological results from nearly 70 pig herds in England affected with reproductive disease reported by Williamson and Gaudie (2006) showed seropositivity most commonly to L. Bratislava, with antibody to other often rodent-associated leptospires (Icterohaemorrhagiae and Copenhageni) being the next most common. No antibodies were detected to L. Pomona, Tarassovi or Grippotyphosa during this work. Arent and others (2017) reported genetic analysis of 10 non-porcine UK L. Pomona isolates (including one from a shrew associated with the 2011 pig disease outbreak); they all belonged to serovar Pomona type Pomona (and not serovar Pomona type Kennewicki). This provides some reassurance as serovar Pomona type Pomona has not been associated with adaptation to domestic species and propagating epidemics, in contrast to serovar Pomona type Kennewicki. APHA had the opportunity to contribute to a session on leptospirosis in pigs at the May 2017 Pig Veterinary Society meeting and an update on diagnostic methods and findings in recent years was presented.
Large intestinal impaction associated with excessive soil ingestion
Caecal impaction with soil and sand was diagnosed by SAC CVS in a recently-farrowed gilt on a newly established outdoor breeding unit, where fields were top-dressed with builders’ sand to try to improve drainage. Three deaths with similar clinical histories were reported in the previous week at or around farrowing. At post-mortem examination, the caecum contained numerous, rounded, firm masses of very dry, hard soil (Figure 2). Two further carcases were submitted from the herd to investigate the problem; one was found to be severe necrotic enteritis due to *Lawsonia intracellularis* infection and the second had an intestinal torsion secondary to sand impaction of the large intestine (SAC CVS, 2017).

Figure 2: Caecal impaction with soil and sand in a gilt (image courtesy of SAC CVS)

This case is highlighted here to raise awareness as occasional outbreaks of impaction or torsion associated with excessive ingestion of soil, sand, and/or stones are diagnosed by APHA and SAC CVS, and are usually associated with indoor breeding pigs being introduced to outdoor conditions with which they are unfamiliar, or a significant change in paddock conditions in ground-fed sows. Feeding more often than once a day, feeding in troughs and providing straw bales as a distraction have been suggested interventions.

Chronic skin disease and kidney failure in Mangalitza boars
Two adult boars were submitted to APHA from a herd with a history of sarcoptic mange several years earlier when the herd was established with pigs from different sources. Both pigs had a history of wasting and skin disease unresponsive to therapy (ivermectin, antibiotics etc). Two other adult boars were affected, one of which had shown pruritus. No sows or growing pigs were reported to be affected or pruritic. No mites or lice, arthropores, hyphae, or dermatophytes were detected and bacteriology was unrewarding. There was widespread skin thickening with areas showing marked hyperkeratosis and fissuring (Figure 3) somewhat suggestive of chronic mange. Histopathology showed sections with chronic hyperplastic dermatitis with neutrophilic crusting and others with acute necrotising, suppurative dermatitis (possible *Staphylococcus* spp infection). Both boars also had renal failure. Grossly kidneys appeared pale and firm (Figure 4) and histopathology revealed severe chronic glomerulonephritis with fibrosis and tubular degeneration; this was considered most likely to reflect immune-complex deposition, probably secondary to the bacterial component of the chronic skin disease. A visit was undertaken to obtain more history, information and samples. It was not possible to confirm involvement of mange despite skin and ear scrapes and examination of multiple skin sections. Herd serology for *Sarcoptes scabiei* var *suis* was recommended. It is not yet clear whether the skin lesions represent previous mange...
with secondary bacterial infection, or if other aetiologies are involved. As the boars were not being fed a conventional pig diet, trace element testing was undertaken on the second boar which was found to be deficient in zinc and copper and marginally deficient in selenium and a diet produced specifically for pigs was recommended. The significance of the nutritional deficiencies in relation to the skin disease is uncertain. This case was presented at the Pig Veterinary Society May 2017 meeting and this elicited a similar incident in sows (not of Mangalitza breed) reported to the Society in 1996 (Wilkinson, 1996). Mange was originally suspected in this 1996 case and the disease was finally attributed to an unusual *Staphylococcus hyicus* infection. Whether the relatively limited gene pool of this breed is involved is not known.

![Figure 3: Hyperkeratotic skin lesions](image1.png) ![Figure 4: Pale firm kidneys](image2.png)

The Mangalitza or Woolly Pig was bred in the mid-19th Century from Hungarian breeds cross-bred with European wild boar and a Serbian breed to produce a breed with a very high fat content to the carcase. The breed went out of fashion in the late 20th century and there were reported to be as few as 200 pigs left in the early 1990s. The breed has since increased in popularity and has been introduced to other countries including the US and UK. In the UK, BPA reports that there are 28 registered breeders, the high fat content lending the breed to marketing for flavour.

**Liver lobe torsion**

APHA was contacted by a practitioner who had unusually seen three cases of liver lobe torsion over a short period of weeks on two unlinked farms. All three cases were in sows kept indoors; two were two-weeks post farrowing and thus at peak lactation, the third was just weaned. None were submitted and this is an unusual diagnosis in submissions to Veterinary Investigation Centres. Textbooks report that the condition usually affects the left lateral lobe with infarction and death due to shock or hepatic rupture and haemorrhage and those lesions were described by the veterinarian. An old but useful reference (Emsbo, 1940) describes a case series in nine sows, most of which (seven) were suckling piglets. This and the history of the reported cases, suggests that recumbency to suckle could be a factor; but whether there are particular movements which bring about torsion was not explored. Both farms home mill and mix their sow feed and predisposing dietary factors also need to be considered; one can speculate that changes in intra-abdominal fat deposits or liver fat/glycogen content (and thus liver size) in relation to the demands of lactation could be involved and thus reviewing nutrition and monitoring sow condition was recommended. Excessive water intake has also been mentioned as a possible predisposing factor. Images of the condition are included on the following link under the section on torsion of the liver lobe: [http://www.carrsconsulting.com/thepig/disorders/intestinal/abdominalcatastrophe/abdominalcatastrophe06.htm](http://www.carrsconsulting.com/thepig/disorders/intestinal/abdominalcatastrophe/abdominalcatastrophe06.htm)
CHANGES IN DISEASE PATTERNS AND RISK FACTORS

This section of the report gives information on occurrence of selected diseases. The data originate from submissions and are summarised and presented according to the diagnosis reached and assigned as a VIDA code. Our charts show the number of diagnoses (numerator) as a proportion of the number of submissions in which that diagnosis was possible (denominator), for all of GB, England & Wales and for Scotland. The bars indicate the 95% confidence limits. Note that the y-axis of the charts varies and therefore care must be taken when comparing individual charts.

Atypical Brachyspira hyodysenteriae detected causing diarrhoea

Diarrhoea in about 10% of nine-week-old indoor growers prompted the submission of faeces to APHA. No Salmonella were isolated and the Brachyspira hyodysenteriae FAT was positive but the 23sRNA PCR results detected B. innocens only. The Brachyspira organism was isolated with difficulty at SAC CVS and then APHA; biochemical tests were consistent with B. hyodysenteriae apart from the fact that the organism was indole negative. It was haemolytic and tested positive in the B. hyodysenteriae serum agglutination test, also consistent with being B. hyodysenteriae. However, the 23sRNA PCR still detected only B. innocens DNA. In view of the anomalous results, research PCRs (TylA PCR at SAC CVS and nox gene PCR at APHA) were used and, in these, DNA extract from the pure culture tested positive for Brachyspira hyodysenteriae. The conclusion of this testing was that the faeces was positive for B. hyodysenteriae, and with the reported diarrhoea, this confirmed a diagnosis of swine dysentery. The testing suggests that the strain involved is an atypical B. hyodysenteriae and has an atypical 23sRNA profile that results in a ‘B. innocens’ test result by 23sRNA PCR test. This atypical strain does not occur very often but it was recorded by SAC CVS in one herd in the Yorkshire area in 2016 and was isolated by SAC CVS from four herds (two of which were related) in the late 1990s. Challenge studies in pigs carried out at the time to assess pathogenicity confirmed that the strain caused diarrhoea and dysentery-like pathology. This finding highlights the benefits of carrying out cultures for Brachyspira species in addition to PCR testing. This dual approach to testing is important and facilitates detection of atypical isolates and new or emerging species or strains with altered characteristics.

The B. hyodysenteriae was tested for susceptibility to tiamulin by MIC free of charge as part of the ‘Monitoring of Antimicrobial Resistance in Bacteria from Animals and their Environment Project’ within APHA. The MIC breakpoint for tiamulin against B. hyodysenteriae is generally considered to be >4 µg/ml for agar dilution and >2 µg/ml for broth microdilution. Based on the MIC of 0.25 µg/ml, this isolate was considered sensitive to tiamulin. The development of resistance of B. hyodysenteriae to antimicrobials commonly used in the control of swine dysentery is a recognized risk, particularly in situations where medication is used long-term. Control of swine dysentery using alternative interventions (all-in, all-out management systems; cleaning and disinfection; and partial and total depopulation leading to eradication) is vital to prevent the development of wider antimicrobial resistance.

Figure 5: Annual trend of GB swine dysentery diagnoses as a % of diagnosable submissions (2017 data incomplete)

Although swine dysentery diagnoses remain at a relatively low rate compared to past years as illustrated in Figure 5, they persist and there have been three diagnoses in the first quarter of 2017; two in the
Yorkshire area, and this atypical *B. hyosyntheriae* case in the East Anglian region. Where equivocal or anomalous results are obtained as in the atypical case, further sampling and investigation are merited. There is information about swine dysentery control and the Significant Diseases Charter on the AHDB Pork website [http://pork.ahdb.org.uk/health-welfare/health/swine-dysentery/](http://pork.ahdb.org.uk/health-welfare/health/swine-dysentery/).

**Increase in diagnostic rate of Vitamin E & selenium-associated disease**

Vitamin E and selenium-associated disease manifests as mulberry heart disease (MHD) and hepatositus dietetica (HE) in pigs, MHD being more common. Disease results from an imbalance between free radicals and free radical scavengers (antioxidants – selenium and vitamin E) leading to oxidative damage in tissues and is mainly seen in rapidly growing post-weaned pigs. An increase in the diagnostic rate of vitamin E/Se associated disease in the last quarter of 2016 was reported in the previous quarterly report (APHA 2016c) and this has continued in the first quarter of 2017 and is the highest rate for several years at 6.7% of diagnosable submissions (Figure 6). However, this upward trend in the last six months only constitutes nine diagnoses (all MHD), compared to five in the previous six months (April to September 2016). All 14 diagnoses in the last 12 months have been in post-weaned pigs with nine of the 13 cases where age was given occurring in pigs between four and eight weeks old. “Found dead” was the primary reported clinical sign in all cases except one where it was the second clinical sign reported, diarrhoea being the first.

![Figure 6: Seasonality in MHD/HE diagnoses as a % of diagnosable submissions 2005-2017 (2017 data to Q1 only)](image)

As indicated previously, where cases are diagnosed, assessment of the vitamin E and selenium status is merited in the affected cohort, collecting clotted bloods and heparin bloods. Absolute deficiency is not always identified and rapid growth, activity, stress and intercurrent disease can also predispose to disease, as well as dietary factors or food storage issues influencing the availability of antioxidants in the diet. Incidents have also been precipitated in pigs on inadequately supplemented home-mix diets, sometimes containing brewer’s grains. The diagnostic rate will be kept under review.

**HORIZON SCANNING**

**African Swine Fever persisting in wild boar in Eastern Europe**


ASF continues to persist in wild boar in Eastern Europe with occasional outbreaks in domestic pigs. Ukraine has reported multiple outbreaks in domestic pigs in several regions including near the Moldovan border and Moldova confirmed another backyard farm outbreak near the border with the Ukraine. Concern would increase if infection spread further west and Hungary, Romania and Slovakia have enhanced wild boar surveillance and commodity checking along their eastern and northern borders. Two ASF presentations were given in the May 2017 Pig Veterinary Society meeting and the importance of early detection was emphasised. The clinical signs of ASF and importance of biosecurity and preventing illegal waste feeding were also highlighted in AHDB-APHA Roadshows in East Anglia and Yorkshire. APHA ran a campaign to raise awareness about feeding waste food to pigs being illegal (APHA, 2017b).
to prevent the introduction and spread of notifiable animal diseases, such as African and Classical Swine Fever, and Foot and Mouth disease.

Figure 7: Wild boar (purple) and domestic pig (red) ASF cases in 2017 in Eastern Europe (figure prepared 28/03/2017 by International Disease Monitoring Team, APHA)

Nervous disease associated with sapelovirus reported in US

The report from the US Swine Information Health Centre mentioned in the July to September 2016 quarterly report (APHA, 2016b) has been followed up by a publication by Arruda and others (2017). The paper describes an outbreak of polioencephalomyelitis associated with a divergent sapelovirus strain in the US. Outbreaks of nervous disease due to porcine sapelovirus have been diagnosed sporadically by APHA over recent years and porcine sapelovirus immunohistochemistry and PCR are available for investigations. Porcine enteroviruses and sapelovirus are present in the GB pig population, but the prevalence of infection is not known. Sapelovirus from one outbreak diagnosed by APHA in England has been partially genetically characterised and shares 90.4% similarity with the reported US virus in 801 nucleotides of the polymerase gene. It is possible that other strains exist in GB pigs. There is no known risk to human health and the virus is not known to be zoonotic. Practitioners are reminded of porcine sapelovirus infection as a differential for nervous disease in pigs, especially where disease is not responsive to antimicrobial treatment.

REFERENCES


APHA (2016b). New sapelovirus strain with nervous disease reported in US. Volume 20: Q3 p12


Arent, Z., C. Gilmore, A. M. Barlow, L. Smith and W. A. Ellis (2017) Leptospira interrogans serogroup Pomona infections in the UK: is there a real threat for farm animals? Veterinary Record doi: 10.1136/vr.103891

Arruda, PHE; Arruda, BL; Schwartz, KJ; Vannucci, F; Resende, T; Rovira, A; Sundberg, P; Nietfeld, J; Hause, BM (2017) Detection of a novel sapelovirus in central nervous tissue of pigs with polioencephalomyelitis in the USA. Transboundary and Emerging Diseases, 64 (2):311-315

Emsbo, P. (1940) Torsion of the left lateral lobe of the liver in pigs. Maanedsskrift for Dyrlaeger 52:.353-378

