Feral Swine Disease Surveillance in Kansas

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Feral Swine Disease Surveillance in Kansas

- Like most other states with active feral swine programs, Kansas' program routinely collects and submits swine specimens for various disease surveillance projects. Most of these projects are coordinated by the National Wildlife Disease Program (NWDP) which is housed in the USDA's National Wildlife Research Center in Fort Collins, CO.

Feral Swine Disease Surveillance in Kansas

NWDP:

- Established in 2003 to develop nationally coordinated wildlife disease surveillance and emergency response.
- Most states staff a wildlife disease biologist (**WDB**) or have a designated biologist that fills many of the roles.
- WDB's are trained as all-hazard first responders for Wildlife Services.
- All aim to integrate with each state's stakeholders and resources in order to help support the common goal of protecting American agriculture and human health/safety.
- The Kansas office staffs one wildlife disease biologist who is in place to help fulfill the disease surveillance goals of the NWDP through acquiring wildlife specimens from active WS projects around the state. In addition to NWDP needs, the WDB also coordinates/cooperates with local stakeholder efforts to address disease concerns and research within the state.

Feral Swine Disease Surveillance in Kansas

NWDP:

- Active surveillance in KS since 2007
- Over 1100 feral pigs have been sampled

- What have we been looking for?

Diseases of Feral Swine

- Feral swine have been known to carry or transmit over 30 diseases and 37 parasites that can be transmitted to livestock, people, pets, and wildlife.
- Feral swine can carry several diseases that affect **domestic swine**.
- If a foreign animal disease, such as **classical swine fever, African swine fever, or foot-and-mouth disease**, were to enter the United States, feral swine could spread the disease to domestic swine or other susceptible animals.
- Once prevalent in feral swine populations, the disease would be **extremely difficult to eradicate**.
- Another concern is the potential for feral swine to **reintroduce diseases** that have been eradicated in U.S. livestock. For example, domestic swine are now free of pseudorabies and swine brucellosis. If reinfection through feral swine should occur, it would be economically devastating to the pork industry.

Diseases of Feral Swine

- Though a rare occurrence, feral swine can directly infect people with diseases. For example, **brucellosis** can be transmitted to people when blood or other body fluid from an infected animal comes into contact with a person's eyes, nose, mouth, or open wound.
- Feral swine can also carry harmful organisms and diseases such as **toxoplasmosis, tularemia, trichinellosis, swine influenza, salmonella, *E. coli***, and a variety of bacterial diseases that can cause sickness and, in some cases, death to people who consume contaminated food products.
- If you feel ill after coming in contact with or consuming feral swine, contact your physician.

Historical FS Disease Surveillance in KS

Highlighted diseases = confirmed cases in KS feral swine since 2007

- Classical Swine Fever (CSF)
- Pseudorabies Virus (PRV)
- Swine Brucellosis (SB)
- Leptospirosis
- Influenza A (IAVS)
- Toxoplasmosis
- Porcine Epidemic Diarrhea Virus (PEDV)
- Neospora
- Porcine Reproductive and Respiratory Syndrome (PRRS)
- Swine Influenza (SIV)
- Seneca Valley Virus (SVV)
- Blue-Tongue (BTV)
- Trichinellosis
- Tuberculosis
- Sarcocystis

Current FS Disease Surveillance in KS

- Classical Swine Fever
- Swine Brucellosis
- Psuedorabies
- African Swine Fever (passive morbidity/mortality surveillance)
- Plague
- Tularemia
- Tick-born pathogen research
- Feral Swine Serum Archive
- Genetic Archive
- Cooperative Research

Classical Swine Fever

What is it?

Classical swine fever (CSF) is a disease caused by classical swine fever virus. The disease is a foreign animal disease that was eradicated from the U.S. in 1978. High and low virulence forms exist.

How is it transmitted?

The virus is primarily transmitted via direct contact with infected animals, or the ingestion of contaminated pork or garbage.

Can it be transmitted to domestic swine and other livestock?

Yes. Swine infection with high virulence CSF virus can cause fever, abortion, bleeding, skin discoloration, and death (similar to ASF). Low virulence CSF virus may be difficult to detect as the symptoms, including fever and poor reproductive performance, may mimic other common diseases of swine.

Can it be transmitted to humans?

- **No.**

Classical Swine Fever

Significance in KS:

CSF is a Foreign Animal Disease that is found in multiple countries around the world. An introduction into the feral swine population would have the potential to cause significant impacts on the pork industry and pork supply.

Occurrence in KS Feral Swine:

No cases in Feral swine have been documented.

Surveillance:

Serum samples are collected from targeted age classes of hogs in targeted proportions in each county with a feral swine population. CSF is included in surveillance every year.

Swine Brucellosis

What is it?

Brucellosis is a disease in feral swine caused by Brucella suis. In the U.S., biovars 1 and 3 have been identified in feral swine.

How is it transmitted?

In swine, B. suis transmission occurs primarily through sexual contact, but can also occur through mucosal membranes, damaged skin, or through ingestion of infected tissues.

Can it be transmitted to domestic swine and other livestock?

Yes. In swine, infection can cause abortion, lameness, hind limb paralysis, inflamed testicles or mammary glands, and abscesses in various tissues or extremities. However, the domestic swine industry is considered brucellosis free. Asymptomatic infection with B. suis has been reported in cattle.

Can it be transmitted to humans?

- **Yes.** Humans become infected when blood, body fluids, or tissues from an infected animal come in contact with the eyes, nose, mouth, and cuts in the skin.

Swine Brucellosis

Significance in KS:

Has the potential to cause significant impacts on the pork industry and pork supply. Also, as previously mentioned, has implications for human health.

Occurrence in KS Feral Swine:

Single cases in 2009 and 2010 in Cowley county

Surveillance:

Serum samples are collected from targeted age classes of hogs in targeted proportions in each county with a feral swine population. Swine Brucellosis is included in surveillance every year.

Psuedorabies Virus

What is it?

Pseudorabies (PRV) is a disease caused by suid herpesvirus 1. Feral swine are considered the reservoir for PRV in the U.S., and the virus is widespread in feral swine populations.

How is it transmitted?

In swine, PRV is primarily transmitted through sexual contact, nose-to-nose contact, or ingestion of infected tissues; however, transmission can occur via aerosolized virus, or contaminated equipment and clothing. Infected feral swine are long term carriers.

Can it be transmitted to domestic swine and other livestock?

Yes. In young swine, infection can cause death, respiratory distress, and paddling. Infected adult swine may not display clinical signs, or they may abort fetuses. In livestock (cattle and sheep) and companion animals (dogs and cats), infection is almost always fatal. The domestic swine industry is considered pseudorabies free.

Can it be transmitted to humans?

- **No**

Psuedorabies Virus

Significance in KS:

Has the potential to cause significant impacts on the pork industry and pork supply. Also, as previously mentioned, has implications for livestock and pets.

Occurance in KS Feral Swine:

- 32 cases have been identified in KS during surveillance.
- Approximately half of those had occurred during 2010-2012.
- The other half of those have occurred in more recent years (since 2016)
- 6 cases in FY 2020

Surveillance:

- Serum samples are collected from targeted age classes of hogs in targeted proportions in each county with a feral swine population. Psuedorabies is included in surveillance every year.

African Swine Fever

What is it?

African swine fever is a highly contagious and deadly (for swine) viral disease affecting both domestic and wild pigs of all ages. It is considered a Foreign Animal Disease and has never occurred in the U.S.

How is it transmitted?

African swine fever virus is primarily transmitted via direct contact with infected animals, by ticks, or via ingestion of contaminated garbage.

Can it be transmitted to domestic swine and other livestock?

Yes. Infection can cause fever, abortion, bleeding, skin discoloration, and death. African swine fever virus is not known to cause disease in animals other than swine.

Can it be transmitted to humans?

No. ASF is not a threat to human health and cannot be transmitted from pigs to humans. It is not a food safety issue.

African Swine Fever

Significance in KS:

ASF is found in countries around the world, particularly in sub-Saharan Africa. More recently, it has spread through China, Mongolia and Vietnam, as well as within parts of the European Union. Much like CSF, any introduction in feral swine would cause tremendous hardship to the pork industry and pork supply in the U.S.

Occurrence in KS Feral Swine:

No cases have been documented in KS

Surveillance:

Kansas, along with all WS feral swine programs, has implemented a passive morbidity/mortality surveillance strategy for ASF. Field personnel are on the look-out for out-of-norm mortality events, observing the posture and behavior of hogs in and around trap sites, as well as performing external evaluations on euthanized hogs for lesions/discolorations that are consistent with ASF or vesicular diseases.

USDA
United States Department of Agriculture

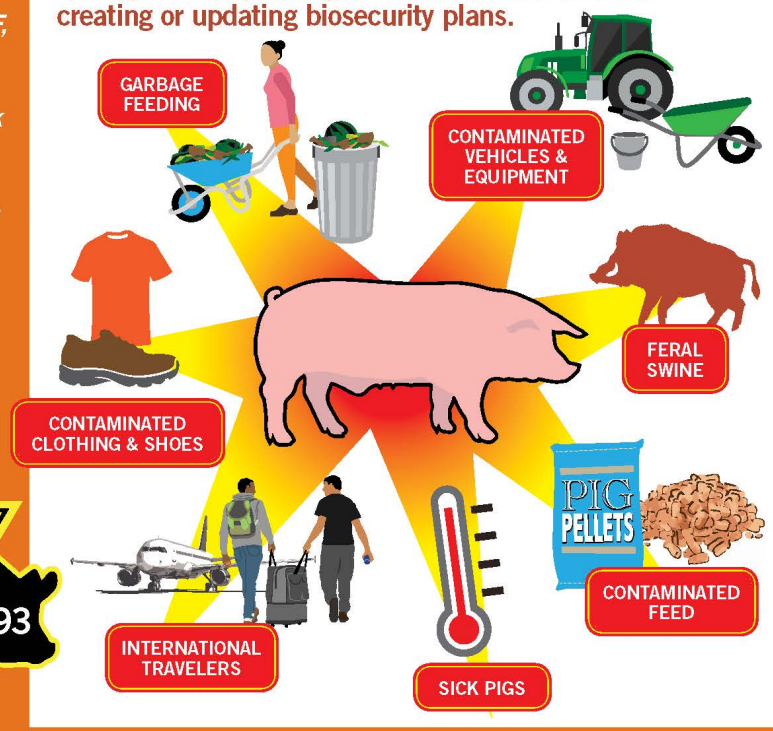
AFRICAN SWINE FEVER

African swine fever (ASF) is a viral disease that affects both domestic and wild pigs. It spreads very quickly and kills most pigs that get it. ASF has never been found in the United States.

Humans cannot get ASF, but they can carry it on clothing, shoes, and equipment. An outbreak in the United States would have devastating economic effects on the swine industry.

Don't Spread This Deadly Disease

It's easy to spread ASF—without even knowing it. The virus can stay on clothing and equipment and survive for months in pork products. Be aware of these potential pathways and consider them when creating or updating biosecurity plans.



REPORT SICK PIGS
1-866-536-7593

Help keep U.S. pigs free of this deadly disease! Understand how the virus spreads, and do your part to protect against it.

Need more info? www.aphis.usda.gov

Animal and Plant Health Inspection Service
Program Aid No. 2237-1 • Issued March 2019

USDA
United States Department of Agriculture

AFRICAN SWINE FEVER

African swine fever (ASF) is a viral disease that affects both domestic and wild pigs (feral swine). It spreads very quickly and kills most pigs that get it. ASF has never been found in the United States.

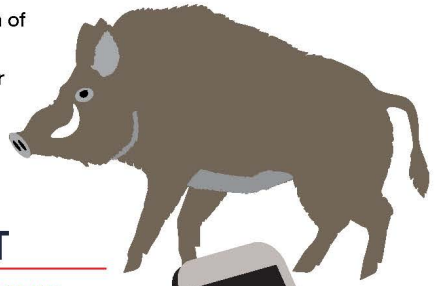
Humans cannot get ASF, but they can carry the virus on clothing, shoes, and equipment. An outbreak in the United States would have devastating economic effects on the swine industry.

Report Feral Swine

Feral swine can carry foreign animal diseases like ASF. While ASF has never been found in domestic or feral swine in the United States, there is no treatment or vaccine for it. That's why surveillance is very important. Help protect U.S. pigs by immediately reporting sick or dead feral swine.

WHAT TO DO

- If you find a sick or dead feral swine with no obvious injury or cause of death, report it right away.
- Be sure to note the location of the sighting.
- Don't disturb the carcass or approach a sick animal.
- If safe to do so, check the area for any other sick or dead feral swine.



HOW TO REPORT

Call the USDA-APHIS Wildlife Services program in your State at

1-866-4-USDA-WS

Don't wait! Quick detection is essential to preventing the spread of ASF.

Help keep U.S. pigs free of this deadly disease!

Need more info? www.aphis.usda.gov

Animal and Plant Health Inspection Service
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Feral Swine Serum Archive and Genetic Archive

- The FSSA is housed at the NWRC.
- Each hog sampled through routine surveillance also has 4 duplicate 1ml serum samples collected for submission to the FSSA. These samples provide a reservoir of serum for future disease investigations and research.
- A strategically selected set of hogs sampled during routine surveillance have genetic tissue collected for submission to the genetic archive at the NWRC. These samples can be used to answer a variety of questions.

Research Cooperation

- WS in KS regularly accommodates a variety of non-WS agency and/or university sponsored research projects such as toxoplasmosis and porcine endogenous retrovirus studies.
- We routinely cooperate with or contribute to additional research projects that align with the goals of the USDA.

KANSAS WILDLIFE SERVICES FERAL SWINE PROGRAM BUDGET

Yearly Operating Budget Jointly funded by Kansas Department of Agriculture and USDA APHIS

Current Operating Budget:

Kansas Department of Agriculture CSA	*$175,000 (31%)*
APHIS – Level 2 Feral Swine Funding	*$165,000*
APHIS Border Eradication Special Funds (apply each year)	*$80,000*
Sub total Operating Budget	***$420,00***
APHIS Provided Aerial Hunting Hours (average)	$60,000
APHIS Disease Program Biologist and testing .5 FTE	$80,000
(includes 75 each of CSF, PRV, SB, FSSA, Genetics)	
Total Effort:	**$560,000**

Neighboring states with large feral swine populations are spending millions of dollars annually

Yearly Operating Expenses:

Operating Budget	$420,000
Salaries/Benefits 4.5FTE	
Vehicle Cost (fuel only)	
Supplies/Equipment (corn etc.)	
Travel	
Internet/Phone	


Questions?
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