Department for Environment, Food and Rural Affairs

Updated Outbreak Assessment #34

African swine fever in Europe

25 January 2024

Disease report

African swine fever (ASF) has continued to be reported in domestic pigs and wild boar in Europe. Since our last reports on <u>15 August 2023</u> (for Europe) and <u>08 September 2023</u> for Sweden only), Montenegro has reported cases of ASF in wild boar for the first time. A marked increase in ASF outbreaks has been reported in domestic pigs over the summer months and into autumn across the Balkan states, particularly in Bosnia and Herzegovina. A within-year<u>increase</u> in reported cases in wild boar into the winter period has also been observed in some countries, such as Italy, Latvia and Poland.

Increases in outbreaks of ASF in domestic pigs have previously occurred across Europe over summer months and in to autumn, with reports in wild boar being more variable but with a general increase observed in the winter months (see Figure 1 and Figure 2). Transmission routes that may be contributing to the seasonal increases include human related activities such as wearing contaminated clothing, using contaminated hunting tools, or wrongful disposal of infected meat, and increased opportunities for contact with wild boar, especially during harvesting periods where leftover grain near farms may be attractive for wild boar, and the population dynamics of wild boar, particularly when they come together more in the breeding season (Seasonal Occurrence of African Swine Fever in Wild Boar and Domestic Pigs in EU Member States - PMC (nih.gov)).

In this report, 'Restricted zone I (RZI)' means an area of a Member State listed in <u>EU legislation</u> with a precise geographical delimitation subject to special disease control measures and bordering restricted zones II or III.

'Restricted zone II (RZII)' means an area of a Member State listed in EU legislation due to an outbreak of African swine fever in a wild porcine animal with a precise geographical delimitation subject to special disease control measures.

'Restricted zone III (RZIII)' means an area of a Member State listed in EU legislation due to an outbreak of African swine fever in a kept porcine animal with a precise geographical delimitation subject to special disease control measures.

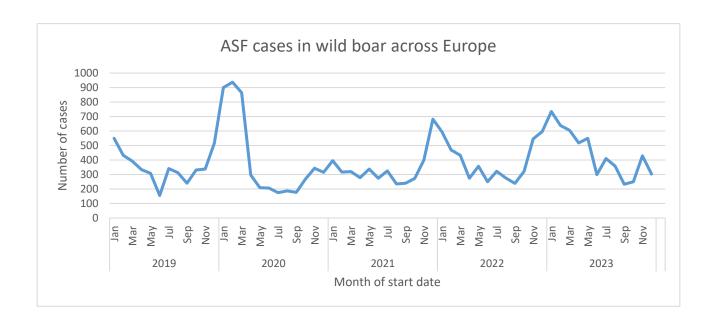


Figure 1: Graph showing ASF cases in wild boar across Europe from January 2019 to December 2023.

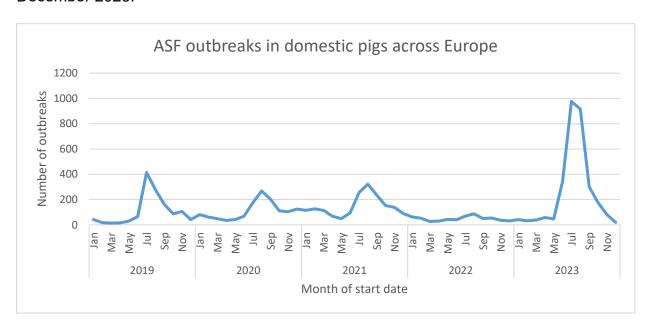
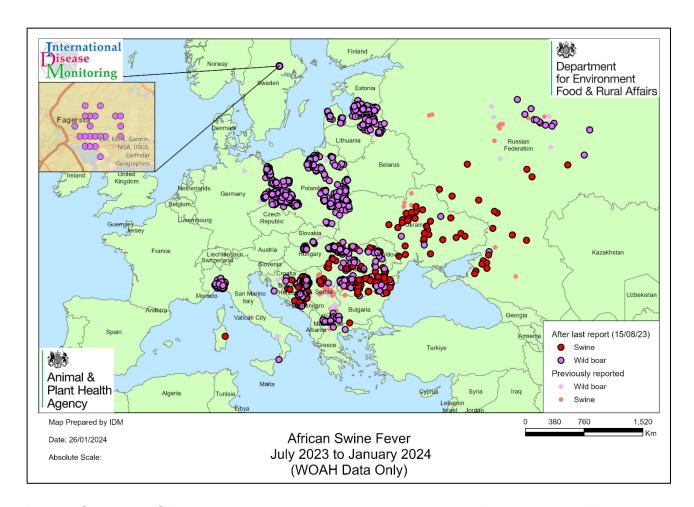


Figure 2: Graph showing ASF outbreaks in domestic pigs across Europe from January 2019 to December 2023.



Map 1: Showing ASF outbreaks in domestic pigs and cases in wild boar across Europe from July 2023 to January 2024. (Data pulled from WOAH on 24th January 2024).

Elsewhere, according to WOAH reports, outbreaks in domestic pigs continue to be reported in Croatia, Greece, Italy, Latvia, Moldova, North Macedonia, Poland, Romania, Russia, Serbia and Ukraine. Since our last report, Bosnia and Herzegovina, Croatia, the Czech Republic, Germany, Greece, Hungary, Italy, Latvia, North Macedonia, Poland, Romania, Russia and Ukraine have all reported ASF in wild boar, according to WOAH reports (Map 1). From ADIS summaries, outbreaks in domestic pigs have been reported in Bulgaria (1), Kosovo (3) and Serbia (591).

Outbreak data

Details of all outbreaks and cases provided in the map in this report were taken from the World Organisation for Animal Health (WOAH, formerly OIE), unless stated otherwise. Additional information has been provided, where available, from the EU Animal Disease Information System (ADIS) summary tables, and information from relevant PAFF (the EU Standing Committee on Plants, Animals, Food and Feed) presentations. Tables of numbers of WOAH reports by country can be found in Table 1.

Situation assessment

Reports of ASF in domestic pigs											
Country	2023									Grand	
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total	
Bosnia and Herzegovina	-	1	243	326	323	462	80	73	2	1510	
Bulgaria	-	-	2	-	-	-	-	-	-	2	
Croatia	-	7	105	95	5	16	63	2	-	293	
Greece	2	3	1	-	-	-	-	-	1	7	
Italy	2	2	1	4	5	1	-	-	1	16	
Latvia	-	1	4	3	-	-	-	-	-	8	
Moldova	-	-	-	4	-	-	-	-	-	4	
Poland	-	1	17	2	5	5	-	-	-	30	
Republic of North Macedonia	-	2	2	-	4	5	-	2	-	15	
Romania	9	43	137	103	112	16	24	18	6	468	
Russia	4	3	9	8	11	5	4	4	-	48	
Serbia	59	-	45	353	25	-	-	-	-	482	
Ukraine	1	-	5	4	4	6	12	3	2	37	
Grand Total	77	63	571	902	494	516	183	102	12	2920	

Cases of ASF in wild boar										
Country	2023								2024	Grand Total
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
Bosnia and Herzegovina	-	-	4	3	-	1	3	11	6	28
Croatia	-	-	3	-	2	3	1	-	5	14
Czech Republic	8	19	2	7	1	-	2	1	1	41
Germany	20	12	12	8	7	-	8	6	-	73
Greece	-	-	-	-	-	-	-	-	2	2
Hungary	54	21	11	23	8	6	22	22	41	208
Italy	160	120	71	32	13	27	83	124	106	736
Latvia	17	25	123	201	49	40	59	75	25	614
Moldova	1	-	-	-	-	-	-	-	-	1
Montenegro	-	-	-	-	-	-	-	-	1	1
Poland	390	144	196	107	143	100	128	252	105	1565
Republic of North Macedonia	1	1	8	2	3	-	3	6	12	36
Romania	21	8	11	3	10	12	13	28	27	133
Russia	-	4	9	3	3	2	4	3	-	28
Serbia	21	-	15	17	-	-	-	-	-	53
Sweden	-	-	-	-	39	8	13	-	-	60
Ukraine	2	-	1	1	-	-	1	2	-	7
Grand Total	695	354	466	407	278	199	340	530	331	3600

Table 1: Number of reports of African swine fever outbreaks in domestic pigs and cases of ASF in wild boar in Europe, according to WOAH. Note that some countries do not report to

WOAH, and that these numbers show reports only, not the number of individual animals affected.

Montenegro

Montenegro has reported their first case of ASF in wild boar. The case involved two dead wild boar and was located in Nikšic, west Montenegro, 500 meters from the border with Bosnia and Herzegovina, where a large number of outbreaks have been reported. Although expected due to high numbers of cases in surrounding countries, it is still disappointing for Montenegro. The Montenegrin government stated that both of the wild boar were culled and removed safely to prevent the spread into their domestic pig population, although it was noted that this is not a big population. The source of infection is currently unknown.

From 23 January 2024, the heat treatment category for domestic porcine, farmed cloven-hoofed game (swine) and wild swine from Montenegro has changed from 'D' (minimum temperature of 70°C) to 'C' (minimum temperature 80°C). These measures will remain in place until Montenegro is recognised by the UK as disease free for ASF. There has been no trade in porcine meat products from Montenegro from 01 January 2022 to date.

Italy

Since our last assessment, further ASF outbreaks have been confirmed on 10 pig farms, 9 in Lombardy and 1 in Sardinia. These date back to August and September 2023. The farms contained between 1 and 130 pigs. There were also 369 cases of ASF in wild boar reported in Italy. These were across Calabria, Emilia-Romagna, Liguria, Lombardy and Piemonte. Wild boar cases in Italy began to decrease in July 2023 and then started to rise again in October, the reasons for this are currently unclear though it could be as a result of increased surveillance efforts following spread into Emilia Romagna . The first case in Emilia Romagna was detected in a wild boar on 08 November 2023, in the municipality of Ottone. Surveillance and control measures such as restrictions on hunting activities and movement restrictions were already in place due to wild boar cases nearby in Piedmont and Liguria.

Italy has increased the size of the restriction zones in the Lombardy, Piedmont and Liguria region due to outbreaks in domestic pigs and wild boar. They have introduced a new RZIII in the area. Due to outbreaks in kept porcine in the Sardinia Region, Italy have changed the RZII to a RZIII.

According to <u>PAFF presentations</u>, Italy has proposed a lifting of the Protection and Surveillance Zones in Sardinia that were implemented following outbreaks of ASF genotype II. Following the lifting, Sardinia will remain under Restriction Zone III measures. Italy has also proposed for the zones in northern Italy to be enlarged due to the detection of finding of positive carcasses in east side of Liguria, and in the already established restricted zone in Lombardy Region.

Greece

Since our last report, Greece has reported a further outbreak of ASF in domestic pigs. This was in Kato Nevrokopi, mainland Greece, around 50 km from the first outbreaks were located in April 2023. The outbreak was on a farm premises with 174 pigs, close to the border with Bulgaria. Greece has also reported two cases in wild boar. The boar were found in forests in Visaltia and Almopia, respectively. Greece has reduced the RZIII in the Region of West Macedonia to a RZI as the epidemiological situation has improved in kept porcine animals.

In <u>PAFF presentations</u>, Greece stated that they will undertake active and passive surveillance within the protection zone. They will also conduct intensive hunting of wild boar and surveillance sampling in the surveillance zone. Greece have implemented a Rural Development Program to improve biosecurity on pig farms. This includes grants for construction of fences, loading ramps, and disinfection equipment.

Bosnia and Herzegovina

Since our last update in August and following the initial report in June 2023, WOAH reported 1,174 outbreaks in domestic pigs in Bosnia and Herzegovina. The majority of the outbreaks were in the north-east of the country, near Brčko. These were mostly reported between July and August 2023 (See Table 1). The large number of outbreaks following the initial report and concerted surveillance and control efforts is not surprising, though it is disappointing. There may also be additional seasonal infection pressure that has been previously observed in other affected EU countries. Though outbreaks are spread throughout the country, there has also been a cluster of outbreaks in the south-west of the country, close to the Serbian and Hungarian borders. All of the outbreaks were classified as being on backyard premises, housing between 1 and 2,670 pigs. Bosnia and Herzegovina also reported 23 cases in wild boar WOAH (WOAH data only), distributed throughout the country. It is unclear what surveillance strategy is being used to detect ASF in wild boar in the country, or wild boar numbers in the region.

Bulgaria

According to BHVSI-SA, Bulgaria have reported 29 cases of ASF in wild boar in December 2023, these were located all over the country. From ADIS summaries, ASF cases in Bulgaria have decreased from 2020, when they reached a peak of 553 cases in the year. This is now down to 322 cases reported over 2023. In September, Bulgaria met with other Balkan countries to discuss and agree ASF control measures. It was agreed, between the countries, that a robust surveillance system, early detection and reporting of cases are the key to prevention and control. PAFF presentations note that Bulgaria have proposed to amend all RZIIIs to RZII due to the last outbreak in domestic pigs occurring in August 2023. This would leave the whole country under RZII restrictions.

Croatia

Since our last report, Croatia has reported a further 86 ASF outbreaks in domestic pigs by WOAH. These were in Osjecko-Baranjska, Vukovarsko-Srijemska and Brodsko-Posavska, near to the borders with Serbia and Bosnia and Herzegovina. All of the outbreaks were on farm premises, with 71 housing under 100 pigs, and the largest containing 2,688 pigs. This is a decrease in reports from our last assessment in August as they reached a peak of 189 outbreaks in July. Croatia have implemented RZIII and RZIIs in the east of the country due to outbreaks in domestic pigs in the counties of Vukovar Srijem, Osijek-baranja and Brodsko-posavska.

Croatia also reported 11 cases of ASF in wild boar by WOAH, nine of which were detected in Vukovarsko-Srijemska near to the domestic pig outbreaks. The other two wild boar cases were detected in the west of the country in Sisacko-Moslavacka and Zadarska, which are regions close to the border with Bosnia and Herzegovina.

According to available ADIS summaries, Croatia reported around 811 outbreaks in domestic pigs and 10 in wild boar since our last report. As these outbreaks are not yet on WOAH, it is likely that they will be batch reported as has been observed in other countries following initial reports.

Available <u>PAFF presentations</u> note that Croatia are following a new ASF action plan including short, medium and long term activities. These include a pig census in restricted zones, and all farms in restricted zones to have biosecurity checks with farms that are non-compliant with biosecurity to have their stock culled. Additionally, stricter rules for the repopulation of affected farms are to be implemented, alongside passive and active wild boar surveillance, and awareness campaigns.

Romania

Romania has reported 221 outbreaks of ASF in domestic pigs across the whole of the country (WOAH data only) since our last assessment on 15 August 2023. Of these, 7 were on farm premises with between 2 and 18,667 pigs and 4 were listed as 'other' premises. The remaining 210 outbreaks were on backyard premises with between one and 287 animals. Outbreaks peaked from July to September, as has been observed in previous years. ASF outbreaks in Romania have decreased from over 1000 per year in 2020 and 2021 to 330 in 2022. There was a slight increase in 2023 with 527 outbreaks reported in the year however, the number of outbreaks is falling. The whole of Romania remains under RZ III restrictions. According to ADIS summaries, Romania have reported 348 outbreaks of ASF in domestic pigs since our last assessment. There is no further information available as these outbreaks are yet to be reported by WOAH.

Romania also reported 81 cases of ASF in wild boar, comprising of 93 animals. Cases have been much lower than in previous years, with 90 in <u>August 2019</u> compared to 3 in August 2023 and a peak of wild boar cases in December and January 2024 to date of 28 and 27 respectively.

According to <u>PAFF presentations</u>, Romania are increasing incentives for the search of wild boar carcasses, and active and passive surveillance.

Serbia

Since our last report, 25 outbreaks of ASF have been reported by WOAH in domestic pigs in Serbia. August 2023 saw a peak in outbreaks with 353, though these had start dates ranging back to June 2023. Following this, Serbia has observed a sharp decrease according to WOAH reports, with the last outbreaks in September 2023 (25). All 25 outbreaks were in backyard premises in Južno-Banatski. The premises housed between one and four animals. According to WOAH data, Serbia have not reported any cases in wild boar since our last update.

According to ADIS summaries, Serbia have reported 591 outbreaks of ASF in domestic pigs and 21 cases in wild boar since our last assessment, no further details are available as these are yet to be reported by WOAH.

Sweden

ASF was reported in Sweden for the first time in wild boar on 06 September. It is thought that the source of infection was from infected meat in a garbage dump, found at the epicentre of the outbreak. As of 15 January 2024, Sweden has reported 60 cases of ASF in wild boar to WAHIS, involving 67 animals. The reports have been in Fagersta and Norberg, in the south of the country. All 60 cases were around the same site (see map 1). Please see our preliminary outbreak assessment of ASF in Sweden here. Sweden has introduced both RZI and RZII due to the new outbreaks in wild boar.

Sweden hope to regain their disease free status in late 2024, and believe that there is currently no active ASF in the area (ASF Sweden: Outbreak seems to get resolved in record time (pigprogress.net)). The last detection of ASF was in November 2023. Temperatures are expected to drop to -20°C and based on estimated half-life values, tissues are predicted to remain infectious for 353 to 713 days at -20°C (Natural inactivation of African swine fever virus in tissues: Influence of temperature and environmental conditions on virus survival - ScienceDirect) and carcasses may take longer to rot. Once temperatures begin to rise again, it could be possible that wild boar become exposed to preserved infected carcasses.

From <u>PAFF presentations</u>, Sweden detected the first case of ASF from passive surveillance of found dead wild boars. Measures currently taken include search and testing of carcasses in the infected zone, erection of fencing, culling of pigs on farms in the infected zone, movement prohibitions and national passive surveillance.

Poland

In Poland, since 15 August 2023, there have been 12 outbreaks of ASF in domestic pigs reported by WOAH. These were in Zachodniopomorskie, Wielkopolskie and Lubelskie, on

farm premises, housing between four and 441 animals. Due to further outbreaks in domestic pigs, Poland has listed new areas of RZIII that were previously RZII in those regions listed above.

Since our last report, according to WOAH, there were further 835 reports of ASF in wild boar throughout the east and the west of the country (where there is high domestic pig density) comprising a total of 959 animals.

Latvia

Since our last report, Latvia has reported two outbreaks of ASF in domestic pigs by WOAH, these were on farm premises, both housing two pigs. Latvia has also reported 347 cases in wild boar, comprising of 463 animals. The epidemiological situation has improved in certain zones in the Gulbenes, Madonas, Jēkabpils, and Rēzeknes counties of Latvia, therefore RZIIIs have been amended to RZIIs.

In December, according to <u>PAFF presentations</u>, Latvia proposed to lift certain areas under Restriction Zone III, following a three-month period since the establishments were disinfected, clinical exams have been carried out, active and passive surveillance for both wild and captive pigs have been carried out.

Estonia

According to <u>PAFF presentations</u> in November, Estonia requested to lift both RZIIIs, leaving the whole country in RZII. The RZIIIs are currently in Põlvamaa and Võrumaa, where no further outbreaks have occurred since July 2023. These zones have now been removed from RZIII restrictions in European legislation. According to ADIS summaries, Estonia have reported 26 cases of ASF in wild boar since our last update.

Czech Republic

The Czech Republic has reported eight more cases of ASF in wild boar since our last assessment in August 2023. All cases were in the Liberecký region, close to the border with Poland. The Czech Republic has not reported any outbreaks in domestic pigs since ASF was re-introduced in January 2018.

Germany

Since 15 August 2023, there have been 29 reports of ASF in wild boar comprising of a total of 145 animals. There is no significant reporting of large distance spread since our previous update, all of the cases have continued to be reported in the Saxony and Brandenburg regions, close to the border with Poland and the Czech Republic. Restriction zones in Mecklenburg Western Pomerania, northern Germany, have been lifted due to no further outbreaks in domestic pigs. The last domestic pig outbreak in Mecklenburg Western Pomerania was in November 2021. According to available ADIS summaries, Germany have reported around 120 cases in wild boar.

To note, from <u>PAFF presentations</u>, Germany are undertaking weekly searches for wild boar carcasses by drones and dogs, and are using financial incentives to increase wild boar hunting. There has been a decrease in ASF positive wild boar since November 2022 (see page 4 of PAFF presentation).

There were no detections of ASF in domestic pigs in Germany since our last report.

Hungary

Since 15 August 2023, there have been a further 116 reports of ASF in wild boar comprising a total of 136 animals in Hungary. There has been an increase in cases in the winter months (22 to 41 through November to January) with similar numbers observed in summer, compared to Autumn (8 and 6 in September and October respectively). For wild boar, we usually see an increase of cases in the winter due to groups congregating together more (Seasonal Occurrence of African Swine Fever in Wild Boar and Domestic Pigs in EU Member States - PubMed (nih.gov)), as seen in Hungary (see Figure 1). There are three main clusters of cases one being just to the north of Budapest, another in Salgótarján and the final cluster around Debrecen. The clusters are relatively close to the border with Slovakia and Romania.

Moldova

Since our last report, Moldova has reported one outbreak of ASF in domestic pigs. The outbreak was on a backyard premises, containing 3 pigs. This was in Cahul, in southern Moldova, next to the border with Romania. Moldova has not reported any cases in wild boar since our last update.

Republic of North Macedonia

Since the last outbreak assessment, the Republic of North Macedonia has reported 11 outbreaks of ASF in domestic pigs. 2 of the premises were village, 8 on backyard premises, and one farm. They housed between 2 and 243 pigs. North Macedonia has continued to report ASF in wild boar in areas across the country, with 26 cases since our last report. The number of cases reported has been consistently in single digits through May to December 2023, with a slight increase of 12 in January 2024 to date.

Russia

Russia has reported 26 outbreaks in domestics pigs in the south-west and south-east of the country since our last assessment according to WOAH reports. 11 of the outbreaks were on farm premises housing between 2 and 72,270 animals. The remaining 15 outbreaks were on backyard premises which housed between one and 309 animals. There were also 15 cases of ASF in wild boar in west Russia since our last assessment, affecting 33 individuals.

Ukraine

Ukraine has reported 30 outbreaks of ASF in domestic pigs since our last update, reported all across the country. The outbreaks were on a mixture of commercial farm, backyard, 'other', and village premises, with the largest premises containing 1,277 pigs. Ukraine has also reported 3 cases of ASF in wild boar, affecting 10 animals. 2 of these were in hunting grounds and the other in a forest.

ADIS outbreaks

Some European countries including Estonia, Kosovo and Slovakia have reported ASF outbreaks and cases via ADIS only (to date), which are available via ADIS summaries (ADIS 2024).

Conclusion

The spread of ASF in wild boar into Montenegro is a new development, although it is not surprising given the ASF presence in surrounding countries. Montenegro are not subject to European Commission ASF restrictions and the UK has implemented risk mitigating import restrictions such as the heat treatment of meat products.

The introduction of <u>ASF to wild boar in Sweden</u> was a large geographical jump and was unexpected and demonstrates again the ability of the virus to be introduced to new territories distant to infected areas. The measures taken so far in Sweden such as fencing, depopulation, movement restrictions and surveillance appears to have contained the disease to a localised area.

ASF is still circulating in wild boar across much of eastern Europe and in northern Italy. While the number of outbreaks in domestic pigs and cases reported in wild boar decreased considerably in 2022, for the first time (see Figure 1), there has been a marked increase in domestic pig outbreaks across Europe (see Figure 2). In summer 2023, Europe reported a significant increase of ASF outbreaks, reaching nearly 1,000 reports. This is the largest number of reports of ASF outbreaks in domestic pigs in Europe in recent years and has been driven by rapid spread of disease through domestic pig populations in Bosnia and Herzegovina and Croatia. While the number of outbreaks in these countries is unprecedented, trade between these countries and the United Kingdom is minimal. There are also import restrictions in place for EU member states and rest of world countries affected by African swine fever. These restrict the export of live pigs and pork products from regions impacted by ASF or put mitigating measures, such as heat treatment, in place to reduce the risk.

The increase in cases in wild boar during the winter period is consistent with seasonal increases from November to January seen in previous years across Europe (Risk assessment of African swine fever in the south-eastern countries of Europe (wiley.com))

(Figure 1). However, the expansion of ASF into new areas in northern Italy remains a concern, and we will monitor the situation closely.

Given the above, we consider that the risk of entry of ASF virus in live animals and products of animal origin (POAO) from affected countries, remains at **MEDIUM** (occurs regularly).

The potential high risk for non-commercial imports of pork products from ASF affected areas remains of high concern. Evidence from inspections at Great Britain ports suggest that there are several vehicles illegally bringing pork meat into Great Britain from some regions of the EU affected by ASF. Some of these instances involved large quantities of porcine POAO, some of which appear to be home-slaughtered and arrive in Great Britain from an undisclosed origin, as a non-commercial import, with poor levels of biosecurity and food hygiene. Therefore, the risk of ASF entering Great Britain, from the human-mediated pathway and moving porcine POAO, is considered to remain at **HIGH (occurs very often)**, though there is considerable uncertainty around this until data is fully collated and analysed, and we will reassess as further information becomes available.

It remains a critical time for the spread of the virus throughout Europe as well as into other regions through human-mediated routes such as introduction from non-commercial imports (including illegal imports) or fomites. On 1 September 2022, strict new controls were introduced restricting the movement of pork and pork products into Great Britain from the European Union (EU) and European Free Trade Association states. It is no longer legal to personally bring in pork or pork products weighing over 2 kilograms unless they are produced to the EU's commercial standards. This does not apply to commercial imports, which remain unaffected by the control, but Great Britain will be bringing in further controls. Although this legislation does not currently apply to non-commercial imports of pork products less than 2 kg from the EU, all travellers are strongly advised to avoid bringing, buying, ordering on the internet, or requesting any pork products – for example, fresh or frozen meat, dried or cured meats, sausages, salamis, or pâté – back to the UK from affected parts of Europe. It remains illegal for travellers to import meat or dairy products from Asia and other non-EU country areas.

Swill feeding any animal, whether pigs, poultry, ruminants, or wildlife is illegal and has the potential to cause substantial harm. We would like to emphasise to all pig keepers, pig producers, smallholders, and the general public to ensure pigs are not fed catering waste, kitchen scraps or pork products, thereby observing the swill feeding ban.

All pig keepers, whether commercial holdings or not, should remain vigilant and ensure that any visitors or seasonal workers have not had any recent contact with pigs, pig products, pig premises, wild boar (including hunting) or equipment associated with such activities in the affected regions in Europe or other affected parts of the world. As with all biosecurity, these measures are only as effective as the people using them, so proper training should be provided.

Pig keepers and veterinarians should remind themselves of the clinical signs for ASF. Any suspect cases must be reported promptly. Please see https://www.gov.uk/guidance/african-swine-fever for more information.

We will continue to monitor the situation.

Authors

Megan-Arter Hazzard

Dr Lauren Perrin

Dr Sonny Bacigalupo

References

ADIS (2024) Animal Disease Information System. Available from: https://food.ec.europa.eu/animals/animal-diseases/animal-disease-information-system-adis en. Accessed 18 January 2024

First case of ASF in Emilia Romagna. Available from: First case of ASF in Emilia

Romagna, Italy - Swine news - pig333, pig to pork community Accessed 18 January 2024

PAFF Presentations. Available from: <u>Presentations - European Commission (europa.eu)</u> Accessed 18 January 2024

Seasonal occurrence of ASF in the EU. Available from: <u>Abstract: Seasonal Occurrence of African Swine Fever in Wild Boar and Domestic Pigs in EU Member States – American Association of Swine Veterinarians (aasv.org)</u> Accessed 18 January 2024

<u>Seasonal Occurrence of African Swine Fever in Wild Boar and Domestic Pigs in EU</u> Member States - PubMed (nih.gov) Accessed 18 January 2024

Epidemiological analysis of ASF in the EU <u>Epidemiological analyses of African swine fever</u> in the European Union - - 2022 - EFSA Journal - Wiley Online Library Accessed 18 January 2024

EFSA (2019) https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2019.5861. Accessed on 29 June 2023

EFSA (2022), Baños, J.V., Boklund, A., Gogin, A., Gortázar, C., Guberti, V., Helyes, G., Kantere, M., Korytarova, D., Linden, A. and Masiulis, M.. Epidemiological analyses of African swine fever in the European Union: (September 2020 to August 2021). EFSA Journal, 20(5), p.e07290.

EFSA (2023), Ståhl, K., Boklund, A., Podgórski, T, Vergne, T., Abrahantes, J.C., Papanikolaou, A., Zancanaro, G. and Mur, L. Scientific report on epidemiological analysis of African swine fever in the European Union during 2022. EFSA Journal 2023;21(5):8016,