



United States Department of Agriculture



# AFRICAN SWINE FEVER (ASF)

## USDA PREVENTION, PLANNING, RESPONSE AND OUTREACH IN THE UNITED STATES

---

BARBARA PORTER-SPALDING, DVM MVPH  
TRAINING AND EXERCISE PROGRAM  
NATIONAL PREPAREDNESS AND INCIDENT COORDINATION  
U.S. DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE  
VETERINARY SERVICES

NATIONAL ASSOCIATION OF FEDERAL VETERINARIANS  
FEBRUARY 27, 2020

# What is ASF?

- ❑ Infectious disease caused by the ASF virus that affects members of the suidae family: domestic pigs, feral swine, wild boar and other exotic swine species
- ❑ Negligible health risk to other livestock species
- ❑ Does not infect humans and is not a public health risk



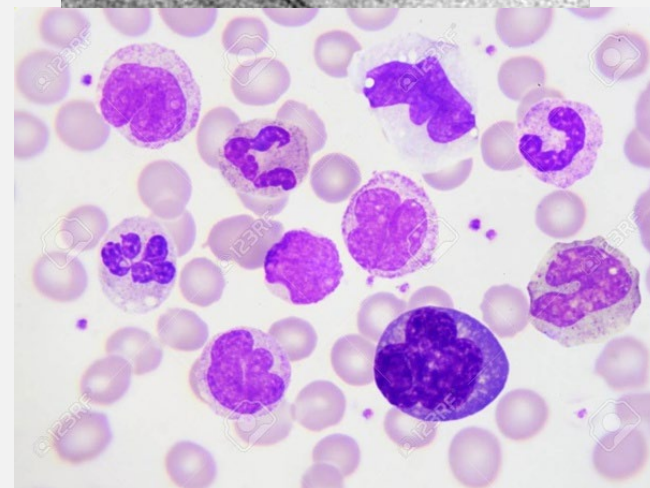
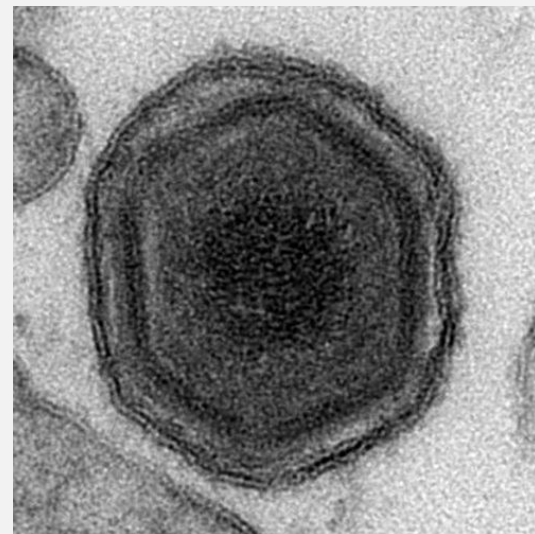
*Photo courtesy of USDA ARS*



*Photo courtesy of USDA APHIS WS*

# ASF – The Virus

- ❑ Unique virus with 20 genotypes and multiple clinical presentations
- ❑ Highly resistant in environment, especially at lower temperatures
- ❑ Can survive in meat and meat products for extended time



# ASF – Transmission

- ☐ **Direct contact with infected pigs**
  - ☐ Usually oronasal
  - ☐ All secretions/excretions, blood, tissues
  
- ☐ **Indirect contact**
  - ☐ Ingestion of contaminated pork products
  - ☐ Contaminated Surfaces & Fomites
  - ☐ Vectors



# ASF – Clinical Disease

- ☐ Incubation period of ASF is 5 to 21 days following direct contact with infected pigs
- ☐ Depending on the virus genotype, ASF manifests as
  - ☐ Peracute disease
  - ☐ Acute disease
  - ☐ Subacute disease
  - ☐ Chronic disease



# ASF – Diagnosis

- ☐ **Suspect case: Foreign Animal Disease  
Diagnostician (Federal or State) called in**
  
- ☐ **Samples Submitted**
  - ☐ **Tonsils**
  - ☐ **Spleen**
  - ☐ **Lymph Nodes**
  - ☐ **Whole Blood**
  
- ☐ **Samples will be run at approved NAHLN  
labs or FADDL**

# ASF – Treatment & Vaccination

## ☐ No treatment

- Treatment should not be attempted
- Depopulation of infected and exposed pigs is the best disease control method
- State and Federal officials will manage depopulation

## ☐ No vaccine currently available

- Large gaps in knowledge concerning ASFv infection and immunity
- Ongoing research

# Why Is ASF a Concern to the US?

- ☐ Potential health impact on nation's swine herd
- ☐ Potential economic impact on swine/ag sector
- ☐ Potential trade restrictions
- ☐ Recent spread to previously unaffected areas in Europe and Asia





# ASF Timeline – Origins in Africa

- ❑ **1921: Discovered in Kenya**
- ❑ **Today: endemic in most of sub-Saharan Africa including the islands of Madagascar and Mauritius**



*Graphic courtesy of ISU CFSPH*

# ASF Timeline – First Jump to Europe

- ☐ 1957: First occurrence outside Africa – Portugal
- ☐ 1960s: Portugal and Spain
- ☐ 1970-1980s: The Netherlands, Italy, France, Belgium
- ☐ 1990s: Disease eradicated
- ☐ Remains endemic on the Island of Sardinia



*Graphic courtesy of ISU CFSPH*

# ASF Timeline – Western Hemisphere

- ❑ **1963: Virus isolated from soft tick**
  - **Ornithodoros erraticus**
- ❑ **1971: Western Hemisphere**
  - **Cuba, the Dominican Republic, Haiti, Brazil**
- ❑ **No known contemporary cases in this hemisphere**



*Graphic courtesy of ISU CFSPH*

# ASF Timeline - Eurasia

❑ 2007: Republic of Georgia

❑ Spread in Caucasus Region (Eurasia), including Russia Federation

❑ 2015: Eastern Europe

- Lithuania, Latvia, Poland, Romania

❑ Wild boar in Iran



*Graphic courtesy of ISU CFSPH*

# ASF Timeline – 2018 Outbreaks

- ☐ China: First time reported, domestic pigs
- ☐ Belgium: Wild boars
- ☐ Hungary, Estonia, Latvia, Lithuania, Russia, Poland, Ukraine, Bulgaria, Romania



*Graphic courtesy of ISU CFSPH*

# ASF – Globe Trotter

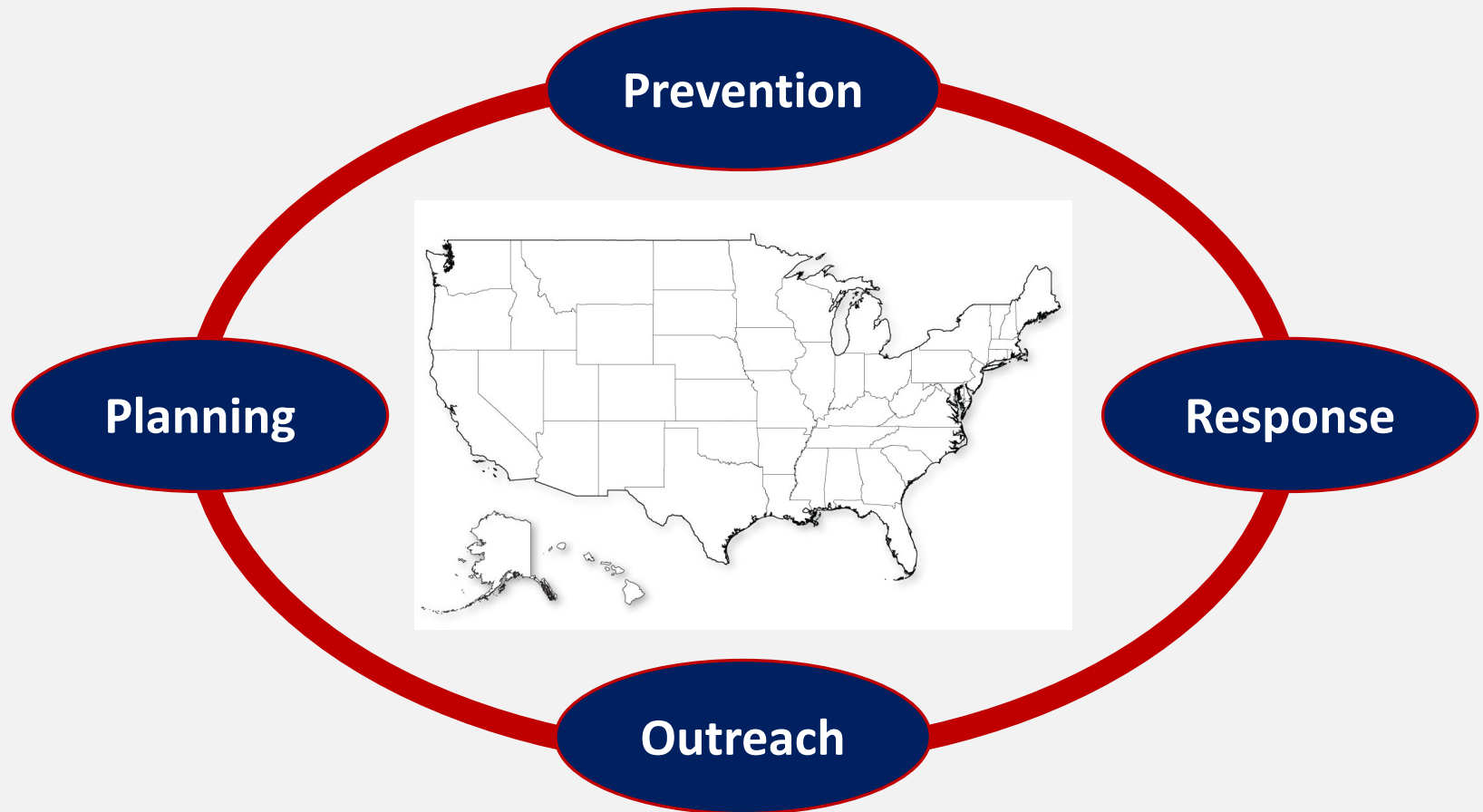
- ❑ **Uncooked/undercooked pork products fed to pigs (imported, illegal)**
  - Portugal , Spain (1960); Italy (1983); Belgium (1985); Russia (2008); Romania, China (2018)
- ❑ **Raw pork waste/garbage at airport or shipping ports**
  - Lisbon (1957), Malta, Sardinia (1978), Georgia (2007)
- ❑ **Movement of infected wild boars**
  - Russia (2008)





# USDA and African Swine Fever

## *Protecting Our National Herd*



# ASF Prevention

## *Barriers to Entry to the US*

- ☐ **Import Restrictions**
  - Live swine
  - Products derived from swine
  
- ☐ **International garbage restrictions**



# ASF Prevention

## *Barriers to Entry to the US*

- ❑ Passenger and commercial screening, confiscation/fines
- Partnering with U.S Customs & Border Protection (CBP)



# ASF Prevention

## *Interior Barriers Protecting U.S. Swine*

☐ Swine Health Protection Act/Garbage-Feeding Restrictions

☐ Ethnic markets  
APHIS PPQ SITC outreach and enforcement

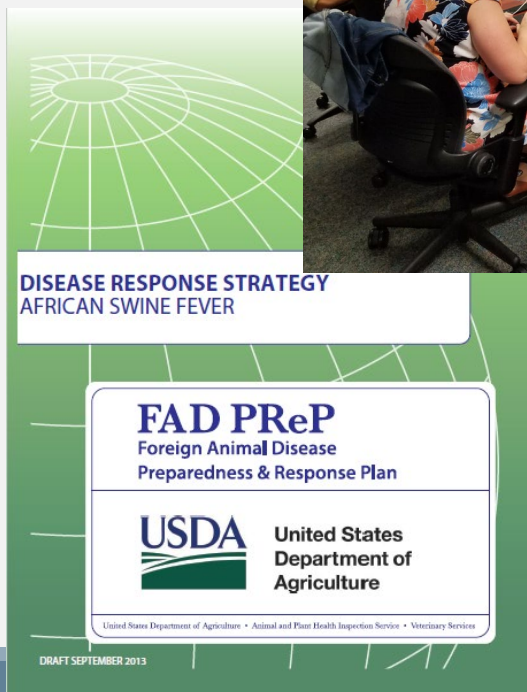




# ASF Planning & Response

## *Strategic Plans & Exercises*

- ☐ ASF FAD PReP Response Strategy (Dec 2019)
- ☐ ASF response exercises 2018-2019
- ☐ State ASF response plans












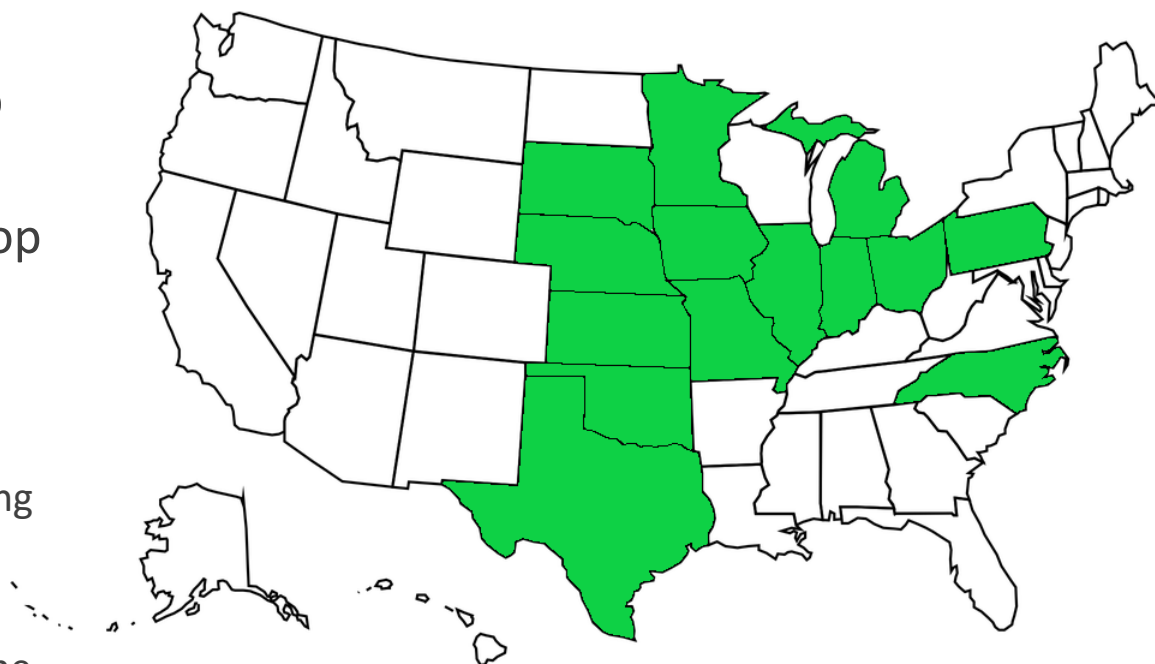
# SFEAR Exercise






# ASF Exercise Series

-  Policy workshop
-  Plan review workshop
  -  Policy Group
-  Plan validation tabletop exercise
-  SFEAR
  -  14 top swine states
  -  20 operations representing 18 companies
  -  Siloed days
  -  1,559 participants over the four days



Key

 States Participating in the September ASF Exercises (SFEAR)

# SFEAR Major Findings



## AAR/IP

- State-VS overarching report
- 34 areas for improvement
- 73 corrective actions



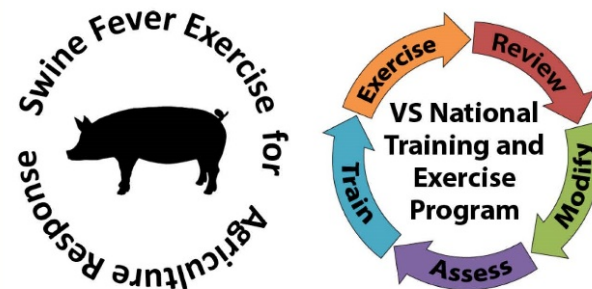
## State-specific

### Swine Fever Exercise for Agriculture Response

### Functional Exercises and Drills






APHIS Joint Federal-State-Industry  
After-Action Report/Improvement Plan

January 31, 2020



WARNING: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release. It is to be controlled, stored, handled, transmitted, distributed and disposed of in accordance with policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need to know" without prior approval of an authorized official.

# FAD Investigation

-  States wanted to notify select stakeholders before confirmation
-  Containing fluids during the necropsy was difficult
-  Rigorous disinfection of incoming equipment caused delays
-  EMRS2Go in remote locations
-  Availability of foreign animal disease diagnosticians






# Movement Standstill

- Initial press releases did not address food safety
- Monitoring the status of states relative to implementing the standstill and their associated restriction/criteria was difficult
- States initiated the standstills with varying grace periods
- States had difficulty identifying allowed “critical” movements






# Depopulation & Disposal (D&D)

-  Uncertainty that ventilation shutdown would be approved and if indemnity would be paid
-  Site management teams were inconsistent in informing producers who was ultimately responsible for depopulation and disposal
-  The epi questionnaire and the information required by the indemnity calculators were not aligned





# D&D (continued)

-  Many states did not understand indemnity; how animals are valued, what is covered, and what actions could impact the availability of indemnity payments
-  States had difficulty using both internal and EMRS resource ordering systems
-  Many states did not understand what was available from NVS



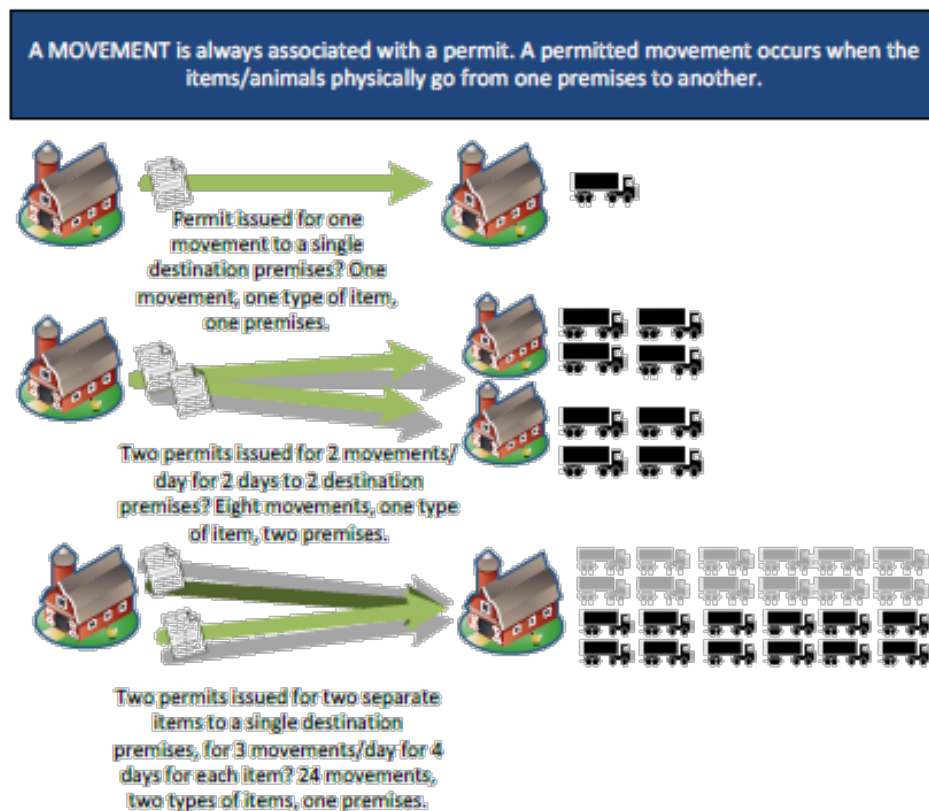
AP File






# Permitting

- Destination locations were not informed of pending permitted movements
- States varied in their pre-movement permit requirements
- Information on why a permit was denied was not included with the denial
- Industry felt that it took too long for receiving states to approve interstate movement requests

Figure 2. Overview of Permitted Movements



# Permitting (continued)

-  The draft pre-movement sampling requirements were considered excessive
-  States had access issues for EMRS
-  The process for permitting the movement of feed and equipment was not understood by industry



**SPS**  
SECURE  
POULTRY SUPPLY



**SMS**  
SECURE  
MILK SUPPLY



**SPS**  
SECURE  
PORK SUPPLY



**SBS**  
SECURE  
BEEF SUPPLY



# Next Steps

ASF PREPAREDNESS

# ASF Events

---

## VS NTEP

- Packer exercise series
- Secure Food Supply
  - Plan development workshop
  - Secure Pork Supply plan tabletop (TTX)
- Webinars
- ASF exercise series/parts for other states
- 14 top swine states recycling one of more days of SFEAR

## State-specific

- 3D operations
- Farm Bill Funding to continue exercises and training

# ASF Planning & Response

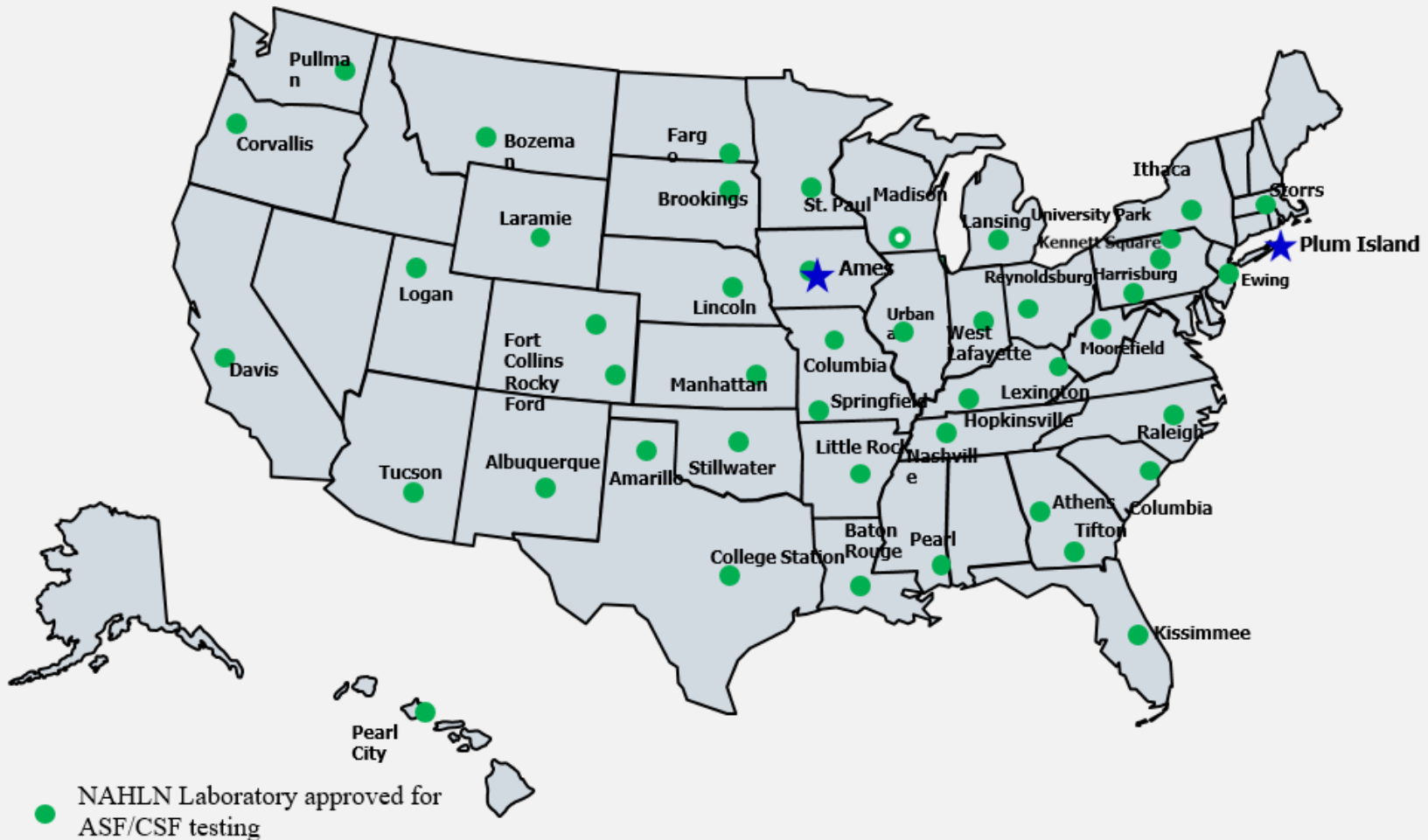
## *Increased Diagnostic Capacity*

- ❑ Expanded list of approved tissues for ASF testing
- ❑ Increased number of approved NAHLN labs





# NAHLN Laboratories Approved to Conduct ASF & CSF Testing



October 17, 2019



# NAHLN ASF Response- Increasing ASF Capacity



- **Integrated Active Surveillance for ASF and CSF**

- Start date: June 1, 2019
- Approximately 3,903 samples have been tested through January 31, 2020

- **Approved NAHLN labs: Quadrupled the number to 46 labs approved**

- 8 labs provide active surveillance for ASF/CSF
- 38 additional labs may provide passive surveillance (FAD investigations)
- All 46 labs available for surge capacity
- Over 170 Proficiency tested analyst
  - Capable of providing over 40,000 ASF or CSF PCR tests/day

- **Approved sample types**

- Whole blood (ASF)
- Tonsil (ASF and CSF)
- Spleen (ASF and CSF)
- Lymph node (ASF and CSF)

- **Validation work in progress**

- Oral fluids



United States Department of Agriculture

# ASF Planning & Response

## *Surveillance & Analysis*

- ☐ Swine Hemorrhagic Diseases Targeted Surveillance (June 2019)
- ☐ Global monitoring
- ☐ Scientific analysis at USDA's Center for Epidemiology & Animal Health (CEAH)



United States  
Department of  
Agriculture

Animal and Plant  
Health Inspection  
Service

Veterinary Services

May 2019

### Swine Hemorrhagic Fevers: African and Classical Swine Fever Integrated Surveillance Plan



### NON-ANIMAL ORIGIN FEED INGREDIENT RISK EVALUATION FRAMEWORK: SCOPING

MARCH 2019

# ASF/CSF Surveillance

Starting June 1, 2019 began testing certain samples for ASF & CSF

- Piggybacks on old CSF surveillance program
- ~90% of samples will come from private practitioner routine submissions – clinical compatibility necessary for testing
- ~9% of samples will come from VS or State field employees
- ~1% feral swine FADIs

# Swine Foreign Hemorrhagic Fever Surveillance

Number	Surveillance stream	Substream	Who collects samples	Who does testing	Sample type	Test Type	Forms	Database used
1	Sick pigs submissions to VDLS		Private practitioners-- VDLs redirect to ASF/CSF surveillance	10 designated NAHLN labs	Approved tissues: Tonsil/Spleen/LNs	RT-PCR	Lab-specific submission form	LMS-results messed
2	Slaughter samples/roaster pig condemnations		VS and State field personnel	10 designated NAHLN labs	Approved tissues: Tonsil/Spleen/LNs	RT-PCR	CLSM online or CLSM paper form	Comprehensive Lab Submission Module-CLSM
3	High risk -on Farm	Backyard Swine: Garbage Feeders	VS and State field personnel	Serum FADDL; Tissues 10 designated NAHLN labs	CSF-serum or tissues if dead hogs; ASF tonsil, spleen or LNs	Serum:ELISA/IP VN; Tissues RT- PCR	CLSM online or CLSM paper form	CSF FADDL STRAND; ASF CLSM+LMS
		Aggregation points	VS and State field personnel	Serum FADDL; Tissues 10 designated NAHLN labs	CSF-serum or tissues if dead hogs; ASF tonsil,	Serum:ELISA/IP VN; Tissues RT- PCR	CLSM online or CLSM paper form	CSF FADDL STRAND; ASF CLSM+LMS
		Backyard swine/contact with feral pigs	VS and State field personnel	Serum FADDL; Tissues 10 designated NAHLN labs	CSF-serum or tissues if dead hogs; ASF tonsil, spleen or LNs	Serum:ELISA/IP VN; Tissues RT- PCR	CLSM online or CLSM paper form	CSF FADDL STRAND; ASF CLSM+LMS
4	Feral Swine	CSF active	WS personnel	FADDL	Serum	ELISA-IPVN	WS sample collections forms	STRAND
		ASF morbidity mortality events- FADi	WS/State/Federal	FADDL; one set to NAHLN lab if directed by State Vet	Full FADi tissue set: tonsil, spleen, LN's, Lung, etc	Full testing workup	VS 10-4	EMRS

# ASF/CSF Slaughter Surveillance

Types of samples we are looking for (first ask: FADI?)

- **Spleen or tonsil work equally well, lymph node (hemorrhagic?) works but less desirable**
  - Only need to collect one
- **Dead garbage-fed hogs are great candidates**
  - Old CSF serum program on garbage-fed hogs will continue
- **Condemnations/dying/dead hogs at slaughter or aggregation points**
  - Skin and ear discoloration (erysipelas-like)
  - Septicemia
  - Hemorrhagic lymph nodes
  - Enlarged spleen
  - Kidney petechia
  - Nasal bleeding
  - Knuckled over
  - Dying
  - Febrile (may present as huddling)
  - Tonsil pathology (tonsillitis, hemorrhagic, necrotic foci, etc.)
  - Central nervous system signs (incoordination, paddling, circling, head tilt, abnormal mentation)



United States Department of Agriculture

# ASF Outreach

## *Informed Partners = Key to Success*

❑ Raising awareness of ASF: how to prevent it from entering the U.S. and encouraging reporting

❑ Sharing information and communicating priorities and activities with key partners

❑ Preparing communications materials to respond in the event of a detection


USDA United States Department of Agriculture  
Animal and Plant Health Inspection Service

Home Our Products Resources Newsroom Pet Travel Blog

Animal Health / Animal Disease Information / Swine /

### African Swine Fever (ASF)

Last Modified: May 10, 2019



African swine fever is a highly contagious and deadly viral disease affecting both domestic and wild pigs of all ages. ASF is not a threat to human health and cannot be transmitted from pigs to humans. It is not a food safety issue.

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. It has never been found in the United States – and we want to help if that way.

#### New Information Available for African Swine Fever

##### International Trade and Zoning

Joint Statement from the Chief Veterinary Officers of Canada and the United States

##### African Swine Fever Surveillance in the United States

APHIS is fulfilling its overall African swine fever (ASF) preparedness efforts with the implementation of a surveillance plan. To make this program as effective and efficient as possible, USDA will add ASF testing to our existing classical swine fever (CSF) surveillance.

The plan, titled *Swine Hemorrhagic Fever: African and Classical Swine Fever Integrated Surveillance Plan*, is available in the "Technical Documents" section below.

##### International African Swine Fever Forum, April 30-May 1, 2018

Joint Statement from the International African Swine Fever Forum

##### African Swine Fever Assessments

APHIS has developed three new resources related to African swine fever:

- A qualitative assessment of the likelihood of African swine fever virus entry to the United States.
- A non-animal origin feed ingredient risk evaluation framework.
- A literature review of non-animal origin feed ingredients and the transmission of viral pathogens of swine.

These documents are available in the "Technical Documents" section below.

#### Why is African Swine Fever a Concern?

ASF is a devastating, deadly disease that would have a significant impact on U.S. livestock producers, their communities and the economy if it were found here. There is no treatment or vaccine available for this disease. The only way to stop this disease is to depopulate all affected or exposed swine herds.

USDA is working closely with other federal and state agencies, the swine industry, and producers to take the necessary actions to protect our nation's pigs and keep this disease out. This group is also actively preparing to respond if ASF were ever detected in the U.S.

#### What Producers and Veterinarians Need to Know

Anyone who works with pigs should be familiar with the signs of ASF:

- High fever
- Decreased appetite and weakness
- Red, itchy skin or skin lesions
- Diarrhea and vomiting
- Coughing and difficulty breathing

Immediately report animals with any of these signs to state or federal animal health officials or call USDA's toll-free number at **1-888-638-7986** for appropriate testing and investigation. Timeliness is essential to preventing the spread of ASF.

On-farm biosecurity is crucial to preventing any animal disease from developing and spreading. All pig owners and anyone involved with pig operations should know and follow strict biosecurity practices to help protect U.S. pigs from ASF. Work with your veterinarian to assess your biosecurity plans and make improvements as needed.

#### What Travelers Need to Know

International travelers could unknowingly bring back this disease from an ASF-affected country, especially if they visit farms. Visit the [APHIS biosecurity page](#) to know which items you can bring back into the United States. Some food items may carry disease and threaten domestic agriculture and livestock. If you go to an ASF-affected country, do not bring back pork or pork products.

Declare any international farm visits to U.S. Customs and Border Protection when you return. Make sure you thoroughly clean and disinfect, or dispose of, any clothing or shoes that you wore around pigs, before returning to the U.S. Do not visit a farm, premises with pigs, livestock market, sale barn, zoo, circus, pet store with pet-birds/pigs, or any other animal facility with pigs for at least 5 days after you return.

#### Resources

We have many resources available to help spread the word about how to prevent ASF.

- ▼ ASF Videos
- ▼ ASF Infographics
- ▼ ASF Materials
- ▼ Photo Gallery
- ▼ Technical Documents
- ▼ Further Resources



# ASF Outreach

## *International Coordination*

- ☐ North American ASF Symposia
- ☐ APHIS International Services Reporting & Coordination
- ☐ USDA ASF Exercises – Mexico & Canada participation



# REVISED FRAMEWORK FOR THE PREVENTION & CONTROL OF AFRICAN SWINE FEVER



**OBJECTIVE:** To prevent entry and mitigate the impacts of ASF in the Americas

## FOUR PILLARS FOR ACTION BASED ON A FOUNDATION OF SCIENCE ▼



### PREPAREDNESS PLANNING

1

**Expected outcome:** Countries have a high state of readiness to swiftly control ASF should it enter the Americas region.



### ENHANCED BIOSECURITY

2

**Expected outcome:** Key biosecurity measures are in place to prevent the entry of ASF into the domestic and wild pigs populations of the Americas, and mitigate its spread within these populations.



### ENSURE BUSINESS CONTINUITY

3

**Expected outcome:** Mitigate the trade impacts of ASF on the swine sector, both nationally and internationally, while controlling and eradicating the disease.



### COORDINATED RISK COMMUNICATIONS

4

**Expected outcome:** Effective risk communication on ASF with target audiences to encourage informed decision making, behaviour modification, and trust in governments and industry.

## AREAS FOR ACTION

- Increase readiness by validating ASF preparedness plans and testing response capabilities through exercises involving all stakeholders.
- Find solutions to deficiencies in ASF response capabilities and planning gaps.
- Optimize rapid ASF detection in the Americas by ensuring capacity for surveillance.
- Develop the appropriate process and capacity for rapid risk assessment to identify risks for ASF and inform policy decision as situations evolve.
- Continue to collaborate internationally on critical ASF research with particular attention to the development of vaccines and other tools to prevent or respond to an ASF outbreak.

## AREAS FOR ACTION

- Identify key threats, gaps, and best practices in national border biosecurity, including establishment of appropriate level of activity, informed by risk assessment.
- Establish coherent collaboration to ensure border authorities share intelligence and best practices to mitigate the entry.
- Foster collaboration and compliance to address biosecurity ensuring responsibilities of all stakeholders are identified.
- Involve stakeholders in government, industry, and academia to gain an understanding of the wild pigs populations, and share best management practices at borders and the interface with domestic pigs.

## AREAS FOR ACTION

- Ensure risk based movements of animals and animal products domestically to keep industry viable in the face of an outbreak.
- To provide guidance and technical support for the development of common standards for zone establishment to gain wider acceptance.
- Proactively negotiate the recognition of zoning approaches with trading partners to reduce impediments to trade.
- Work with international partners and the OIE to develop globally recognized and accepted guidance on the application of compartmentalization for ASF to gain wider acceptance, both in infected and uninfected countries.

## AREAS FOR ACTION

- Develop a consistent approach and strategies to communicating risk, adapted to the specific needs and circumstances, including disease status, of various countries.
- Identify or develop platforms and mechanisms for ongoing coordination of messaging and for sharing of communications-related information between countries.
- Establish mechanisms for monitoring public narrative on ASF to ensure information in media and social media is accurate.
- Develop notification protocols to update partners on disease status.



## PARTNERSHIPS

Leverage existing partnerships or build new ones to engage stakeholders in areas which require collaboration to attain expeditious and responsive solutions to manage ASF. Clearly define the roles and responsibilities of the partners in accordance with their respective mandate.



## GOVERNANCE

Optimize the potential of existing governance mechanisms at international, regional, sub-regional and national levels to ensure effective coordination and co-operation among all parties to implement appropriate measures to achieve common objectives for the prevention and control of ASF.

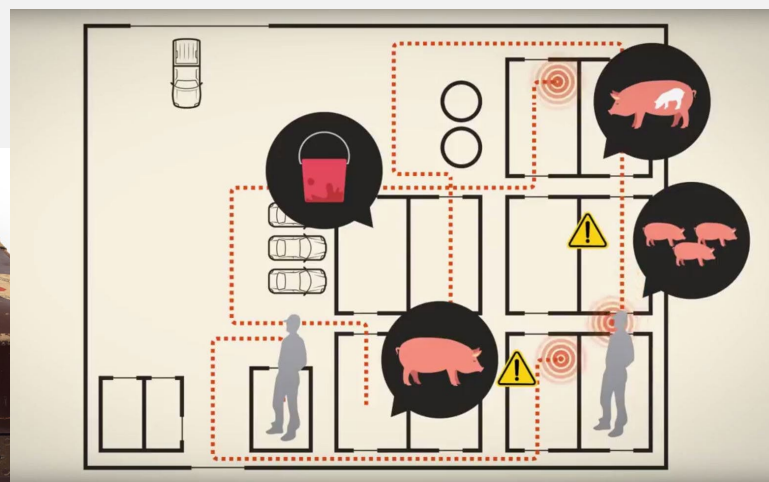
# What Can You Do?

- ☐ Report suspect cases to your AVIC or State Vet

- ☐ Practice Good Biosecurity

- ☐ On the farm
- ☐ Returning from international travel

**1-866-536-7593**





Thanks to Alan Huddleston, Christina Loiacono, Ross Free and Eric Hess

**bporters@usda.gov**



*Acknowledgement: Parts of this presentation were adapted from an ASF presentation created by the Iowa State University Center for Food Safety & Public Health (CFSPH) and last updated in 2018. The full presentation is available at <http://www.cfsph.iastate.edu/>.*