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African Swine Fever (ASF)

Between September 2018 and May 2019, the number of African swine fever (ASF) outbreaks has rapidly increased, most notably in China, triggering economic losses in affected pork-producing countries (Figure 1). Since September 2018, the World Organization for Animal Health (OIE)—an intergovernmental organization coordinating, supporting, and promoting animal health and disease control—has reported that over 2.8 million hogs have been culled globally due to ASF. Many industry observers believe that the actual number of culled animals is much higher. The extent of ASF outbreaks is expected to affect international trade in pork and feedstuffs. The U.S. Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS) is monitoring the global spread of ASF and has developed plans to prevent ASF introduction into the United States.

Background

ASF is a viral disease that affects swine, including domestic pigs, feral (wild) swine, wild boar, and other exotic swine. Infected swine may exhibit symptoms including high fever, decreased appetite, and weakness. ASF leads to nearly 100% mortality rates in swine herds. There is no treatment or vaccine available for ASF. The only way to reduce the prevalence of ASF is to quarantine and depopulate (cull) all affected and exposed animals. ASF does not have zoonotic potential—the infection cannot spread from animals to humans.

ASF is caused by the African swine fever virus and spreads between pigs by direct contact with an infected animal, its bodily fluids (e.g., saliva, blood, feces), or animal tissue or through indirect contact with contaminated objects. In addition, it is often introduced into a herd through the

feeding of garbage. On-farm biosecurity is critical to preventing ASF from developing and spreading.

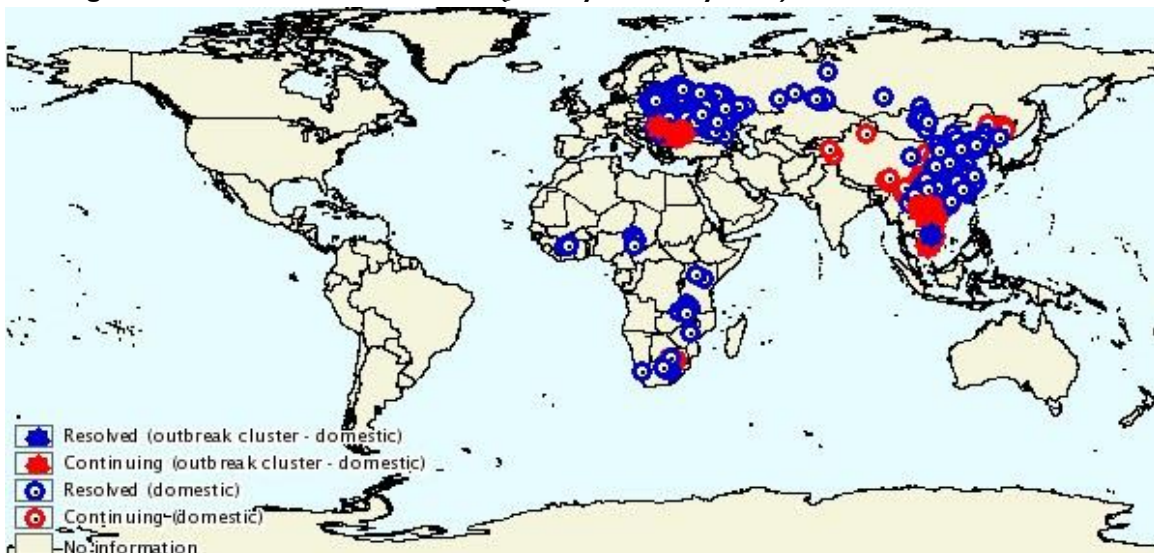
ASF Impacts on Global Pork Trade

China, the world’s leader in pork production, has notified OIE of animal losses due to ASF. Between September 2018 and May 2019, China has reported over 2 million culled animals. The USDA’s Foreign Agricultural Service’s “Livestock and Poultry: World Markets and Trade” report for April 2019 forecasts that China’s pork imports in 2019 will climb to a record high, partly due to liquidation of China’s swine herd. Despite efforts to contain the disease, outbreaks continue to emerge, and it appears that China will be unable to eradicate ASF in the near term. Chinese pork imports could partially offset its lower production, and the EU, Canada, Brazil, and United States are expected to increase exports to China.

Because of ASF, USDA reports that U.S. pork sales to China from January to April 2019 are more than three times higher than during the same period a year ago in spite of the retaliatory tariffs China imposed on U.S. pork exports in April 2018. Higher Chinese imports will likely create an uptick in global pork trade in 2019, driving global hog prices up and leading to record sales for exporters, such as the United States.

In contrast, China is also the world’s leading importer of soybeans—a source for high-protein meal used as animal feed—averaging over 90 million metric tons per year since 2016, according to USDA. A substantial decline in China’s hog population could curb its soybean imports.

Figure 1. Global Distribution of ASF (January 2017-May 2019)



Source: OIE, World Animal Health Information Database, accessed May 15, 2019.

Potential Impacts to U.S. Pork Industry

If ASF were to be detected in the United States, the consequences to the U.S. pork industry could be severe. Upon detection of ASF in the U.S. hog population, U.S. export markets would likely impose restrictions on imports of U.S. pork. Total U.S. pork exports in 2018 reached nearly \$6.4 billion (2.4 million metric tons, or 22% of production in 2018). Mexico, China, Japan, and Canada rank as the leading U.S. pork export markets.

The U.S. pork industry and USDA have both responded to the global spread of ASF. For example, out of an abundance of caution, the National Pork Producers Council cancelled the annual World Pork Expo in Des Moines, Iowa, citing a possible risk of ASF transmission. Typically, the expo draws about 20,000 domestic and foreign visitors. In another example, APHIS participated in the Canadian Food Inspection Agency's (CFIA) "African Swine Fever Forum," held April 30-May 1, 2019, to address the status, prevention, and management of ASF in North America.

APHIS's engagement with CFIA has led to the establishment of a strategy to harmonize available North American ASF diagnostic methods. According to APHIS, this collaboration resulted in estimates of resources and laboratory capacity necessary to meet the potential diagnostic demand for ASF outbreaks.

Federal ASF Management Activities

Many ASF activities are within the purview of APHIS, the lead agency for responding to animal diseases, conducting disease investigation and control activities, and overseeing zoonotic disease prevention and response. APHIS's legislative authority for this work derives mainly from the Animal Health Protection Act (7 U.S.C. §8301 *et seq.*). To carry out this work APHIS often partners with other federal agencies, including the Food and Drug Administration (FDA), the Food Safety and Inspection Service (FSIS), the Environmental Protection Agency (EPA), and Customs and Border Protection (CBP). In addition, various agencies within individual states, such as agricultural agencies and wildlife management agencies, collaborate with APHIS.

Since the practice of feeding garbage to swine could transmit infectious diseases, APHIS is tasked with licensing and inspecting swine production facilities that feed cooked garbage to swine and to search for unlicensed facilities that may illegally feed raw garbage (9 C.F.R. Part 166). As of February 2018, APHIS reported that 22 states prohibit feeding garbage to domestic swine, while 28 states in addition to Puerto Rico and the Virgin Islands permit it.

In May 2019, APHIS announced it will enhance its ASF surveillance efforts by adding ASF testing to its existing surveillance of classical swine fever. The surveillance effort is to test samples from high-risk animals and pigs from herds that are at greater risk for disease through such factors as exposure to feral swine or garbage feeding.

APHIS and FDA Collaboration

On September 5, 2018, USDA and FDA officials met with U.S. pork industry groups to assess additional measures to prevent the spread of ASF to the United States. Following the meeting, APHIS moved to expand testing capacity for ASF within APHIS National Animal Health Laboratory Network (NAHLN) labs, and it issued the "Foreign Animal Disease Preparedness and Response Plan—Disease

Response Strategy: African Swine Fever (2019)." The plan provides guidance for responding to a U.S. swine health emergency caused by ASF. It explains the protocols and the cooperative plans APHIS has with state authorities and the EPA for disposing of potentially infected carcasses.

APHIS and CBP Collaboration

APHIS has concluded that illegal entry of swine products and byproducts, such as through airline baggage and foreign mail, presents the largest potential pathway for the entry of the ASF virus. To strengthen detection, APHIS has increased the deployment of trained detector dogs, or the "Beagle Brigade." CBP enforces APHIS regulations and is responsible for confiscating illegally imported animals and animal byproducts at ports or from travelers entering the United States and for seizing such products entering the country through mail facilities. For example, in early March 2019, CBP officers stopped an attempt to smuggle over 1 million pounds of pork containing food products from China. All the products were incinerated.

APHIS and FSIS Collaboration

APHIS reports to FSIS—a USDA agency that conducts official inspection of domestic, imported, and exported meat, poultry, and some egg products—when OIE receives notification of an ASF outbreak in specific regions or countries. FSIS follows established protocol to address pork and pork products from regions where ASF exists or is reasonably believed to exist (9 C.F.R. 94.8).

Swine Health Funding

The 116th Congress appropriated \$24.8 million in the Consolidated Appropriations Act, 2019 (P.L. 116-6), for swine health, including swine surveillance, emergency preparedness, and response planning. Funds were not specific to ASF. In addition, USDA's Agricultural Research Service (ARS) received \$9.6 million for research efforts on foreign animal diseases and emerging diseases. ARS is to determine how much FY2019 funding will be allocated toward ASF vaccine development. In FY2018, ARS allocated \$324,000 toward ASF vaccine development. This included research using clustered regularly interspaced short palindromic repeats (or CRISPR-Cas9)—a technology that enables researchers to edit parts of genomes by altering DNA sequence—to better understand gene function toward ASF vaccine development.

The 2018 farm bill (P.L. 115-334) established the National Animal Disease Preparedness Response Program (NADPRP) and the National Animal Vaccine and Veterinary Countermeasures Bank (NAVVCB). The NADPRP is to address risks to U.S. livestock associated with the introduction of animal diseases and pests. The NAVVCB is to maintain significant quantities of vaccine and diagnostic products to respond to animal disease outbreaks. The act authorized mandatory funding of \$120 million for FY2019-FY2022 and \$30 million for FY2023 and for each fiscal year thereafter for the two new programs and the NAHLN. In addition, the act authorizes annual discretionary appropriations for FY2019-FY2023.

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