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 structure for near real-time identification of hazards that will contribute to the mission of assessing risks to the industry and ultimately, early detection, identification, or prevention of occurrence, 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 then curated to build a raw repository. Afterward, a group of experts use 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 from which an average is calculated. The output of the rubric is a final single score for each event which is then published in the report.

Disclaimer: 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.

UMN Technical Coordination

Eliana Paladino[1], Auguste Brihn, Sol Perez, Andres Perez[2]

Expert Focus Group

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

[1]Project coordinator: epaladin@umn.edu
[2]Principal investigator: aperez@umn.edu
www.cahfs.umn.edu

Current and previous reports

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

Spontaneous reporting TOOL

Swine Disease Global Surveillance Report

Monday, January 7, 2019 – Monday, February 4, 2019

Report highlights:

- First PED outbreak in Alberta, Canada.
- First FMD outbreak reported in South Korea and Morocco since March 2018 and November 2015, respectively.
- FMD outbreak in South Africa's FMD-free zone.
- First ASF outbreak in Mongolian north-central region.

PORCINE EPIDEMIC DIARRHEA

In early January, porcine epidemic diarrhea virus (PED) was first identified in a farm in Alberta, a western province which accounts for 11 percent of Canada's total hog production. After the major struggle that the province of Manitoba faced in 2017, this new case reported in Alberta raised concerns among producers. The current event happened in a 400-sow farrow-to-finish operation, and was quickly contained by the producer that proactively limited the pig movements during the investigation of the outbreak. No other herds have been detected with PED in the region.

The biggest concern in the current event is to understand which was the route of introduction into the farm. This event has been perceived by the swine sector with alarm given that it demonstrates the potential vulnerability of the system in the region in the face of risk of introduction of a foreign animal disease, particularly in the current context of global concern regarding the spread of African swine fever (ASF).

FOOT-AND-MOUTH DISEASE

The first outbreaks of FMD in South Korea and Morocco, since March 2018 and November 2015 respectively, were reported. The South Korean agriculture ministry confirmed the outbreak on January 28, in a dairy farm less than 50 miles from Seoul. One more case was reported a day later at a beef cattle farm. The two farms are 10 kilometers apart. These are the first outbreaks in South Korea since last March, when an outbreak of FMD was reported on a hog farm. Animal movements, including cattle and pigs, have been prohibited in specified areas, including Gyeonggi, Chungnam, Chungbuk, Daejeon and Sejong. On January 25, 18 days after the confirmation of the event, Moroccan authorities reported an FMD outbreak in the center of the country, in Beni Mellal-Khenifra region. After that, three more outbreaks have been communicated, affecting the central region and the Tangier-Tetouan-Hoceima region, located in northern Morocco about 400km from the previous ones. Movement control and surveillance outside the containment zone have been implemented, as well as peri-focal vaccination with a vaccine against serotype O, even though the specific serotype has not yet been reported to OIE.

On January 14, South Africa reported a new outbreak of foot-and-mouth disease (FMD) in cattle in the Limpolo region. Unfortunately, this outbreak spilled into the high surveillance area, which is outside of the protection zone. Consequently, South Africa's FMD-free status has been suspended, impacting the beef industry, as South African exports have been banned by trade partners.

AFRICAN SWINE FEVER

- *Southeast Asia and Australia*

On January 9, Mongolia reported its first outbreak of ASF, becoming the second Asian country to report the disease. The event happened in a backyard farm in Bulgan province, in the northern region of the country bordering Russia. Since then, nine outbreaks in small backyard farms in five more provinces (Orkhon, Tuv, Dundgovi, Selenge and Darkhan-vul; Map 1) have been reported to the OIE.
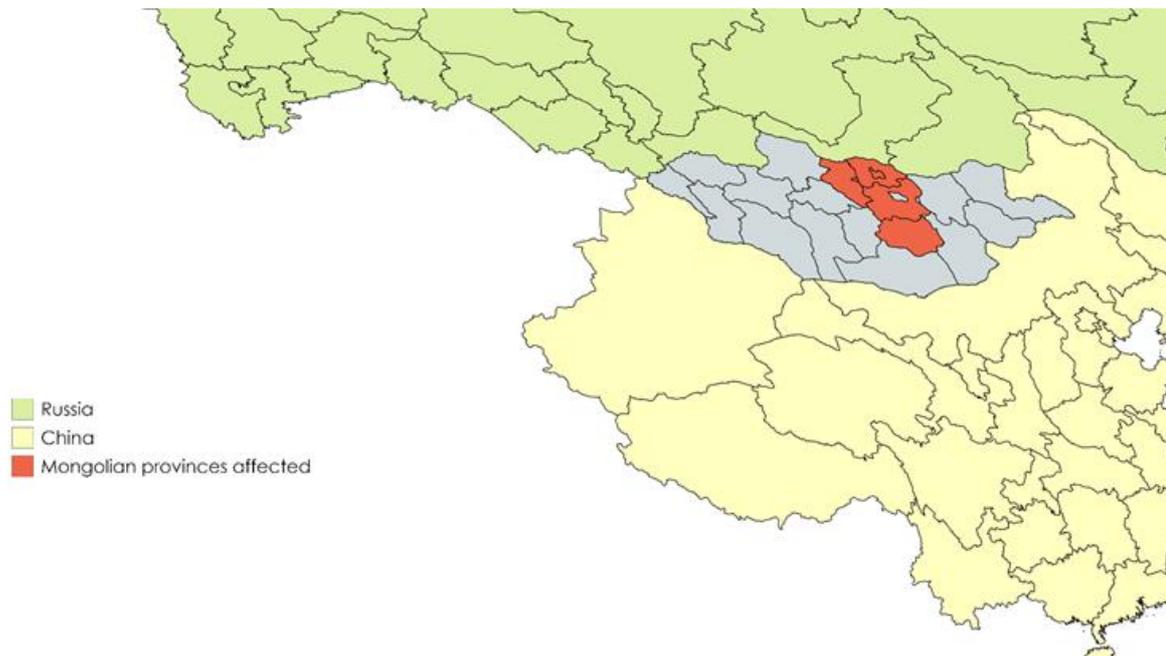
Map 1: Mongolia (gray provinces). In red: Provinces of Mongolia that reported ASF outbreaks during January.

ASF continued to spread in China, reaching Gansu and Ningxia provinces, and **making a total of 25 provinces officially reported as ASF-infected**.

Lately, Chinese authorities have loosened movement restrictions, particularly breeder pigs and piglets, to facilitate restocking of herds affected by ASF, ensuring pork supply and buffering pric volatility expected later this year. In this regard, authorities from the agriculture ministry have communicated that the national pig stock in last December was almost 5 percent lower than the previous year, whereas breeding sow numbers were down by more than 8 percent.

	Province	First outbreak	Number of Outbreaks	Animals destroyed
1	Liaoning	8/1/2018	22	73808
2	Henan	8/14/2018	2	3893
3	Jiangsu	8/15/2018	3	83752
4	Zhejiang	8/17/2018	1	1864
5	Anhui	8/17/2018	9	12965
6	Heilongjiang	9/1/2018	6	74487
7	Inner Mongolia	9/12/2018	5	1010
8	Jilin	9/17/2018	4	1459
9	Tianjin	10/10/2018	2	1000
10	Shanxi	10/16/2018	6	45493
11	Yunnan	10/19/2018	2	1157
12	Hunan	9/28/2018	6	13756
13	Guizhou	10/14/2018	4	405
14	Chongqing	11/2/2018	2	332
15	Jiangxi	11/7/2018	3	463
16	Fujian	11/6/2018	3	22247
17	Hubei	11/5/2018	4	1800
18	Sichuan	11/16/2018	4	26710
19	Shangai	11/15/2018	1	314
20	Beijing	11/20/2018	5	69507
21	Shaanxi	11/27/2018	3	4864
22	Qinghai	12/10/2018	1	365
23	Guangdong	12/17/2018	3	6167
24	Guansu	01/12/2019	2	299
25	Ningxia	01/20/2019	1	57

Map 2: Chinese provinces that have reported ASF outbreaks since last August in yellow. In red: new cases during January.

Meanwhile, the Australian Department of Agriculture has reported the first instances of ASF detected in products confiscated by authorities at points of entry. Authorities communicated that ASF was found in five of 152 samples analyzed by the Australian Animal Health Laboratory in Geelong. In addition to the findings in Australia, South Korea, Japan, and Taiwan have also reported the identification of ASF in confiscated products at ports of entry since last August, and have introduced tougher measures at points of entry.

- ***Europe***

UK's DEFRA risk analysis

The UK Department for Environment, Food and Rural Affairs (DEFRA) increased the estimate of the UK's risk level to medium (i.e., occurs regularly or likely) with a medium level of uncertainty for the entry of ASF into the UK. According to the risk assessment, "The overall annual risk level is considered to be medium because of the combination of the pathways for introduction. In terms of exposure, the probability is given for the three pig sectors and considering the most likely pathways. Feral pigs and non-assured or small holders are the highest risk and given a "likely" score. The spread into the commercial pig sector will probably depend on how long disease has been present but undetected in the country, and would be substantial."

To better understand what this increased risk level means, further examination of the methods in the report is required.

- The report addresses the specific risk question: "What is the risk of introducing African swine fever virus from European member states through legal and illegal trade, transport or other transmission routes into the UK and subsequent exposure to domestic or feral pigs?"
- Following the OIE framework of release, exposure and consequence assessment, three key areas of investigation were identified.
  - First, the legal trade in live animals and products of animal origin.
  - Second, illegal trade in live animals or products of animal origin.
  - Third, fomite transmission, transport or other identified routes.

The terminology used in the risk assessment ranged from negligible (so rare that it does not merit to be considered) to very high (events occur almost certainly). In total there are six levels of risk.

To address risk management purposes, probability terms and subjective probability ranges are used to describe the steps in the risk pathways. Probability terms range from negligible (undistinguished from 0) to likely (>10 percent ≤ 100 percent) with three additional intermediate steps. It is assumed that most risk managers will not distinguish between 10 percent and 100 percent likelihood and anything in this range will require management. As noted, this inherently creates subjectivity and risk managers may still chose to act below a level of 10 percent.

The cumulative and individual assessment levels of uncertainty ranges from **low** (No or limited information or data are lacking, incomplete, inconsistent or conflicting. No subjective judgement is introduced. No unpublished data are used), **medium** (Some information or data are lacking, incomplete, inconsistent or conflicting. Subjective judgement is introduced with supporting evidence. Unpublished data are sometimes used), or **high** (The majority of information or data are lacking, incomplete, inconsistent or conflicting. Subjective judgement may be introduced without supporting evidence. Unpublished data are frequently used). Each level is defined by the 2015 Panel on Animal Health and Welfare of the European Food Safety Authority (AHAW, EFSA).

In a paper by the OIE/EFSA outlining the qualitative risk assessment, the assessment is defined as one of the risk analysis components required to quantify, or qualify, a specific level of risk through four interrelated steps: **release assessments** (likelihood of hazard being introduced to a particular zone), **exposure assessment** (likelihood of animals being exposed), **consequence assessment** (health or economic consequences), and **risk estimation** (combining the results of the preceding three steps). The overall rating is based on individual risk assessments for each step. Points are then suggested for each category and a results table is generated. DEFRA used the standard risk level table (LINK) to describe qualitative pathways and the associated uncertainties. Those individual risk assessments are then compiled to subjectively establish an overall risk of medium for the UK. It should be noted that the individual quantitative and qualitative scoring for each assessment in the DEFRA report is not clear. What is noted though is that expert working groups established these levels through expert opinion and peer review. The risk is also noted for each assessment individually for risk managers to identify and adjust accordingly.

***Denmark: building a fence on the border with Germany***

The Danish Ministry of Environment and Food started the construction of a 70km (42 mile) long fence along the German border. Initial construction began at the northern edge of Germany near the state of Schleswig-Holstein. The fence was approved last year by Danish lawmakers and the country's environmental agency to protect Danish pig farmers against ASF.

Denmark is home to roughly 12 million pigs which is about two times the human population of the country. The 12 million pigs are dispersed among 3000 farms with a total export market of about $5 billion. If ASF is confirmed in Denmark, pork exports would halt causing an estimated economic loss of $1.5 billion a year. The total economic loss is less than the estimated $5 billion export market because those farms operating a safe distance from the outbreak could continue to sell within Europe.

The fence is constructed low enough (1.5 meters high) to allow for certain wildlife species such as deer to jump over it but still high enough to prevent wild boar jumping it. There will also be small openings at the base of the fence every 100 yards to allow smaller mammals like foxes, hares, and otters to pass freely. There is concern that the fence will prohibit the normal wildlife movements of certain animals such as wolves. Wildlife advocates are concerned that these fences will disrupt migration patterns and increase the forced interactions with people and traffic. There is also concern that the fence will create a visible border between Germany and Denmark which has been historically fluid. The opposition says the fence will not prevent movement of wild boar as there will be gaps in fencing where roads, paths, or rivers cut through. Also, research has shown that the biggest risk for ASF is not movement of wild boar but contaminated equipment and products coming into the country.

There are only 100 to 200 wild boar currently reported in Denmark but there is a significant number of wild boars in Germany. Along with the fence other measures like camera traps, public education campaigns, and near-unlimited boar hunting will be employed. Educational signs have been erected at stops on Danish highways informing people of ASF risks and spread. In March 2018, The Danish People's party and the government introduced new hunting times allowing wild boar hunting around the clock, intensifying efforts to hunt on state owned and private lands, and increased fines for trucks used to transport animals that have not been properly cleaned of disinfected.

Monthly events:
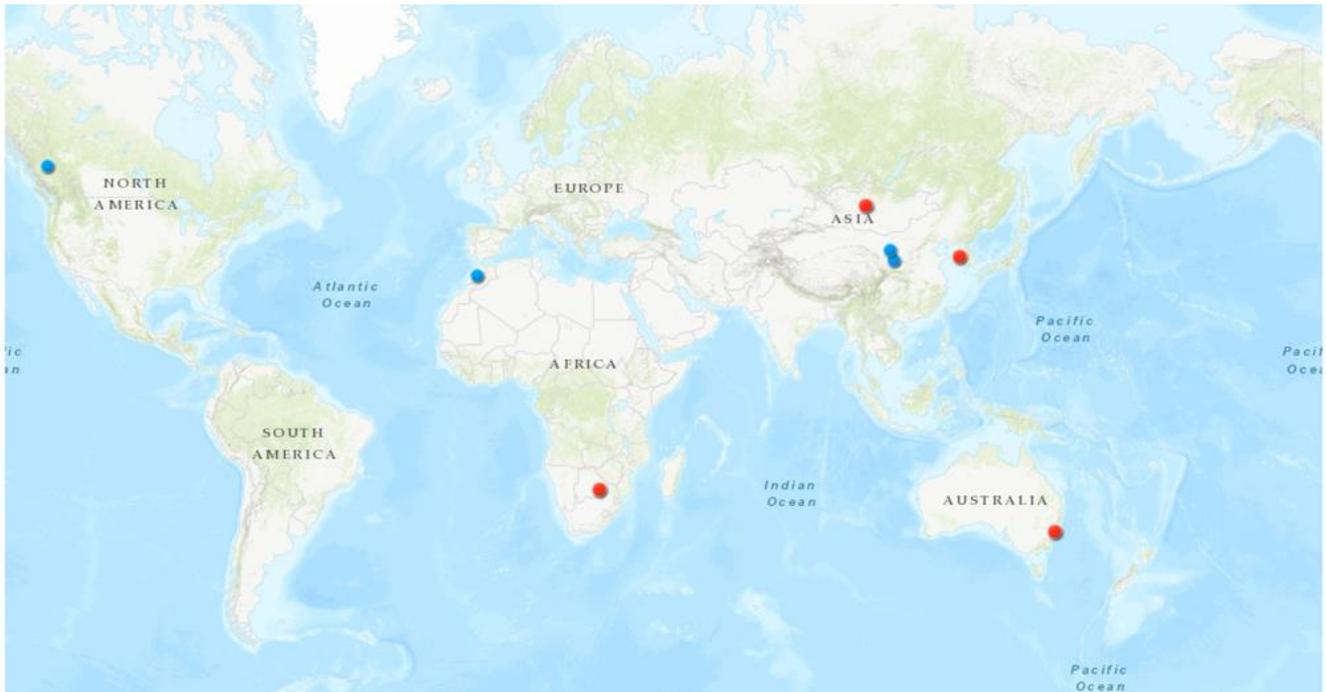
February Report Map: *The locations mentioned in this report are colored in the maps below according to **significance score,** which are based on the identified hazards (list of worldwide events below) and potential risks to the US swine industry: **1: Blue** – no change in status this month, **2: red** - needs extra attention as the situation is dynamic; **3: black - the change this month requires consideration of change in practices to reduce exposure by the US industry.***

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Event #	1		
Date of the event:	1/1/19		Recurrence of a listed disease. Previous ocurrence in the country: 13/11/2015.
Date of publication:	1/10/19		
Location:	Ouled Sidi Chennane, Krifate, Fquih Ben Saleh, **Morocco**		
Disease type:	FMD		
Species affected:	Farm animals **Cattle**		
		Morbidity: -	Mortality: -
Significance score	1.00 *	Reporting source:	OIE
Event #	2		
Date of the event:	1/7/19		First outbreak of ASF confirmed in Gansu province, affecting backyard animals. Diagnostic confirm by China Animal Health and Epidemiology Center (National laboratory). Control measures applied. Source of the outbreak: Swill feeding.
Date of publication:	1/15/19		
Location:	Zhongping Village, Yima Townshop, Qingcheng, **China**		
Disease type:	ASF		
Species affected:	Backyard Porcine		
		Morbidity: -	Mortality: -
Significance score	1.00 *	Reporting source:	OIE
Event #	3		
Date of the event:	-		On January 7, South Africa (SA) reported a new outbreak of FMD in the Limpolo region, which has been estimated to have started on November 11. Even though SA has reported several outbreaks during 2018, all of them had occurred within the limits of the protection zone. Unfortunately, this last outbreak spilled into the high Surveillance Area, which is outside of the protection zone. Consequently, South Africa's FMD-free status has been suspended.
Date of publication:	1/7/19		
Location:	Collings Chabane/Makhado/Great **South Africa**		
Disease type:	ASF		
Species affected:	1/0/1900 Cattle		
		Morbidity: -	Mortality: -
Significance score	2.00 *	Reporting source:	OIE
Event #	4		
Date of the event:	1/9/19		First outbreak of ASF confirmed in the Mongolia, in the northencentral region of the country. Control measures applied. By the time of realesing this repor, other 7 outbreaks have been confirmed in the country.
Date of publication:	1/15/19		
Location:	Gahain bair, Rashaant Bag, Bugan soum, Bulgan **Mongolia**		
Disease type:	ASF		
Species affected:	Backyard Porcine		
		Morbidity: -	Mortality: -
Significance score	2.00 *	Reporting source:	OIE

Event #	5			
Date of the event:		1/10/19		First outbreak of ASF confirmed in Gansu province, affecting backyard animals. Diagnostic confirm by China Animal Health and Epidemiology Center (National laboratory). Control measures applied. Source of the outbreak: Swill feeding.
Date of publication:		1/21/19		
Location:	Wangyuan Township, Yongning, Yinchuan, Ningxia			
	China			
Disease type:		ASF		
Species affected:		Backyard		
		Porcine		
				Morbidity: - Mortality: -
Significance score		**1.00**	*	Reporting source: OIE
Event #	6			
Date of the event:		1/16/19		Australian authorities have indentied ASF in six products seized at Australian airports and mail processing centres. The testing was conducted over a two-week period at the Australian Animal Health Laboratory in Geelong as part of the Department of Agriculture and Water Resources' border activities.
Date of publication:		1/16/19		
Location:	Airports			
	Australia			
Disease type:		ASF		
Species affected:		Pork products		
		Porcine		
				Morbidity: - Mortality: -
Significance score		**2.00**	*	Reporting source: www.agriculture.gov.au/pests-diseases-weeds/animal/asf
Event #	7			
Date of the event:		1/26/19		Recurrence of a listed disease. Date of previous occurrence: 4/30/2018. The epidemiological surveillance is ongoing.
Date of publication:		1/29/19		
Location:	Osan-Ri, Geumgwang-Myeon, Ansfong-Si,			
	South Korea			
Disease type:		FMD		
Species affected:		1/0/1900		
		Cattle		
				Morbidity: No Mortality: -
Significance score		**2.00**	*	Reporting source: OIE
Event #	8			
Date of the event:		1/9/19		First outbreak of PED in the province, since the introduction of the virus in the country in 2014 (Ontario province).
Date of publication:		1/0/00		
Location:	Alberta			
	Canada			
Disease type:		ASF		
Species affected:		Farm animals		
		Porcine		
				Morbidity: - Mortality: -
Significance score		**1.00**	*	Reporting source: www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/com14713