African Swine Fever (ASF)

History and current status
African swine fever (ASF) is one of the most severe diseases of pigs, having a drastic impact on the pig industry. ASF first appeared in domestic pigs in East Africa in the 1900s. It subsequently spread to Europe appearing first in Portugal, then Spain and further countries. Eradication was achieved in Europe apart from Sardinia in the mid 1990s. In 2007 it then appeared in Georgia spreading then to Russia and the Caucasus region, and other Eastern European Countries. In 2018, it continued to spread westward affecting domestic pig and wild boar populations (Fig 1). In 2018, ASF virus also reached the world’s largest pig producer, China (Fig 2). And in 2019, Mongolia reported its first outbreak.

What is African Swine Fever (ASF)?
ASF is a highly contagious hemorrhagic disease caused by a virus of the family Asfarviridae. It is often fatal in domestic pigs and wild boars. The primary control strategy for ASF in domestic swine is stamping-out. Currently, there is no vaccine available. Given the financial implications and limitations in trade, eradication is the ultimate goal.

ASF virus can remain infectious in uncooked pork for up to 3-6 months. Incubation period can range on average from 2-14 days, and acute forms of the disease can occur within 3-4 days post-infection. Mortality can reach 100%, but subclinical infections can also occur. Peracute to acute signs of the disease can range from fever, cyanosis, hemorrhaging of the skin and extremities to sudden death within 2-10 days. Chronic and less virulent forms can show mild signs of inappetence, weight loss, diarrhea, necrosis of extremities, and fever. There is no treatment available for ASF.

How is ASF diagnosed?
ASF should be considered with presentation of any of the clinical signs described in combination with mild to severe increase in mortality. Preliminary diagnosis can be done by submitting whole blood in EDTA to designated ASF labs in the United States. Confirmation of a positive is then done by Plum Island USDA lab.

Public Health Risks?
No, there are no risks to human health. ASF virus is only infectious to swine. Still, people play a critical role in ASF epidemiology, primarily for long distance spread.

What do we know about ASF virus (transmission, incubation, clinical signs and treatment)?
Importantly wild boars and infected pig farms are a reservoir of ASF virus in certain countries. Transmission occurs through infectious bodily fluids, blood and tissues:

- **Direct transmission** - contact between infected and uninfected individuals.
- **Indirect transmission** - Swill feeding (uncooked pork products), fomites.
- **Vectors** - Via soft ticks Ornithodoros moubata

Figure 1: Updated distribution of ASF in Europe. (Jan 2019)

Figure 2: updated distribution of ASF in China. (Jan 2019)
Biosecurity and Early Detection

How ASF is spread
Due to the absence of an effective vaccine, introduction and spread of ASF onto domestic pig farms can only be prevented by strict compliance with biosecurity measures.

ASF virus is highly stable and temperature resistant and can persist in the environment for a long time. The main mechanisms of spread include:

- Direct pig-to-pig contact, including with wild pigs
- Movement of infected live animals
- Improper disposal of manure and dead animals
- Contact with contaminated pork and byproducts
- Consumption of contaminated feed (swill feeding)
- Ticks
- Slurry
- Introduction of genetic materials and replacement animals
- Contaminated vehicles and other fomites, clothing, footwear, any other equipment
- Workers and visitors

Biosecurity:
In order to avert ASF spread:

Bioexclusion – Preventing the introduction of the virus into a herd, site or country from an outside source.

- Pigs should not be fed swill that might contain remains of swine byproducts. To ensure safety, swill should be boiled, above 70°C for 30 minutes and cooled before feeding.
- Check with feed supplier about ingredients.
- Movement of live pigs and byproducts across international borders should be controlled.
- Prevent visitors from bringing external byproducts into the farm and surroundings.
- Ensure perimeter fences and barriers are well maintained to prevent the entrance of feral pigs.
- Ensure biosecurity protocols are up-to-date and commit to their implementation every day.
- Implementation of periodic internal audits for biosecurity protocols.
- Reinforce staff biosecurity training.
- Proactively follow industry best management practices if hosting international visitors or traveling abroad.

Biocontainment – Preventing a pathogen from escaping a site and spreading, limiting the number of farms infected by the disease.

- In case of clinical suspicion, stop the movement of animals from the farm.
- Carcasses should be destroyed on-farm, and proper disposal should be preferred.
- Use disinfectants (specifically labeled for ASF), after removal of organic material.
- If you notice any difference in pigs’ health, call your veterinarian practitioner immediately.

Early detection highlights
Early signs you may notice include:

- Increase in the number of animals with purple ears & other parts of the body, fever, diarrhea.
- Sudden increase of morbidity and mortality.

Some ASF strains can start shedding long before the onset of clinical signs. Be aware of the fact that ASF can have a much milder presentation in the field than what it is traditionally expected, misleading the early clinical diagnostic.

Immediate actions and resources:

- Prepare your farm for enrollment in the Secure Pork Supply. Resources instructions can be found at www.SecurePork.org
- Fill out a FAD Preparation Checklist for your farm. It can be found at www.pork.org/fad
- A person who suspects of an ASF case shall immediately notify the board. Call the Board of Animal Health at 651-296-2942 (Link).

Additional Information:


This fact sheet is meant to provide basic information. For specific health concerns please contact your veterinarian. Updated 2019.