

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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reporting TOOL**



Swine Disease Global Surveillance Report

Wednesday, August 6, 2020 – Tuesday, September 1, 2020

Report Highlights

- **Launch of new section:** “Focus on” - Asia: Part 1
- **Ukraine:** largest African swine fever (ASF) outbreak of 2020 reported in Kyiv province.
- **China:** Severe measures to control the production and use of illegal ASF vaccines
- **Managing risk:** Danish’s fence on the German border has proved to be effective in reducing wild boars’ density from 35-40 to less than 25.

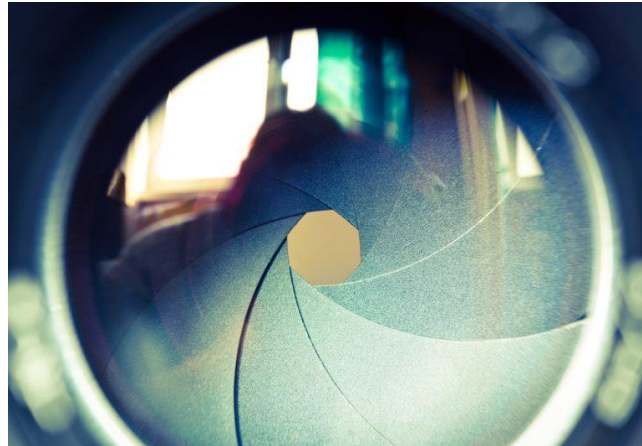
JULY OUTBREAKS BRIEF

R	Location	Date	Disease	Impact
1	Ukraine	7/23/2020	ASF	Largest outbreak in a swine farm in 2020 - 3787 pigs affected - <i>Summary below</i>
1	Zambia	8/2/2020	ASF	75 pigs died - previous occurrence was on 11/20/2018
1	Philippines: Pangasinan, La Union	8/07/2020	ASF	11,035 hogs have been depopulated. <i>Summary below</i>
	Philippines: North Cotabato	8/17/2020	ASF	1,400 swine depopulated, 386 hog raisers affected
1	Philippines: Pangasinan towns	8/20/2020	ASF	16,106 hogs depopulated, 2183 hog raisers affected
1	Philippines: Isabela	8/21/2020	ASF	600 pigs culled
1	Malawi	8/14/2020	FMD	12 cattle affected and 13419 susceptible. The previous report was on 1/5/2019.
1	Mozambique	8/13/2020	FMD	6 cattle affected and 5000 susceptible. The previous report was on 3/16/2018.

The outbreaks described in the table above are colored according to an assigned significance score. The score is based on the identified hazard and potential it has to 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.

Launching a new section

In this new section, titled “Focus on,” comprehensive snapshots of the current knowledge of swine infectious diseases throughout regions will be delivered each month. In future sections, we will zoom in on countries with emergent or consolidated pig production sectors in each region.



The goal of this new initiative is to build a temporal and spatial context regarding the dynamic of swine infectious diseases to support the understanding of the instant changes that we monthly capture in this report.

What factors tend to increase or mitigate the risk of outbreaks or the emergence of new disease variants?

The overall goals of this section are to keep creating awareness of the actual dynamic of these kinds of risk. Robust and updated information is a crucial element for the prioritization of diseases and the proper design of preventive strategies to protect the swine industry.

These snapshots will be available in the upcoming months online, too, in the format of dashboards that will be updated regularly.

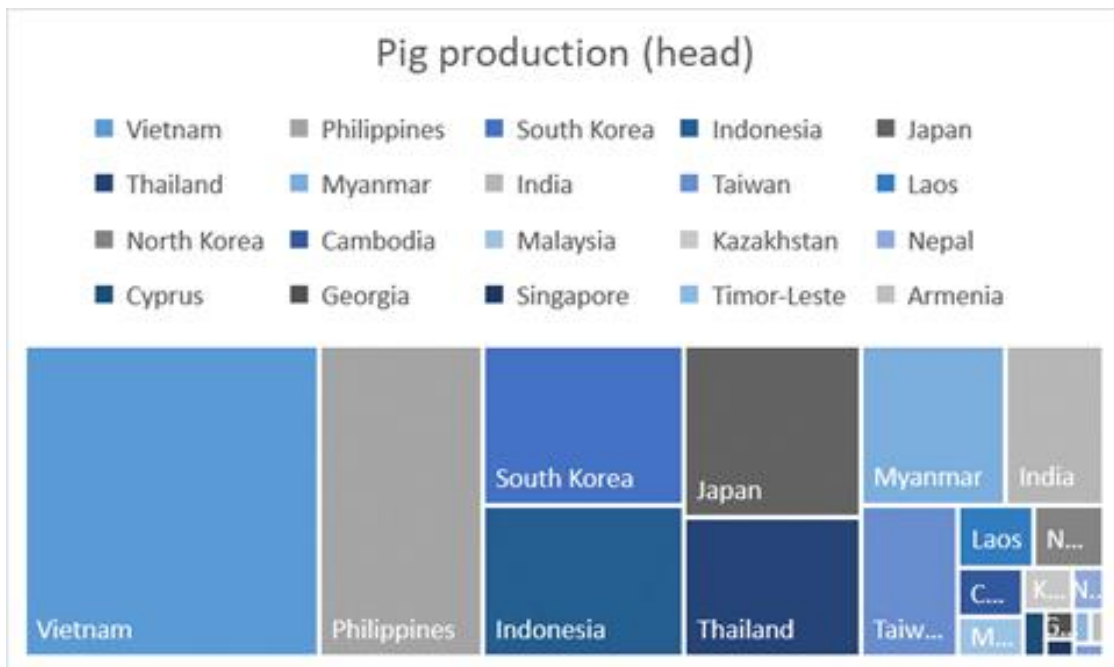
- ***This first release on Asia - Part 1 - includes a snapshot of the evolution of the foot-and-mouth disease (FMD), Senecavirus A (SVA), and porcine reproductive and respiratory syndrome (PRRS) epidemiology in the region.***
- ***Next: Asian region - Part 2 - will include swine influenza, pseudorabies, and classical swine fever.***

FOCUS ON

ASIA

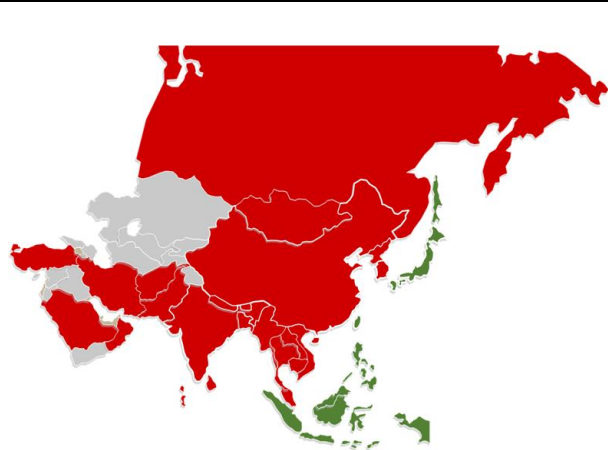
Key facts:

- Total pig population of more than 850 million pigs— China represents approximately 75% of it.
- Four of the top 10 pork producing countries in the world (China, Vietnam, Philippines, and South Korea)—which surpassed 60,000 metric tons of production in 2018
- Various pig production systems — the ASF epidemic has accelerated the shift, and significant efforts have been made across the region, towards the modernization of hog production from backyard pigpens to large-scale, standardized farms with better biosecurity measures and environmental treatment facilities. Still, small-scale, back-yard production represents a large proportion of the production - between 50-80% depending on the country.
- Several countries in the region are also top pork importers (only imports by China, Japan, South Korea, Philippines represent more than the 60% of global imports)
- For the last three decades, Asia has acted as a hub for emerging and re-emerging swine viruses. Molecular epidemiology has demonstrated the introduction of local and foreign viral strains, which have co-mingled, mutated, and then spread to other regions.



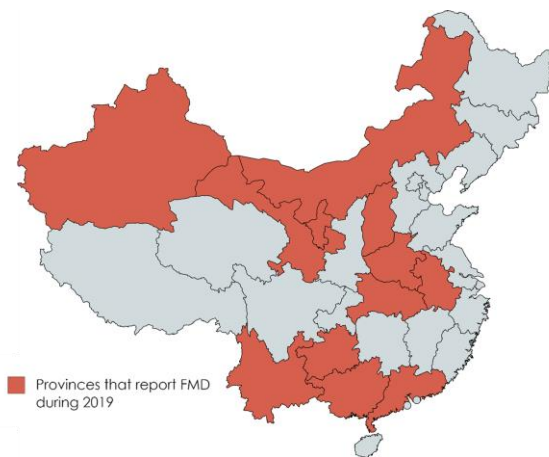
Comparative pig production across countries in Far East and Southeast Asia, excluding China

KEY ENDEMIC AND EMERGENT VIRAL PATHOGENS SNAPSHOT



Current distribution of the disease base on OIE reports (last version available - 2nd semester 2019)

- Disease present
- Official free status
- Disease not reported/or no information available



Thirteen Chinese provinces reported FMD outbreaks during 2019

Foot-and-Mouth Disease - FMD

STATUS	Endemic in most of the region
	Countries with official free status: <i>Japan, Brunei, Indonesia, Philippines, Chinese Taipei (Taiwan, Matsu, Kinmen, Penghu), Malaysia (Sarawak, Sabah)</i>

VIRAL POOLS

Endemic pools represent independently circulating and evolving FMDV genotypes; within the pools, cycles of emergence and spread occur that usually affect multiple countries in the region.

In the absence of specific reports, it should be assumed that the serotypes indicated below are continuously circulating in parts of the pool area and would be detected if sufficient surveillance was in place.

Serotypes present:

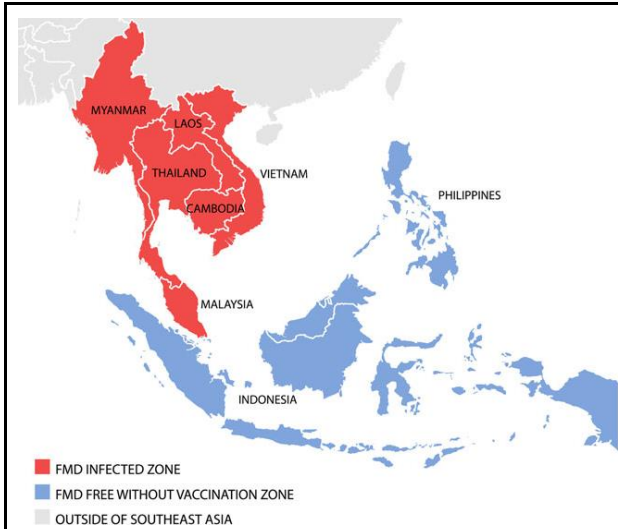
- Pool 1: **A, Asia 1 and O** (Southeast Asia and East Asia)
- Pool 2: **A, Asia 1 and O** (Southern Asia)
- Pool 3: **A, Asia 1 and O**
- **(SAT 2)*** (Middle East and West Eurasia)

2nd quarterly 2020 - FMD

Animal movement, vaccination policy, and farm biosecurity seem to be the major factors affecting the virus endemicity and transmission both within and between Asian pools.

Recent spread of FMDV O/ME-SA/Ind-2001 from India to pigs in many regions, including Southeast Asia countries.

An important issue is the large number of untyped FMD outbreaks in the region. As an example, Blacksell's report states that 63.4% of FMD outbreaks in Southeast Asia have not been typed. Among many factors, the



Map of SEA indicating FMD disease status (Source: Blaksell, 2019)

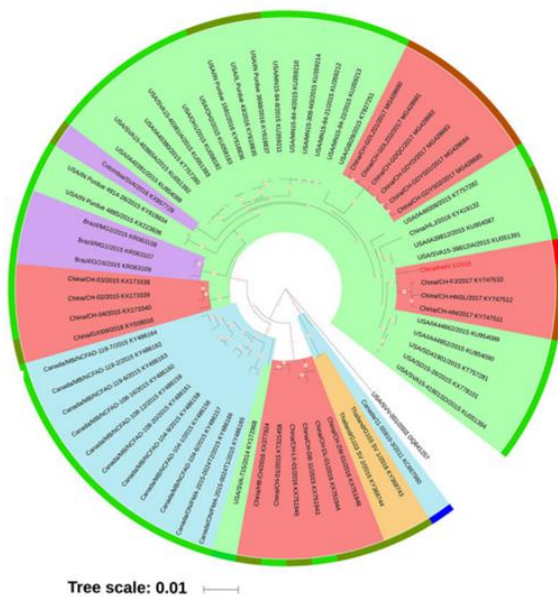
emergence of a novel serotype or toptype sufficiently genetically and antigenically different for diagnostic reagents may be responsible for detection failures.

There is an urgent need to prove the efficacy of contemporary vaccines strains in the region through new vaccine matching studies. The majority of published studies in SEA are now only of historical value being from the 1980s and 1990s (source: *Blaksell, 2019*)

Senecavirus A - SVA

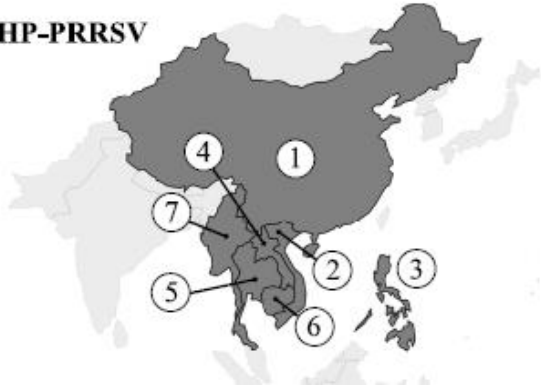
SVA, also known as Seneca Valley Virus, has been recently identified in Asia

- **China:** first reported in Guangdong province in 2015. Since then, other cases have been sporadically reported in several regions with a significant increase in numbers and geographical distributions
- **Thailand:** first reported in 2016. The full-length genome demonstrated that Thai SVA isolates were closely related to the first Canada strain (11-55910-3) than the recent strains causing outbreaks in Brazil, the United States and China in 2015-2016.



Colored ranges: Green:US; Blue: Canada; Pink: China; Orange: Thailand; Purple: Latin America. External ring describes the year of isolation: 2011 (blue), 2015 (green), 2018 (red).

Since 2018, several groups have reported SVV recombinants from Chinese isolates. These findings revealed that the recombination among SVA strains has occurred in China since 2016 or earlier.

<p>1995: First introduction – Farm in Beijing</p> <p><i>In the upcoming years, the disease become endemic - CH-1a-like strains (linage 8) dominated</i></p> <p>2006: a highly pathogenic PRRSV (HP-PRRSV) emerged in Jiangxi province – spreading to most of the provinces in next a few months.</p> <p><i>HP-PRRS: the JXA1 strain (linage 8) evolved from the local PRRSV2 viruses</i></p> <p>2007: Vietnam reported 1st case of HP-PRRSV // 2008: Philippines</p> <p>Becoming dominant in all SEA: Thailand, Cambodia, Laos and Myanmar</p> <p>2009 - 2010: a second outbreak of HP-PRRS – new PRRSV2 strains</p> <p>2010: Spreads to Vietnam causing the re-emergence in the rest of the region (Laos, Thailand, Cambodia) // 2011: Myanmar</p> <p>2012: Emergence of NAD30-like virus (novel PRRSV2 strains; linage 1)</p> <p>2018: Emergence of NADC34-like virus (novel PRRSV2 strains; linage 1)// Emergence of linage 3 strains with increased virulence</p>	<h2>Porcine Reproductive and Respiratory Syndrome Virus - PRRSV</h2> <table border="1"> <tr> <td>STATUS</td> <td>Endemic</td> </tr> </table> <p>Co-circulation of PRRSV1 (formerly known as European strain) and PRRSV2 (formerly known as American strain) has been reported in several Asian countries including China, Vietnam and Thailand.</p> <p>Overall, the genetics of PRRSV in Asian countries have been dynamic, involving:</p> <ul style="list-style-type: none"> • Independent evolution • Transmission among Asian countries • Introduction of novel PRRSV strains from outside Asia • Recombination between PRRSV strains <p>HP-PRRSV</p>  <p>1. China ('06), 2. Vietnam ('07), 3. Philippines ('08), 4. Lao ('10), 5. Thailand ('10), 6. Cambodia ('10), 7. Myanmar ('11)</p>	STATUS	Endemic
STATUS	Endemic		

African Swine Fever

EUROPE

Ukraine

In early August, the largest outbreak of ASF in 2020 so far was reported by the State Service of Ukraine for Food Safety and Consumer Protection, at the Glushky agricultural company in the Kyiv Oblast (central region) where 3,765 pigs were destroyed. According to the report, the veterinary and sanitary examination of two pig carcasses belonging to the Glushky agricultural company in the Bila Tserkva district established the ASF presence.

In Ukraine, since 2012, more than 520 ASF cases have been registered. Still, 2020 has presented a significant decline in the number of outbreaks in domestic pigs, from a total of 45 outbreaks in 2019 to 11 reported until now.

ASIA

India

African swine fever outbreak confirmed in Meghalaya State

Following the sudden deaths of some pigs in Ri Bhoi, East Khasi Hills and West Jaintia Hills districts (parts of Meghalaya; Map 1), samples were collected and tested at the Guwahati-based North Eastern Regional Disease Diagnostics Laboratory. Consequently, nine samples were found to be positive for ASF.

The northeast region alone is home for 38.42% of the total pig population of India. Assam possesses the highest 1.63 million (15.89%) of India's total population (10.29 million). In the country, the deaths of pigs due to ASF were first recorded in Assam, followed by Arunachal Pradesh. Since its outbreak in February, it has killed over 17,000 pigs in Assam state.

The Lamin village in West Jaintia Hills had accounted for around 15 pig deaths in August's first week. Similar deaths were also reported from two other districts. In Arunachal, the disease had spread to the wild boars, and officials in the state have collected the carcasses of six wild boars in East Siang district. Several other wild boars also died in Upper Siang district.



Map 1. Location of reported ASF outbreaks in Northeastern India.

The Deputy Commissioner of East Jaintia Hills District of Meghalaya banned the interstate and inter-district movement of pigs. The commissioner also ordered veterinary officials to create public awareness, disinfection of pigs shed equipment, and burial of pigs as per protocol.

China

On August 25, the Ministry of Agriculture and Rural Affairs informed that the government has begun to implement a strict control strategy to limit the production and use of illegal vaccines against ASF after anecdotal evidence of such products' widespread use.

In parallel, official sources have stated that China is close to approving the first ASF vaccine, and it was expanding clinical trials on a promising candidate. Early last week, Reuters reported that illegally-produced vaccines have circulated in the market for months, and could complicate introducing an officially-approved product.

Central authorities have previously cautioned against the use of unauthorized vaccines, but the new measures appear much more comprehensive, including (Source: Reuters - [LINK](#)):

- *Provincial authorities will carry out inspections at veterinary laboratories, drug producers, and pig farmers for any evidence they could have developed or used an illegal vaccine.*
- *Authorities must investigate veterinary laboratories used for research or commercial purposes and check any unlabeled vaccines or reagents and the records of experiments.*
- *It also wants closer supervision of clinical trials and pilot production of vaccines to ensure no illegal transfer of the pilot products.*
- *Provincial authorities will also inspect veterinary product manufacturers and pig breeders, checking immunization records on farms and running tests on pigs to search for different strains of the virus. Any detection of strains with gene deletions could indicate a vaccine had been used and would be immediately investigated.*

Editorial: From personal communication with contacts in China, a large percentage of pigs have PRRS, classical swine fever (CSF) and pseudorabies (PRV). **PRV seems to be currently on the increase in a major way and it is something to closely monitor with a focus on US prevention and preparedness.**

Because of the use of non-approved ASF vaccines, there are pigs in China that are seropositive but chronically infected. Vaccination with a current non-approved, double deletion ASF vaccine may result in recovered pigs being PCR seronegative but ASF-positive in other tissues.

From available reports, the promised government-approved vaccine developed in the Harbin lab appears to be safe, and effective in preventing morbidity and mortality. However, the laboratory publications about the candidate vaccine indicate that wild-type ASF that was used for challenge studies may still be found in tissues, implying the possibility of vaccinated ASF carriers.

Section: Risk Management - prevention strategies

United States

CBP officers seize over 200 pounds of pork

Illegally smuggling pork into the United States can lead to fines ranging from \$300 to \$1,000. Recently, Customs and Border Protection officers at Juarez-Lincoln Bridge seized just over 200 pounds of undeclared pork products (the meat was found in the engine compartment) originating from Mexico.

Mexico currently holds the status of free of [classical swine fever](#) and [foot-and-mouth disease](#) endorsed by OIE.

United Kingdom

Illegal meat in passenger luggage

In the form of posters in airports and ports, a new awareness campaign has been launched by the government (the UK Department for Environment, Food, and Rural Affairs) in the United Kingdom, warning travelers on the impact of introducing ASF into the country inadvertently through contaminated meat. Illegally imported meat in luggage is seized and destroyed by Border Force officers. The campaign follows the seizure of ASF contaminated sausage illegally imported in Northern Ireland in June. A “reasonable worst-case scenario” of an ASF outbreak is estimated to cost the UK £90 million, according to the government, as reported in [FarmingUK](#). No outbreaks have occurred in the UK to date.

Denmark

Wild boar declines

Numbers of wild boars in Denmark have reportedly declined from 35-40 to less than 25, following the erection of a 70 kilometer (43.4 mile) fence along the Denmark - Germany border. Last year, the fence was built to prevent wild boards from entering the country through the border with Germany. Despite fence gaps over roads and rivers, this decline has been observed, gaps some feared would render the fence ineffective. While it is difficult to attribute the declining boar numbers to the fence directly, cameras from the Danish Nature Agency have not seen many wild boar crossings.

To date, there have been no cases of ASF reported in Denmark nor Germany.

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