

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 created based on the systematic screening of multiple official data sources, such as government and international organization websites, and soft data sources like blogs, newspapers, and unstructured electronic information from around the world, that then are curated to build a raw repository. Afterward, a group of experts uses a multi-criteria rubric to score each event, based on novelty, potential direct and indirect financial impacts on the US market, credibility, scale and speed of the outbreak, connectedness, and local capacity to respond average is calculated. The output of the rubric is a final single score for each event which then it is published including an epidemiological interpretation of the context of the event.

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.



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www.swinehealth.org/global-disease-surveillance-reports/

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Swine Disease Global Surveillance Report

Tuesday, March 1, 2022 – Monday, April 4, 2022

Report Highlights

- **First major outbreak of Japanese encephalitis in Australia:** Over 50 farms affected across four southeastern Australian states.
- **ASF in the Dominican Republic:** The confirmation rate among reported cases has stayed over 40% since November, with more than 1,150 confirmed outbreaks so far.
- **Increased Risk at Port of Entry:** The seizure of meat products from China at California seaports has increased by 33% compared to the same period of last year.
- **EFSA Technical Report:** Public consultation on the ability of ASFV to remain viable in different matrices.

OUTBREAKS BRIEF

R	Location	Date	Dx	Impact
2	Southeastern states and territories, Australia	3/1	JEV	Over 400,000 pigs affected by the outbreaks
2	Multiple locations, The Dominican Republic	March	ASF	Over 350 new outbreaks have been reported since our last report
1	Multiple locations (Kalasin, Phicit, Udon Thani), Thailand	3/3	ASF	Over 59 ASF outbreaks have been reported in 26 provinces affecting 1893 animals
1	Stanley, Hong Kong	2/28	ASF	Another three carcasses of wild boar tested positive for ASF
1	Poznan and Lower Silesia, Poland	4/2	ASF	15 new cases of ASF were detected
1	Southern Leyte (Province in Eastern Visayas), The Philippines	3/13	ASF	First report of ASF in the region - 14 backyard farmers were affected
1	Liguria and Piemonte regions, Italy	4/4	ASF	44 new cases in wild boar detected in the region in March
1	Xinjiang, China	2/28	ASF	150 affected pigs
1	South Africa	3/14	FMD SAT 2	1119 cases 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. A map with the location of the events reported is available at the end of this report.

Japanese Encephalitis (JE)

OCEANIA

Australia

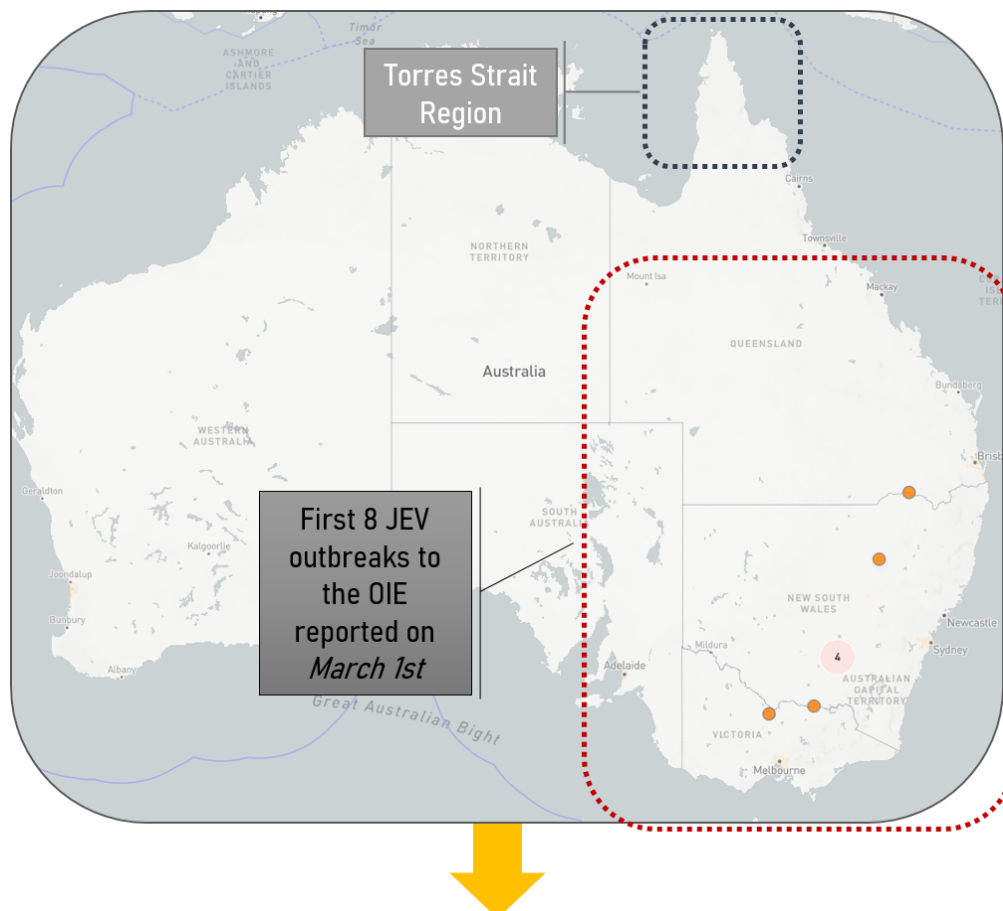
On March 1, 2022, the OIE received reports of eight swine production sites in the Australian states of Victoria, Queensland, and New South Wales that were affected by Japanese Encephalitis Virus (JEV). (Map 1). The initial reports were from unrelated pig farms spread across 930 miles (1500km), all of which were producers for SunPork Farms. The first reported affected farm was on February 25, and by April 1, more than 50 infected pig farms were reported across the eastern seaboard states of Australia and South Australia.

In the immediate notification to the OIE, Australian authorities highlighted that the situation “(...) **represents a significant change in the virus’ presence in Australia. Serological evidence of Japanese encephalitis is periodically detected in the Torres Strait region of northern Australia but has not previously established transmission on mainland Australia. Climate conditions of above median rainfall and warmer minimum temperature may be a factor in the current event.**”

Outbreaks on affected farms vary in severity, with susceptible swine populations ranging from five to 100,000 animals. Reported clinical signs of JEV included:

- Increases in the number of abortions
- Extended gestation period; after induction litters from affected sows presented mummified fetuses and stillborns
- Live-born piglets demonstrated neurological signs of shaking and tremors with no suckle reflex and poor survival beyond expected levels for the farm

As of April 1, over 400,000 susceptible animals have been affected by the outbreak in Australia.

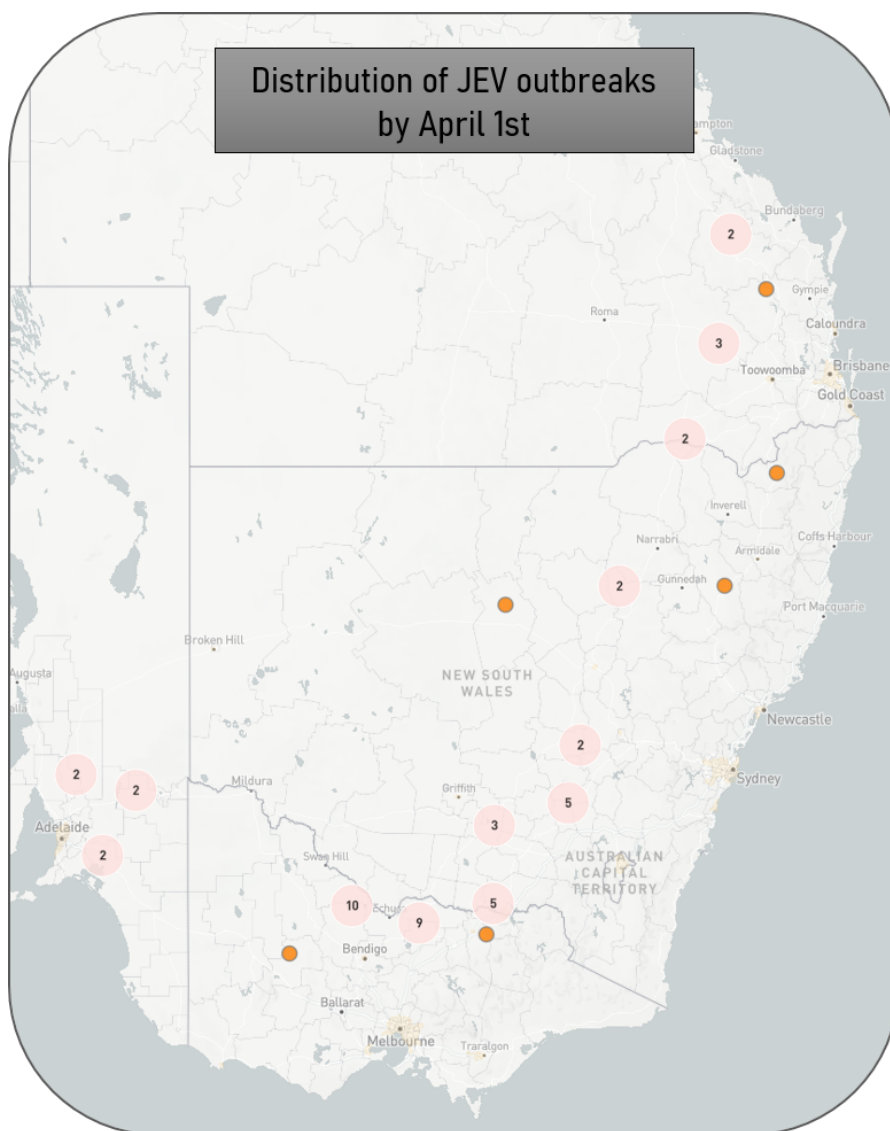


The first reported farms in Queensland and Victoria experienced a mummy storm, with 30% and 45% of the litters affected, respectively. Meanwhile, the first South Australia farm experienced only stillbirths with no increases in numbers of mummified fetuses rising above baseline for the farm.

Samples were taken from the initial four farms in mid-January and, on retroactive testing, were positive for JEV.

Public Health Impact

As of April 4, 2022, there are 35 human cases of Japanese Encephalitis Virus in Australia, with 24 confirmed with definitive laboratory evidence (nine cases were reported in Victoria, eight in New South Wales (NSW), three in South Australia and two in Queensland). The other 11 are probable cases where the person has been linked epidemiologically and/or has symptoms of the disease and has laboratory suggestive evidence but cannot entirely rule out other related flaviviruses.



Map 2. Current distribution of JEV outbreaks in Southeastern Australia

Three deaths have been reported in NSW, Victoria, and South Australia. An outbreak was declared by Australia's Chief Medical Officer on March 4, 2022, signaling JEV as a Communicable Disease Incident of National Significance (CDINS).

Japanese Encephalitis Virus (JEV) is a flavivirus endemic to the Asia-Pacific region, spread by mosquitoes. Other viruses in the flavivirus family include Yellow Fever, Dengue, and Zika Virus, which have been known to be endemic in Australia, excluding JEV.

Previously, the only known risk for JEV was the far northern tip of Queensland, closest to Papua New Guinea. Mosquitoes spread the virus to humans who are dead-end hosts as they do not produce a viral load capable of reinfection. Pigs, however, are highly sensitive indicators of JEV and

generate a viral load capable of reinfecting mosquitoes, making the species an amplifying host for the disease.

JEV is a nationally notifiable disease in humans and animals and is a Category 1 Emergency Animal Disease. JEV causes an estimated 70,000 cases worldwide of viral encephalitis annually, with less than 1% of people infected developing severe disease, but with a 20–30% mortality rate.

African Swine Fever

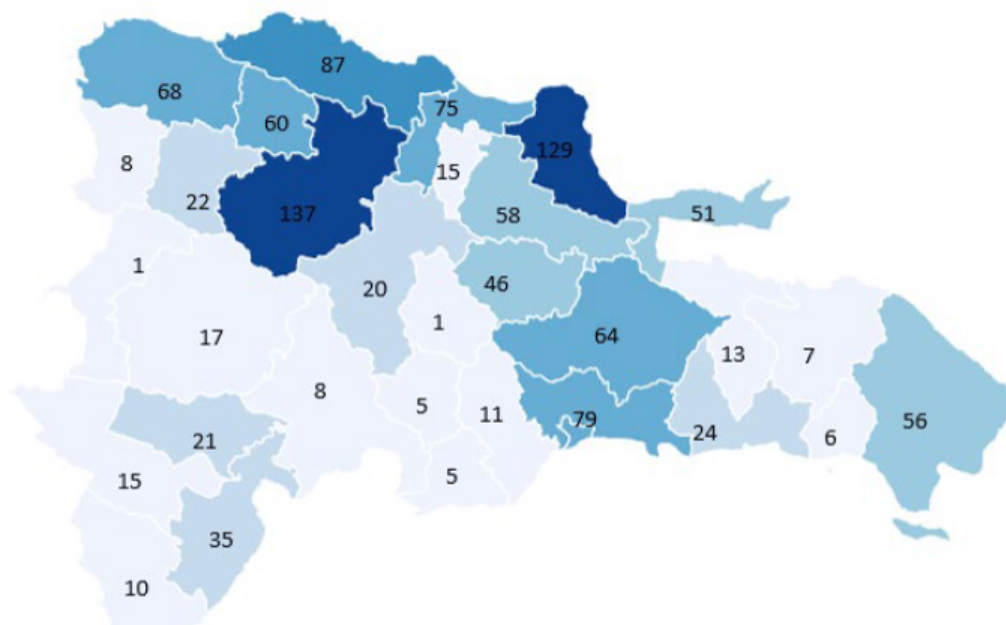
AMERICA

The Dominican Republic

Since the start of the epidemic (period between July 25, 2021 - March 25, 2022), only 221 of the 1,150 confirmed outbreaks (by the Dominican authorities) have been reported to the OIE (last follow-up report - 2/16/22). The total loss of animals throughout these 221 outbreaks is over 18,000. The majority of these reports are from backyard premises with less than 100 pigs, although some feature community-style backyard operations with up to 1,000 pigs.

The Epidemiology Division, Department of Animal Health (DAH), Directorate of Livestock, Ministry of Agriculture in the Dominican Republic, implements the early alert reporting system, where all suspected cases are reported. There are some backlogs in their submission to OIE, inherent to the burden and challenges associated with investigating each suspected case that is reported.

Until March 25, authorities had confirmed by molecular diagnosis 1,150 outbreaks in 30 provinces; 813 of those outbreaks have been resolved (Map 3).



Map 3. Distribution of confirmed accumulated cases of ASF in the Dominican Republic since the first case in July

Samples from over 2,629 production sites have been taken and processed by Dominican veterinary services; 43.74% (1,150) of these samples tested positive. It is important to note that the positive rate

hasn't changed since November, denoting the continuous and steady spread of the virus throughout the population.

The U.S.

Increased Risk at Port of Entry

- **The seizures of banned meat products from China at the Los Angeles / Long Beach seaport have increased by 33% compared to the same period of last year.**

In the first quarter of the fiscal year 2022 (October-December 2021), U.S. Customs and Border Protection (CBP) intercepted 262,237 pounds (118,949 kilograms) of banned products from pork, chicken, beef, and duck. According to USDA, China is affected by ASF, CSF, vND (virulent Newcastle Disease), FMD, HPAI, and SVD. Most animal-origin products were found commingled in boxes of e-commerce shipments and household goods, indicating the intention to smuggle prohibited meat.

- **CBP's team seized a large cargo of animal products:** On March 15, at Laredo Port of Entry (TX) in a single enforcement action seized more than 120 pounds of prohibited fresh pork and poultry meat.

EUROPE

In March (03/01/2022 - 04/04/2022), the number of countries reporting new ASF cases in domestic pigs decreased from five reported cases in February, to only one, Romania. This brings the number of new ASF outbreaks in domestic pigs since the beginning of the year to 113 animals. Showing a similar rate to February's report (n=68).

In the interim, **11** European countries (Bulgaria, Estonia, Germany, Hungary, Italy, Latvia, Lithuania, North Macedonia, Poland, Romania, Slovakia) and Russia continue to register new ASF outbreaks among the wild boars. (European Commission Animal Disease Information System (ADIS), OIE-WAHIS).

According to the latest update from ADIS (3.30) and OIE, 2796 new ASF cases were reported among the European wild boar population of 12 countries in 2022, almost 1.5 times more than was registered in February 2022 (n=1903).

Regional Highlights:

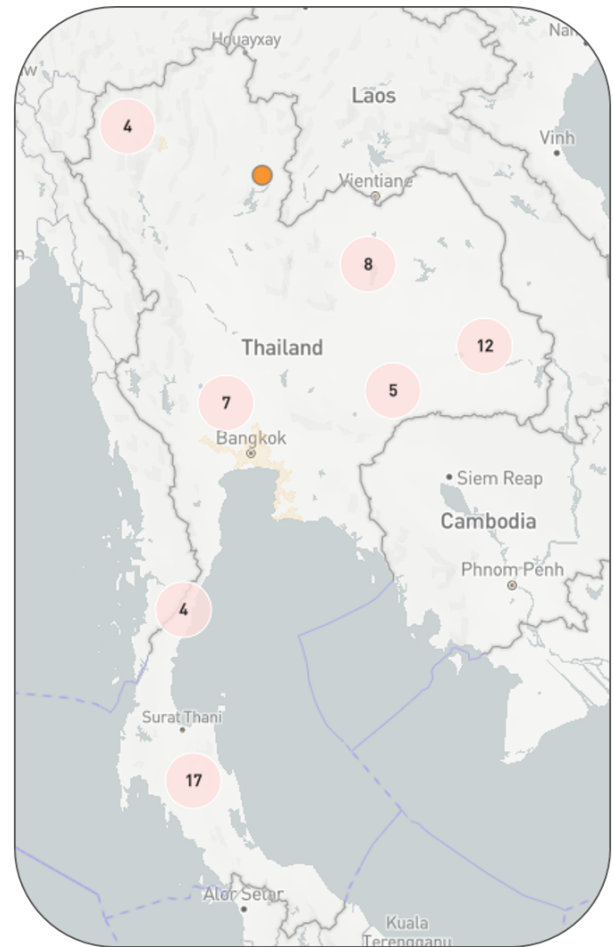
- **Italy:** Based on the information provided by the Experimental Zooprophyllactic Institute of Piedmont, Liguria, and Valle d'Aosta and reported to the OIE, the current toll of ASF cases in wild boar is 83 cases, of which 51 in Piedmont and 32 in Liguria.
- **Russia:** reports the recurrence of ASF in wild boars in the territory where the disease was not present for almost eight months (Bagaevskoe, Rostov oblast).
- **Poland:** Presents the highest number of new ASF cases reported among wild boars in the region.

ASIA

In February, five countries - Thailand, Indonesia, The Philippines, Malaysia, and Vietnam - reported additional ASF outbreaks in domestic swine. While South Korea continued to report ASF cases in wild boar.

Regional highlights

- China:** Media quoted that the Chief Veterinary Officer of the China Animal Disease Control Center informed that test results performed throughout 2021 showed that breeding, transportation, slaughter as well as disposal sites surfaces are still contaminated with ASF virus nationwide; reducing the contamination and disease risk in the short term may be difficult. (To access the automated translation of the media article → [LINK](#)).
- Thailand:** Since the Department of Livestock Development announced in January the confirmation of ASF in pet pigs in Bangkok, over 59 ASF outbreaks have been reported in 26 provinces (26/76 total) across the country (Map 4), affecting 1893 animals.
- Vietnam:** Two more ASF outbreaks have been reported in 2022. On February 25, an outbreak was reported in Con Minh, Bac Kan province. On March 4, an outbreak was reported in Bao Ha, Lao Cai province. The magnitude of disease spread and the number of farms and pigs affected is still unknown.



Map 4. Current distribution of outbreaks in Thailand

- Genetic analysis reveals the circulation of multiple variants of ASF**

A study of the genetic profiles of ASF positive samples from outbreaks in Vietnam during 2019–2021 discovered the existence of three ASFV genotype II variants, namely IGR I, IGR II, and IGR III. Detection of these ASFV variants was made possible by performing a genetic analysis of a small section between genes I73R and I329L of the ASF virus, which gives a finer level of discrimination among closely related ASF viruses and provides a more accurate assessment of the origin of outbreaks. This section between two genes is referred to as an intergenic region, abbreviated as IG, and forms the basis for virus strain nomenclature. This fine-level genomic analysis revealed that one of the variants (IGR III) discovered in Vietnam's northern regions may have originated in China.

Foot and Mouth Disease (FMD)

AFRICA

South Africa

FMD has been confirmed in the provinces of North West, Limpopo, and KwaZulu-Natal. In North West province, a case of FMD was confirmed on a commercial stud farm after the Provincial Veterinary Services conducted epidemiological investigations and positive laboratory results confirmed the diagnosis. An outbreak was also detected in the previous FMD-free zone at Collins Chabane Municipality in Vhembe, Limpopo, in March 2022. According to the department, the infections were detected in two locations in the former FMD-free zone, involving cattle in communal grazing areas. In KwaZulu-Natal province, the department reported that the FMD outbreak is continuing, and a vaccination campaign has commenced in two affected locations in Mthonjaneni Municipality and uMlalazi Municipality.

The department advised all farmers, including livestock owners, industry members, and other stakeholders, to follow the animal movement restrictions in the affected areas in Limpopo and KwaZulu-Natal provinces. The department also asked all farmers, livestock owners, industry members, and other stakeholders around the country to exercise prudence while purchasing cattle.

Research Focus

First Evidence of PED Vertical Transmission

Transplacental Transmission of Porcine Epidemic Diarrhea Virus - Ryu, et al.

Front. Vet. Sci., 15 March 2022 | <https://doi.org/10.3389/fvets.2021.802816>

The porcine epidemic diarrhea virus (PEDV) belongs to the coronaviruses family and poses a significant threat to the welfare of pigs and economic losses to the swine industry through the rapid spread of the disease and high mortality rates among piglets. In order to put in place effective control measures, it is crucial to understand how the virus is transmitted within the population. Unlike various transmission routes common to other swine viruses, such as fecal-oral or through contaminated feeds and fomites, the vertical route of PEDV transmission was not previously reported. However, for the first time, scientists from South Korea confirmed possible transplacental transmission of PEDV, contributing to the establishment of better control measures for the disease.

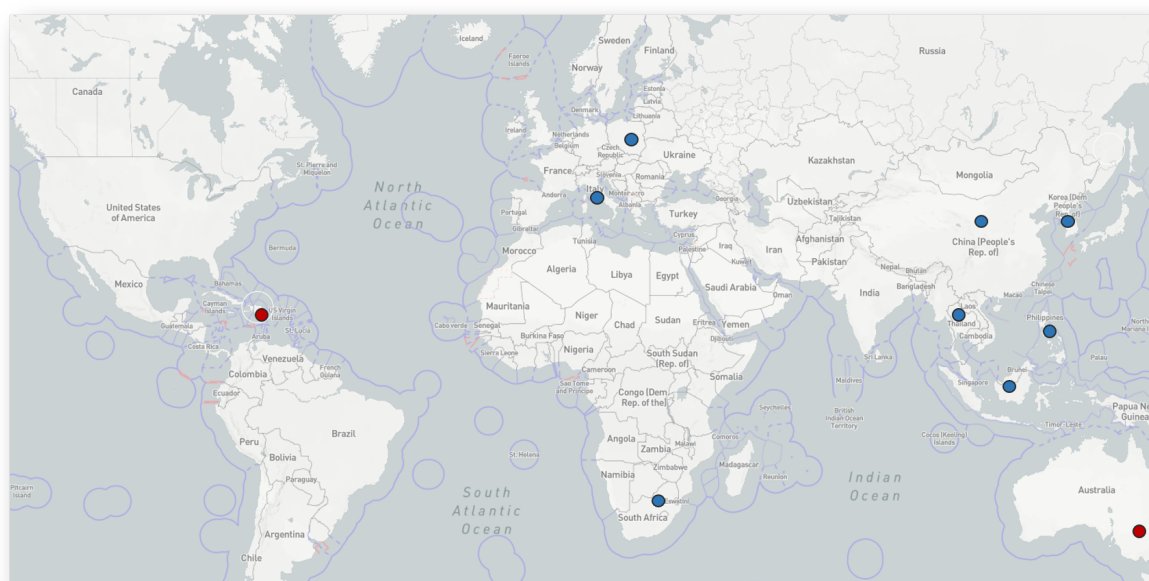
In this study, researchers found PEDV in the testicle tissues from piglets and in the umbilical cords from PEDV-positive sow by molecular and immunological analysis with further isolation of PEDV from umbilical cords. Thereby, the vertical transmission route from sow to piglet through the placenta was evidenced. Followed by other complementary studies, this finding might contribute to the design of the vaccination program as effective control of PED.

Public consultation on the ability of ASFV to remain viable in different matrices
Scientific opinion on Risk assessment of African swine fever and the ability of products or materials to present a risk to transmit ASF virus - [European Food Safety Authority \(EFSA\)](https://doi.org/10.2903/sp.efsa.2022.EN-7183)
Technical report from 01 March 2022 | <https://doi.org/10.2903/sp.efsa.2022.EN-7183>

The European Food Safety Authority (EFSA) was asked by the European Commission to review the evaluation of the ability of matrices, including vegetables, arable crops, hay and straw as well as sawdust, wood chips and similar materials likely to present a risk to transmit ASF. The purpose of public consultation on the draft data section was to collect feedback and to identify the completeness of the data on ASFV survival in the different categories of matrices identified in the literature review, pinpoint other studies that had not been considered, and accumulate knowledge on the production and processing parameters that might affect ASFV survival.

From February 3-29, 2020, 21 different stakeholders have submitted 51 comments and 17 documents regarding the data provided, as well as their suggestions on additional categories of matrices that should be considered by the AHAW Panel regarding the risk of transmitting ASFV to domestic pigs.

EFSA technical report provides an overview of the comments received from the stakeholders and the responses from EFSA, as well as presents an updated version of the data section, which is a part of the Scientific Opinion on the evaluation of the ability of matrices to transmit ASFV, published in the EFSA Journal (EFSA, 2021; to access to full report → [LINK](#)).



Map 5. Location of the outbreaks reported throughout December. 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

References:

Recurrent reports reviewed

OIE - [WAHIS interface - Immediate notifications](#)

OIE - [OIE Asia Regional office](#)

FAO - OIE - [WAHIS interface - Immediate notifications](#)

DEFRA - [Animal conditions international monitoring reports](#)

CAHSS - [CEZD Weekly Intelligence Report](#)

European commission - [ADIS disease overview](#)

AMERICA

The Dominican Republic

<https://n.com.do/2022/02/27/abinader-asegura-que-la-pesto-porcina-africana-esta-bajo-control/>

<https://listindiario.com/economia/2022/02/09/708281/la-fiebre-porcina-sigue-causando-sus-estragos>

<https://www.univision.com/local/puerto-rico-wlii/federales-freno-cerdos-salvajes-67-pueblos-puerto-rico>

The US

<https://www.feedstuffs.com/news/animal-food-contraband-china-remains-record-levels-seaport>

<https://www.nationalhogfarmer.com/news/cbp-seizes-124-pounds-pork-poultry-laredo-port-entry>

EUROPE

Italy

<https://tg24.sky.it/torino/2022/04/04/peste-suina-piemonte>

<https://www.cacciamagazine.it/casi-di-pesto-suina-africana-in-italia-superata-quota-80/>

Poland

ASIA

China

http://journal.crnews.net/ncpsczk/2022n/d1q/cmyy/945794_20220311064953.html

HongKong

https://www.afcd.gov.hk/english/publications/publications_press/pr2550.html

OCEANIA

Australia

<https://www.health.gov.au/health-alerts/japanese-encephalitis-virus-jev/about>

<https://www.newscientist.com/article/2312539-australias-japanese-encephalitis-outbreak-blamed-on-climate-change/>

<https://wwwnc.cdc.gov/travel/notices/alert/japanese-encephalitis-australia>

The GSDMR team compiles information drawn from multiple national (Ministries of Agriculture or Livestock, Local governments, and international sources (FAO, OIE, DEFRA, EC, etc.), as well as peer-reviewed scientific articles. The team makes every effort to ensure but does not guarantee 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.

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