

UNIVERSITY OF MINNESOTA

Swine Disease Global Surveillance Report

Worldwide pork production is highly interconnected by trade between countries and markets which could increase the risk of introduction of foreign pathogens into the US.



PROJECT

The aim of these reports is to have a system for near real-time identification of hazards that will contribute to the mission of assessing risks to the industry and ultimately, facilitate early detection and identification, or prevent occurrence of events, in partnership with official agencies, and with our international network of collaborators.

Monthly reports are generated through a systematic process that involves screening various official data sources, including government and international organization websites, as well as softer sources such as blogs, newspapers, and unstructured electronic information from around the world. These data are then curated to create a raw repository.

Subsequently, a multi-criteria rubric is applied to evaluate each event. This rubric assesses factors like novelty and the potential direct and indirect financial impacts on the US market. The outcome of this rubric application is a final score assigned to each event.

These final scores, along with an epidemiological interpretation of the event's context, are published.

The interpretation encompasses details like the credibility of the information, the scale and speed of the outbreak, its connectedness to other factors, and the local capacity to respond.

These communications and the information contained therein are for general informational and educational purposes only and are not to be construed as recommending or advocating a specific course of action.



CENTER FOR ANIMAL HEALTH AND FOOD SAFETY

University of Minnesota

University of Minnesota Technical Coordination Valeriia Yustyniuk, Sylvester Ochwo, Sol Perez¹

Expert Focus group Jerry Torrison, Montserrat Torremorell, Cesar Corzo, Paul Sundberg, John Deen, Andres Perez

¹ Project coordinator. E-mail: <u>mperezag@umn.edu</u>

www.cahfs.umn.edu

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Swine Disease Global Surveillance Report

Tuesday, April 2, 2024, to Monday, May 6, 2024

Report Highlights

- **ASF in Italy:** New outbreaks triggered the expansion of restriction zones I and II in Parma province, raising concern regarding the international markets' response.
- ASF in Bulgaria: First report in domestic pigs since early 2022.
- **Crimean-Congo Hemorrhagic Fever:** A recent report presents evidence of seropositivity in wild boar and Iberian pigs.
- Classical Swine Fever Confirmed in Eastern Russia: first report since August 2020.

Surveillance at Points of Entry

• **UK border**: Physical border checks are implemented for EU-imported, medium-risk animal products. Days before new biosecurity checks on EU imports were set to begin, over 3.4 tonnes of illegal meat were seized at the Port of Dover.

MAY 2024 - OUTBREAKS BRIEF

R	Location	Report Date	Dx	Impact
2	Province of Plovdiv, Bulgaria	4/23	ASF	First report in domestic pigs since early 2022
2	6.2 miles (10 km) from Langhirano's border (Parma province), Italy	4/10	ASF	Wild boar carcasses positive for ASF.
1	Sweden	4/3	ASF	The positive carcass was skeletal remains judged to have died in August 2023 or earlier
1	Bijeljina municipality, Bosnia and Herzegovina	4/9	ASF	One farm affected - 980 animals culled
1	Southern region of the country, Romania	4/24	ASF	Over 11,000 pigs culled
1	Daloa, Ivory Coast	4/2	ASF	~200 animals affected
1	South Waziristan, Pakistan	4/2	FMD	Over 150 animals affected - potential coinfection with PPR has been reported.

Outbreaks described in the table above are colored according to an assigned significance score. The score is based on the identified hazard and potential to affect the US swine industry. Rank (R) Blue: 1 - no change in status; Red: 2 - needs extra attention as the situation is dynamic; Black: 3 - requires consideration or change in practices to reduce exposure to the US swine industry.





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African Swine Fever (ASF)

EUROPE

According to EU ADIS, in April (03/28/2024 - 04/24/2024), five European countries, namely Bosnia and Herzegovina, Greece, Romania, Serbia, and Ukraine, reported 23 outbreaks in domestic pigs. This marks an almost two-fold increase compared to the previous month, with 13 reported outbreaks. Moldova did not report any further outbreaks, but Greece and Ukraine were added to the list. The distribution of outbreaks in the region is presented in Figure 3.

Over the same period, the number of outbreaks in wild boar populations nearly doubled compared to the previous month (n=492), totaling 813 reported outbreaks across 17 European countries. Additionally, Russia reported one outbreak, according to FAO EMPRES-i. Notably, Bulgaria recorded the highest number of outbreaks at 248, followed by Poland with 171 and Italy with 162, highlighting their significant contributions to the list.

Regional Highlights

- Sweden | April 3: The first ASF case of the year has been verified. Sweden's first case of the year reported to WOAH involved finding a dead wild boar, believed to have died as early as August 2023, when the initial outbreak occurred.
- Bosnia and Herzegovina | April 9: ASF has been confirmed on a farm in Bijeljina housing 380 sows and 600 piglets. As a result, an infected area of three kilometers and a threatened area of 10 kilometers have been declared. The Ministry of Agriculture has also prohibited the trade of pigs in livestock markets due to concerns about illegal animal trade. All animals on the affected farm will be euthanized, but Bijeljina currently lacks a carcass disposal site, which is required by law. The assistant minister for veterinary affairs emphasized the importance of implementing biosecurity measures and obtaining animal health certificates to prevent the spread of ASF, which has already caused significant damage in the Republic of Srpska (Figure 1). Despite efforts to control the disease, new cases have recently been reported in Milići, Vlasenica, and Sokolac (Figure 1).



Figure 1. Republic of Srpska is one of the two entities of Bosnia and Herzegovina, the other being the Federation of Bosnia and Herzegovina; yellow dot: Bijeljina municipality; blue dots: Municipalities recently affected by ASF.

• Ukraine | April 10: Over 400 pigs were culled in the Kirovohrad Oblast - ASF outbreak in the commercial agriculture firm Svitanok. There, 40 out of 424 pigs got sick. The likely source of the infection was traced back to contact with a nearby

landfill where infected pig carcasses were disposed of previously. Local authorities have set up protection and observation zones around the affected areas. Earlier this month, the Ukrainian veterinary agency reported ASF cases at four premises keeping pigs. Among these, three were backyard herds — one each in the neighboring provinces of Kirovohrad, Mykolaiv, and Odesa. However, the affected commercial farm in Kirovohrad Oblast was over 100 kilometers from the initial outbreak location in the province.





Italy | April 10: ASF has reached the outskirts of Langhirano in the province of Parma, Italy, known for producing Prosciutto di Parma DOP (Designation of Protected Origin Status). On April 8, a wild boar carcass positive for ASF was found in Fornovo di Taro; then, a second carcass was found in Varano de Melegari (Figure 2). On April 18, these cases triggered the expansion of the restrictions zones I and II by the EU Commission, which will, therefore, be subject to strict surveillance. This could lead to challenges in international sales and a potential oversupply, causing domestic ham prices to fall. Despite the severity of the situation, the response from authorities and the Parma Ham Consortium has been criticized for its lack of urgency.

The spread of the virus, which began in Liguria, has resulted in over 1,855 wild boar carcasses discovered across seven regions and the culling of over 40,000 pigs.



Figure 2. The distribution of African swine fever outbreaks in Liguria since January 2022 and Emilia Romana, since, more recently, November 2023, northern region in Italy (in shades of pink: outbreaks reported to WOAH since January 2022 (n= 1281); within the red circle: outbreak in Fornovo di Taro and Varano de Melegari). (Source: WOAH, WAHIS).

• Czech Republic | April 15: The confirmation of the fifth case of ASF in the Czech Republic triggers the extension of restricted zones. Another wild boar captured in mid-April tested positive for the virus. Despite being located in the Liberec region, where recent cases have occurred, this infected animal was found outside the Closed Zone II. Consequently, Closed Zone II and Buffer Zone I will be expanded accordingly, per the state veterinary service's announcement. Following this, the authorities have informed WOAH about two additional cases in the Liberec region. So far, in 2024, seven ASF cases have been confirmed in wild boars, comprising two deceased and five hunted. Since the outbreak began in December 2022, 64 ASF cases have been recorded in wild boars in the Czech Republic. ASF remains limited to the wild boar population, with no instances reported in domestic pig herds.





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Figure 3. The distribution of African swine fever outbreaks in Europe (in red: domestic pigs; in green: wild boar) from April 2, 2024, to May 3, 2024. (Source: FAO <u>EMPRES-i</u>).

- Bulgaria | April 23: After over two years without any reported cases, ASF has reemerged in domestic swine in the central province of Plovdiv. The infection, detected at the end of March, affected a small herd of 11 animals. Authorities suspect that contact with wild species was the source of the infection. Before this, the last reported cases in domestic pigs were in July 2023 in locations northwest of the country. However, the disease is consistently registered in the wild boar population.
- Romania | April 24: A recent outbreak of ASF has struck a large commercial pig farm in Romania's southern county of Olt. Beginning in the third week of April, the farm reported 360 pig deaths out of nearly 11,500 animals. The remaining pigs are being culled to contain the spread of the virus. Since the first detection of ASF in Romania in 2019, over 3,000 outbreaks have been reported nationwide, primarily affecting wild boar and small backyard herds. In addition to the commercial farm, pigs from six non-commercial herds have also tested positive for ASF since mid-April. Each of these herds consisted of fewer than 11 pigs.

ASIA

In April, four countries (India, Vietnam, The Philippines, and Indonesia) reported ASF outbreaks in domestic swine, and South Korea reported cases in wild boars (Figure 4).





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Figure 4 ASF outbreak distribution in domestic pigs in Asia (April 2 to May 5, 2024). (in red: domestic pigs) (Source: FAO <u>EMPRES-i</u> - Data sources: Republic of Korea, Vietnam: WAHIS and media information, The Philippines: WAHIS and government websites, Indonesia: official database isikhnas.

Regional Highlights

- India | April 17-23: ASF cases have been reported in the states of Nagaland and Mizoram. In Nagaland, outbreaks have occurred in the Kohima district, prompting authorities to intensify control and awareness measures, although specific epidemiological details are not yet available. Meanwhile, in Mizoram, media sources indicated that ASF outbreaks in three districts occurred in April, resulting in 174 deaths and 68 pigs culled. The affected areas have implemented movement restrictions on pork and live swine. Mizoram has recorded over 2,200 swine deaths due to ASF since May 2023.
- Philippines | April: A summary of the disease situation. ASF outbreaks in the Philippines continued to pose significant challenges this year, particularly in regions IV-A, IV-B, V, and X, with Oriental Mindoro (Region IV-B) experiencing a notable increase in reported cases since January 2024 (Figure 5). The outbreak prompted authorities to implement stringent measures, including tight monitoring and restrictions on hog movement in affected areas like the towns of Naujan and Calapan, Oriental Mindoro. The situation in Oriental Mindoro reflects the ongoing struggle to contain ASF in the Philippines, as depicted in a cumulative progression map from 2019 to 2023 (Figure 6), illustrating the spread of ASF from Luzon Island to all 17 regions of the Philippines by December 2023.

Since the first ASF report in July 2019, 73 out of 82 provinces (89%) have reported ASF, and as of April 15, 2024, active ASF outbreaks remain unresolved in 66 barangays across 10





municipalities in five provinces. However, there have been some signs of progress in Luzon,



where affected areas in the Bicol Region have seen a transition from red zones (infected areas) to pink zones (buffer zones), with 72% of towns and cities in six provinces upgraded to buffer zones.

Despite ongoing ASF challenges, initial local trials for the ASF vaccine have been planned since July 2023. The <u>Department of</u> <u>Agriculture (DA) is collaborating</u> with the Food and Drug <u>Administration (FDA)</u> to expedite the approval process for ASF vaccines, with expectations of vaccine availability by the end of the year or early 2025, according to the DA.

Figure 5. ASF active outbreak distribution in domestic pigs in the Philippines as of April 26. (Source: <u>Bureau of Animal Industry</u>)



Figure 6. The cumulative progression of African swine fever (ASF) in the Philippines from 2019 to 2023. (Source: <u>Hsu, 2024</u>)

ASF has impacted the price of pork in the Philippines. According to government statistics on swine production in the Philippines, the farmgate price has risen significantly in recent years





since the first ASF outbreak. For instance, the farmgate price in the first quarter of 2019 was PhP 110.52 (US\$1.92), while in the first quarter of 2023, it had increased to PhP 170.26 (US\$2.95). This represents a 54% increase, mainly attributed to the economic impact of the ASF outbreak (see Figure 7 below).



Figure 7. Farmgate price (per kilogram) changes from the 2019 ASF outbreak to the 2023 outbreak (Source: <u>Philippine Statistics Authority (PSA)</u>)

• Vietnam | April 15: ASF situation: Since the first ASF outbreak on February 19, 2019, all provinces in Vietnam have experienced outbreaks. The number of ASF outbreaks has gradually decreased from over 6,000 in 2019 to 1,256 in 2022 and further to 714 in 2023.

As of April 12, 2024, 171 ASF outbreaks have been detected across 31 provinces, leading to the depopulation of 5,508 pigs. Although there has been a 14% decrease in the number of culled and affected animals compared to the same period last year, there has been a 61% increase in the number of outbreaks. Although these new outbreaks are across all geographical regions of the country, three provinces, Ha Nam, Quang Nam, and Lam Dong, are the most affected.

Actions taken by Vietnam since the first ASF outbreak

- The "National Plan for the Prevention and Control of African Swine Fever for the period of 2020 2025" was endorsed on July 7, 2020, outlining objectives such as enhancing biosecurity on pig farms and improving laboratory capabilities.
- The Department of Animal Health licensed two ASF vaccines, NAVET-ASFVAC and AVAC ASF LIVE, in June 2022 and February 2023, respectively.
- Authorities approved the nationwide use of these vaccines on July 24, 2023, and on April 9, 2024, they urged provincial authorities to implement preventive measures, organize vaccination campaigns, report outbreaks and vaccination results through the Vietnam Animal Health Information Management System, and establish inspection teams to supervise local disease prevention efforts.
- Indonesia | May 1: Significant increase in ASF outbreaks over the past two weeks, with cases now confirmed in five provinces since the beginning of 2024. One hundred six outbreaks have been recorded across the country, marking an increase of 23 since mid-April. Central Java and Central Sulawesi provinces reported their first cases of the year. The number of affected pigs has risen to 1,170, with East Nusa Tenggara being the most heavily impacted





province, accounting for around 750 of the affected animals. However, the situation in South Sulawesi and West Kalimantan appears stable.

AFRICA

In April, Ivory Coast (Côte d'Ivoire) and South Africa reported outbreaks of ASF to WOAH, while media in Rwanda reported outbreaks that occurred in March 2023. Ivory Coast reported the first cases of ASF in the country in almost a year. South Africa still has over 100 ongoing ASF outbreaks across the country as part of four independent long-running disease events.

Regional Highlights

• Ivory Coast | April 02: The competent veterinary authority has reported an outbreak of ASF in Daloa, Sassandra-Marahoué. This outbreak occurred on a semi-modern farm housing 193 domestic pigs, with 167 reported cases resulting in death. The remaining 26 domestic pigs were culled and disposed of. The source of this outbreak is believed to be the introduction of two animals from a farm where multiple breeders share or rent pens and where previous mortalities have been recorded. Surveillance efforts involve active and passive measures, with participation from professional groups of breeders and processors.

Ivory Coast reported ASF outbreaks to WOAH for the first time in two years, starting in mid-July 2023, with this wave of outbreaks persisting until September 2023. The initial detection of ASF in the Ivory Coast dates back to 1996, resulting in the deaths of 100,000 swine and economic losses exceeding XAF1.8 billion (US\$2.9 million). Between 2015 and 2023, an additional five series of outbreaks led to financial losses totaling XAF9.2 billion (approximately US\$15 million). In Central Africa, ASF has recently resurfaced with the first detection of the ASF virus in the Republic of Angola since 2017.

- South Africa | April 30: According to a report submitted to WOAH, two outbreaks of ASF, one in the Free State and the other in Gauteng province, were resolved in April. However, 63 ongoing outbreaks across multiple provinces are still part of a disease event that was reported for the first time on April 15, 2019. This particular disease event has accounted for 191 outbreaks since April 2019, resulting in the deaths of 23,209 domestic swine and the culling of nearly 20,000 more, affecting over 73,000 swine in total. South Africa has confirmed more than 290 ASF outbreaks, with over 100 still unresolved as part of four separate disease events that started as far back as 2019.
- **Rwanda | April 07:** Local media reported that 82 domestic pigs died in Rusizi District, which borders the Democratic Republic of Congo. Ten farmers have been affected by the ASF outbreak in a district with a population of 629 pigs. Following this outbreak, authorities have urged farmers to stop the slaughtering of dead pigs and report any suspected new cases. A ban on movement of live pigs and pork has also been placed.
- Uganda | May 01: Veterinary laboratories in Uganda receive international accreditation. Two veterinary laboratories within Uganda's national diagnostic network have achieved accreditation to ISO/IEC 17025:2017 standards. This accreditation is specifically for diagnosing zoonotic diseases such as anthrax, Rift Valley fever, and Crimean Congo hemorrhagic fever. Additionally, efforts are underway to extend this accreditation to cover transboundary animal diseases FMD and ASF. These diseases currently pose significant obstacles to Uganda's participation in the trade of animals and their products. This achievement marks a significant milestone for Uganda, as it ensures timely and accurate diagnosis of diseases that have both economic and public health implications. The accreditation was made possible with support from the USAID Infectious Disease Detection and Surveillance (IDDS) Project.





Foot-and-Mouth Disease

Asia

FMD was reported in two countries, Iran and Pakistan, affecting wild goats in Iran and cattle, sheep and goats in Pakistan. Both reports were by local media and lacked clarity on the epidemiological situation.

Regional Highlights

• Pakistan | April 02: As reported by local media, in South Waziristan, two diseases, Peste des Petits Ruminants (PPR) and foot-and-mouth disease, are rapidly spreading, resulting in the deaths of approximately 150 animals, including cattle, sheep, and goats in various villages. Veterinary officials attribute the severity of the situation to a shortage of vaccines for both diseases. Details about the epidemiology of both outbreaks, including whether some of the animals are coinfected with PPR and FMD and whether the virus strains are currently circulating, are not available. The last report to WOAH about FMD was in September 2019, which reported a new FMD serotype (O/Me-sa/Ind-2001/e) in the country.

Crimean-Congo Hemorrhagic Fever (CCHF)

A <u>study</u> conducted in southwestern Spain examined CCHF in wild boar and Iberian pigs. It found antibodies against CCHF in both populations (106 (39.7%) of 267 wild boars and seven (2.8%) of 251 Iberian pigs analyzed were seropositive), but no CCHF virus genetic material was detected in those samples. This suggests that wild boars in endemic areas have high exposure to CCHF, and extensively reared pigs are also susceptible to the virus. However, they may play a limited role in the transmission cycle of CCHF.

Since 2010, endemic circulation of CCHFV has been reported in the Iberian Peninsula in *Hyalomma lusitanicum* ticks and red deer, the primary hosts of adult specimens of this tick species. In this region, red deer populations usually share habitat and natural resources with other susceptible wild boars, another important natural host of adult ticks.

In Europe, human cases of CCHF have been traditionally reported only in southeastern countries (Macedonia, Azerbaijan, Armenia). However, shortly after the virus was detected in Spain (western Europe) in ticks collected on red deer in 2010, human CCHF clinical cases have been confirmed in western and southwestern Spain since 2013.

Mario Frías from the Universidad de Córdoba led the research in collaboration with scientists from Germany and other Spanish institutions.





CCHF Fact Box (Source: CDC factsheet)

- CCHF is caused by a tick-borne virus (Nairovirus) in the Bunyaviridae family. Hard ticks, particularly those from the genus Hyalomma, serve as both a reservoir and vector for the CCHF virus.
- Several wild and domestic animals, including cattle, goats, sheep, and hares, act as amplifying hosts for the virus.
- Transmission to humans occurs through contact with infected ticks or animal blood. Humanto-human transmission can occur after contact with infectious blood or body fluids.
- In documented outbreaks of CCHF, fatality rates among hospitalized patients have varied, ranging from 9% to as high as 50%.
- Animal herders, livestock workers, and slaughterhouse workers in endemic areas are at risk of CCHF.
- Agricultural workers and those handling animals should use DEET (N, N-diethyl-mtoluamide) containing insect repellents for effective tick protection. Wearing gloves and protective clothing is recommended.
- Treatment for CCHF is mainly supportive, focusing on maintaining fluid balance, correcting electrolyte imbalances, providing oxygenation and hemodynamic support, and addressing secondary infections.

Hepatitis E Virus

Research conducted by <u>Marina Meester</u> at Utrecht University, in collaboration with Wageningen Bioveterinary Research and nine private partners, suggests that hepatitis E virus (HEV) can be effectively contained in pigs by implementing hygiene measures and separating groups of pigs. The study found that while HEV is common in pigs, some farms were able to deliver groups of pigs without the virus. Measures such as separating pigs, using clean materials, and controlling pests can reduce infections and potentially lower the transmission of the virus to humans. Meester emphasizes the importance of consistently implementing a combination of measures to limit the spread of HEV effectively. The research increases preparedness for potential HEV outbreaks in the future and highlights the need for consistent application of preventive measures by pig farmers.

Fact box (Source: SHIC factsheet)

- HEV is zoonotic and can be isolated from many different species including pigs who are the most important animal reservoir for genotypes capable of infecting people.
- The severity of infection in humans varies from subclinical to fulminant hepatitis, along with reproductive effects.
- The virus can be found in nearly every region in the world.
- In the United States, 80 to 100% of commercial swine farms show evidence of infection with HEV.
- Although morbidity can be high, especially in pigs two to four months of age, death is uncommon.
- Most pigs acquire HEV via the fecal-oral route, however, the virus may also be transmitted in other ways, although more research is needed.
- A highly protective recombinant vaccine, *HEV 239*, has been developed for use in humans but has not been tested in swine.





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Classical Swine Fever Resurfaces in the Russian Far Eastern Region

Towards the end of March, the classical swine fever (CSF) virus was found in a backyard pig herd in Primorskiy, a region within Russia's Far Eastern federal district. Thus, two of the 72 animals on the premises succumbed to the virus. The source of the infection remains uncertain, as stated in the official report submitted to the World Organisation for Animal Health. The last known detection of this virus in the region dates back to August 2020.

Like ASF, CSF, also known as *hog cholera*, is a notifiable disease affecting pigs. Both diseases can potentially cause severe losses in domestic and wild pig populations, but they **do not threaten human health**. Despite their similar names, CSF and ASF are caused by unrelated viruses.

Surveillance at Points of Entry

United Kingdom | April 30: Physical border checks are implemented for EU-imported, mediumrisk animal products, plants, and plant products, as well as high-risk food and feed of nonanimal origin. The UK government announced significant changes to enhance biosecurity measures at the country's trade border. These adjustments aim to better detect pests and diseases in imported products, mainly focusing on those posing medium to high risks. Items categorized as posing a medium risk will now be subject to identity and physical examinations. These examinations will assess for pests and diseases that could jeopardize food safety and ecological integrity. The process includes visual inspections and temperature assessments of the goods. High-risk goods will now undergo checks at the border instead of at their destination. These measures seek to safeguard public health and the environment, addressing concerns such as salmonella and ASF. The changes come after consultations with various stakeholders. They are part of the Border Target Operating Model, designed to minimize costs for traders and consumers while ensuring the safety of imported goods. However, some businesses, especially smaller ones, have expressed concerns about the increased costs and disruptions to supply chains resulting from these new checks.

Meanwhile, days before new biosecurity checks on EU imports were set to begin, **over 3.4 tonnes of illegal meat were seized at the Port of Dover**. The meat, found in two vehicles from Romania, consisted of unmarked sheep carcasses improperly packaged and transported without temperature controls. This seizure highlights concerns over the spread of ASF to the UK and underscores the importance of biosecurity measures in protecting British supply chains.

References:

Romania

Recurrent reports reviewed WOAH - <u>WAHIS interface - Immediate</u> <u>notifications</u> WOAH - <u>WOAH Asia Regional office</u> FAO - <u>ASF situation update in Asia & Pacific</u> DEFRA - <u>Animal conditions international</u> <u>monitoring reports</u> CAHSS - <u>CEZD Weekly Intelligence Report</u> European commission - <u>ADIS disease overview</u> EUROPE Italy <u>African swine fever has arrived at the gates of</u> Langhirano in the province of Parma, home to <u>dozens of ham factories and considered the</u> <u>homeland of Parma Ham</u>

ASF hits commercial pig farm in Romania Czech Republic African swine fever - current information UK Government makes next set of crucial changes to improve biosecurity at UK's trade border Tonnes of illegal meat seized at Port of Dover days before new UK border checks Bosnia and Herzegovina African swine fever in Semberija Ukraine 7 European countries confirm ASF outbreaks in farmed pigs Due to the African Swine Fever, more than 400 pigs will be killed in a community in the **Kirovograd region**





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Spain -Frías M, Fischer K, Castro-Scholten S,
Bost C, Cano-Terriza D, Risalde M, et al.Epidemiologic Survey of Crimean-CongoHemorrhagic Fever Virus in Suids, Spain. EmergInfect Dis. 2024;30(5):984-990.https://doi.org/10.3201/eid3005.240074

ASIA

Indonesia Indonesia records spread in African swine fever cases

Abbreviations:

ASF - African swine fever CSF - Classical swine fever FMD - Foot-and-mouth disease PRRS - Porcine reproductive and respiratory syndrome SVV - Seneca Valley Virus **CCHF** - Crimean-Congo hemorrhagic fever **PPV** - Porcine parvoviral infection **WOAH** - The World Organisation for Animal

The GSDMR team compiles information drawn from multiple national (Ministries of Agriculture or Livestock, Local governments, and international sources (WOAH, FAO, DEFRA, EC, etc.), as well as peer-reviewed scientific articles. The team makes every effort to ensure but does not guarantee the accuracy, completeness, or authenticity of the information. The designation employed and the presentation of material on maps and graphics do not imply the expression of any opinion whatsoever on the part of the GSDMR team concerning the legal or constitutional status of any country, territory, or sea area or concerning the delimitation of frontiers. **Any inquiries regarding this publication should be sent to us at** <u>SwineGlobal@umn.edu</u>