African Swine Fever update

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African Swine Fever (ASF)

• Highly contagious viral disease of swine
  – Affects only swine (not zoonotic)

• Asfarviridae - Enveloped DNA virus

• Isolates vary in virulence
  – High virulence: 100% mortality

• A survivor
  – At least 30 days in contaminated pens
  – Up to 150 days in some pork products (swill feeding transmission)
  – Survive long periods of time in carcasses (wild boar issues)
ASF – Transmission

• Direct contact – oronasal most common
  – Virus found in all tissues and fluids

• Indirect
  – Feeding of uncooked garbage
  – Fomites
  – Bite of infected ticks - *Ornithodoros*
  – Mechanically by biting flies

• No treatment or vaccine available
ASF – Clinical Disease

• High Virulence Strain
  – Often just sudden death with few lesions
  – Death < 7 days

• High fever (105-106° F)

• Recumbent

• Anorexia, erythema, cyanosis

• Bloody diarrhea, abortion
Control and Management

• **Rapid** diagnosis and euthanasia of sick and at risk pigs

• Aggressive biosecurity measures
  – Stop movement of ill pigs
  – Halt entry of people food into units/stop swill feeding
  – Disinfection and downtime for modern facilities (burning?)

• Control of feral swine (+/-)
Why is ASF of concern?

• ASF focus on research/management limited
  – Lack of routine surveillance
  – Lack of broadly cross-protective vaccine
  – Containment can be difficult
  – Significant economic impact!

• Looks like other septicemic diseases of swine
  – (PRRS, PCV, Salmonella sp., APP, CSF)
Possible Spread of African Swine Fever from Endemic Zone

- Endemic Zone
- Risk Zone
- Isolated Incidents
ASF Fact-finding Trip; Russia 2011

• Learn about current challenges and status of ASF in Russia

• Visit with Russian diagnosticians and researchers

• Build relationships for future collaboration
Organizations and Sites Visited:

- USDA FAS in Moscow, Russia
- Russian National Swine Breeders Union, Moscow
- National Center for Virology and Microbiology, Pokrov
- All-Russian Research Institute of Animal Health, Vladimir (also an OIE FMDV center)
Impacts and Outcomes

• Gained an understanding of the difficulty of management once in a country

• Built relationships for future research and collaboration

• Focus areas for U.S. veterinarians and producers:
  – Strengthen research on ASF
  – Develop/validate U.S. test kits
  – Focus on on-farm biosecurity
  – Focus testing on swill feeders (surveillance)
Why is ASF control an issue?

• Presence of small stakeholders/peasant farms with minimal/no biosecurity

• After 2004, the veterinary infrastructure was de-centralized which lead to a lack of command and communication between federal, regional and local veterinarians and authorities.

• Swill feeding and movement of infected meat is of grave concern
ASF positive areas - 2013

- Map from PigProgress report March 7\textsuperscript{th}, 2013
- ASF along European borders a significant threat
Status for ASF

• As of 10-18-13, The deterioration in the ASF situation in Russia is underlined by the fact that Russia has submitted 4 new follow-up reports to the OIE within the last 4 days, compared to a total of 3 previous follow-up reports, submitted between 21 Jun and 4 Sep 2013.

• This looks close to loss of control; grave news for Russia and a serious threat to the rest of Europe.
Focus for the U.S.: Prevention of ASF Introduction

• Direction from Swine Health Committee – Renew research efforts

• Incorporate ASF surveillance into routine surveillance

• Evaluate border protection and inspections

• Build relationships and collaborations with those that are dealing with ASF to continue to gain knowledge
ASF Projects Funded (NPB)

• Initiated FAD research starting 2010
  – Included all FAD’s
  – Diagnostics, vaccines, biosecurity/mitigation strategies

• Projects funded:
  – **2011**: Escribano - Development of fluorescent recombinant antibodies to detect African swine fever virus in tissue samples and infected cells
  – **2012**: Rock - Identification of genetic signatures for African swine fever virus serologic group specificity
  – **2013**: Rock - Identification of protective antigens of African swine fever virus
ASF Surveillance

• Rapid diagnosis is critical for control of disease

• Need exists to have the ability to screen for ASF for routine swine submissions

• USDA VS has indicated that they will be drawing up a plan to look for funds to do surveillance similar to CSF:
  – Acutely ill swine, routine submissions = PCR (virus detection)
  – Chronic exposure (garbage feeders) = serology
Additional Focus

• Outreach materials available for veterinarians and producers

• FAO ASF meeting in Rome, Italy
  – November 2013
Going forward...

• **ASF continues to be a real threat to European and U.S. pork production**

• Continue to focus research on ASF for development and validation of diagnostic tests and vaccines

• Implement strategies for ASF surveillance

• Protect borders and farms from introduction of illegal products, especially meats
Discussion