

A photograph of three firefighters in orange protective suits and helmets, viewed from behind, as they work to extinguish a large fire. They are holding hoses that lead towards the flames. The background is filled with thick smoke and bright orange fire.

ASF Fire Drill African Swine Fever



**Swine Vet Center
Swine Veterinary Consultants**



Tim Loula



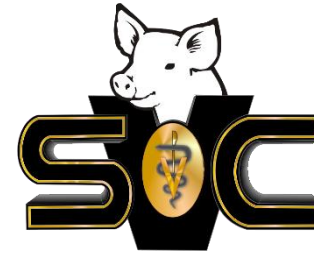
Paul Yeske



Mike Eisenmenger



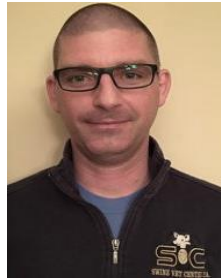
Ross Kiehne



SWINE VET CENTER
St. Peter, Minnesota



Jeff Feder



Brad Leuwerke



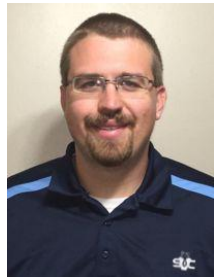
Laura Bruner



Laura Dalquist



Sam Holst



Chris Sievers



Jake Schwartz



Henry Johnson



Jordan Graham



Alyssa Betlach



Ryan Strobel

**ASF could likely be one
of the biggest events
in a producer's lifetime!**



The Big Picture Today...

- ASF is not in this hemisphere
- ASF does not affect humans
- ASF does not affect cattle or sheep
- Meat from infected animals is OK



PED was bad but it was NOT FAD (Foreign Animal Disease)

- The feds will tell us exactly what to do and what we can and cannot do.
- ASF is a huge concern right now – Europe /China
- BUT...FMD (Foot and Mouth Disease) has been diagnosed on 2 Chinese farms and CSF (Classical Swine Fever = Hog Cholera) has been diagnosed on Japanese farms.
- Nobody in this room has experienced FAD.
 - Pseudorabies eradication was the closest experience.



History

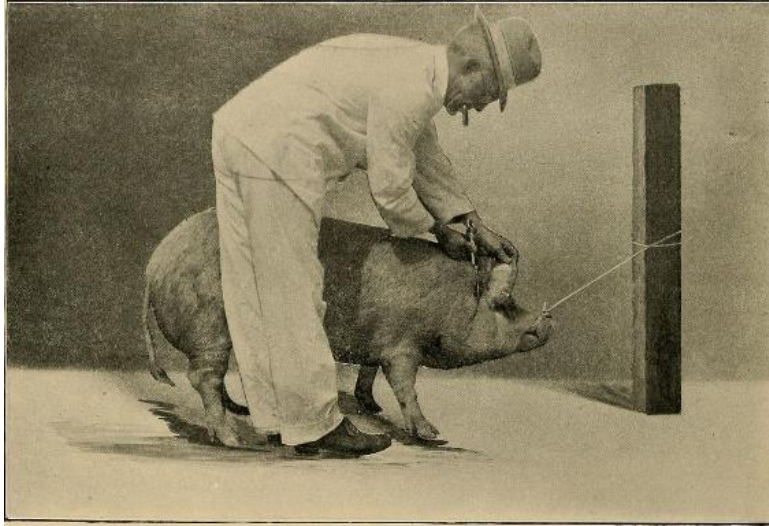


Table 1 (Outbreaks of African Swine Fever in European countries up to 2007. Source: Merck, 2013).

Country	Year
Portugal	1957, 1960
Portugal, Iberian Peninsula	1960 - mid 1990s
France	1964, 1967, 1977
Italy	1967, 1980
Italy, Sardinia	1978 - to date
Malta	1978
Belgium	1985
The Netherlands	1986



ASF Event

Positive ?

Or

Negative ?



Positive (for prices)

- 50% of the world's pigs are in China
- 50% of China's herd has been affected
- = 25% of the world's pork is GONE
- Estimated to be the biggest loss of food/protein EVER in recorded history.



Positive

- It will eventually be good/great for US pork and proteins.
- Pork meat will move to markets that are deficient in pork.



Positive

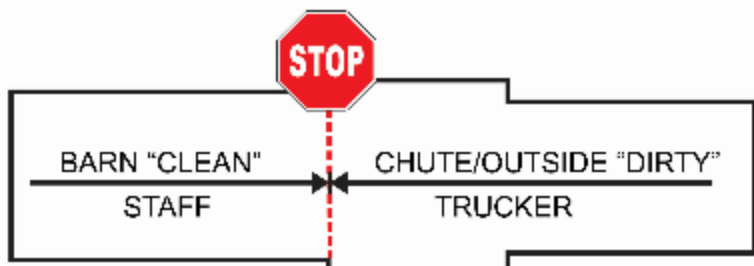
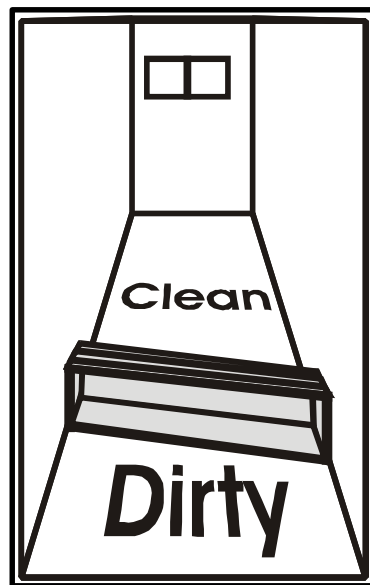
- “Black Swan” Event
 - ASF in Southeast Asia
 - Incurable disease
 - IN
 - The largest herd in the world
 - IN
 - The country with the worst biosecurity



Negative

- If the US gets ASF, all pork exports will stop immediately → 25-30% loss in sales.
- Price will drop to ??????
 - \$0.20/lb?????
 - → could go into dog food
- Today's break-even is \$0.65-70/lb.





Biosecurity
Biosecurity
Biosecurity!

You need to do everything YOU can do at a high level EVERY DAY.

You don't want to be the "Index Case"



**FOR THE PREVENTION OF
AFRICAN SWINE FEVER
AND FOREIGN ANIMAL DISEASE**

**PARA LA PREVENCIÓN DE
LA PESTE PORCINA AFRICANA
Y LA ENFERMEDAD ANIMAL EXTRANJERA**



**WASH OR SANITIZE
HANDS BEFORE
ENTERING THIS ROOM**

**LAVAR O DESINFECTAR
LAS MANOS ANTES DE
ENTRAR A ESTA HABITACIÓN**



NO FOOD OR DRINK BEYOND THIS POINT

**NINGÚN ALIMENTO O BEBIDA
ESTÁ PERMITIDO DESDE ESTE PUNTO**



Swine Vet Center
1608 South Minnesota Ave.
St. Peter, MN 56082
(507) 934-3970



BAD PRESS



Pig Carcass with ASF found at washed up on a Taiwanese beach



The dead ASF infected pig as it was discovered on the shores of Kinmen Island. The photo was made available by the Taiwanese coast guard. Photo: Taiwan Coast Guard/ EPA/ ANP

African Swine Fever Discovered in Pork Sausage at Taiwan Airport

Jennifer Shike

February 12, 2019 09:37 AM



Trending in Pork



1 Canada Eyes Becoming the No. 1 Chilled Pork Supplier to Japan



2 There's No Such Thing as Too Much Bacon, McDonald's Says



3 Denmark Begins Construction of Wild Pig Border Fence



4 Company News: New Hires for Kemlin, BioZyme



5 Will the Year of the Pig Bring You Luck?



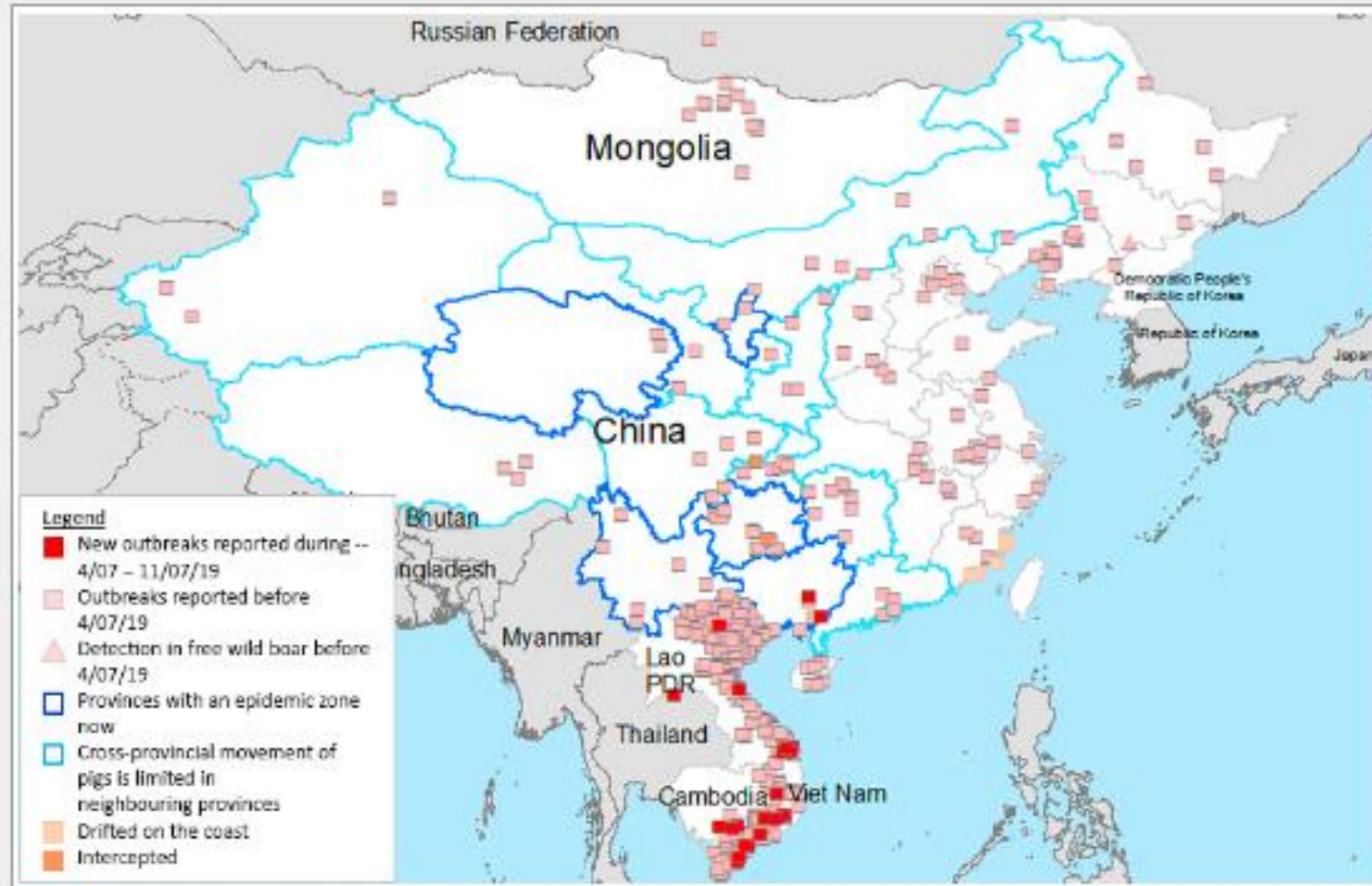
FACT

- 70% of the world's pigs are threatened by ASF.
 - China 50%
 - Vietnam 6th largest
 - Russia



Overview of ASF Outbreaks in Asia

Map 1. ASF situation in Asia (August 2018 to date)



Click to enlarge - Source: China: MARA, Viet Nam: WAHIS & media information, Cambodia: MAFF, Other: WAHIS.



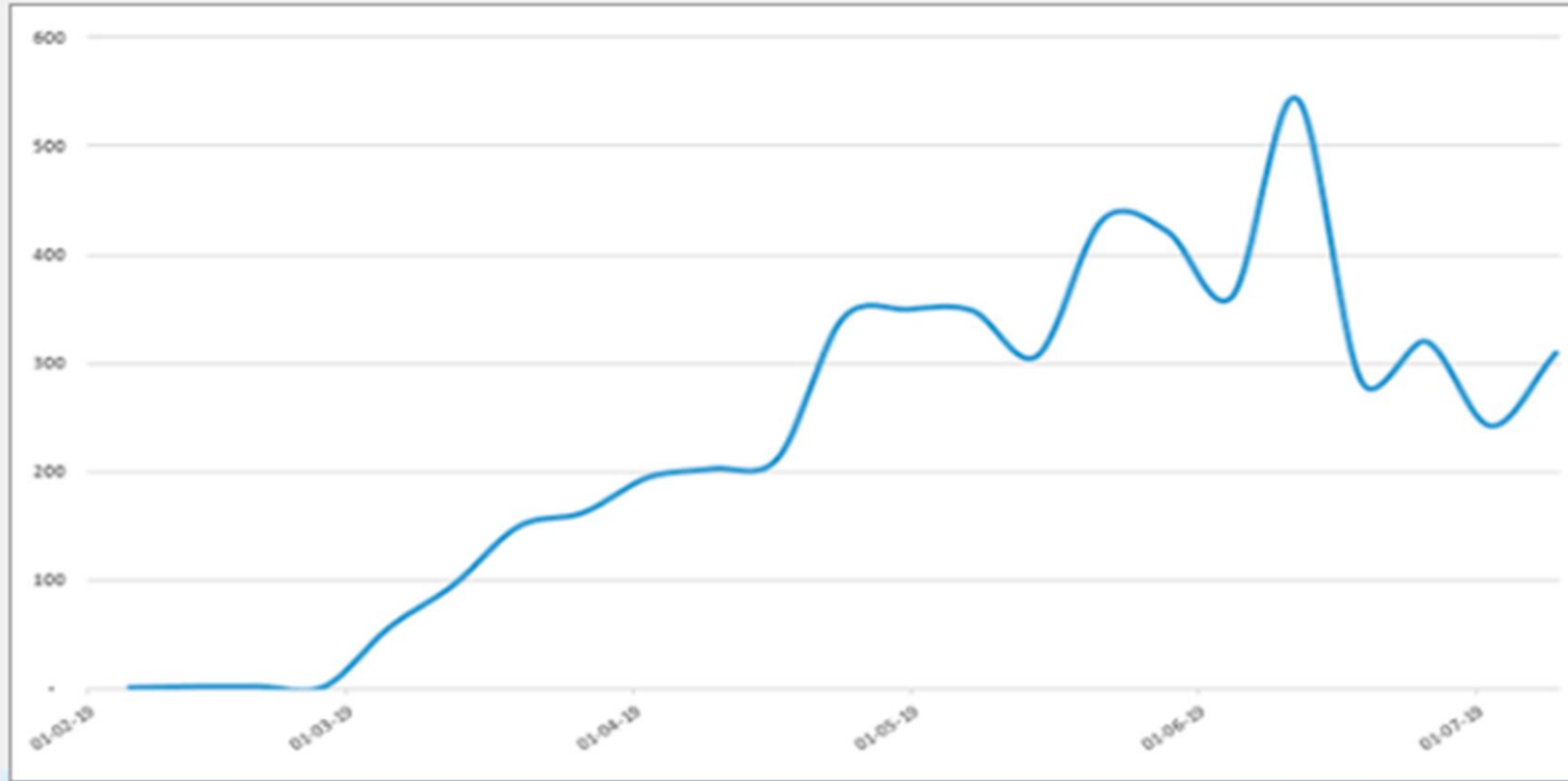
China's Pig Loss????

- 250 million pigs
- 7-10 million sows



Vietnam estimated new cases per week

Figure 2. Newly affected communes/week in **Viet Nam** including estimated number of communes affected anytime in the past



(Calculated figure)





FOUR STAR
VETERINARY
SERVICE

Russia and ASF Movement

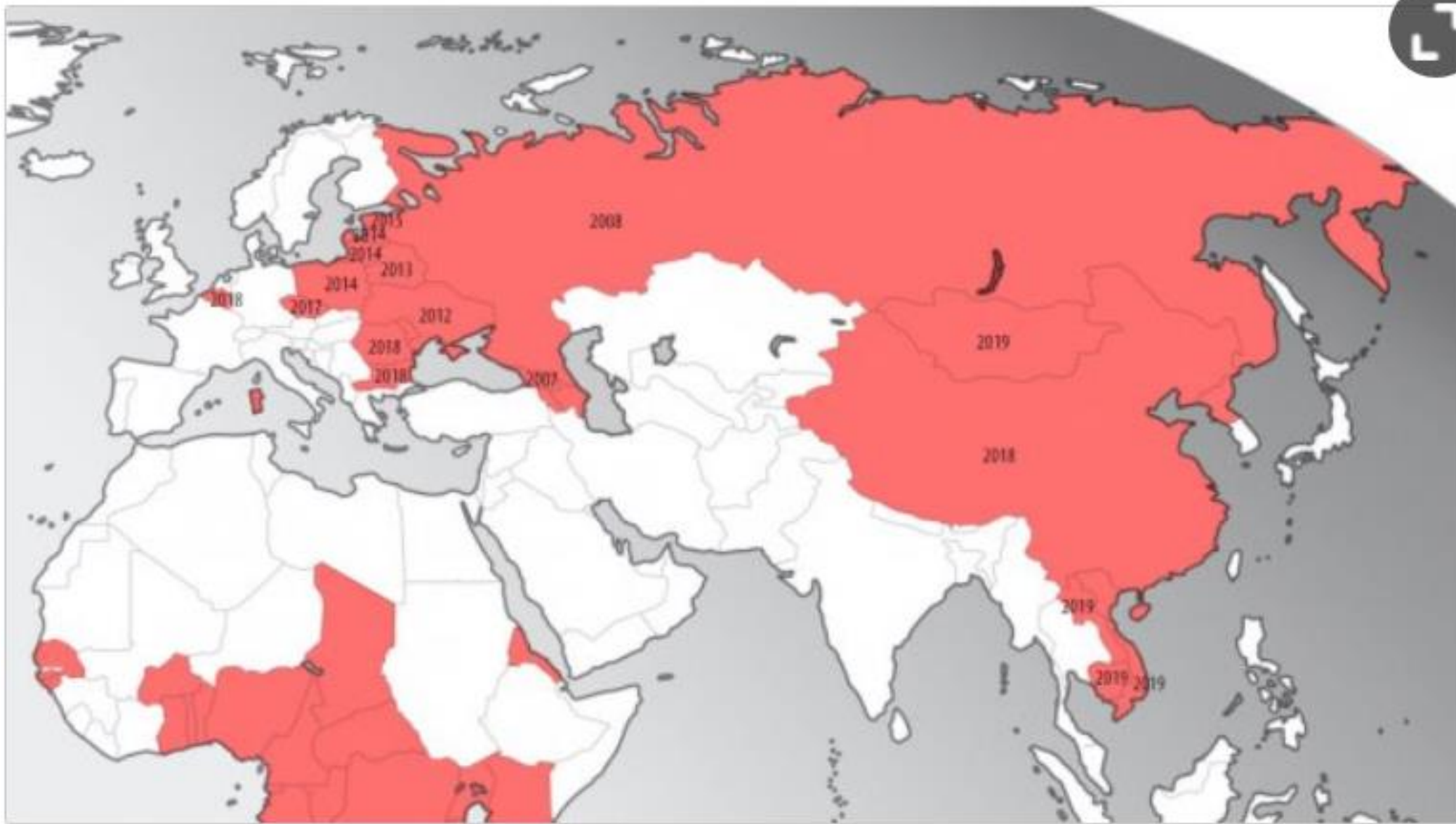
Эпизоотическая ситуация по АЧС
в Российской Федерации, 2007 - 2018
(N = 1367 по данным на 31.08.2018)



Условные обозначения:

- вспышка АЧС в коллекции домашних свиней (N = 620)
- вспышка АЧС в коллекции диких свиней (N = 520)







National Hog Farmer

16 hrs · 🌐



The local veterinary and food administration has ordered a 3-kilometer protective zone and 10-kilometer surveillance zone be set up around the outbreak.

<https://www.nationalhogfarmer.com/.../first-case-african-swin...>



NATIONALHOGFARMER.COM

First case of African swine fever confirmed in Slovakia

The outbreak happened only 470 meters from the Hungarian border.

7/26/19



ASF Timeline

- 1907: The first diagnosed case of ASF occurred in Kenya.
- 1950 – 1980s: The virus was detected in Europe, the Caribbean and Brazil. The disease was effectively eradicated from these regions at that time.
- 1971: An ASF case was found in Cuba. It has been found in the Dominican Republic and a few other Caribbean islands, but not in recent years.
- 2007: ASF reported in Georgia. It quickly spread across the Caucasus and the Russian Federation, Belarus and Ukraine.
- 2014: ASF reaches eastern nations of the EU.
- 2018: Aug 3, first case reported in China
- 2018: Sep 13, first case (wild boar) reported in Belgium
- 2019: Jan 15, first case reported in Mongolia
- 2019: Feb 19, first case reported in Vietnam
- 2019: Apr 2, first case reported in Cambodia
- 2019: May 23, first case reported in North Korea
- 2019: Jun 17, first case reported in Laos



FACT

- No vaccine is currently available
- Likelihood → Expectations



Homeland Security Intensifies Efforts on African Swine Fever Vaccine

April 17, 2019 —

African swine fever has been on the Department of Homeland Security Science and Technology Directorate's radar for several years, however, in the past few months the S&T has intensified vaccine research efforts in collaboration with the USDA, forming the African Swine Fever Task Force, based out of S&T's Plum Island Animal Disease Center. [Source: [National Hog Farmer](#) 8 April 2019]

"There is no vaccine. In addition to killing most infected pigs, African swine fever also gets into the background in ticks and is very difficult to eradicate," says Larry Barrett, S&T PIADC director. "We put together the Task Force to tackle, over the next three years, this new threat for our swine industry. The primary focus is to improve diagnostics and vaccines, so pork producers can protect their animals in the future."

DHS and USDA together intercept pork and other inadmissible agricultural products at all ports of entry. USDA's Animal and Plant Health Inspection Service placed stronger import restrictions on pork and instructed the 2,000 DHS Customs and Border Protection inspectors to be on high alert for passengers and products arriving from China and other affected countries.

"We increased vigilance at all ports of entry to try to detect and confiscate those pork products before they get into the country," says Kimberly Dodd, chair of the Task Force and director of APHIS' Foreign Animal Disease Diagnostic Laboratory.

This vigilance paid off on March 16, when CBP seized, with the help of trained USDA beagles, one million pounds of illegal products containing smuggled pork from China at the Port of New York and New Jersey where the government destroyed the entire seizure.

Sponsor Message:



**START EARLIER.
LAST LONGER.**

Circumvent^{G2}
PCV-M

MERCK
Animal Health

* Based on label claims of product including 3 days of age and demonstrated five-month duration of immunity



Vaccine ?



First Oral Vaccination of Eurasian Wild Boar Against African Swine Fever Virus Genotype II

Jose A. Barasona^{1†}, Carmina Gallardo^{2†}, Estefanía Cadenas-Fernández¹, Cristina Jurado¹, Belén Rivera¹, Antonio Rodríguez-Bertos^{1,3}, Marisa Arias² and Jose M. Sánchez-Vizcaino¹

¹ Animal Health Department, Faculty of Veterinary, VISAVET Health Surveillance Centre, Complutense University of Madrid, Madrid, Spain, ² European Union Reference Laboratory for ASF, Centro de Investigación en Sanidad Animal (INIA-CISA), Madrid, Spain, ³ Department of Animal Medicine and Surgery, Faculty of Veterinary, Complutense University of Madrid, Madrid, Spain



Progress made on ASF vaccine

By Aidan Fortune

UK scientists have made progress in developing a vaccination for African Swine Fever (ASF).

Scientists at The Pirbright Institute have identified ASF proteins that can trigger an immune response in pigs, which they hope will help to develop a vaccine against the disease.

In a study published in *Frontiers in Immunology*, it was revealed that when some pigs were challenged with a virulent strain of ASF, after receiving a vaccine that included the identified proteins, the level of virus in the blood was reduced.

“ASFV has more than 150 proteins; understanding which of these triggers an immune response is difficult, but crucial for creating this kind of vaccine,” explained Dr Chris Netherton, head of the ASF vaccinology group at Pirbright. *“Now we have identified proteins that activate pig immune cells, we can work on optimising the vaccine components to ensure pigs are protected against virulent ASF strains.”*

“This [research] demonstrates that this method of vaccination could provide effective protection to pigs, though further work is needed,” added Netherton.

UK chief veterinary officer Christine Middlemiss



FACT

- Chinese Goal
 - ASF becomes an endemic disease
 - Present endemic pathogens in China
 - PRRS
 - Mycoplasma
 - APP
 - Flu
 - PED
 - CSF
 - PRV
 - FMD
 - JEV
 - US is free of CSF, PRV, FMD, JEV
 - US has minimal APP, PED and is working on Mycoplasma and PRRS

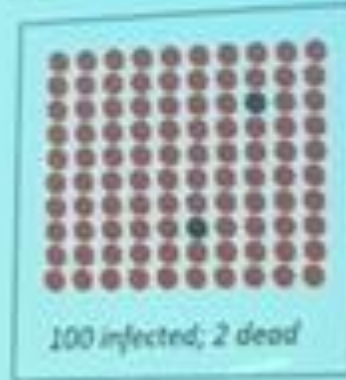


ASF

- Moves like “molten lava”
 - Slow spread
 - Kills all in its path



ASF - CSF - FMD



FMD

Prevalence: 100%

Mortality: 2%

Lethality: 2%

Contagiousity: +++

100 infected; 2 dead

● Infected ● dead



ASF

P: 10%

M: 9%

L: 90%

Contagiousity: +

10 infected; 9 dead



CSF

P: 50%

M: 25%

L: 50%

Contagiousity: ++

50 infected; 25 dead

Depner et.al; 2018.



Repopulation

- A few Chinese farms have repopulated (with finishing gilts)
 - 90% have broken back
- Russia has had success repopulating
 - 6 months to 36 months downtime



- Why has ASF spread wildly in Southeast Asia, and minimally in Russia/Poland area?



Other countries

- Belgium

- 850 cases

- All wild hogs

- Poland

- < 10 domestic cases year to date



Cases and outbreaks of ASF in EU

Data ADNS 19/03/2019	Cases 2018	Cases w 2019	Outbreaks 2018	Outbreaks 2019
POLAND	2413	634	109	1
LITHUANIA	1430	130	51	0
LATVIA	685	114	8	0
ESTONIA	230	45	0	0
CZECH REPUBLIC	202	-	0	0
ROMANIA	168	151	1158	66
HUNGARY	121	391	0	0

3rd MSD Porcine Health Conf
Poland March, 2019



ASF in Feed in China



ASF China: Virus found in animal feed; 102 outbreaks

As the number of officially reported African Swine Fever cases in China has risen to above 100, China detected African Swine Fever virus in various protein powders based on pork blood cells.

According to news agency Reuters, the virus was found in **some protein powders**, based on pork blood cells and manufactured by a Tianjin-based company. The raw material for the almost 74 tonnes of contaminated protein products, mainly used in animal feed, came from 12 slaughterhouses in Tianjin, the Chinese customs said.



PIG PROGRESS

- ASF virus in feed
 - Will infect



Feed products made from ASF-positive pigs

- Meat and bone meal
- Blood meal
- Plasma
- Peptides

If positive pigs are allowed to go to slaughter plants, all of the above products will be infective.



Particular problems are caused by the long time the virus can live

Resilience of ASFV across a variety of environmental conditions

Item	ASFV survival time
Meat with and without bone and ground meat	105 days
Salted meat	182 days
Cooked meat (minimum of 30 minutes at 70°C)	0
Dried meat	300 days
Smoked and deboned meat	30 days
Frozen meat	1000 days
Chilled meat	110 days
Offal	105 days
Skin/Fat (even dried)	300 days
Blood stored at 4°C	18 months
Feces	11 days
Putrefied blood	15 weeks
Contaminated pig pens	1 month

Journal, 2010; 8(3):1556. The times given reflect the known or estimated maximum duration and will depend strongly on environmental temperature and humidity.



Other contributing problems...



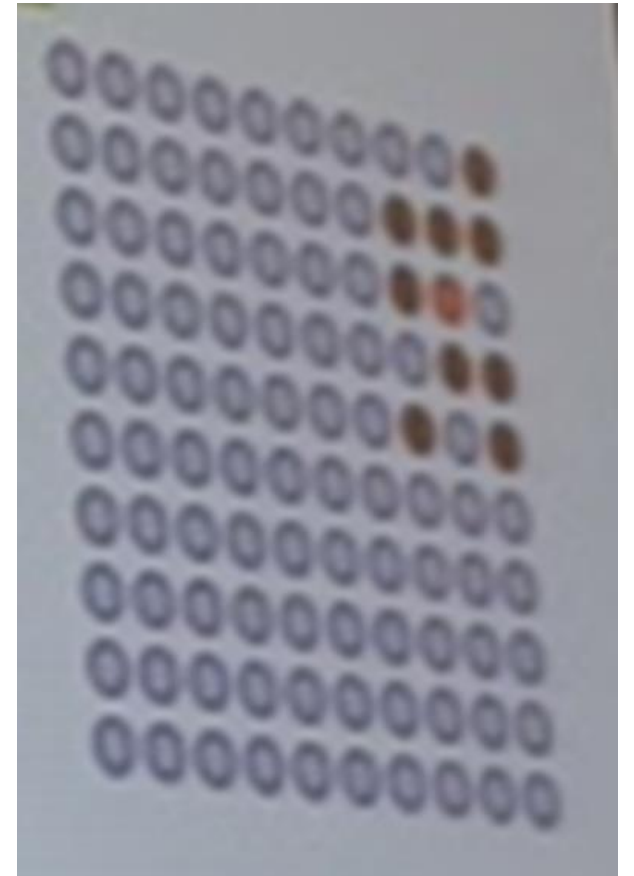
Indemnity Program

- Non-functional in China



China

- No more mass euthanasia
 - China stopped euthanizing early on because of bad press, and just couldn't keep up.
- Sell – Sell – Sell
 - Allow producers to market all healthy animals on positive sites.
- Cull buyers



Southeast Asia



CARTON SYSTEM



China/Asia

Small holdings are serious challenges

- Poor biosecurity measures
 - Feeding swill
- Poorly educated in all biosecurity practices



Will be difficult for China to control....

(Dr. Joe Connor)

- Structure of the industry – 60% in small backyard herds that traditionally feed table scraps
- Fresh markets with daily traffic
- Marketing of high percentage through buyers that enter the small finishers and market and retrieve 1-2 pigs for the fresh markets
- Rendering pickup of deads at multiple locations. Composting generally not allowed and it requires 45 days to inactivate the virus.



Will be difficult for China to control....

(Dr. Joe Connor)

- Absence of biosecurity (truck washes, bio dri, trailers)
- Ingredient contamination – multiple grain sources, lack of storage, etc.
- Disparity in pricing of pigs between the provinces resulting in pig movements even though restricted.
- Diagnostic slowness – need confirmation by PCR to euthanize.
- Pricing differential between the restricted and nonrestricted provinces.



Will be difficult for China to control....

(Dr. Joe Connor)

- This will accelerate the transformation of the Chinese industry.
 - Small producers will be removed
 - Fresh markets will decrease
 - Traceability will be accelerated.





[/www.dailymail.co.uk/news/article-2771250/Corn-road-jewelry-tradition-meets-modern-world-China.html](http://www.dailymail.co.uk/news/article-2771250/Corn-road-jewelry-tradition-meets-modern-world-China.html)



**Trying to get REAL DATA
???**



Chinese public hog companies

- Zhengbang
- WH group Smithfield

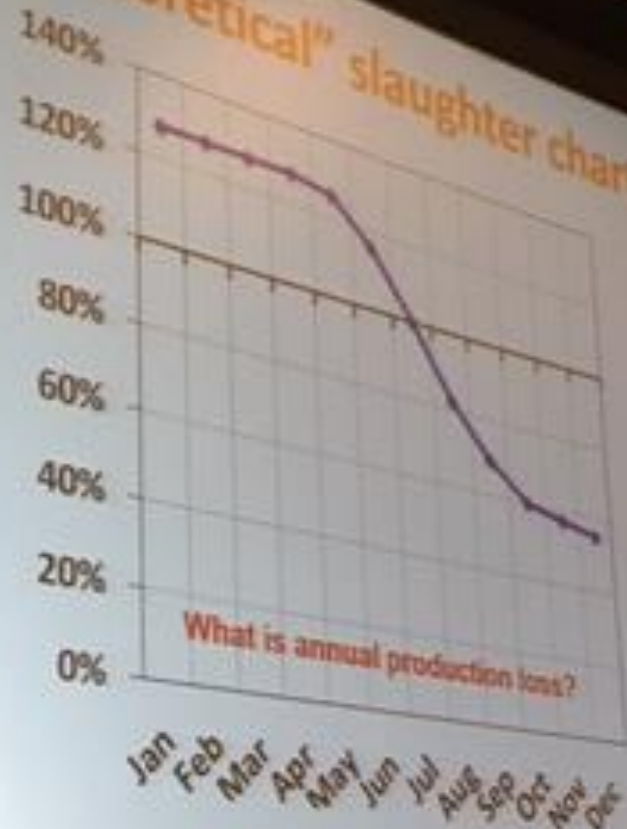
Quarterly reports show slaughter numbers



- Slaughter numbers were markedly higher through the winter.
 - Allowing positive animals to be slaughtered infects:
 - All slaughter plants (for the next customers)
 - All meat which will eventually yield positive food scraps → fed to back yard pigs
 - All blood products to be fed back
 - All fresh markets



A "theoretical" slaughter chart:



What is annual production loss?



- Extra pork went into freezers and is now being used (10-12 metric ton)
 - This is equivalent to 1 year of US total production
- When does this run out??



Analyst Watch

- US analysts are watching 7 Chinese hog markets daily
- When local prices go up, it means they are running out of frozen product.



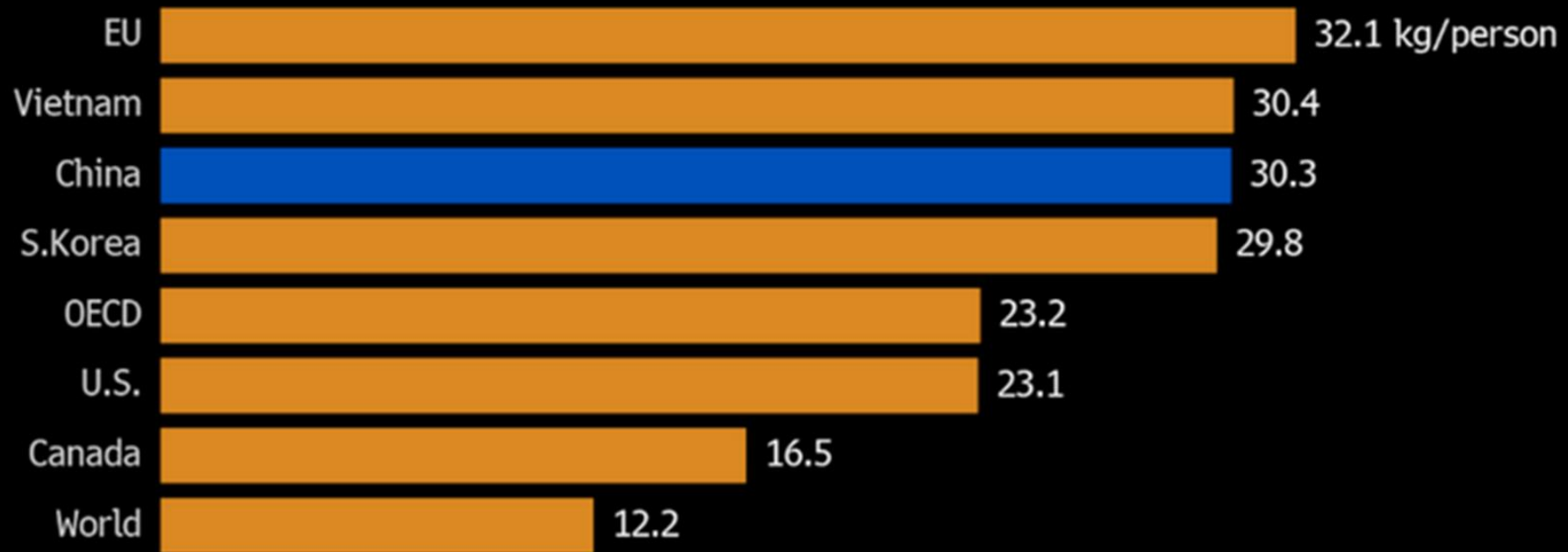
- Frozen pork
 - 25% discount
 - Lack of adequate household refrigeration



China's Demand for Pork

Pork Lovers

China's 2017 per-capita pork consumption was almost triple the global average



Source: OECD

Bloomberg



- Experts believe ASF will hurt pork demand by upwards of 20%.
- Big winners will be aquaculture and to a lesser extent, chicken and beef.



Since it lives so long

- The virus is easily spread
 - Infected pigs
 - Pork
 - Pig-derived products
 - Food scraps
 - Fomites
 - Feed, bedding, vehicles, clothing and boots, equipment, vehicles



The virus is found in

- Blood contains large amounts of virus.
- Saliva
- Tears
- Nasal secretions
- Urine
- Feces
- Genital secretions

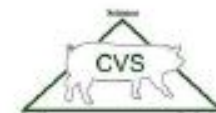


Transmission

Aerosol transmission is thought to be unimportant



Source: <http://www.dvorak.org/blog/2009/05/01/dont-sneeze-on-our-pigs/>



Dr. Attila Farkas

Illegal imports



Photo Credit: Terry Morris, USDA, APHIS, PPQ, VRS

People. Pigs. Planet.





On October 11, 2018, the Beagle Brigade detected a whole roasted pig in checked luggage belonging to a traveler from Ecuador at the Atlanta International Airport (the world's busiest according to Customs agents).

The nearly 2 lb. pig was seized and destroyed.

Source: [FoxNews.com](https://www.foxnews.com)

1 Day of Beagle Brigade work @ Chicago O'Hare



Containment being tried in other countries

ASF zones in Poland

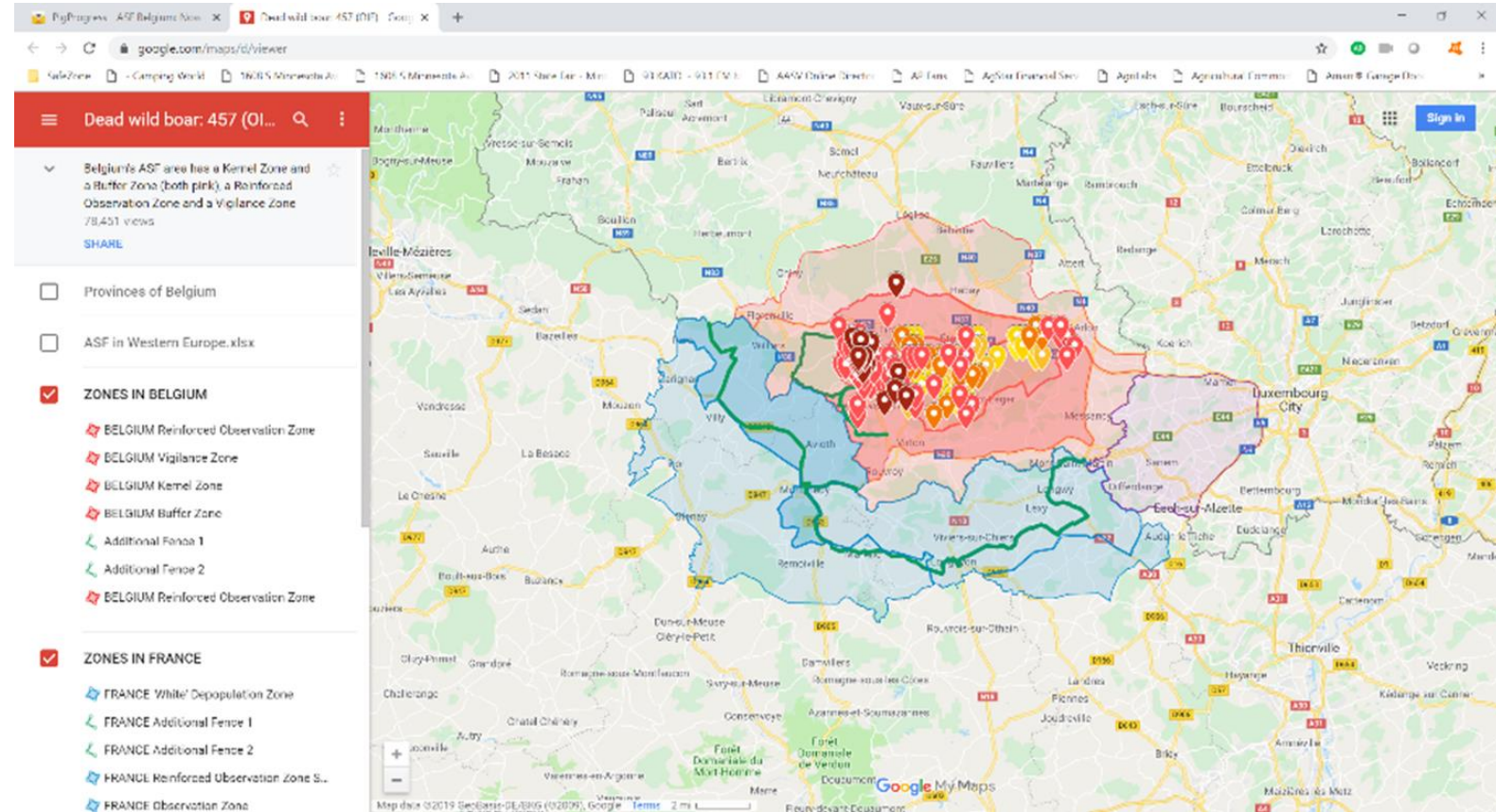
- Zone 1 = Yellow
 - Buffer zone
 - Can sell to all slaughter plants in Poland without blood test
- Zone 2 = Red
 - Disease present in wild boar population
 - Must blood test negative before sell to slaughter plant
 - Slaughter plant must be in red zone
 - Meat can only be sold in Poland
- Zone 3 = Blue
 - ASF present in commercial pig population and wild boar population
 - Must blood test negative before sell to slaughter plant
 - Slaughter plant must be in blue zone
 - Meat cannot leave blue zone



Polish warning sign to remind the people ASF is in the area. Photo: Shutterstock



European ASF Buffer Zones in Belgium



Wild Boar Hunting May be how it got to Belgium (2 Men Arrested)

the interviewing of 4 of them last Wednesday. In the context of the investigating authorities, officially no further statements have been made about the arrests.



In total, 2 men are kept in custody in relation to the ASF outbreaks. Most likely this is related to importing infected wild boar into Belgium for hunting purposes. Photo: ANP

Health

News Feb 12, 2019

ASF Belgium: Now 457 dead wild boar; 2 men arrested

African Swine Fever problems are far from over in southern Belgium. In the 1st week of February more than 50 new infected carcasses were reported to the World Organization for Animal Health (OIE). Interestingly, the Belgian police also made arrests related to the outbreak.

Between January 29 and February 7 in total 52 carcasses were found positive for African Swine Fever (ASF). Most animals, which were all found within the kernel zone in the southern Belgian province Luxembourg, had died of the virus according to the latest report to the OIE.



French Response



An initial warning sign in Southern Belgium, after ASF had just been discovered in September 2018. This was mainly to keep humans out; ever since elaborate fences have been erected to stop the virus from moving into France. Photo: Jean-Luc Flemal | AFP

French Hunting Wild Boars



Local guards of the French National Office of Hunting and Wildlife (ONCFS) in an attempt to stop the spread of wild boar near Breux, close to the border with Belgium, late January. Photo: AFP

Denmark is Building a “Wall” on the German Border to Stop Pigs

To Keep African Swine Fever Out,
Denmark Is Planning A Southern
Boar(der) Fence

January 27, 2019 - 8:02 AM ET

SIDSEL OVERGAARD



SWINE VET CENTER P.A.

Denmark is Building a “Wall” on the German Border to Stop Pigs



Workers erect a fence along Denmark's border with Germany at Padborg, Denmark, on Monday, Jan. 28, 2019. Denmark has begun erecting a 70-kilometer (43.4-mile) fence along the German border to keep out wild boars in an attempt to prevent the spread of African swine fever, which could jeopardize the country's valuable pork industry. *(Photo: Frank Cilius, AP)*



What can we do to Stop it

- Stop bringing in organic soybeans from affected countries
- Limit other products to those that aren't made anywhere else
 - Such as vitamins and feedgrade antibiotics
- Support State and National Pork Board resolutions
 - Help USDA get more dogs
- Treat with mitigants to reduce the risk



Quantities (kg) of animal feed ingredients imported to San Francisco, US from China between 2012 and 2016.

Ingredient	2012	2013	2014	2015	2016
Soy oil cake	15,126,647	7,977,560	13,545,880	24,201,390	36,962,316
DDGS	4,008,000	2,640,000	2,808,000	2,416,363	1,738,182
Pet food	4,075,353	3,068,722	623,734	51,587	1,412,165
Soybean meal	1,832,561	1,816,100	1,340,270	979,627	185,400
Pork sausage casings	129,365	216,845	457,427	420,005	582,093
Lysine	33,000	95,000	19,764	2,325,236	2,393,915
Choline	19,000	400	0	0	0
Vitamin D	26,000	21,000	14,000	0	0
TOTAL (KG)	25,249,926	7,198,012	18,809,075	30,394,208	43,274,071

<https://doi.org/10.1371/journal.pone.0194509.t002>

Dee SA, Bauermann FV, Niederwerder MC, Singrey A, Clement T, et al. (2018) Survival of viral pathogens in animal feed ingredients under transboundary shipping models. PLOS ONE 13(3): e0194509. <https://doi.org/10.1371/journal.pone.0194509>
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0194509>



Dr. Attila Farkas

L-THREONINE 98.5%

FEED GRADE

BATCH NUMBER: D1801220104

NET WEIGHT: 25KG(55.115LBS)

GROSS WEIGHT: 25.2KGS

MANUFACTURING DATE: JAN.22.2018

EXPIRATION DATE: JAN.21.2021

MANUFACTURER: Hulunbeier Northeast Fufeng
Biotechnologies Co.,Ltd.

ADDRESS: KaiChuang Street, Zhalantun,
Lingdong Industrial Development Area,
Hulunbeier City, Inner Mongolia, China

MADE IN CHINA

CIQ NO.:1500FA010

Produced by



Feed Mitigants

- Vigilex
- Activate
- Salcurb
- Captisure
- Others



Novus Activate DA[®] : Infection, Disease and Performance by Treatment

Treatment	Infection (ppd)			Disease (ppd)			Survival (%)
	PRRSV	PCDV	SVA	PRRSV	PCDV	SVA	
0.5% A-DA [®]	0%	23%	0%	0%	0%	0%	40%
0.15% A-DA [®]	0%	93%	0%	0%	0%	0%	100%
(+) control	33%	93%	7%	40%	75%	17%	100%

- - no infection
- - virus recovered from animals
- - diarrhea, diarrhea rough feed, lameness
- - normal
- - healthy

PIPESTONE



National Hog Farmer®



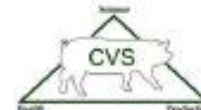
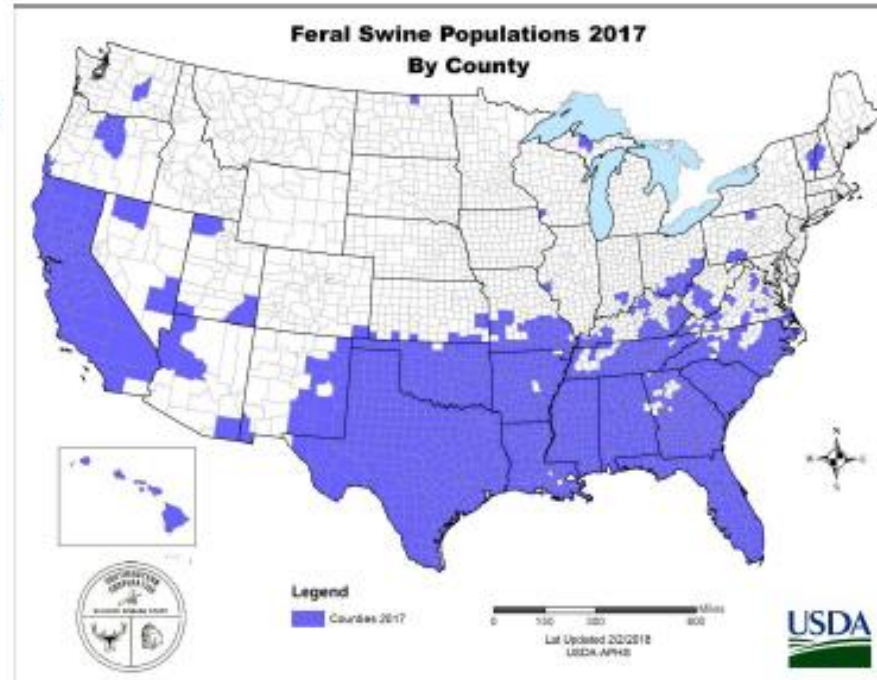
Level of ASF virus required to cause infection in liquid extremely low

The K-State study is the first to demonstrate that African swine fever can be easily transmitted through the natural consumption of contaminated feed and liquid.



Dr. Attila Farkas

- Problems occur when the virus establishes in the feral pig population
- Population of feral pigs is increasing in urban areas
 - Increased risk!!



Dr. Attila Farkas

Big risks:

- Transport
- Truck washes
- Feed





We don't want to go there!!!



Tell your neighbors and friends the ASF story

- It doesn't matter who makes a mistake...every pig farmer will go through this catastrophic event.
 - Price reduction
 - Public videos of mass euthanasia, etc.
 - Negative press about the swine industry



Including anybody with show pigs

- Big business today
- Also 4H, FFA, etc.



**Are We
Maximizing Biosecurity
at Every Site???**



**What Will Happen
if ASF gets into the USA?**



**Immediate National
Standstill Order for a
minimum of 72 hours**



1st possible situation: I just got a phone call...

- You or your veterinarian hear of sick pigs in the U.S.:
 - Out of the area
 - Within trade area
- Results are due tomorrow (Stand Still order if positive results)
 - Wean down
 - Nursery to finisher
 - Market
 - Culls



2nd possible situation: Positive test for ASF

- Positive test for ASF confirmed in the USA
 - Stand Still order
 - Given by IDALS (Iowa Dept. of Agricultural Livestock Services)
- 72 hours minimum Stand Still (USDA)
 - No movements – NO MOVEMENTS
 - Feed trucks will need permission to move ???
 - Trucks on the road ?????
 - Continue on to destination ??



If no connections, movement can resume

3rd possible situation: ASF confirmed in YOUR SYSTEM

- Action:

- Designate a spokesperson for the System for media, etc.

- No movements from that site to others

Semen delivery

Lawn moving

Veterinarians

Snow removal

Service people

Drugs & supplies delivery/Fed Ex, etc.

Garbage collector

Feed trucks

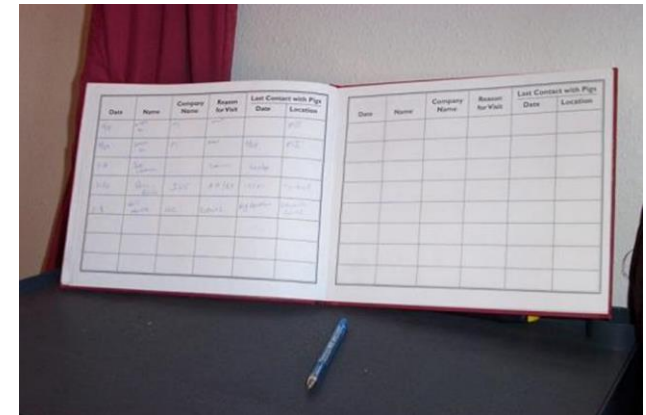
LP supplier

Maintenance people

Electricians/Plumbers

Truckers

- **Do you have a sign-in book?**



4th possible situation: ASF confirmed on YOUR FARM

- Farm will be quarantined
- Staff will be quarantined
- Need list of all people that have visited the farm in the last 10-14 days

Semen delivery

Veterinarians

Service people

Garbage collector

LP supplier

Electricians/Plumbers

Lawn mowing

Snow removal

Drugs and supplies delivery/Fed Ex, etc.

Feed trucks

Maintenance people

Truckers



Start the Clean-Up Process

- Euthanize all pigs
 - Euthanasia solution administered by a licensed veterinarian
 - Captive bolt gun
 - Gun
 - CO2
 - Asphyxiation (shut ventilation off)
 - Other?
- Removal of pigs from barn – get appropriate equipment to help you
 - Ropes
 - Skid
 - Track cart



Start the Clean-Up Process

- Disposal
 - Animals placed in plastic-lined containers – no leakage – then taken to an approved landfill for disposal
 - If allowed, dig a hole – plan where you are going to dig – think worst case of BIG PIGS
 - Call Gopher State and get the site marked for utilities
 - Contact backhoe operator and make an agreement that he will arrive within 6-12 hours and work 7 days/week
 - Contract??



Burial site considerations

- Distance to
 - Waterways
 - Surface water intakes
 - Wells

<https://programs.iowadnr.gov/maps/afo/burial.html>



Clean-up of the Site

- Labor
- Pressure washers
- Pit pumping
- Pit clean-up
- Degreasers
- Disinfectants
- Plus downtime ?? How long??



Clean-up in Russia

- They dismantled the first Russian farm
 - Crates, slats, all equipment, etc. taken outside
 - Took 9 months to do



Clean-up and Inspection of the Site

- Release from quarantine after inspection by federal authorities
 - Down time needed ????????????



Release of Stand Still?

- Affiliated sites
- Secure Pork Supply Continuity of Business Plan
 - Positions pork premises with animals that have no evidence of infection to:
 - Move animals to processing or another pork production premises under a movement permit issued by regulatory officials, AND
 - Maintain business continuity for the swine industry, including producers, haulers, and packers during an ASF outbreak
 - Metafarms Secure Ready Program





SOW FARM X

Enhanced

Biosecurity

Plan for FAD Prevention in [MN]

Date [CREATED]: [Date 9/26/18]

This Biosecurity Plan is based off of the Secure Pork Supply (SPS) Self-Assessment Checklist for Enhanced Pork Production Biosecurity: Animals Raised Indoors, [August 2017] and was developed using guidance from the SPS Information Manual for Enhanced Biosecurity: Animals Raised Indoors. All documents are available at www.securepork.org. In the Plan below, all items have been implemented except those indicated which will be implemented prior to requesting an animal movement permit.

Scope of Biosecurity Plan

- National Premises Identification Number (Prem ID or PIN): [00KBZZ8]
- Premises Address: [38897 Co Rd 4 Nicollet, MN 56074]
- Premises GPS Coordinates: 44.385932, -94.250326]
- Animals* on primary premises: [SWINE] and 2,500 sows; 4,500 piglets]
- Other business operations on premises? [NO]

- Secondary premises** locations: [LIST THE PINS, 911 ADDRESSES, OR GPS COORDINATES (LATITUDE, LONGITUDE) WHERE ANIMALS ASSOCIATED WITH THIS OPERATION RESIDE (E.G., AFFILIATED PREMISES)]
- Source premises and destination premises found at home office
 - Will be provided to Responsible Regulatory Officials if this premises is located in an FAD Control Area

Legends for Site Map

Labeled Premises Map

Premises Address: [911 ADDRESS]

PremID or PIN: [list]

Label your premises map with the following:



Perimeter Buffer Area (PBA)



PBA Access Point(s)



Line of Separation (LOS)



LOS Access Point(s)



Vehicle cleaning and disinfection (C&D) station(s)



Restricted parking area



Carcass disposal/pickup location



Carcass removal pathways

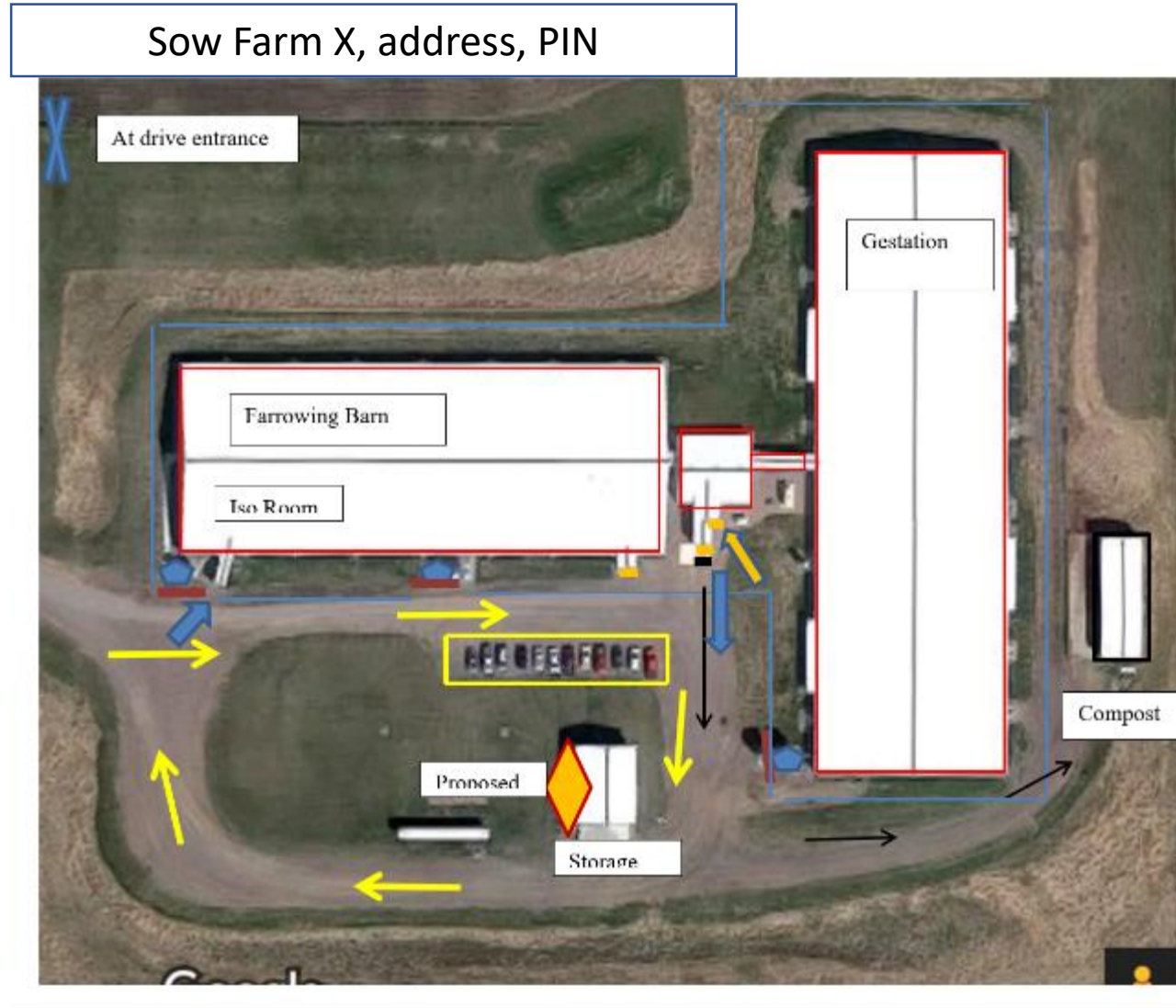


Vehicle movements (animal transport vehicles, deliveries, etc.)



Site Entry

Site Map for Every Site



How It Works

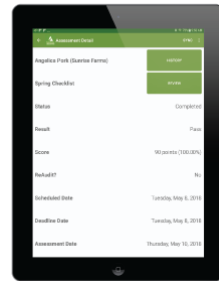
Plan. Prepare. Protect.

01 Cross Reference

02 Validation

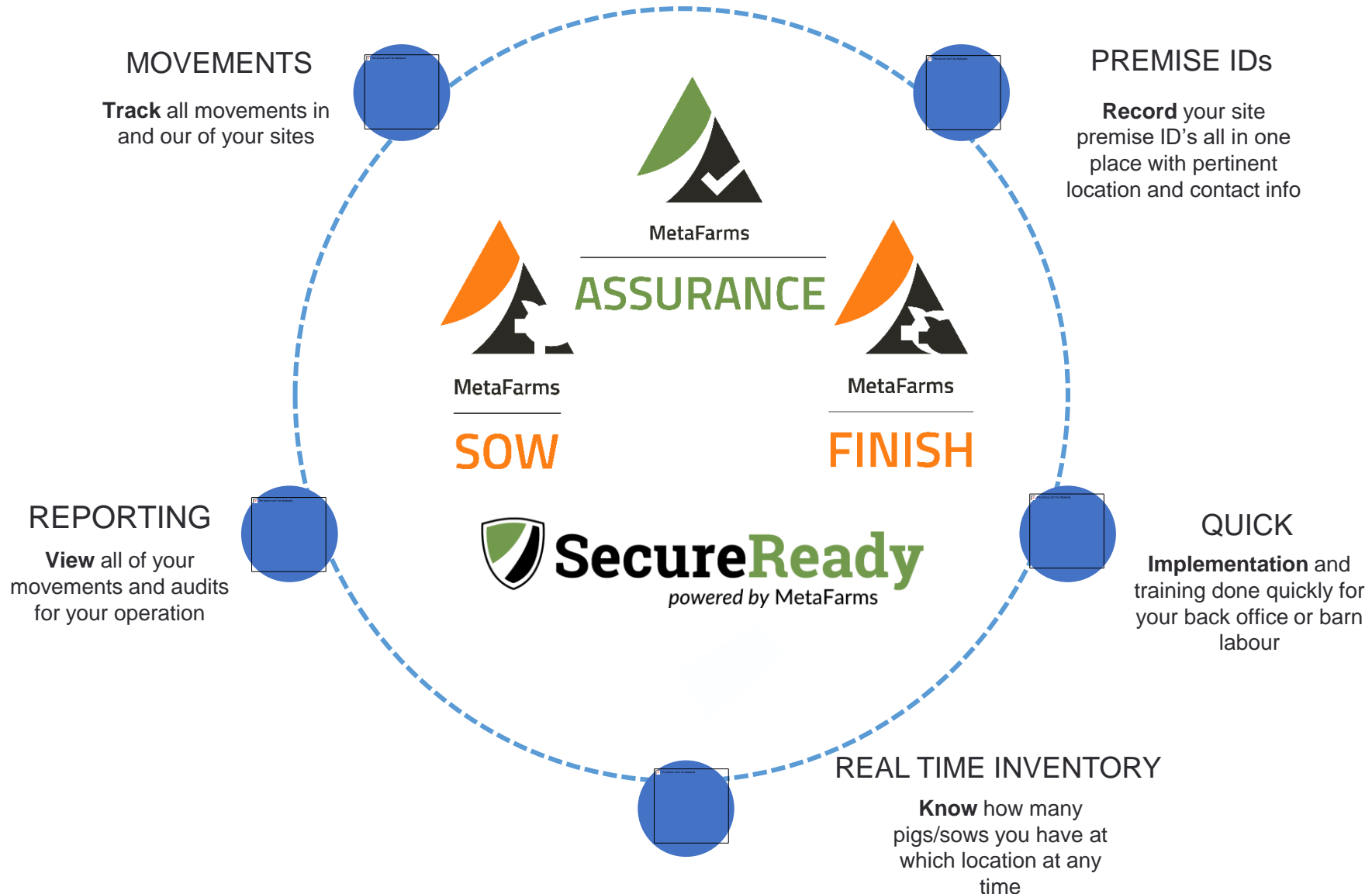
03 Optional: Biosecurity Audit

04 Only upon producer approval: AgView Integration



NEW TO METAFARMS?

Let us help you get prepared



Clinical Signs of ASF

- Pigs affected by acute form of ASF showing prostration and reddening of the skin at the tips of ears



ASF – Differential diagnosis

- Hog Cholera
- Erysipelas
- Salmonella
- PMWS



Incubation

- 5-21 days after direct contact with infected pigs
- < 5 days with exposure to pigs
- Acute disease typically in 3-5 days



Acute symptoms

- High fever
- Anorexia (off feed)
- Lethargy, reluctance to move or get up, slow, weakness
- Red skin (white pigs especially)
- Skin may develop cyanotic blotches (especially ears, tail, lower legs and hams)
- Gut symptoms
 - Diarrhea (starts mucoid and later becomes bloody)
 - Constipation
 - Pain

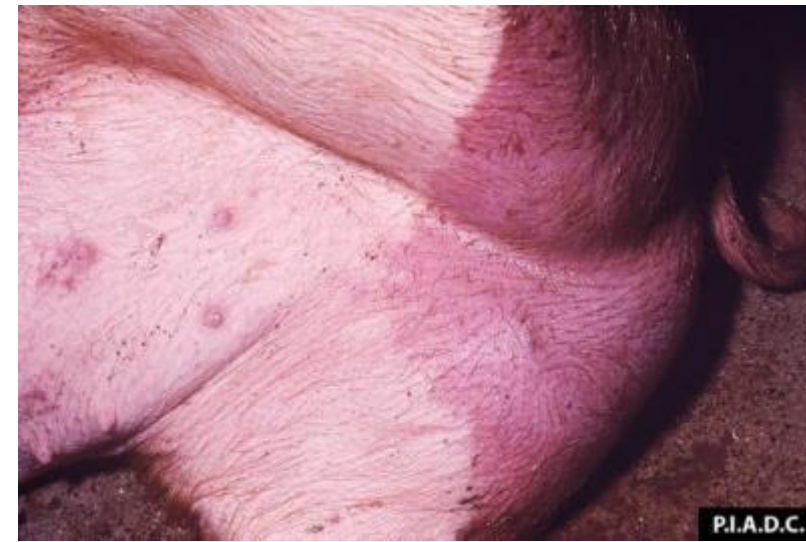


Picture above: clinical signs of ASFV in a pig. Source: National Research Institute for Veterinary Virology and Microbiology of Russia ([VNIIVVIM](http://vniivvim.ru), Pokrov, Russia)



Acute symptoms

- Hemorrhagic tendencies
 - Nose bleeds
 - Skin hemorrhages
- Respiratory symptoms
 - Dyspnea
 - Nasal and conjunctival discharges
- Neurological signs
- Abortions may be the first sign something's wrong
- Leucopenia (white blood cells)/Thrombocytopenia (platelets)
 - Testing
- Death in 7-10 days



Patchy discolored skin (especially ears)



Hyperemia, ears



https://upload.wikimedia.org/wikipedia/commons/5/57/African_swine_fever_ears.jpg

<https://www.merckvetmanual.com/generalized-conditions/african-swine-fever/overview-of-african-swine-fever>





P.I.A.D.C.



Generalized hyperemia of abdomen and legs in African swine fever.



Dr. C.A.L. Oura.



Pig, limbs. There is marked hyperemia of the distal limbs.





<http://aip.ci/cote-divoirele-virus-de-la- peste-porcine-africaine-decouvert-dans-le-nord-du-pays/>



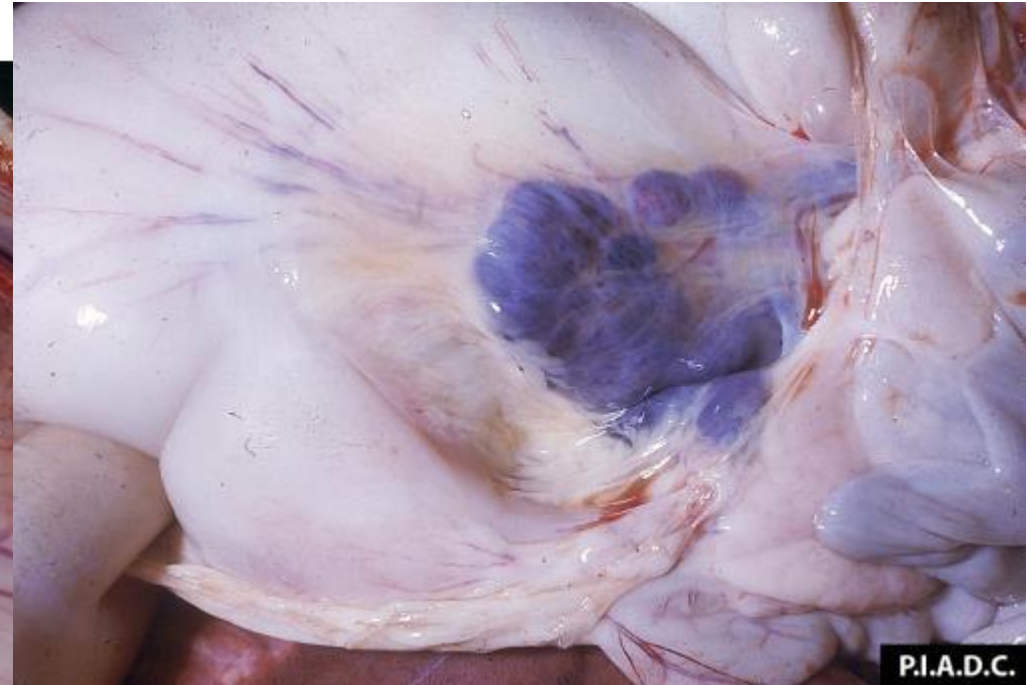
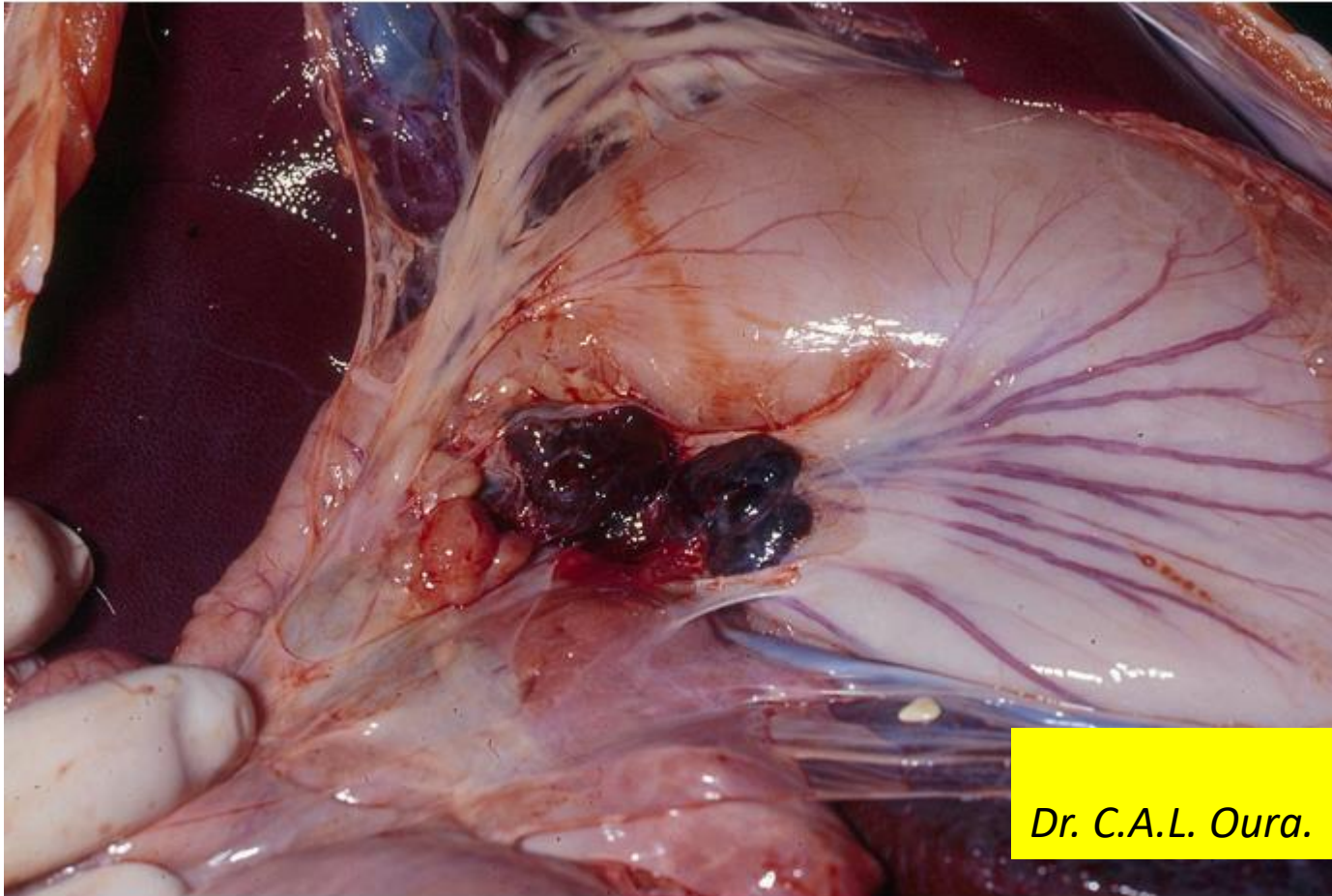
Lethargy



<http://www.pig-world.co.uk/news/what-you-need-to-know-about-african-swine-fever.html#prettyPhoto>

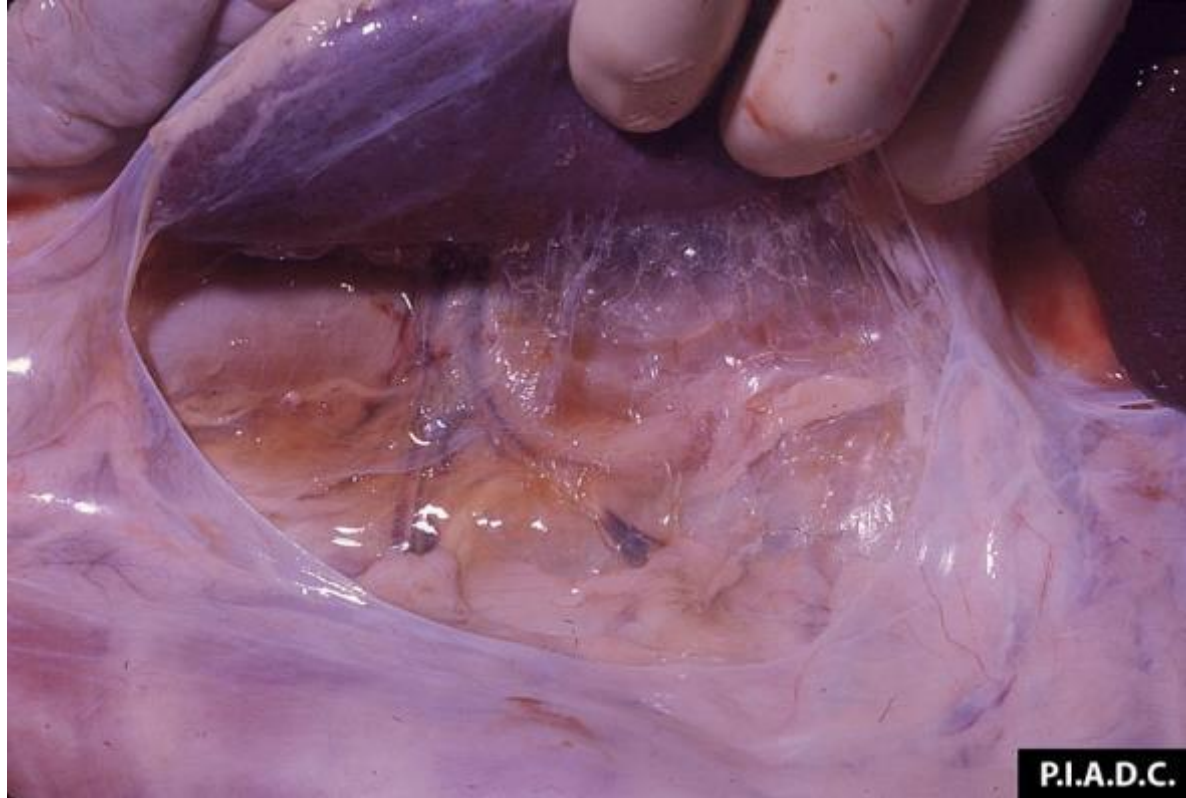


Hemorrhagic gastrohepatic lymph node in African swine fever.



<https://www.merckvetmanual.com/generalized-conditions/african-swine-fever/overview-of-african-swine-fever>

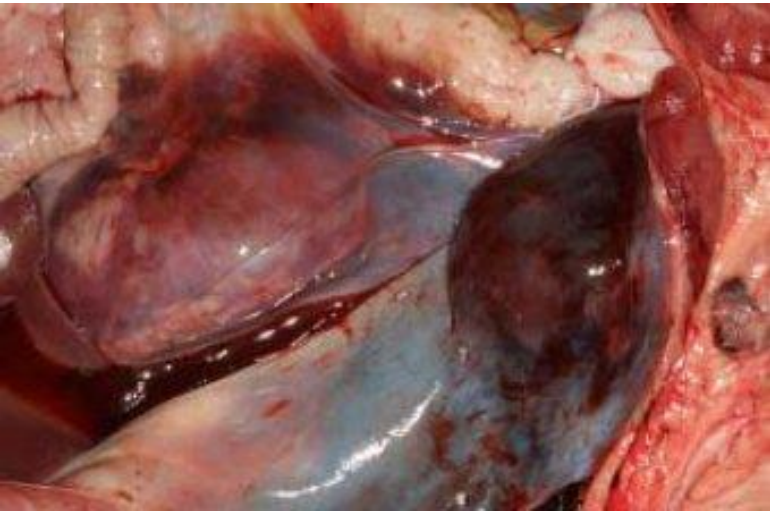
Kidneys



Edema and swelling



Petechiae



https://en.wikipedia.org/wiki/African_swine_fever_virus#/media/File:African_swine_fever_necropsy.jpg

No Conjunctivitis (unlike hog cholera)



Everybody is working on prevention and preparation



Coalition Groups

- ASF Crisis Team
 - Keep all parties up to date and on same page; consumer confidence
- National Swine Disease Council
 - Industry coordination; industry representation; industry decisions
- ASF Task Force
 - Focused on driving prevention activities
- NPB Swine Health Committee
 - Research prioritization and implementation
- Packer Business Continuity Task Force
 - Focused on restarting trade in the face of an outbreak



Coalition Groups

- **Feed Risk Task Force** - Ag Industries, Feed Industry, USDA, FDA
 - Evaluate the potential risk of virus introduction via feed
 - Assess gaps in knowledge
 - Determine actions to be taken to protect the US pork industry
 - Actions should be achievable, based on science and with a goal to minimize trade disruptions
- **AASV Committee on Emerging and Transmissible Diseases**
 - Communications with the swine veterinary community
- **Depopulation/Disposal Group** - industry, government, veterinary and producer stakeholders
 - Develop a roadmap and recommendations to aid in the development of depopulation and disposal plans



**ASF could likely be one
of the biggest events
in a producer's lifetime!**

