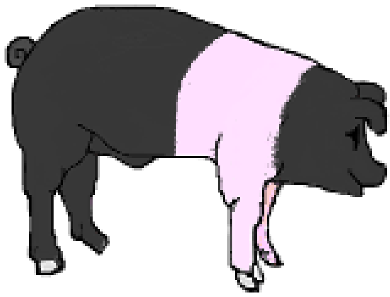
Animal & Plant Health Agency



SRUC

GB pig quarterly report

Disease surveillance and emerging threats

Volume 24: Q2 – April to June 2020

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Introduction and overview

This quarterly report reviews disease trends and disease threats for the second quarter of 2020, April to June. It contains analyses carried out on disease data gathered from APHA, Scotland's Rural College (SRUC) Veterinary Services and partner post mortem providers and intelligence gathered through the Pig Expert Group networks. In addition, links to other sources of information including reports from other parts of the APHA and Defra agencies are included. A full explanation of how data is analysed is provided in the Annexe available on GOV.UK:
https://www.gov.uk/government/publications/information-on-data-analysis

Pig disease surveillance dashboard outputs

Diagnoses made in the second quarter of 2020 compared to the second quarter of 2019 through the GB scanning surveillance network are illustrated in Tables 1a and 1b. These can be interrogated further using the interactive pig disease surveillance dashboard which was launched in October 2017 and can be accessed from this link:
http://apha.defra.gov.uk/vet-gateway/surveillance/scanning/disease-dashboards.htm

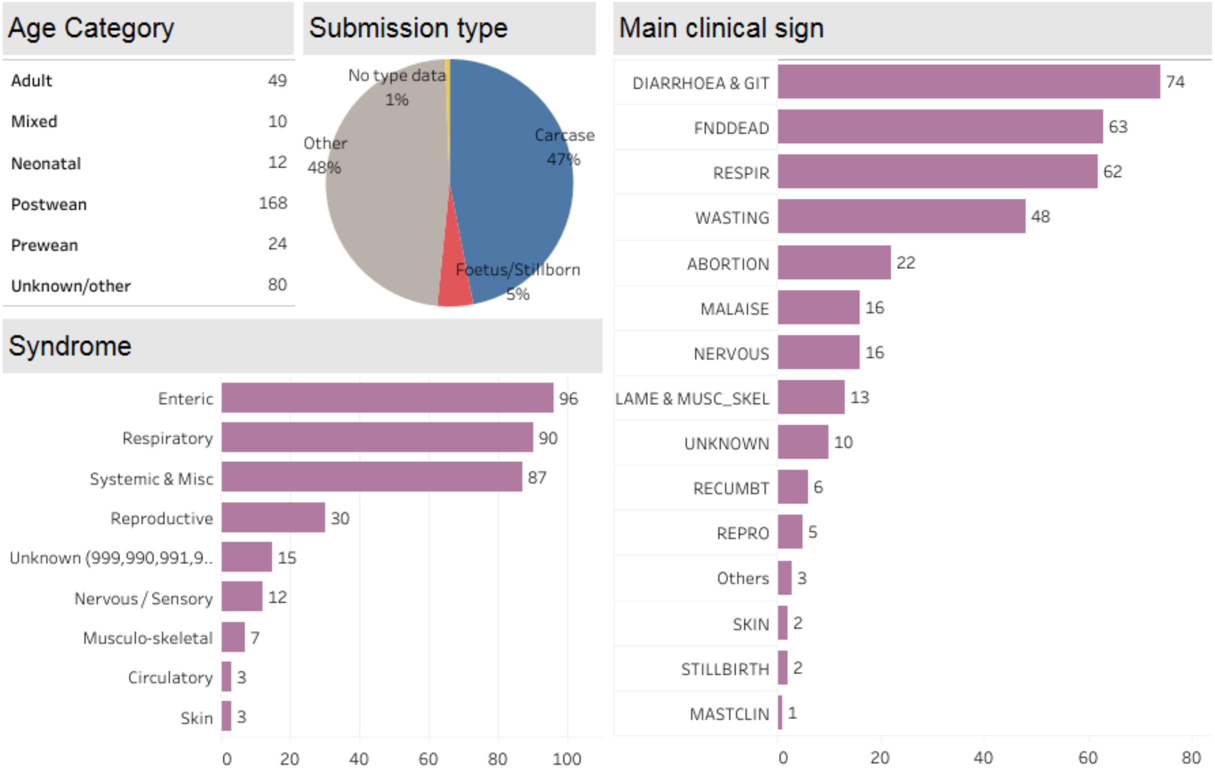
Table 1: GB scanning surveillance 15 most frequent diagnoses in Q2-2020 and Q2-2019

Table 1a: Diagnoses Q2-2020 (total 223)	
PRRS - pneumonia	26
Streptococcus suis	21
Proliferative enteropathy	13
Brachyspira pilosicoli	12
PRRS - systemic	11
Pasteurella multocida pneumonia	10
Salmonellosis - Typhimurium	9
Swine influenza	9
Rotavirus	8
Streptococccal meningitis	7
Actinobacillus pleuropneumoniae	6
Pneumonia – other causes	6
Colibacillosis - enteric	5
Haemophilus parasuis inc Glässer's	5
Swine dysentery – *B. hyodysenteriae*	4

Table 1b: Diagnoses Q2-2019 (total 249)	
Brachyspira pilosicoli	21
Proliferative enteropathy	18
Streptococcus suis	18
PRRS - pneumonia	16
Rotavirus	16
PRRS - systemic	11
Swine influenza	11
Streptococccal meningitis	9
Swine dysentery – *B. hyodysenteriae*	7
Colibacillosis - enteric	7
Salmonellosis – monophasic ST-like variants	7
Streptococcal infection	7
Yersiniasis	6
Gastric ulceration	5
Not listed - digestive	5

Note that diagnoses made in low numbers are not shown and that further diagnoses may be added if records for submissions made in Q2-2020 are finalised at a later date. The surveillance data for all diagnostic submissions to the GB scanning surveillance network in the second quarter of 2020 from an enhanced pig disease surveillance dashboard are summarised in Figure 1.

Figure 1: Summary data for 343 submission records in Q2-2020 (398 in Q2-2019)



These diagnostic submissions are voluntary and subject to several sources of bias. The profile of submissions for the second quarter of this year is broadly similar to that of Q2 of 2019 in that systemic, respiratory and enteric syndromes are the most commonly submitted and diagnosed. However, although enteric syndrome records were most numerous, they were reduced in Q2-2020 representing 28% of total records compared to 34% in Q2-2019. The total number of GB diagnostic submissions for the quarter was 98% of the average number of submissions in the previous four years for Q2 although there is a reduction in non-carcase submissions to APHA and an increase in non-carcase submissions to SRUC VS over this time period. Fifty six per cent of diagnostic submissions to APHA in Q2-2020 were of pig carcases for post-mortem examination which provide the best opportunity for full diagnostic investigation; carcase submission numbers to APHA in Q2-2020 are comparable to those in the same period in the previous four years. Four of the five most common diagnoses in Q2-2020 are also in the top five diagnoses in Q2-2019; namely disease due to PRRS, *Streptococcus suis*, proliferative enteropathy and *Brachyspira pilosicoli*. Fewer diagnoses of swine dysentery were made in Q2-2020, whereas it was the ninth most frequent diagnosis in Q2-2019 (*Brachyspira hyodysenteriae*). The geographical areas where free carcase collection is offered for delivery to post-mortem examination sites within the APHA network were expanded in 2017. The availability of this service is regularly publicised and there is regular uptake of the service.

New and re-emerging diseases and threats

Please refer to the annexe on Gov.UK for more information on the data and analysis.

Summary update of African swine fever

Updated assessments continue to be published on African swine fever (ASF) in South East Asia and Oceania, and in Europe including Belgium:
https://www.gov.uk/government/collections/animal-diseases-international-monitoring

In Eastern Europe, the number of outbreaks of ASF in domestic pigs has continued to increase, particularly in Poland, Romania, the Baltic States and Russia (Figure 2). The outbreaks in Poland have included some in western Poland on both commercial and backyard premises where wild boar cases are still being found, some close to the border with Germany.

Although not an occurrence within Q2-2020, on September 10th Germany reported its first case of ASF in a wild boar found dead in Brandenburg about 6km from the German-Polish border (FLI, 2020). Bones were sampled and the boar is considered to have died a few weeks prior to sampling. The distance from the last confirmed case of ASF in Poland is only 30 km. The proximity to the border makes entry by a migrating wild boar likely although human-mediated introduction in contaminated food cannot be ruled out.

Figure 2: ASF cases reported in domestic pigs in Europe since January 2020 (map as on 03-08-20)

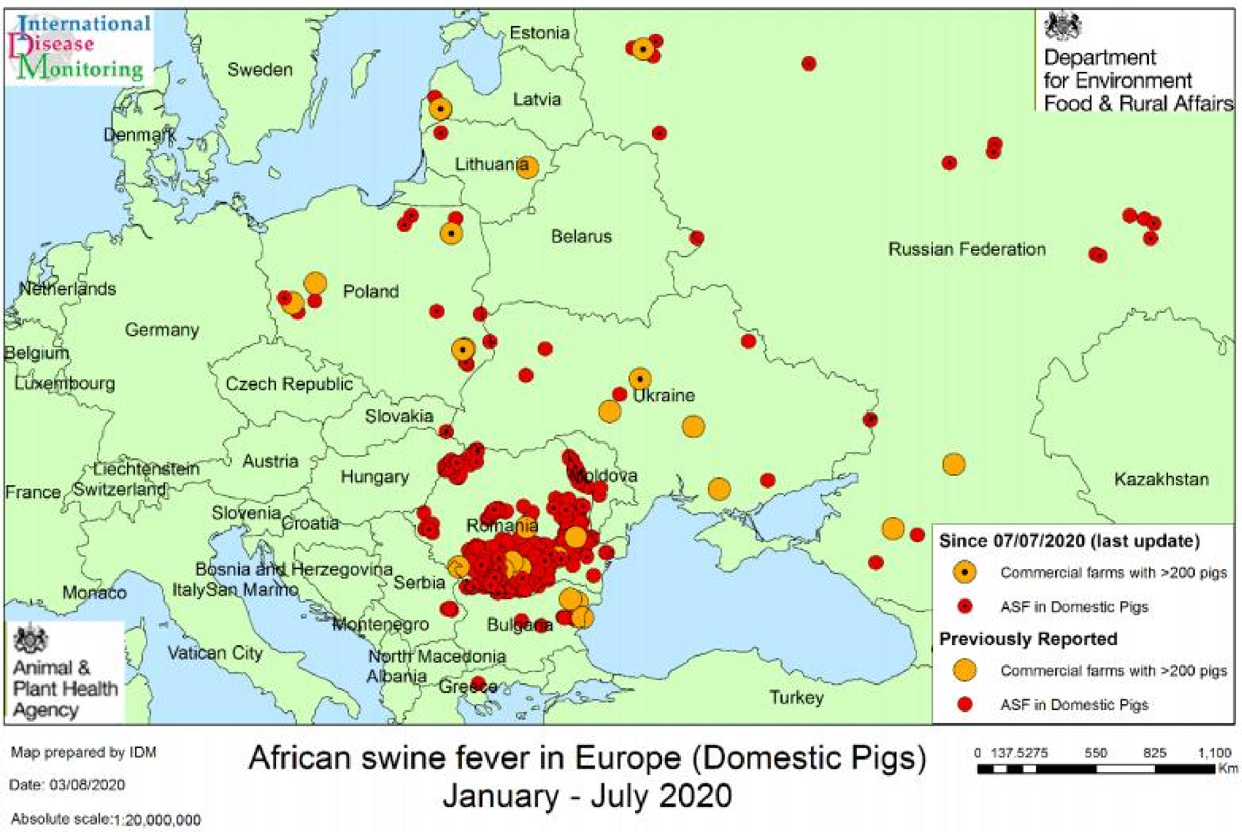
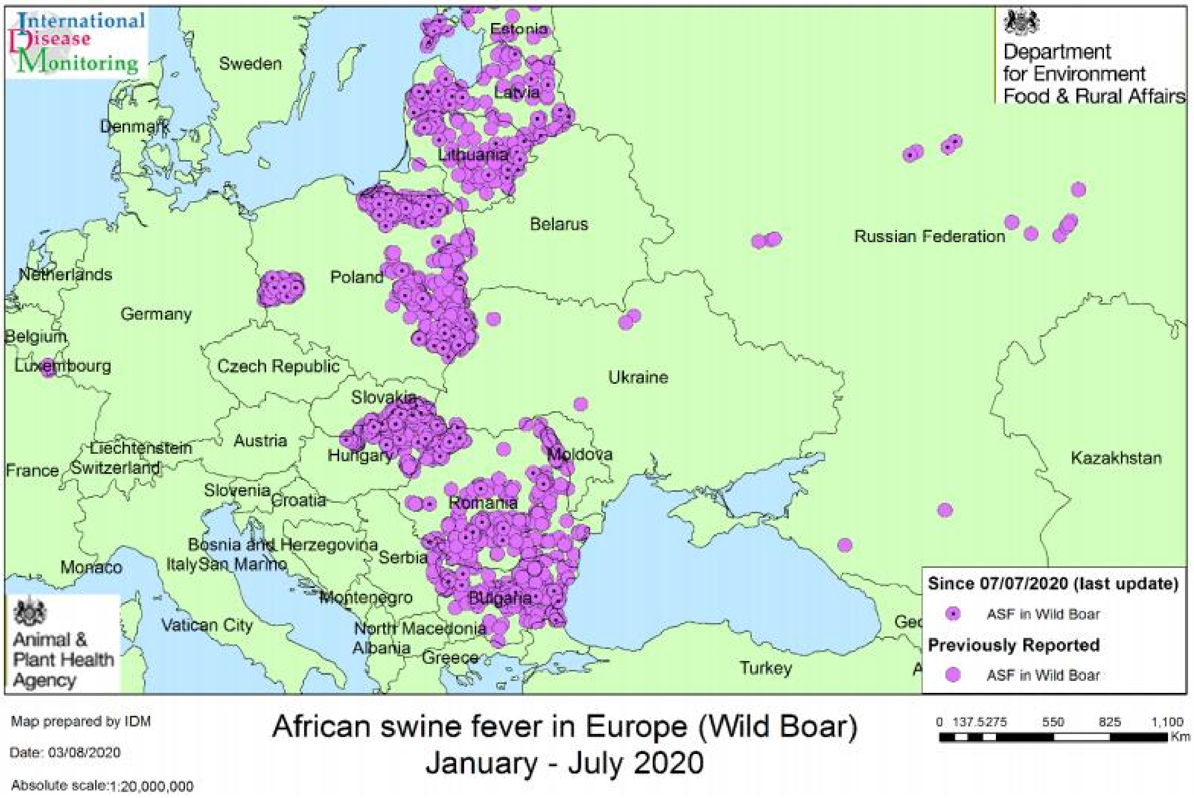


Figure 3: ASF cases reported in wild boar in Europe since January 2020 (map as on 03-08-20)



These reports in domestic pigs follow detection of multiple ASF cases in wild boar in western Poland subsequent to a significant westward spread of ASF in Poland in early November 2019. Germany remains on high alert with intensified wild boar hunting and ASF surveillance, and some fencing has been put in place. Romania has reported ASF in both commercial and backyard pig premises.

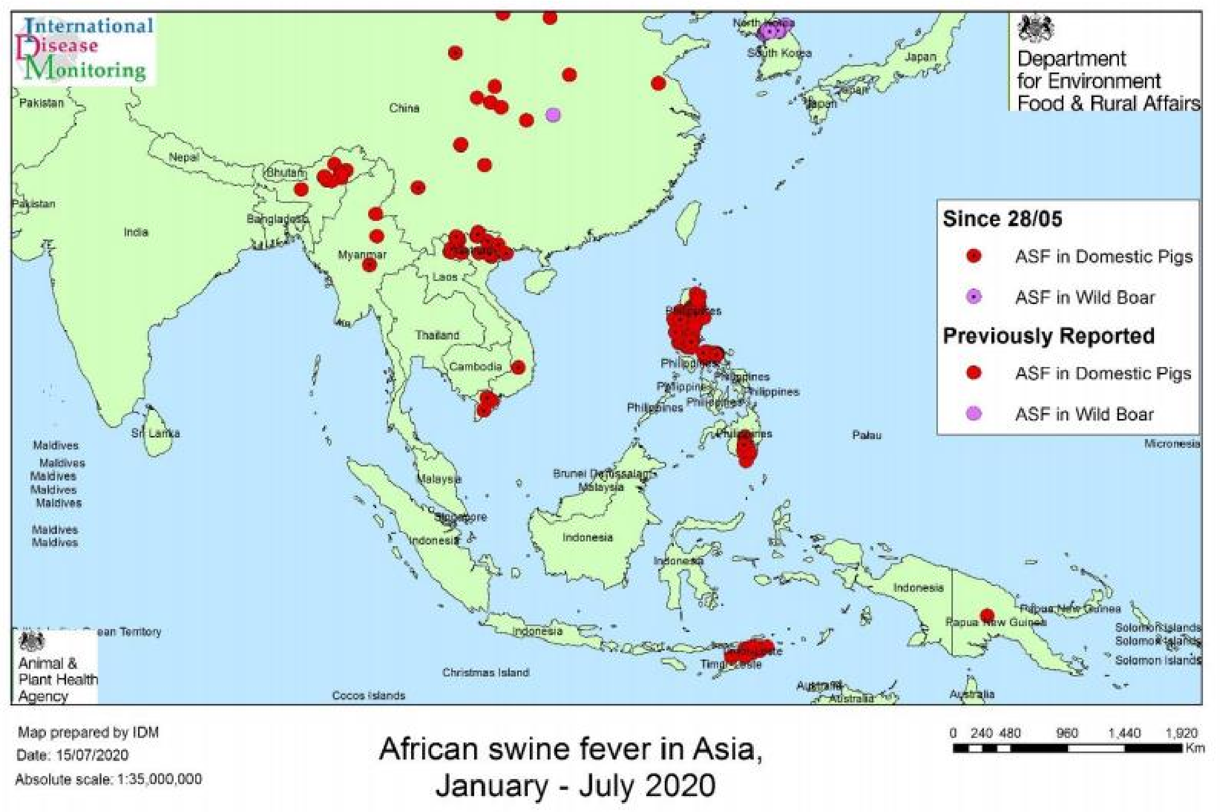
Wild boar ASF cases were also reported in Bulgaria, Estonia, Hungary, Latvia, Lithuania, Romania, Moldova, Serbia and Slovakia (Figure 3). In Hungary, in spite of high numbers of ASF cases in wild boar since March, there have been no domestic pig outbreaks reported.

There have been no further reports of ASF cases in wild boar in Belgium since March 2020 and Belgium remains officially free of ASF in domestic pigs.

The overall risk to the UK, given the current distribution of ASF in Belgium, Eastern Europe and neighbouring countries, remains at medium. Updates on the ASF situation in Europe are available at:
https://www.gov.uk/government/publications/african-swine-fever-in-pigs-and-boars-in-europe

In Asia and Oceania, ASF has now been reported in China, Hong Kong, Vietnam, Cambodia, Laos, Mongolia, Myanmar, South Korea, North Korea, the Philippines, India, East Timor and Papua New Guinea since first identified in the region in China in August 2018. The confirmation of ASF in multiple countries across Asia and Oceania, and the wide geographic range of infection found within these countries, demonstrates the potential for further spread of ASF into and within the domestic pig and wild suid populations in this part of the world. Most ASF reported in the region (Figure 4) is in domestic pigs; the situation in wild boar in affected countries is less clear, although South Korea has reported wild boar cases detected through their surveillance activities.

Figure 4: ASF cases reported in South East Asia and Oceania since January 2020 (map as on 15-07-20)



In early July 2020, Myanmar reported an outbreak in domestic pigs in Kayah State, in a backyard farm of 120 pigs. This is the first reported outbreak in Kayah State which borders Thailand in the south-east of Myanmar; previous outbreaks in 2020 were in the north-east, closer to China.

Cases of ASF in wild boar have continued to be reported in South Korea, all close to the border with North Korea. No new cases have been detected in domestic pigs in South Korea where surveillance takes place through weekly testing of domestic pig farms within a 10km radius of each wild boar case detected. Earlier in 2020, following the detection of wild boar cases outside the initial fenced area, South Korea have implemented further fencing to try and contain the spread of ASF by wild boar.

Eleven outbreaks of ASF in domestic pigs from January to April 2020 were reported in May to OIE in north-east India, following earlier unofficial reports. Although not officially reported to the OIE, there were also media reports that wild boar deaths have been linked to some domestic pig outbreaks in India. In all cases, disease control measures were applied including movement restrictions, surveillance and culling of all susceptible pigs within a 1km radius of the outbreak.

The full reports on ASF in south-east Asia and Oceania from the International Disease Monitoring Team include actions to reduce the risk of ASF introduction to the UK and are available at:
https://www.gov.uk/government/publications/african-swine-fever-in-pigs-in-china

In sub-Saharan Africa, in much of which ASF is considered endemic and transmission cycles exist between domestic pigs, wild suids and soft ticks, there have been recent reports of ASF in domestic pigs to the OIE from several countries (South Africa, Nigeria and Namibia). Some of these have involved high pig mortality, particularly in Nigeria where the pig population has increased in recent years as pig keeping increased in popularity.

The Global African Swine Fever Research Alliance (GARA) held an ASF webinar from which the talks are on YouTube (search for “GARA 2020 session” and select). Geographic region updates were given by Dirk Pfeiffer (Asia https://youtu.be/lo4igecsZqY), Michel Dione (Africa https://youtu.be/PFa6s1q7K8s) and Arvo Viltorp (Europe https://youtu.be/IFhqHUzBjKY). There were further talks on progress with ASF vaccines, diagnostics and virus detection.

The European Food Safety Authority has begun a major campaign to raise awareness and help halt the spread of African swine fever in Europe:
https://www.efsa.europa.eu/en/StopASF#/

For more information on ASF in different countries, presentations from meetings of the Standing Group of Experts on African swine fever in Europe are accessible on this link:
http://web.oie.int/RR-Europe/eng/Regprog/en_GF_TADS%20-%20Standing%20Group%20ASF.htm#SGE11

Global disease reports produced monthly by the US Swine Health Information Centre are also a good source of information and these can be viewed and received by email by signing up: https://www.swinehealth.org/global-disease-surveillance-reports/

The Pig Veterinary Society sponsored a webinar on ASF in June 2020 aimed particularly at veterinarians who are less familiar with pigs. This is available to view here:
https://thewebinarvet.s3-eu-west-1.amazonaws.com/Webinar_Video_2020/16Jun2020-African+Swine+Fever+%E2%80%93+what+ALL+vets+need+to+know.mp4

Information on ASF outbreaks has been disseminated to veterinary practices and Pig Veterinary Society members. The assistance of veterinary practitioners in raising awareness about ASF amongst their pig-keeping clients in UK is vital together with advising them on resolving biosecurity weaknesses to reduce the risk of introduction.

The biggest risk for ASF virus entering the UK’s pig population remains pigs or wild boar eating infected pork or pork products derived from infected animals. The ASF virus can survive for months in smoked, dried and cured meats, and for years in frozen meat. The greatest risk is from meat products brought into the UK from affected countries as personal imports; the commercial trade of such products is not permitted from ASF- affected areas. Pig keepers are reminded that it is illegal to feed pigs catering, kitchen or domestic waste or meat/meat products. Providing dedicated clothing and boots for staff and visitors, limiting visitors to a minimum, and preventing outside vehicles or equipment which may be contaminated from coming on to the farm, are also all valuable procedures to reinforce. An ASF poster is available for pig keepers summarising this information: http://apha.defra.gov.uk/documents/surveillance/diseases/african-swine-fever-poster.pdf

All pig keepers should remain vigilant and ensure that any visitors to their premises have not had any recent contact with pigs or pig premises in the affected regions. People returning from any ASF-affected areas of the world should avoid any contact with domestic pigs in commercial holdings, smallholdings or even household pet pigs. Habitats where feral pigs or wild boar exist should also be avoided. All clothing, footwear or equipment should be disinfected before entering pig areas.

A survey aimed at small-scale pig keepers, including smallholders, pet pig keepers and hobby keepers, was undertaken in August 2020 by the UK government and devolved administrations. The survey forms part of the UK's campaign to combat the introduction and spread of the pig disease African swine fever. It aims to find out more about what small-scale pig keepers already know about the disease, as well as asking about their feeding and biosecurity practices and what sources they refer to for guidance on keeping pigs. The results of the survey will be used to improve information available to pig keepers to help protect the health of their pigs and the UK pig industry.

A useful review of cleaning and disinfection (C&D) of commercial pig farms following ASF was published (De Lorenzi and others, 2020). This includes guidance on the necessary elements to prepare a C&D protocol to reduce the risk of spread of ASFV.

Images of the clinical signs and pathology of ASF are available; suspect cases must be reported promptly to APHA and this is followed by an official veterinary investigation: https://www.gov.uk/guidance/african-swine-fever and http://apha.defra.gov.uk/documents/surveillance/diseases/african-swine-fever-images.pdf

Porcine epidemic diarrhoea surveillance

Since the emergence of virulent porcine epidemic diarrhoea (PED) from mid-2013 in the USA and elsewhere, the virulent PED virus strain has only been reported in pigs in the Ukraine on the European continent. However, disease due to reportedly less virulent strains (known as INDEL strains) has been diagnosed in pigs on several continents, including countries in Europe and these continue to occur. PED due to any strain remains notifiable in England and Scotland and suspicion of disease, or confirmation of infection, must be reported (Defra, 2015; Scottish Government, 2016). The last diagnosis of PED recorded in the GB diagnostic database (VIDA) was in 2002 on a farm in England. No suspect incidents of porcine epidemic diarrhoea (PED) have been reported in England or Scotland since January 2018. Enhanced surveillance for PED continues and diagnostic submissions from cases of diarrhoea in pigs (non-suspect) submitted to APHA are routinely tested by PCR for PED virus on a weekly basis. None have been positive for PED in 1070 diagnostic submissions tested under Agriculture and Horticulture Development Board (AHDB) Pork funding from June 2013 to June 2020. APHA instructions and the pig industry-led PED control contingency plan are being updated. A

PED exercise planned in 2020 will be rearranged due to Covid-19. Further information on PED is available on this link:
https://pork.ahdb.org.uk/health-welfare/health/emerging-diseases/pedv

Unusual diagnoses or presentations

Staphylococcus sciuri in septicaemic finishers

Staphylococcus sciuri was isolated as the pure or predominant bacterial growth from multiple visceral sites of each of three finisher pigs, indicative of septicaemia due to this organism. The pigs were submitted from an outdoor site on which 2% of the group were affected with wasting. All three pigs had pneumonia, two had mild fibrinous peritonitis and one had excess serous pericardial and peritoneal fluid. Swine influenza virus was also detected by PCR in respiratory tissues of one of the pigs and histopathology revealed lung lesions supportive of swine influenza in all three. The identity of the *Staphylococcus sciuri* was confirmed by 16S rRNA sequencing. *S. sciuri* is usually considered apathogenic in pigs, however in this incident, there was good evidence that it was clinically relevant and the concurrent/recent swine influenza may have contributed to involvement of this organism. There have only been occasional pig submissions over the past years from which *Staphylococcus sciuri* has been isolated by APHA and appears to have been clinically significant and there is a report of greasy pig disease with septicaemia due to this organism in the literature (Chen and others, 2007). The occurrence of this bacterium in pig submissions will be kept under review. The isolate showed resistance to trimethoprim / sulphamethoxazole and tetracycline.

Electrocution event

A serious but unusual case was investigated by the scanning surveillance diagnostic service, Pig Expert Group and APHA's toxicology expert together with the attending veterinarian to establish the cause of sudden deaths or acute onset recumbency in a group of lactating adult sows over a two-day period; their piglets remained unaffected. The clinical presentation and pathology, pattern of disease, timeline and other on-farm features did not support feed contamination, environmental gaseous poisons or infectious disease and electrocution was strongly suspected. Clinical signs of acute onset muscle spasms seen in one sow were consistent with this suspicion and aspects of the pathology in a recumbent sow which was euthanased and submitted for investigation were also supportive; histopathology revealed rhabdomyolysis and consequent renal tubular injury. Schulze and others (2016) described the types of lesion that can occur following electrical injuries in animals and stated that common complications in animals after sublethal electrocution are rhabdomyolysis and myoglobinuria or haemolysis and haemoglobinuria, with renal injury and failure as a sequel as found in this case. Surviving sows were removed from the affected room and electricians were brought in to find and correct the fault and the environment was made safe for the staff and pigs; no further sows were reported to die. It is of note that scorch marks were not evident although this can be a helpful feature as described by Hughes (2005).

Clostridial myositis and cellulitis in growers

An unusual diagnosis of clostridial myositis and cellulitis (similar to blackleg in cattle) was made in finisher pigs submitted to investigate pigs being found dead at a rate of two to three each week, with the carcases of affected pigs noted to decompose rapidly. One submitted pig was found dead with purple discolouration and crepitus of the skin in the neck area (Figure 5), the other was euthanased having been found to be markedly pyrexic (42^{o}C) with purple discolouration and oedema of the neck. Given these clinical signs, blood smears were taken and examined for anthrax as a precaution, especially as pigs can be affected with a form of anthrax causing throat and upper neck swelling. There was no evidence of *Bacillus anthracis* in the pigs and post-mortem examination was undertaken. There was extensive skin discolouration extending from the neck down the forelimbs and brisket, a penetrating area of skin necrosis on the left jowl with underlying gelatinous oedema running between the fascial planes and a dry, emphysematous, dark red-black area within left masseter muscle. Similar muscle and subcutaneous lesions were present in the neck of the second pig. Fluorescent antibody testing on the affected muscle was positive for *Clostridium novyi* in one, and *Clostridium septicum* in the more freshly dead pig. Histopathological changes of acute fibronecrotising myositis with large bacteria present further confirmed this diagnosis. An outbreak of clostridial myositis in finishers was described in 2019 (APHA, 2019a) but these are uncommon in GB pigs. Predisposing factors include penetrating injuries and contaminated injection sites; in this case it was not clear if the necrotic skin lesion seen in one occurred prior to, or as a result of, the clostridial disease.

Figure 5: Purple skin discolouration and swelling in association with clostridial myositis

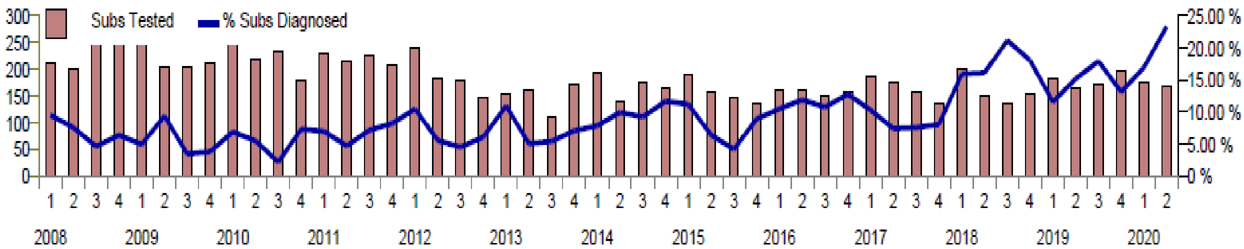
Changes in disease patterns and risk factors

Please refer to the annexe on Gov.UK for more information on the data and analysis.

Porcine reproductive and respiratory syndrome diagnoses in 2020

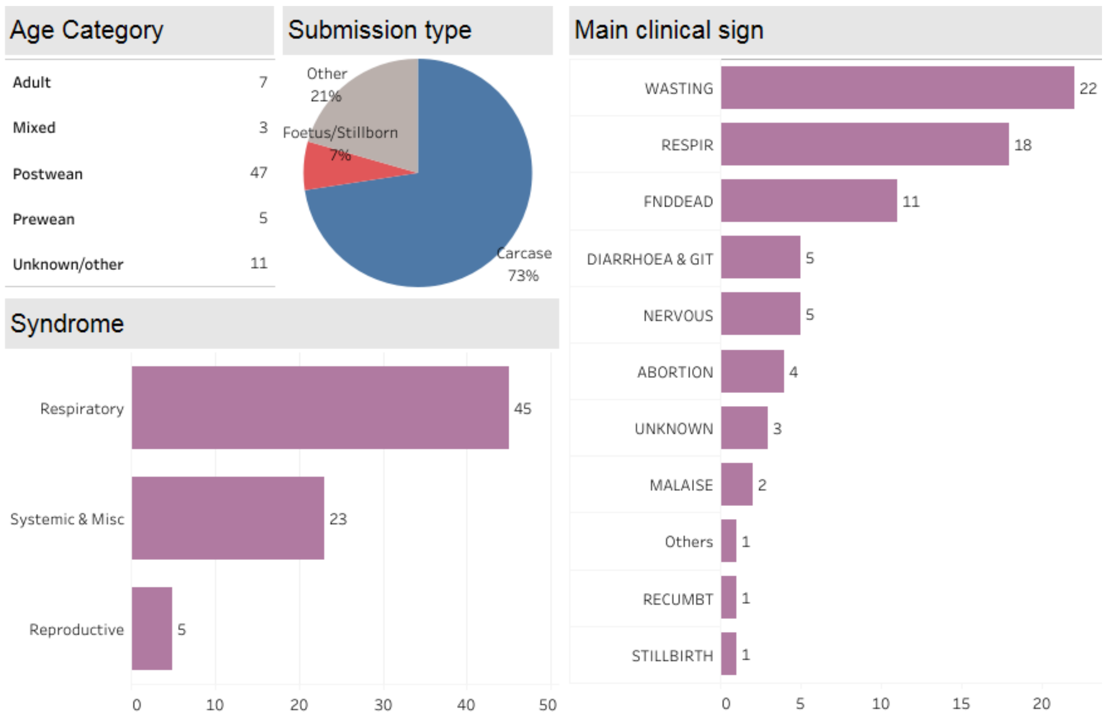
The diagnostic rate for porcine reproductive and respiratory syndrome (PRRS) in GB submissions increased in Q1-2020 and this upward trend has continued into Q2-2020 with PRRS remaining a prominent diagnosis in this quarter (Table 1a). Figure 6 illustrates the quarterly diagnostic rate of GB PRRS including the two quarters of 2020. The tendency for a seasonal rise in PRRS diagnoses during the cooler winter months observed in 2008 to 2015 has not been such a clear feature in these data since 2016.

Figure 6: GB PRRS diagnoses by quarter as a percentage of diagnosable submissions



All of the incidents of PRRS diagnosed in the first six months of 2020 were due to infection with PRRSV-1; no PRRSV-2 has been detected in submissions from GB pigs to date. Surveillance data associated with submissions in which PRRS was diagnosed is shown in Figure 7.

Figure 7: Surveillance data associated with 2020 GB submissions in which PRRS diagnosed

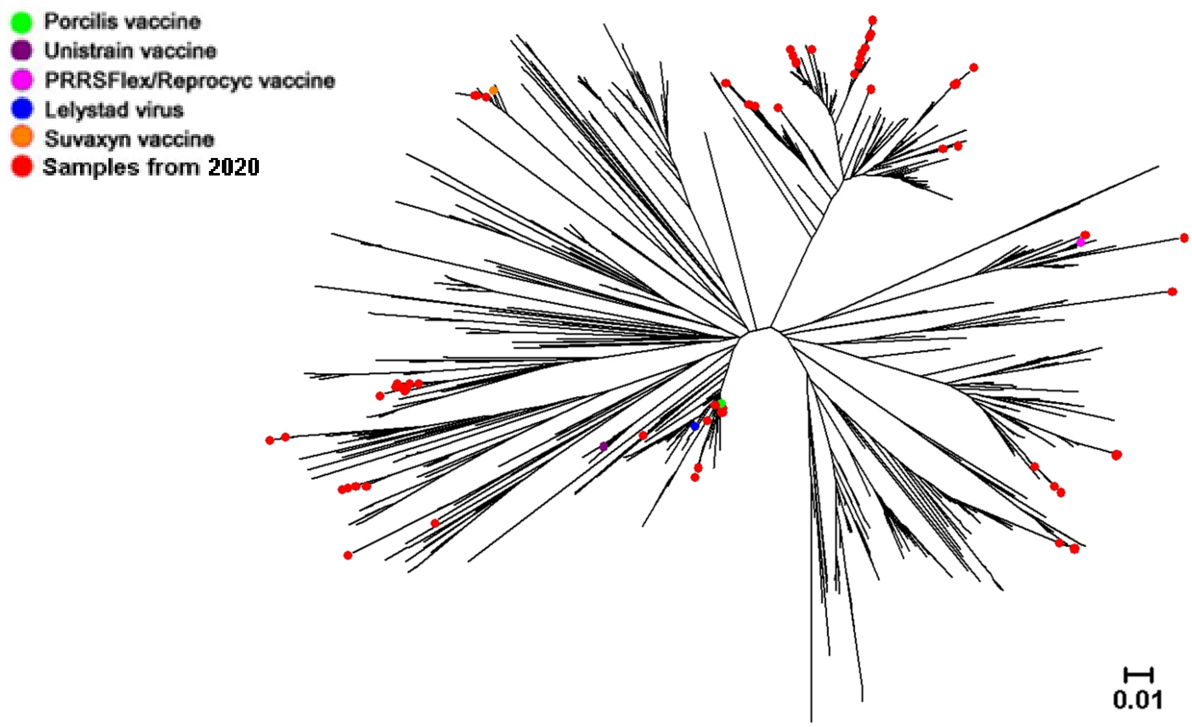


Interactive GB pig disease surveillance and PRRS dashboards are accessed via: https://public.tableau.com/profile/siu.apha#!/vizhome/Porcinereproductiveandrespiratorysyndrome/PRRS and http://apha.defra.gov.uk/vet-gateway/surveillance/scanning/disease-dashboards.htm.

Following input from a stakeholder workshop earlier in 2020 (Driver, 2020), development of the Pig Health and Welfare Pathway is in progress led by representatives of the pig industry in partnership with Government. Disease control is one of several main pathway themes, with control and, where appropriate elimination, of PRRS likely to form an important focus. It is recognised that the immunosuppressive nature of PRRS means that concurrent disease is common when PRRS is diagnosed, including bacterial diseases and, particularly in growing pigs, PRRS can act as a driver of antimicrobial use. This emphasises the importance of full diagnostic investigations in disease outbreaks. Carcase submissions allow fuller diagnostic investigation than postal submissions and help veterinarians to develop and prioritise targeted disease control. The increased diagnostic rate of PRRS in 2020 may in part represent greater proactivity in diagnostic investigations by veterinarians, together with the effect of the reduced proportion of enteric disease submissions in Q2, rather than a true increase. However anecdotal reports from clinicians in the field indicate that respiratory disease was a significant problem in Q2-2020, some of which involved swine influenza as well as PRRS. The diagnostic trend will be reviewed next quarter.

PRRSV ORF-5 gene sequences have been generated from 50 cases of PRRS diagnosed in 2020 to date and their diversity is illustrated in Figure 8.

Figure 8: PRRSV diversity in 2020 based on ORF5 sequences



This shows that in 2020 PRRSV strains have been detected in multiple clusters previously identified in GB, with no new clusters detected or novel strains introduced.

Swine dysentery diagnoses in GB reduced compared to 2019

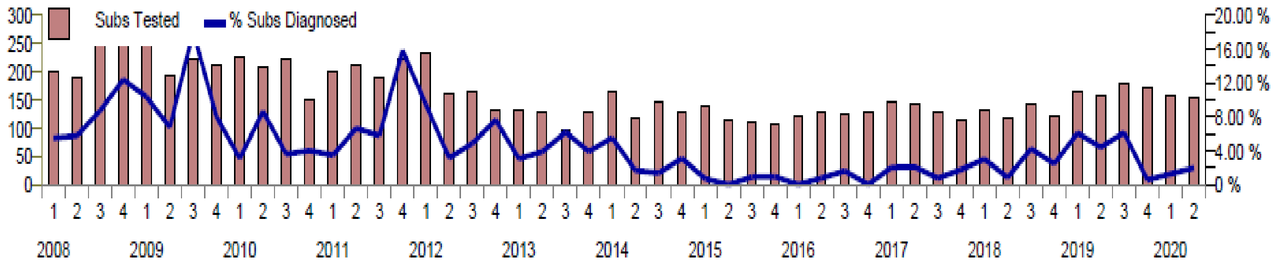
Swine dysentery was diagnosed in submissions from five different premises in the first six months of 2020. These were located in North Yorkshire, Devon and Kent. All but one diagnosis was made from detection of *Brachyspira hyodysenteriae* in faecal samples from pigs with diarrhoea. One diagnosis was made in adult sows showing malaise as the primary sign, with diarrhoea and reduced milk yield also reported and this case was described in the July 2020 surveillance report (APHA, 2020a). The clinical presentation in this herd suggested that the disease may have been introduced relatively recently. When swine dysentery is endemic, disease tends to manifest mainly in postweaned growing pigs. When disease manifests in sows it can be more severe during lactation, likely due to the stress/demands of farrowing and milk production. Swine dysentery does not usually cause significant sow mortality and endoparasitism and lungworm infestation were also detected which may have been exacerbating the clinical disease in this case, resulting in several deaths.

Advice on swine dysentery, its control and information about the pig industry's Significant Diseases Charter can be found via:

http://pork.ahdb.org.uk/health-welfare/health/swine-dysentery/
https://pork.ahdb.org.uk/health-welfare/health/significant-diseases-charter/
http://apha.defra.gov.uk/documents/surveillance/diseases/swine-dysentery.pdf
www.nadis.org.uk/disease-a-z/pigs/swine-dysentery/

Swine dysentery has been identified as a priority disease for control by the pig industry. Thus any diagnoses of swine dysentery in GB are of concern, however the diagnostic rates in the first two quarters of 2020 were lower than those in the same periods of 2019 as illustrated in Figure 9. The actual numbers of diagnoses made were also lower with 17 swine dysentery diagnoses recorded in VIDA in the first six months of 2019 compared to five in the same period of 2020.

Figure 9: GB swine dysentery diagnoses by quarter as a percentage of diagnosable submissions



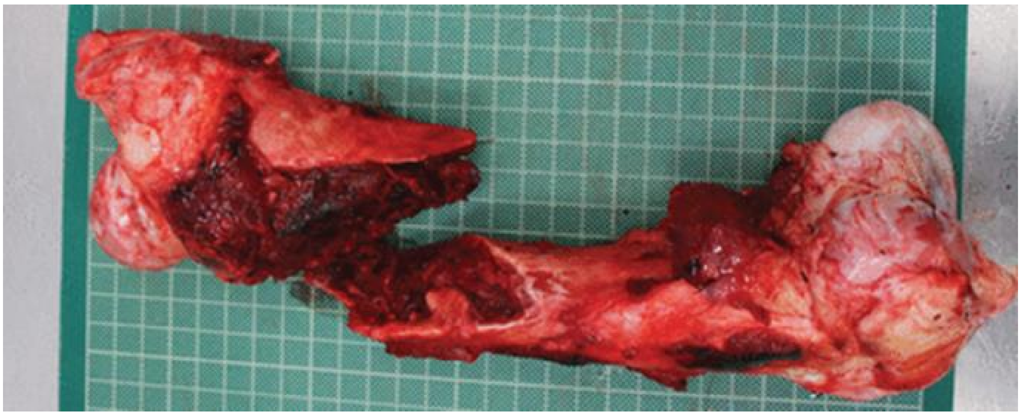
APHA continue to provide antimicrobial sensitivity testing and whole genome sequencing on GB *B. hyodysenteriae* isolates under Defra-funded surveillance projects for pig disease and antimicrobial resistance. The results of this surveillance are provided to the submitting practitioner and assist in treatment decisions and in epidemiological investigations.

It is important that the main differentials for enteric disease appropriate for the age of pig are tested for in outbreaks of diarrhoea. APHA also tests diarrhoeic samples for porcine epidemic diarrhoea by PCR as described above. Guidance on causes of diarrhoea in pigs at different ages, and on sample and test selection, is available on the APHA Vet Gateway at: http://apha.defra.gov.uk/documents/surveillance/sub-handbook.pdf

Lactational osteoporosis in young sows

Three incidents of lactational osteoporosis were diagnosed at APHA in 2020, with histories of acute recumbency at or soon after weaning in first litter sows on indoor units. One case was described in the June 2020 monthly surveillance report (APHA 2020b). Post-mortem examinations were undertaken in each incident after typical cases were euthanased and submitted, which helped confirm the diagnosis and differentiate from other causes of acute recumbency. In pigs submitted in all three cases, there were mid-shaft fractures of femurs and/or humeri (Figure 10), with associated haemorrhage and tissue trauma. Long bone fractures in the absence of a history of trauma and involving more than one young sow, points to likely pathological fractures and the timing in these cases also supports lactational osteoporosis. Diagnosis of fractures by palpation in live sows may be difficult due to the overlying muscle masses and has welfare implications. In the cases described, the sows were unable to rise and the affected hindlimbs were swollen. These features, together with the sudden onset immediately after weaning, are suggestive of possible fractures, and assist in decisions to promptly humanely euthanase affected sows.

Figure 10: Fractured diaphysis of femur in a sow as a result of lactational osteoporosis



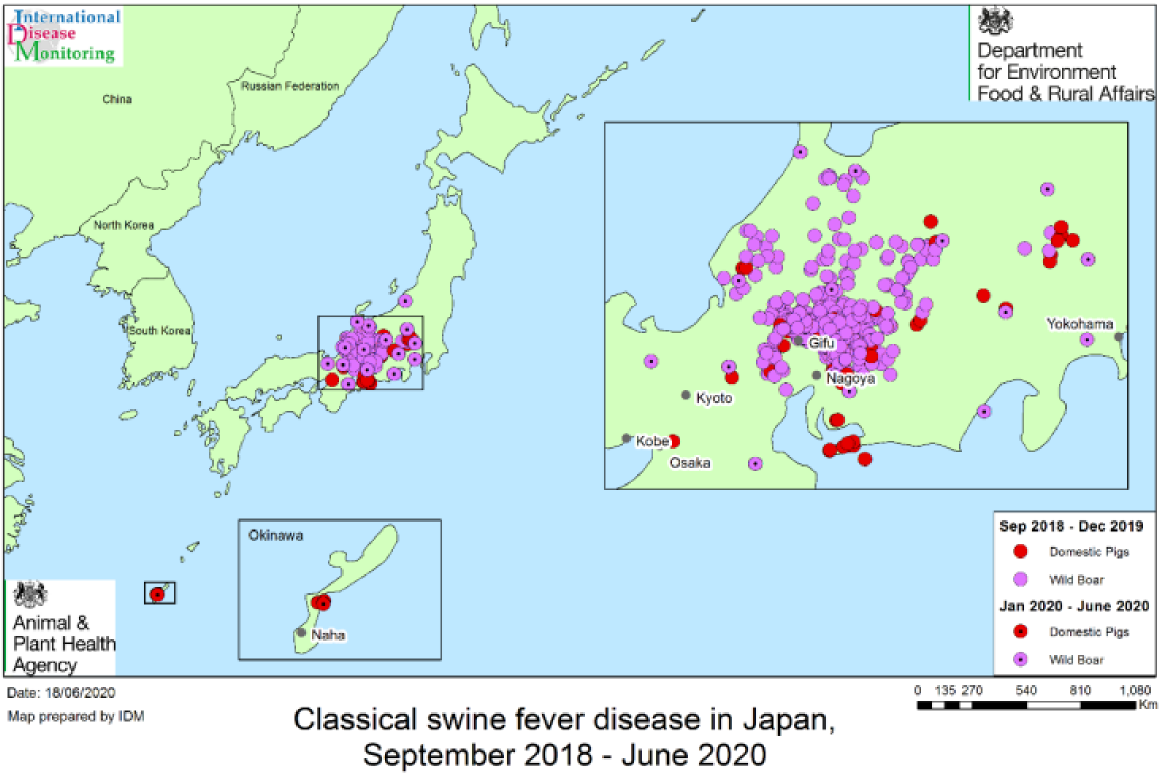
The heavy demands on gilts for minerals for both growth and lactation mean that osteoporosis is most commonly seen in late lactation or in weaned first-litter sows, especially where they have suckled good-size litters, as seen on this unit. The situation may be exacerbated by lack of exercise during lactation and by excessive activity after weaning or following mixing of sows. A shortage or imbalance of dietary calcium, phosphorus or vitamin D, and poor bone reserves, predispose to the occurrence of the condition and an urgent review of the diets fed to the gilts during growth, gestation and lactation needs to be undertaken.

Horizon scanning

Classical swine fever in Japan

Classical swine fever (CSF) re-emerged in mainland Japan in September 2018, having previously been designated CSF-free by the OIE in 2007. Japan has reported multiple cases of CSF in wild boar and several outbreaks of CSF in domestic swine to OIE since January 2020 (Figure 11).

Figure 11: CSF cases reported in Japan since September 2018 (map as on 18-06-20)



Multiple cases have been reported in wild boar in several prefectures on the mainland while outbreaks of CSF in domestic swine have been in the prefecture of Okinawa, a separate island of Japan. Vaccination is being used in both wild boar (oral bait vaccine) and domestic pigs to assist control. Around 85% of land in Japan is classed as mountainous and therefore very difficult to access making vaccine delivery to wild boar difficult. Japan is not approved for the importation of fresh or frozen pig meat into the EU and the overall risk of CSF introduction to the UK remains very low.

The full update is available on this link:
https://www.gov.uk/government/publications/classical-swine-fever-in-pigs-in-japan

Streptococcus equi subsp *zooepidemicus* outbreaks in North America

Outbreaks of septicaemia due to *Streptococcus equi* subsp. *zooepidemicus* associated with high mortality in cull sows and finisher pigs in North America were described in the

Q3-2019 pig surveillance report (APHA, 2019b). The strain involved was ST-194 with close genetic sequence similarity to ST-194 isolates from pigs in China causing high mortality outbreaks in the 1970s. A description of two confirmed North American outbreaks has been published (Sitthicharoenchai and others, 2020). Pigs presented as weak and lethargic and some had high fevers. Mortality was reported to escalate rapidly, reaching as high as 30–50% within groups over 8–10 days. Splenomegaly and red lymph nodes were the most consistent post-mortem findings, with scant fibrinous polyserositis observed in one sow. Encountering clinical and post-mortem findings as described here would likely prompt reports of suspect swine fever to APHA – the US authors indicated that PCR tests were negative for African and classical swine fever viruses in their cases. Proactive follow-up investigation to seek a diagnosis after report cases of suspect swine fever have been negated is recommended. Outbreaks due to *Streptococcus equi* subsp. *zooepidemicus* have not been detected through scanning surveillance in GB pigs; the isolation of this pathogen from APHA pig submissions would prompt genetic characterisation to determine the genotype. Avoiding importation of pigs from herds with a history of, or linked to herds with a history of, this disease is advisable and this can be considered at the next review of the National Pig Association import protocol for live pigs.

PCV3 in healthy sows and mummified and stillborn piglets in Spain

An interesting study was published on porcine circovirus 3 (PCV3) detection in healthy sows of different ages and their mummified and stillborn piglets on farms with average reproductive performance (Saporiti and others, 2020). Sera from sows, and brain and lung from mummified or stillborn piglets were tested by PCR, and those which tested positive were further investigated by quantitative PCR. Interestingly PCV3 was not detected in sera from multiparous sows, while 33.3% of sera from gilts were PCV-3 PCR positive. In the fetal testing, 33.7% had at least one tissue positive to PCV-3 and detection was more common in fetuses from gilts. This study further confirms the ability of PCV-3 to infect foetuses *in utero*. Fixed tissues were not available for histopathological studies to determine whether detection of PCV3 at high loads was associated with lesions. This study helps to provide background information on the prevalence of PCV3 in farms which are not experiencing undue levels of reproductive disease. More work is needed to determine the clinical significance and epidemiology of PCV3 in different situations.

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Any enquiries regarding this report should be sent to APHA's Surveillance Intelligence Unit by emailing SIU@apha.gov.uk.

More information about scanning surveillance reports is available on APHA's Vet Gateway at http://apha.defra.gov.uk/vet-gateway/surveillance/index.htm.

APHA is an executive agency of the Department for Environment, Food & Rural Affairs, and also works on behalf of the Scottish Government and Welsh Government.