



African Swine Fever: Prevention and Control measures

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Introduction

Animal husbandry and livestock sectors are critical for rural livelihood and economic development of the country. India possesses one of the largest livestock wealth in the world and a quarter of the agricultural gross domestic product is contributed by the livestock sector. Among the livestock species, pig finds an important place as it being reared by socio-economically weaker sections of the society.

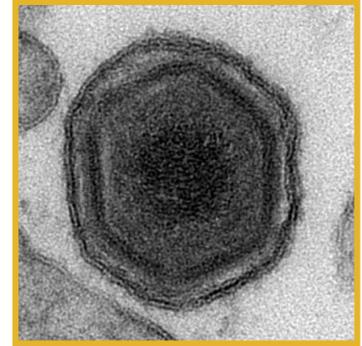
Pig as compared to other livestock species has a great potential to contribute to faster economic return to the farmers, because of certain inherent traits like high fecundity, better-feed conversion efficiency, early maturity and short generation interval. In India, 70% of the pig population is reared under traditional small holder, low-input demand driven production system, except for limited number of semi-commercial pig farms in Kerala, Punjab and Goa.

African Swine Fever Virus

African swine fever (ASF) is caused by the African swine fever virus (ASFV), a large and enveloped DNA virus. This virus is unique as it is the sole member of the genus Asfivirus (family Asfarviridae), and is the only known arthropod-borne DNA virus. More than 20 genotypes of ASFV have been identified. ASFV isolates vary greatly in their virulence, with highly virulent isolates causing up to 100% mortality, while lower virulent isolates may lead only to seroconversion. All genotypes are present in Africa, while genotypes I and II have been found outside of Africa. The ASFV primarily infects cells of the mononuclear phagocytic system viz., monocytes and macrophages. The virus also has a predilection for lymph nodes near the head.

Prevention

Preventing of spread of ASF focuses on disrupting the means of virus transmission. First, to prevent direct contact transmission, practice good farm biosecurity measures to prevent contact between any infected and susceptible swine. This should include isolation of any ill pigs from the herd, preventing contact of pigs with feral or wild hogs; when possible, housing pigs indoors, and keeping newly acquired pigs separate from the herd for at least 30 days for assure health.



1. **Implementation of strict importation measures for animal products:** Ensure that neither infected live pigs nor pork products are introduced into areas free of ASF. ASF positive countries can have their animal exportations restricted or prohibited as a result of the detection of infected meat. Check infected regions before importing products that could potentially be contaminated.
2. **Proper disposal of all food waste from aircrafts or ships coming from infected countries.** Furthermore, no human food waste should be fed to pigs.
3. **Efficient sterilization and disposal of garbage: Avoid swill feeding (i.e., garbage feeding).** Feeding of catering waste is a high-risk practice; if the food waste is contaminated with ASF, it can infect a healthy herd. Do not expose food waste that wild swine species could access. Carcasses, discarded parts from slaughtered pigs and food waste should be disposed of appropriately.
4. **Rapid slaughtering of all pigs, infected or not (stamping out):** Recovered or surviving animals are virus carriers for life. Therefore, to avoid spreading the disease to other pigs and to prevent relapse, it is safer to slaughter both infected and potentially infected pigs. Stamping out tends to be a short-term method to eradicate the disease. Nevertheless, it is generally the most economical method that allows farms to be free from ASF in the shortest time.
5. **Strict on-farm biosecurity:** Keep viruses and bacteria out by complying with biosecurity rules, including proper disinfection of clothing and boots, as well as not bringing pork products that have not been properly heat-treated onto a farm. Farms should maintain dedicated footwear and clothing that stay on the farm.
6. **Controlled animal and human movements:** Pigs should be purchased from trusted and certified suppliers. Vehicles, equipment and people are also fomites of ASF. Ensure that anyone who enters the farm has not been in contact with any other pigs over the past 48 hours. Farm



visitors who have been in countries that are ASF positive need at least five days of quarantine before entering the farm. Vehicles and equipment should be properly cleaned and disinfected before entering the premises. As secretions and excretions from sick or dead animals are a source of ASF, carcass-hauling trucks are high-risk and should not enter the farm.

7. **Disease surveillance and monitoring:** This is especially important when transporting live pigs and pork products. In addition, pig farms should maintain a strict health monitoring program. All sick or dead pigs should be inspected and examined for ASF. To detect ASF early, pigs slaughtered for own home consumption should be inspected by veterinarian. Regarding staff training holding regular prevention lectures and strengthening quality assessments as well as the daily records of feed ingredients is advised.
8. **Efficient and early detection of the virus through laboratory tests:** Notify a vet immediately upon spotting signs of ASF, and get pigs tested.
9. **Strict quarantine protocol:** Strict quarantine measures should be applied in both ASF-free zones and infected zones to prevent the entry of the disease and/or to keep ASF from spreading further.

Control

As previously mentioned ASF is a highly contagious and reportable disease. Once suspected or detected it is necessary to control the spread of the disease and identify source of the virus must be taken. Strict quarantine must be imposed if ASF is suspected. The entire herd should be quarantined immediately until authorities are notified and a diagnosis is confirmed. Movement restrictions may be imposed while investigation, diagnosis, and determination of the source of the virus are in progress.

Disinfection

Since many common disinfectants are ineffective, care should be taken to use a disinfectant specifically approved for the virus. Disinfection of equipment, vehicles, and personal protective equipment (shown above) is essential when there has been exposure to an area with suspicion or confirmed diagnosis of ASF. Sodium hypochlorite, citric acid (1%) and some iodine and quaternary ammonium compounds are reported to destroy ASFV on some nonporous surfaces.

During an outbreak

Farms should not be restocked for at least 40 days following above procedures. Sentinel pigs should be used for at least 6 weeks while being monitored clinically and serologically.

1. Infected and suspected infected animals must be placed under quarantine
2. No movement of pigs or any products of pig origin should be allowed



3. All infected and in-contact pigs must be humanely slaughtered
4. Carcasses, animal products and bedding must be burnt or buried deeply on site
5. Vehicles should be disinfected on entering and leaving farms
6. Personnel should ensure that shoes, clothes and equipment are disinfected between farms

Eradication

Successful eradication is accomplished by rapid diagnosis, depopulation and proper disposal of all infected or in-contact swine on the infected premises. Disposal of carcasses will be necessary and must follow animal health official guidelines. Additionally, measures to ensure proper carcass disposal, sanitation/disinfection, movement controls and quarantines, and the prevention of contact with wild suids must be taken.

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