

# African Swine Fever Virus: An Emerging Transboundary Threat



Science and Technology

## EMERGING TRANSBOUNDRY THREAT

On July 28, 2021, African swine fever (ASF) was confirmed in the Dominican Republic, and—for the first time in decades—an outbreak of ASF occurred in the Western Hemisphere. ASF is an emerging, viral disease affecting swine. The U.S. Departments of Homeland Security (DHS) and Agriculture (USDA) are taking decisive action to prevent this disease from reaching the United States.

## OVERVIEW

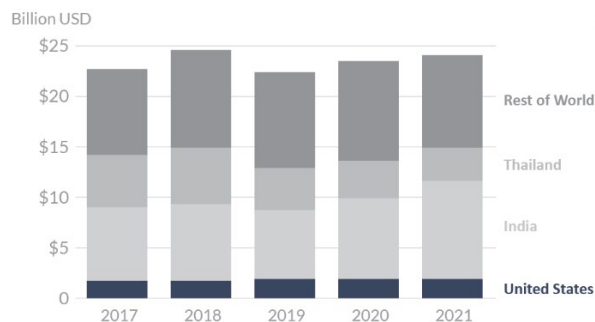
ASF is a highly transmissible, viral hemorrhagic disease of swine resulting in up to 100 percent mortality. This trade-restricting transboundary animal disease is not a threat to human health and does not represent a food safety concern. However, outbreaks may indirectly affect public health through loss of livelihoods as countries with confirmed cases are subject to international trade restrictions aimed at reducing the risk of introducing ASF to disease-free areas.

Currently, there are no licensed vaccines or treatments available in the U.S. for this emerging pathogen, with biosecurity and early detection being the only effective management tools. African swine fever virus (ASFV), the causative agent of ASF, is transmitted through various mechanisms:

- Direct contact (body fluids, tissues, and feces)
- Indirect contact (via objects carrying infectious materials or fomites) or ingestion, where swine are fed food waste contaminated with uncooked pork products, or plant-based feed contaminated with the virus
- Infected soft-bodied tick species (e.g., *Ornithodoros*)<sup>1</sup> feeding upon swine

ASFV is endemic in sub-Saharan Africa and was introduced into Georgia (former Soviet Union) and spread to countries in the Caucasus region and Russia in 2007.<sup>2</sup> Since then, ASF has spread across Europe and to China in 2018. This resulted in significant market disruption given the breadth of the Chinese pork industry. Within one year of the introduction of ASFV to China, 40 % of pigs were either culled or had died.<sup>3</sup>

While there has never been an outbreak of ASF in the U.S., in 2021, ASFV was confirmed in the Dominican Republic, increasing the threat to the Western Hemisphere. Though not a global leader in swine production, there are an estimated 1.8 million domestic pigs in the Dominican Republic, and its swine



Source: Trade Data Monitor, LLC- BICO HS-6

United States Market Share of Global Pork Exports ([USDA.Gov](https://www.usda.gov))

industry generates about 50,800 jobs with an estimated annual commercial value of \$24 million.<sup>4</sup>

The U.S. consistently remains among the world's top pork producing countries, producing 13 % of the world's pork, with 2020 pork exports surpassing \$7.7 billion.<sup>5</sup> Domestically, more than 115 million hogs go to market annually, providing a total gross income of over \$20 billion.<sup>6</sup>

A domestic ASFV outbreak in domesticated or feral pigs would end the ability of the U.S. to export pork. In addition, depending on the severity of the outbreak, it could cost billions of dollars to control the disease outbreak.

## AFRICAN SWINE FEVER TASK FORCE

In response to the increased threat of ASF worldwide, in 2018, the DHS Science and Technology Directorate's (S&T) Plum Island Animal Disease Center (PIADC) established the ASF Task Force, which includes representatives from S&T, USDA Animal and Plant Health Inspection Service (APHIS), and USDA Agricultural Research Service. The task force was established to increase collaboration and coordination, and pool interagency resources at PIADC to address the threat of ASF. Current efforts include:

- Fast-tracking development and scaled-up production of a live, attenuated ASFV vaccine using existing cell culture technology
- Improved USDA APHIS diagnostic testing and increased national preparedness and response
- Evaluations of commercially available disinfectants to characterize their ability to kill the ASFV to support outbreak response

For more information about the current state of available information on ASF, consult the [ASF Master Question List](#).

