

African Swine Fever Virus: An Emerging Transboundary Threat



Homeland
Security

Science and Technology

OVERVIEW

African Swine Fever (ASF) is an emerging, viral disease affecting swine. For the first time in decades, an outbreak of ASF has occurred in the Western Hemisphere. The Departments of Homeland Security (DHS) and Agriculture (USDA) are taking decisive action to prevent this disease from reaching the United States.

BACKGROUND

ASF is a highly transmissible, viral hemorrhagic disease of swine resulting in up to 100% mortality. ASF is a **trade-restricting transboundary animal disease** that is not a threat to human health and does not represent a food safety concern, but outbreaks may indirectly affect public health through societal disruption and loss of livelihood. 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 vaccines or treatments** available for this emerging pathogen, with biosecurity as the only effective management tool. 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 [fomites]) or ingestion, where swine are fed food waste contaminated with uncooked pork products, or plant-based feed contaminated with virus
- By being fed upon by infected soft-bodied tick species (e.g., *Ornithodoros*)¹⁻²

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 2007.³ 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.⁴

There has never been an outbreak of ASF in the United States and it was eradicated from the Caribbean in the late 1980s. On July 28, 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 industry generates about 50,800 jobs with an estimated annual commercial value of \$24 million.⁵

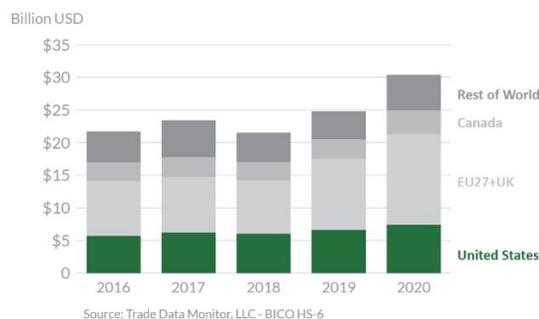
The United States consistently remains among the world's top pork producing countries, producing 13% of the world's pork, with 2020 pork exports surpassing \$7.7 billion in value.⁶ Domestically, more than 115 million hogs go to market annually, providing a total gross income of over \$20 billion.⁷

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

ASF TASK FORCE

In response to the increased threat of ASF worldwide, in 2018, the Plum Island Animal Disease Center (PIADC) established the ASF Task Force, which includes representatives from DHS Science and Technology Directorate (S&T), USDA Animal and Plant Health Inspection Service (APHIS), and USDA Agricultural Research Service (ARS). 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
- **USDA APHIS-improved 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



United States Market Share of Global Pork Exports⁸

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

