Dr. Egan Brockhoff
CPC ASF

SK Pork Symposium Fall 2018
WE NOW LIVE IN A TRANSBOUNDARY PATHOGEN WORLD

#diseasehappens
African Swine Fever (ASF) Virus

ASF is a deadly, contagious, hemorrhagic disease of pigs

Originally from Africa, it’s spread to eastern Europe, China and now Belgium

Increasing Global Concern

Risk to Canadian Pork Sector & Canadian Economy
NOT PED

REPORTABLE DISEASE

BORDERS CLOSE

MARKET TURMOIL

Belgium lost 13 Markets
For sale at Pigeon Lake, Alberta
Mr. Wiggles the spotted Berkshire Boar
9 month old
Ready to breed
Pin for price & details
ASF – CLINICAL SIGNS
ASF – Epidemiology

Circulates **naturally** in Africa in **native** wild pigs including Warthogs, Bush-pigs, and Giant Forest Hogs

- For these species, they rarely show clinical signs and if they do it is a mild disease

In contrast, **Domestic Pigs** and **European Wild Boar** are highly susceptible to the Virus

- There is no gender or age predilection
- The virus affects all equally
FMD – CSF – ASF

**FMD**
- Prevalence: 100%
- Lethality: 2%
- Mortality: 2%
- Contagious: +++
- 100 infected, 2 dead

**CSF**
- Prevalence: 50%
- Lethality: 50%
- Mortality: 25%
- Contagious: ++
- 50 infected, 25 dead

**ASF**
- Prevalence: 10%
- Lethality: 90%
- Mortality: 9%
- Contagious: +
- 10 infected, 9 dead
ASF – Transmission

Directly (SLOW)
- Contact with Infected Pigs (SLOW)
- Contact with Infected Soft Ticks
  - *Ornithodoros* sp.
- Contact with Infected Stable Flies

Indirectly (FAST)
- Body Fluids
- Infected Tissues
- Contaminated Pork
- Contaminated Swill or Kitchen Waste
- Contaminated Vectors
  - Feed
  - Transports
  - Footwear
ASF – Infection

Incubation: 3 – 15 days

**Higher** the Infectious Dose the **SHORTER** the Incubation

Virulence and Mortality Varies

- High virulence = 100% mortality
- Low virulence = seroconversion

Current Circulating Strain has **Very High Mortality**
ASF – Vaccination

There is no Vaccine available and no Treatment available

Little known about mechanisms involved in protection and even less about the viral antigens that could provide protection

Biosecurity & Disease Prevention the ONLY TOOLS WE HAVE
ASF – Viral Survival

ASF is stable over a wide range of temperatures and pH

- Putrefaction, Meat Maturing and Freezing does not inactivate the virus

The virus is infectious for:

- 11 days in feces
- Months in bone marrow
- 15 weeks in chilled meat
- > 15 weeks in frozen meat
- 3-6 months in cured hams that have not reached high temperature cooking

Cooking at 60C for 30 minutes will inactivate the virus
ASF – History

Unknown outside of Africa until 1957

Portugal 57 > Spain 60 > France >
Italy > Malta > Belgium 85 >
Netherlands 86

Feeding contaminated waste from
International Aircraft & Ships
ASF History

Short-lived outbreaks quickly & aggressively eradicated

Eradicated 1995

Georgia 2007
ASF

WHAT’S HAPPENING IN EUROPE
ASF – Europe Today

1000 cases in 9 European countries in the past 4 months

!? uncooked, frozen pig meat within the UK & Europe

German, French, Danish

Anxiety
ASF History
Belgium Situation – September 18th 2018

114 Cases in Wild Boar

300 – 400 Expected in Zone

Shoot what is left

3000 commercial culled
ASF

WHAT’S HAPPENING IN CHINA & SEA
ASF – China

First Case – Aug 3rd in Shenyang City in Northern China
  • Human associated virus movement from Russia

66 Cases in 17 Provinces

Transport bans, Public market lockdown, Assembly lockdown, Transport sanitation, Plasma ban, Swill feeding ban, Viremic slaughter …….. Feed Ingredients
*Most recent outbreaks are indicated by yellow stars.*

<table>
<thead>
<tr>
<th>Province</th>
<th># of reported cases</th>
<th>Date of first reported case</th>
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<td>Liaoning</td>
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<td>Henan</td>
<td>2</td>
<td>16-Aug-18</td>
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<td><strong>Total</strong></td>
<td><strong>66</strong></td>
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Dr. Chris Rademacher - ISU Extension - IPIC
ASF in China

Nov 11th @pigprogress

Pigs Dead from ASF

Underreporting
ASF – China

Pork Sector relies heavily on Vaccination & Antibiotics for Control

Need to significantly improve Biosecurity if they wish to control +/- eradicate ASF
Risk of Spread

Virus within 200 km of SEA

Virus within 50 km of N. Korea

Significant Illegal Movement
ASF

RISK FACTORS FOR CANADA
Risk Factors to Virus Introduction

1. Feed Ingredients
2. Travellers/Illegal Meat/International Waste
3. Returning Team Members
4. Fresh & Frozen Pork Imports from Infected Zones
5. Cooked Pork Imports from Infected Zones
6. Unknowns
Feed Ingredients Recommended Sourcing

Country of Origin
- Local
- FAD Free

Supplier Selection
- FAMI-QS & ISO 22000

Feed Mills
- Known Suppliers
- Biosecurity Program (ANAC)
### Dee et al. 30 Day Post Infection

<table>
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<tr>
<th>Ingredient</th>
<th>SVA (FMDV)</th>
<th>ASFV</th>
<th>PSV (SVDV)</th>
<th>PEDV</th>
<th>FCV (VESV)</th>
<th>PCV2</th>
<th>BHV-1 (PRV)</th>
<th>PRRSV 174</th>
<th>BVDV (CSFV)</th>
<th>VSV</th>
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www.cpc-ccp.com
Chinese Feed Ingredients

Organic Soybean Meal
China battles to control African swine fever as it reports 50th case

China linked feeding kitchen waste to pigs to the majority of the early cases of African swine fever in recent months, but it has not given a cause of the other cases.

Beijing has banned the feeding of kitchen waste to pigs, stepped up controls on the transport of live animals, and ordered a crackdown on slaughterhouses processing sick pigs, among other efforts aimed at controlling the spread of the disease.

African swine fever suspected to be in animal feed in China

BEIJING (Reuters) - Major Chinese animal feed maker Tangrenshen Group reported on Sunday that feed produced by one of its units was suspected to have been contaminated with African swine fever, raising fears of its spread further across the country.

The suspected contamination occurred during inspections after an outbreak of African swine fever on a farm in Qingyang county located in the eastern Chinese province of Anhui.
Cooperation with:

- ANAC
- CFIA
- SHIC
- Dr. Steve Dritz
- Dr. Cassie Jones
- Dr. Megan Niederwerder
- Dr. Scott Dee
**WHAT'S HITCHING A RIDE IN YOUR FEED?**

African swine fever (ASF) and other foreign animal diseases (FAD) can be transmitted via feed or feed ingredients imported from countries where these diseases are present.

Both contaminated feed ingredients and contaminated packaging can potentially carry live virus.

**Holding feed ingredients in storage prior to feeding can reduce viral survival.**

Time, temperature, the feed ingredient itself and the properties of the virus all impact survival time. All four of these factors are critical, but a single factor is the higher the temperature the shorter the virus survival time. Transport time of feed ingredients from China to Canada or Europe to Canada averages between 30 and 40 days. These days count in our factor.

**Recommended holding times before a feed or feed ingredient is used:**

- 20°C for 20 days or 1°C for 100 days

**Considerations to reduce the risk of viral transmission through feed ingredients:**

1. **Country of Origin** – selecting feed ingredients from a region known to reduce the risk of the introduction of a Foreign Animal Disease.
2. **Supplier Selection** – ask your Feed Mills and Feed Ingredient Suppliers to select sources that are from countries free of Foreign Animal Disease where possible, or at minimum, are compliant with known quality assurance standards such as ISO 9000 or FAMI-QS.
3. **Feed Mills** – select Feed Mills that are part of a recognized biosecurity program and participate in the Animal Nutrition Association of Canada’s FeedMills Program and follow their National Biosecurity Rules.

Current research has shown that feed ingredients can support viral survival and act as transport media to introduce disease to your farm. The science or viral transmission continue to evolve, and this information will continue to change. Therefore, it is important for all producers to make general recommendations. This document is intended to inform decisions that may reduce the risk of viral transmission. It is not intended to guarantee the complete elimination of the risk of viral transmission via these potential routes.

**Reality check:**

- Feed is one of many potential vectors of the virus.
- Elimination of high-risk ingredients such as feed and corn oil from high-risk countries such as China, is currently the best strategy to keep feed and feed ingredients from bringing ASF into Canada.

Current supply chain constraints may limit producers’ ability to completely avoid Chinese- or Asian-based ingredients, and it may not be necessary if the ingredient is unlikely to be contaminated.

**Here’s what you can do:**

- Have a chat with your suppliers
- Review and improve your biosecurity
- Stay tuned for more research

Pork producers should work with their feed suppliers to minimize viral transmission risk from feed ingredients.

**SHIC decision tree matrix to minimize viral transmission risk from feed ingredients**

The decision trees and questions developed by the US-based Swine Health Information Center (SHIC) could help producers have conversations with their feed or ingredient supplier about the safety of their ingredients.

**SHIC decision tree matrix to minimize viral transmission risk from feed ingredients**

- **Low risk feed ingredients**
  - Sibut, wet, packaged in individual, single-use bags

- **High risk feed ingredients**
  - Risk bulls and corn oils
  - Conventional soybean meal
  - Organic Soybean meal
  - Rapeseed oil
  - Distillers dried grains with solubles
  - Lysozyme hydrolysates
  - Choline Chloride
  - Vitamin D

For more information on African Swine Fever and the potential impact on the Canadian herd: www.cpc-ccp.com/afican-swine-fever
Recommended Holding Times

20°C for 20 Days

10°C for 100 Days
Feed Anti-infectives

Formalin Based

Acid Based

NONE of them Eliminate

Some do NOTHING
ASF Virus at the Airport

Korea

Japan

Taiwan
CFIA CBSA

Airline & Ship Waste
- Collection
- Incineration

Travellers
- Barn Workers
- Visitors
- Exchange Students

Although there have been reported cases of African swine fever in China and parts of Europe, there have been no reported cases in Canada. (thanks to Kelsey) 🇨🇦
Learn more: goo.gl/ngFSmm @CFIA_Food
#DogsWithJobs #DogsGC
ASF in Finished Products

Processing ASF **INFECTED** Pigs

- Ukraine
- Russia

Speaking at a press conference in Kiev, Volodimir Lapa, chairman of the State Veterinary and Phytosanitary Service said “there were concerns over the extremely high distribution of the virus in finished pork products in Ukraine”.
Pork Products in Barns

NO Pork in the Barn

Sources UNKNOWN

ZERO Tolerance
Alibaba

Online Sales

Movement of Illegal Meat

Unassuming Public
Risk Factors to Virus Establishment

1. Feeding Kitchen Waste & Swill Feeding (Recycling)
2. Backyard Pig Farms
3. Wild Pigs
4. Soft Ticks
5. Lack of Vaccination
CPC Communication to Members

Monthly Pork Board Health Calls

Monthly CASV Calls

Producer Communications

Telephone Town Hall

Social Media
Pig Trace Canada – Backyard & Commercial
Your pigs are vulnerable to the deadly AFRICAN SWINE FEVER virus.

Take necessary precautions to protect your animals.

DO NOT FEED HUMAN FOOD WASTE OR MEAT TO YOUR PIGS!

Although this virus cannot infect humans, even a trace amount from a contaminated pork product can kill your pigs and spread the disease. Be wary of where you dispose of your food waste and other animal products, including wild boar, do not have access to it.

If you feed your pig fruit and vegetables, make sure they have never entered a kitchen or been in contact with meat or products of animal origin.

The virus can survive in fresh pork, processed pork products including cured, salted, smoked or smoked products for up to 30 days and even 1,300 days in frozen pork. The virus can kill pigs if ingested.

TRAVELLERS BEWARE! African swine fever can be transmitted to pigs through contaminated food and by contaminated items such as clothing and footwear.

- When you travel, never bring back meat or pork products into Canada.
- Wash all clothing and footwear immediately after use in other countries. Even better, if you visit a farm or animals, don’t bring them back to Canada.

African swine fever is not currently present in Canada. Wild boar can very easily spread a host of diseases to your pigs if they have access to the outdoors. TAKE THE NECESSARY PRECAUTIONS SO YOUR PIGS NEVER COME INTO CONTACT WITH WILD PIGS!

African swine fever is very contagious & is killing pigs and wild boars in Africa, Asia and parts of Europe. No treatment is currently available. Let’s work together and the African swine fever does not make its way to Canada.

A message from the Canadian Pork Council. For more information, www.cpc-ccp.com

www.cpc-ccp.com
SMALL FARM ENGAGEMENT

Dr. Kelsey Gray

Nov 13 Meeting
  • Kootenay and Boundary Farm Advisors

48 Producers

The Basics
USA – 1982
USA – 2016

17 to 38 States in 30 years
Wild Pigs – 1990 to 2000
Wild Pigs – 2001 to 2010
Wild Pigs – 2011 to 2016
Actions with CFIA

- Meat & Animal Imports
- Feed Ingredients
- Science & Research
- Disease Surveillance
- CBSA
- Preparedness & Biosecurity
- Communication
CFIA Meat & Animal Imports

China

• Canadian Pork shipped to China for Dumplings to be sent back to Canada
• Intestine Casings

Europe

• Zoned –ve Pork
• Poland
Analysis of Livestock Feed Imports (not of animal origin) from China as a Pathway for African Swine Fever Entry into Canada
CFIA Swill Feeding

Feed Act and Regulations
Health of Animals Act and Regulations

“a swill feed must contain approved feed ingredients; cannot contain any meat and or meat by-products; and cannot present a risk of harm to human or animal health, or to the environment.”

This is NOT kitchen scraps to backyard pigs!
CFIA Preparedness & Biosecurity

Livestock Market Interruption Strategy

ASF Hazard Specific Plan

Zoning & OIE Recognition

- Dr. Tom Smylie (CFIA)
- Continued work on the General Chapter of the Terrestrial Animal Health Code to include new rules regarding ZONING and COMPARTMENTALIZATION
TO DO LIST

Talk Feed Biosecurity with your Suppliers/Nutritionists/Veterinarians

Stop Pork Products from Entering Barns

Biosecurity Audits/Meetings/Team Engagement

Engage Small Pig Farmers
African Swine Fever

The **GOOD THING** about ASF is that it spreads slowly

The **BAD THING** about ASF is that it spreads slowly