Swine Health Information Center

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CENTER FOR ANIMAL HEALTH AND FOOD SAFETY

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 Perez[1]

Expert Focus group

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

[1] Project coordinator. E-mail: *mperezag@umn.edu*

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Swine Disease Global Surveillance Report

Tuesday, February 6, 2024, to Monday, March 4, 2024

Report Highlights

- **African Swine Fever in Europe**: Albania has become the 28th European country to confirm the presence of ASF, genotype 2, since the virus was introduced to the continent in 2007.
- **Control of wild boar populations in Europe**: Authorities in Italy, Poland, Estonia, and Norway have issued statements outlining measures to control the wild boar population as a strategy to combat ASF.
- **ASF in pork meat in Asia**: Nearly 10% of Chinese meat products tested positive for ASF during Taiwan's border inspection. Strict border inspections have been effective in preventing high-risk products from entering, as evidenced by a decrease in fines from 3.61 cases per 10,000 passengers to 2.85 from 2019 to 2023, respectively.
- **WOAH's Thematic Study on Zoning**: WOAH has launched its first thematic study through the Observatory program, focusing on the international standard of zoning. The study assesses the implementation of zoning for avian influenza, ASF, and foot-and-mouth disease, highlighting its use, challenges, and impacts.

MARCH 2024 - OUTBREAKS BRIEF

R	Location	Report Date	Dx	Impact
2	**Kukës county, located in the country's northeast region, Albania**	2/9	ASF	Wild boar - this area is 15 km away from the Kosovo border and 30 km from the North Macedonia border.
1	**Multiple locations (including Kathmandu, Lalitpur, Tanahun, Lamjung, and Kaski), Nepal**	2/9	ASF	Several districts affected across Nepal. No further information available.
1	**Districts of Al Jabal al Akhdar, Tripoli, and Al Marqab, Libya**	2/5-23	FMD	Six new outbreaks due to FMDV serotype O - mortality rate ≃25%.
1	**Njazídja, an autonomous island of Comoros**	2/18	FMD	First report since December 2022.
1	**In the municipality of Toledo, State of Paraná, Brazil**	1/16	Influenza H1N1	A laboratory-confirmed human infection with swine-origin influenza A (H1N1) variant virus.
1	**Cataluña, Spain**	1/29	Influenza H1N1	A laboratory-confirmed human case of swine-origin influenza A (H1N1) variant (v) virus

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.

African Swine Fever

Regional Highlights

EUROPE

In February (02/01/2024 - 02/28/2024), six European countries (Bosnia and Herzegovina, Greece, North Macedonia, Romania, Serbia, and Ukraine) reported 18 outbreaks in domestic pigs. Even though the disease re-emerged in North Macedonia, the overall number of outbreaks decreased 1.4 times compared to the previous month (n=26). The distribution of outbreaks in the region is presented on Figure 1.

Meanwhile, the spread of the disease persists within the wild boar population. Over the same time frame, 18 countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Moldova, North Macedonia, Poland, Romania, Serbia, Slovakia, and Ukraine) reported a total of 609 outbreaks. The majority of outbreaks were reported in Italy (n=164), Poland (n=136), followed by Latvia (n=58), and Hungary (n=47). Albania recently confirmed its inaugural ASF outbreak in wild boars, becoming the 28th European country to report the disease. This underscores the challenge Europe faces in controlling the disease among wild boars, prompting the adoption of various control strategies. The distribution of outbreaks among wild boar population by country is presented in Figure 2.

- **Italy | February 6: The Department of Agriculture in the Campania region has authorized "control with endorsement" interventions on wild boars within the ASF-restricted area I to combat ASF.** Members of the wild boar hunting team operating in the designated municipalities will carry out these interventions. The authorization is effective from February 10 to March 31, 2024, on Thursdays, Saturdays, and Sundays from 8:30 am to 1:30 pm. Participants must possess a "bioregulator" card, a valid firearms license, and insurance coverage and comply with all regional and government requirements.
  In addition, the neighboring Basilicata Region has approved urgent intervention plans for 2024 to be implemented both in the areas of restriction I and II of the province of Potenza and in the regional territory free from ASF contamination. After consulting with the relevant authorities in the Campania Region to develop a unified intervention strategy tailored to the unique characteristics of each area, the Regional Eradication Plan in accordance with the *"Extraordinary Plan for capturing, culling, and disposing of wild boars (Sus scrofa)"* was endorsed. This plan encompasses six strategic actions aimed at combating the spread of ASF, including strategic actions such as actively searching for carcasses, depopulating wild boar species, implementing biosecurity measures in pig farms, installing physical barriers, managing waste properly, and exploring alternative containment methods. The approval allows interventions to be carried out in areas free from ASF to prevent its spread and prepare for early detection and containment. A collaborative approach involving various stakeholders is emphasized to minimize the impact on the region's production chain, tourism, and rural development.

- **Poland | February 7: Provincial governors have ordered the culling of over 6,500 wild boars across three provinces by March 2024 to prevent the spread of ASF virus to domestic pigs and protect local agriculture.** However, activists argue that culls are ineffective and advocate for better biosecurity measures. Despite previous culling efforts, only a small percentage of boars were found to be infected. Activists highlight the role of human transmission, particularly by hunters, in spreading the virus. Meanwhile, the agriculture ministry is proposing stricter regulations to mitigate the spread of ASF, including enhanced biosecurity measures on farms and restrictions on handling boar carcasses.

- **Albania | February 10: The first ASF outbreak in wild boar reported to the WOAH.** Albania has become the 28th European country to confirm the presence of ASF, genotype 2I since the virus was introduced to the continent in 2007 via Georgia and Armenia. The recent outbreak was officially reported to WOAH. It was discovered when two carcasses of infected wild boar were found in a forest in Kukës county, located in the country's northeast region, on February 9, 2024. This area is approximately 15 km from the Kosovo border and 30 km from the North Macedonia border.

- **Estonia | February 13: 60% wild boar reduction plan to combat ASF amid financial strain.** The plan involves culling 15,000 wild boar out of a total population of 25,000 to achieve a target density of three head per 1,000 hectares of land. Similar measures are being considered in Latvia. Previous resistance from environmentalists raised concerns about potential impacts on biodiversity. Additionally, Estonian authorities seek compensation for pig farmers affected by ASF outbreaks as the government grapples with budgetary constraints in covering losses and lacks the necessary funds for compensation.

- **Norway | February 19: A series of measures, including a potential fence along its border with Sweden, are being considered to eradicate its wild boar population and prevent the spread of ASF.** Norway has revised its national plan for wild boar control in response to detecting ASF in neighboring Sweden. The new plan aims to eradicate the wild boar population nationwide to protect Norway's pig industry. To achieve this goal, Norwegian authorities are intensifying measures such as monitoring wild boar populations, regulating the sale of wild boar meat, and considering the installation of fencing along the border with Sweden. Additionally, farmers with outdoor pig holdings will be required to establish suitable barriers if wild boar are nearby. Both the Norwegian Food Safety Authority and the Environment Agency stress that the costs of these measures are justified compared to the potential economic impact of an ASF outbreak in the pig sector. Although Sweden has no active cases of ASF, Norway is taking proactive steps to minimize the risk to its pig farming industry and outdoor activities. The plan may involve slaughtering up to 2,000 wild boars, improving hunting efficiency, and mandating producers to implement boar-proof fences. However, further investigation is required before implementing these proposed measures.

- **Latvia | February 27: The situation regarding the spread of ASF in wild boar is consistently bad.** According to the head of Latvia's Food and Veterinary Service's animal infectious diseases monitoring division, since the onset of the second epidemiological wave in summer 2021, the virus has continued to advance, with the affected area expanding. The need for intensified hunting to regulate the situation long-term while urging pig farmers in affected areas to take special precautions to protect their livestock was emphasized.

Vax4ASF: Advancing Next-Generation African Swine Fever Vaccines in Europe

A new European project called Vax4ASF has been initiated to develop a vaccine against the ASF virus. Led by the biotechnological pharmaceutical company HIPRA and supported by the European Union under the Horizon Europe program, the project aims to provide a definitive solution against ASF, which affects pigs and wild boars. With the collaboration of 17 international partners, including renowned institutions and organizations from various countries, the project seeks to effectively innovate vaccination approaches to control the virus worldwide. The consortium, consisting of stakeholders from Europe, the United States, and Kenya, held its inaugural meeting in late January to kickstart this ambitious endeavor. The project will focus on controlling the replication level of the virus for the development of next-generation vaccines while also emphasizing the importance of diagnostic tests and collaborative surveillance strategies. Through pioneering improvements and innovative policies, Vax4ASF aims to combat ASF and safeguard the global pig industry with the active involvement of key stakeholders.

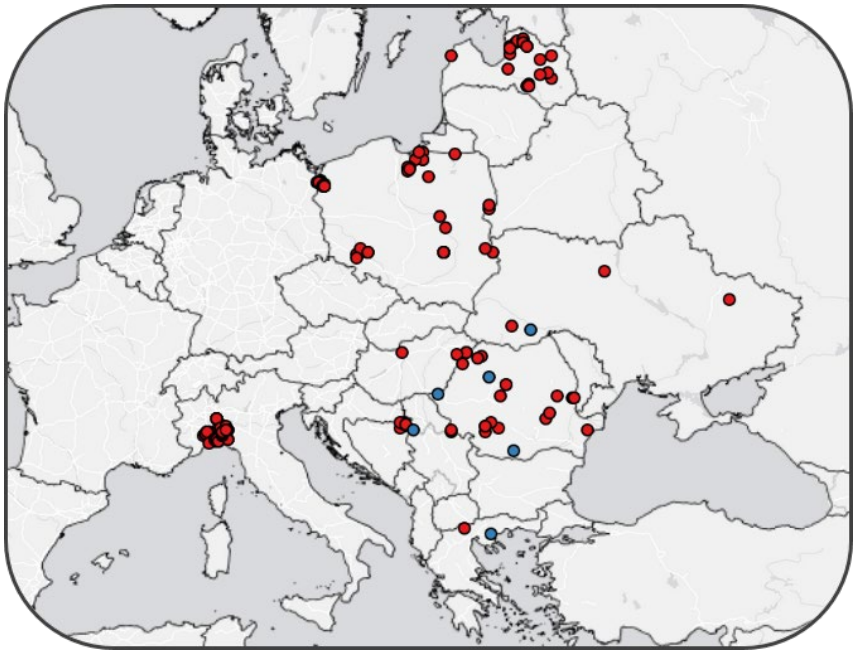

Figure 1. The distribution of African swine fever outbreaks in Europe (in red: wild boar; in blue: domestic pigs) February 5, 2024 - March 5, 2024. (Source: FAO EMPRES-i).

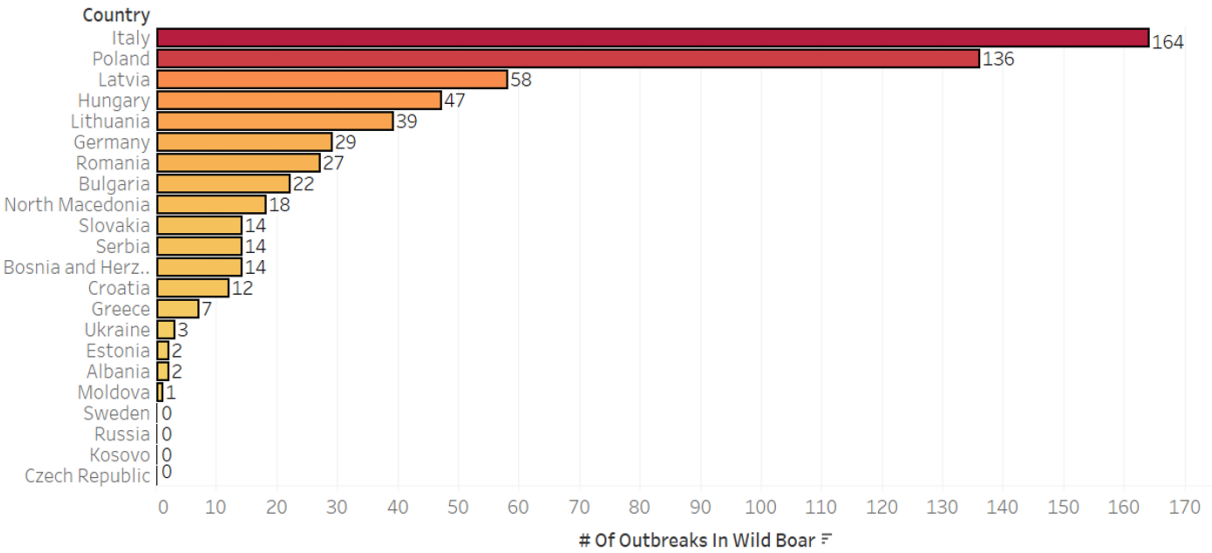

Figure 2. Distribution of African swine fever outbreaks in wild boar among European countries: February 5, 2024 - March 5, 2024. (Source: ADIS system).

ASIA

Eight countries (Bhutan, Hong Kong (China), Nepal, Vietnam, The Philippines, India, South Korea, and Indonesia) reported ASF outbreaks in domestic swine in February. South Korea reported new ASF cases in wild boars (Fig. 3).

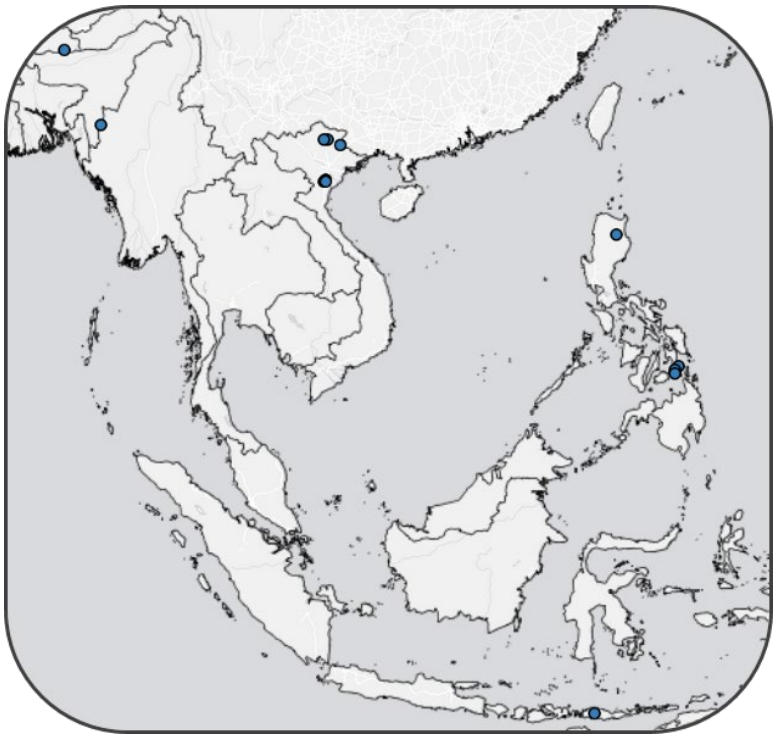

Figure 3. ASF outbreak distribution in domestic pigs in Asia (March 5, 2024). (in blue: domestic pigs) (Source: FAO EMPRES-i - Data sources: Republic of Korea, Vietnam: WAHIS and media information, The Philippines: WAHIS and government websites, Indonesia: official database "isikhnas,")

Regional Highlights

- **Bhutan | February 09: First ASF outbreak in Bangyul, Pemagatshel district.** The Ministry of Agriculture and Livestock confirmed the outbreak in a backyard swine farm with six susceptible hogs. One case and one death were reported on this farm, and three pigs were culled. The source of this outbreak is believed to be through swill feeding. ASF has now been reported in seven districts of Bhutan since its first incursion in 2021.

- **Nepal | February 09:** Reports from local news sites indicate that new ASF outbreaks have been detected in several districts across Nepal, including Kathmandu, Lalitpur, Tanahun, Lamjung, and Kaski. Epidemiological details of these new outbreaks are, however, not yet available. The most recent official report to WOAH from Nepal indicates that three new outbreaks occurred in January 2024, and 43 outbreaks are still ongoing throughout the country. Measures such as biosecurity practices, border and internal quarantine, monitoring, surveillance, and awareness programs are being implemented to address the situation.

- **Taiwan | February 6: Nearly 10% of Chinese meat products tested positive for ASF during Taiwan's border inspection.** The Prevention and Inspection Administration held its 29th African Swine Fever Central Disaster Response Center meeting to address the issue. Statistics revealed that out of 6,795 inspected meat products from mainland China, Vietnam, Thailand, and Malaysia, 639 were positive for the virus, resulting in a 9.4% positive viral nucleic acid

detection rate. China accounted for 83% of these cases, indicating the country as the highest-risk source. Strict border inspections have been effective in preventing high-risk products from entering, as evidenced by a decrease in fines from 3.61 cases per 10,000 passengers to 2.85 from 2019 to 2023, respectively. Stringent measures are being directed towards the approaching Chinese New Year holiday season, characterized by heightened travel and shopping endeavors. Authorities are urging the public to comply with regulations to avoid fines and safeguard against the spread of the epidemic.

- **The Philippines | February 28: Current landscape in the control of ASF.** The success of ASF control varies across provinces in the Philippines. According to the latest zoning status, out of the country's 82 provinces, 60 are still classified as infected zones, encompassing 492 towns. As of February 6, there were 118 villages (barangays) in 34 municipalities of 15 provinces with active ASF cases. However, local media have reported major new ASF outbreaks that occurred in Southern Leyte Province and Cagayan Valley. In Cagayan Valley, the outbreaks affected a farm in Tuguegarao City, leading to 33 domestic pigs being affected. In Southern Leyte Province, three towns were impacted: Silago reported 99 affected farmers with 489 cases, Malitbog had 48 affected farmers with 448 cases, and Bontoc town is yet to submit its report.

Foot-and-Mouth Disease

Africa

In February 2024, new FMD outbreaks were reported in five African countries (Comoros, Libya, South Africa, Uganda, and Zimbabwe). As part of efforts to control the spread of FMD, Algeria increased their FMD vaccination coverage, and Uganda made plans to procure 10 million vaccine doses.

Regional Highlights

- **Comoros | February 18:** A new FMD outbreak was confirmed in Njazídja, an autonomous island of Comoros. The outbreak, believed to have started in January 2024, has affected both goats and cattle on the island. A report submitted to WOAH confirms one case in a goat and three cases in cattle out of a susceptible population of nine animals. In December 2022, Comoros reported the first outbreaks of FMDV SAT1, and these incidents occurred on Njazídja island. The disease events have not been resolved despite implementing control measures such as disinfection, movement control, zoning, and surveillance. Notably, vaccination has not yet been administered. According to the latest follow-up report submitted by Comoros to WOAH, the country currently has 31 ongoing (unresolved) FMD outbreaks.

- **Libya | February 5 - 23: Six new outbreaks due to FMDV serotype O were reported.** These outbreaks have affected goats, sheep, and cattle on farms in the districts of Al Jabal al Akhdar, Tripoli, and Al Marqab, leading to significant mortality rates. In Al Jabal al Akhdar, two outbreaks resulted in 110 deaths and 454 cases within a susceptible population of 657 animals. In Tripoli, seven deaths and 60 cases were reported in a farm with 200 susceptible sheep. In Al Marqab, three outbreaks occurred, causing 123 deaths and 492 cases among 1330 susceptible animals. These outbreaks are part of a disease event that began in December 2023, resulting in 348 deaths and 1428 cases among 3883 susceptible goats, sheep, and cattle. Local authorities have not yet implemented vaccination as a measure to control the outbreaks.

- **Zimbabwe | February 26: Livestock quarantine order issued in two districts due to new FMD outbreaks.** According to local news outlets, The Department of Veterinary Services issued a quarantine order on February 26 in response to new FMD outbreaks in two districts, Buhera and Chikomba. The order applies to livestock development committees and stock owners,

placing both districts under indefinite quarantine with no movement allowed for ruminants and pigs. The directive mandates the immediate reporting of sick animals, vaccination or inspection of all cattle upon the Department of Veterinary Services' request, and reporting any illegal livestock movement to the police or DVS. While the FMDV serotype responsible for the outbreaks is yet to be confirmed, Zimbabwe is on high alert for a potential incursion of serotype O, which has recently emerged in Mozambique and Zambia, countries sharing borders with Zimbabwe. The last official report to WOAH from Zimbabwe, dated March 23, 2023, indicated successful control of outbreaks attributed to Serotype SAT2.

- **Uganda | February 06:** The Ugandan government aims to import 10 million doses of FMD vaccines to bolster ring vaccination efforts, responding to the recent widespread outbreaks across the country. The government's proposal entails that, after ring vaccination, farmers will be required to pay for FMD vaccines through a compulsory vaccination scheme, and trading in animal products will be restricted to those adhering to the vaccination plan. FMD is endemic in Uganda, with serotypes O, A, SAT1, and SAT2 commonly circulating in different geographical areas. Previous attempts to control FMD in Uganda faced challenges such as low vaccination coverage and the use of vaccines with unverified levels of protection. These obstacles have hindered successful control of the disease in the country.

Swine Influenza A (H1N1)

Brazil | January 16: A laboratory-confirmed human infection with swine-origin influenza A (H1N1) variant virus in the municipality of Toledo, State of Paraná, reported to the World Health Organization. The infected patient, an adult male with underlying medical conditions, developed symptoms on December 12, 2023, and was hospitalized four days later. Despite having no history of exposure to pigs, the patient fully recovered without receiving antiviral treatment. This is the first human infection with an influenza A (H1N1)v virus reported in Brazil in 2024 and the ninth case of a human infection with a swine variant virus reported in the state of Paraná since 2015. The risk of community-level spread or international disease spread is considered low, and WHO emphasizes the importance of global surveillance and timely virus sharing for risk assessment. Surveillance and collaboration between animal and human health sectors remain crucial in monitoring and addressing emerging infectious diseases.

Spain | January 29: Spanish health authorities notified the WHO of a laboratory-confirmed human case of swine-origin influenza A (H1N1) variant (v) virus in Lleida province, Catalonia, Spain. The patient, an adult male working on a pig farm, developed symptoms on November 25, 2023, including fever and cough, and subsequently recovered without antiviral treatment. No secondary cases were identified among close contacts, and follow-up of other farm workers showed no symptoms. The risk of community or international disease spread is deemed low.

Fact box: Influenza A viruses of swine | Epidemiology

Swine influenza is a respiratory disease of pigs caused by type A influenza viruses that regularly cause outbreaks of influenza in pigs. Influenza viruses that commonly circulate in swine are called swine influenza viruses or swine flu viruses. Like human influenza viruses, swine influenza viruses have different subtypes and strains.

Key facts

- Influenza A(H1) viruses are commonly found in swine populations worldwide
- When a swine-origin influenza virus is detected in humans, it is classified as a

variant influenza virus.

    - Influenza A viruses of swine do not normally infect humans. However, sporadic human infections with influenza viruses that normally circulate in swine and not people have occurred. When this happens, these viruses are called variant viruses. They also can be denoted by adding the letter v to the end of the virus subtype designation.

- Major subtypes of swine influenza A viruses include A (H1N1), A (H1N2), and A (H3N2).
- Human infections with variant influenza viruses typically lead to mild clinical symptoms, however, some cases may require hospitalization due to more severe illness, and fatalities have been reported.
- Transmission to humans typically happens through direct or indirect contact with infected pigs or contaminated environments.
- The virus spreads through various means: inhalation of virus-containing droplets when an infected pig or person coughs or sneezes, transfer of the virus by touching contaminated objects followed by touching one's eyes, nose, or mouth, aerosols containing the virus.
- **The virus is not spread by eating pork!**
- While human cases with influenza A (H1N1)v virus are typically linked to swine exposure, sporadic cases without apparent swine contact have occurred.
- Even though sporadic human infections caused by influenza A (H1N1), A (H1N2), and A (H3N2) variant viruses have been reported, there has been no evidence of sustained human-to-human transmission
- Worldwide, 73 cases of H1N1 virus infection have been reported since 2011: Brazil (2), Canada (1), China (42), Denmark (2), Germany (5), Italy (1), Netherlands (6), Spain (2), Switzerland (3), and the United States (9).

In recent years, the main influenza A viruses of swine circulating in US pigs are: swine triple reassortant (tr) H1N1, trH3N2, and trH1N2. With the exception of the 2009 H1N1 virus, influenza viruses that circulate in swine are very different from influenza viruses that commonly circulate in people.

For more information regarding human infections with variant viruses -- LINK

WOAH's Thematic Study on Zoning: Assessing Implementation and Challenges

WOAH has launched its first thematic study through the Observatory program, focusing on the international standard of zoning. The study assesses the implementation of zoning for avian influenza, ASF, and FMD, highlighting its use, challenges, and impacts. Results show varying levels of

integration of WOAH standards into national frameworks. Thus, as a standard, zoning was adopted by 70% of responding Members impacted by avian influenza in poultry, 55% affected by ASF, and 50% affected by FMD. Of the Members employing zoning, 27% indicated partial or no integration of WOAH zoning standards into their national regulatory framework, while 34% reported full integration into their practices (Fig. 4).
Zoning and compartmentalization are vital for disease control and trade facilitation, but implementation challenges exist. The Observatory aims to support Members by identifying needs and addressing barriers to standard implementation. WOAH emphasizes the importance of data-driven approaches in improving global animal health. Future research will explore factors influencing the acceptance of zones by trading partners.

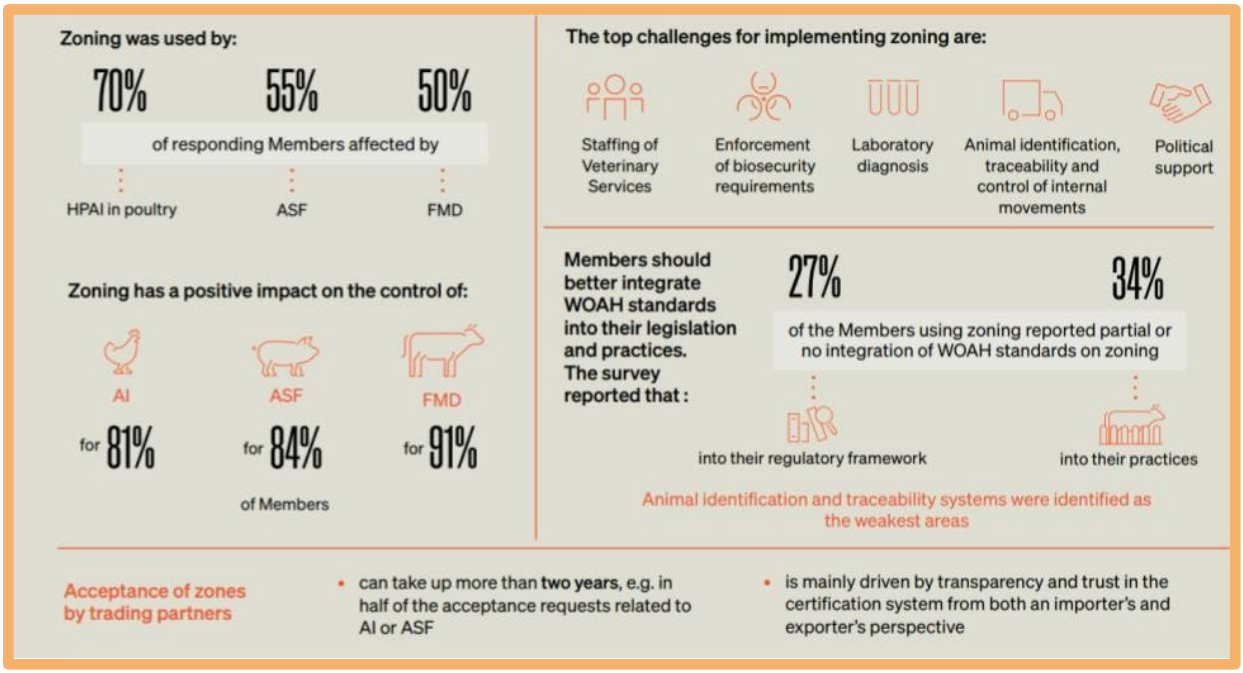

Figure 4. Insights on Members' zones for avian influenza, ASF, and FMD (Source: WOAH Observatory thematic study: key findings)

References:

Recurrent reports reviewed
WOAH - WAHIS interface - Immediate notifications
WOAH - WOAH Asia Regional office
FAO - ASF situation update in Asia & Pacific
DEFRA - Animal conditions international monitoring reports
CAHSS - CEZD Weekly Intelligence Report
European commission - ADIS disease overview
EUROPE
VAX4ASF to study next-generation African swine fever vaccines
European project Vax4ASF aims to develop ASF vaccine
Use, challenges and impact of zoning and compartmentalisation
Albania
ASF Albania: Europe's 28th country to report the virus
Estonia
ASF Estonia: Tough decisions on the table
Italy
Swine fever, Campania Region authorizes the control of wild boars with endorsement
Swine fever, Basilicata Region approves urgent intervention plans for 2024
Poland
Poland to cull thousands of boars over ASF virus fears
Poland's Wild Boar Cull: A Controversial Decision and the Silence of the Celebrities
Norway
Norway considers 'boar-proof fence' along border with Sweden
ASF prevention steps set out by Norway
Latvia
Swine fever situation is 'consistently bad', says food authority

Spain
[Influenza A (H1N1) variant virus - Spain]
Russia
[ASF Russia: consumers demand criminal liability for sellers of contaminated meat]
ASIA
Taiwan
[Nearly 10% of Chinese meat products tested positive for African swine fever during Taiwan border inspection]
NORTH AMERICA
SOUTH AMERICA
Brazil
[Influenza A (H1N1) variant virus - Brazil]

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.
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