SHIC
Swine Health Information Center

Newsletter
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OUR LATEST INFORMATION ON PROTECTION OF US SWINE HERD HEALTH

SHIC Talk Episode 9 Is Live - Biosecurity with Dr. Clayton Johnson

SHIC/AASV Webinar Addresses APP Outbreak, Management Strategies

With an increase in outbreaks of *Actinobacillus pleuropneumoniae* (APP) occurring in the Upper Midwest, a webinar was offered by the Swine Health Information Center (SHIC) and the American Association of Swine Veterinarians (AASV), hosted by the Iowa State University Swine Medicine Education Center (ISU SMEC), on February 1, 2022. People from the US, Canada, Mexico, and 20 other countries heard Drs. Ian Levis, Seaboard Foods, Pete Thomas, Iowa Select Farms, as well as Alyona Michael and Marcelo Almeida, Iowa State University Veterinary Diagnostic Lab (ISU VDL), share their experiences and diagnostic perspectives.

Multiple practitioners in the field report clinical outbreaks of APP, which have resulted in increased morbidity and mortality across production systems where it was previously well controlled. This SHIC/AASV webinar addressed two practitioners' observations.

Dr. Ian Levis shared his experience which included eight farms affected since December 10, 2021. Pigs from multiple sow sources were affected even though none of the sow herds are APP positive. To date, Dr Levis said affected sites have been late finishing phase animals prior to marketing activities. He also shared the clinical picture of the impact, field necropsy results, comments on mortality, and treatments being implemented.

Dr. Pete Thomas said seven sites in their system had lateral APP breaks since November 2021 affecting late finishing pigs. Evaluation shows these breaks are all APP type 15. His presentation offered insight on clinical impact, treatment, mortality pattern, and enhanced biosecurity practices designed to limit spread.

Drs. Michael and Almeida addressed APP biology, carrier state, transmission, and development of clinical disease, pathogenesis, as well as serotypes and toxins. They shared diagnostic considerations describing the outbreak, general work up results from recent cases, an historical perspective based on ISU VDL serotypes, and the present outbreak of serotype 15. They also shared perspectives on surveillance and monitoring.

SHIC's 2021 Progress Report Details the Year's Highlights and Successes

Monitoring and mitigating risk to swine health. Improving swine health information. Conducting swine industry outreach. Surveillance and discovery of emerging swine disease. Preparedness and response. The Swine Health Information Center (SHIC) presented its 2021 Progress Report to the National Pork Board in January 2022, detailing highlights and successes of work done in 2021.

SHIC's 2021 Progress Report offers an in depth look at the work done to address the Center's mission of protecting and enhancing the health of the US swine herd through coordinated global disease monitoring, targeted research investments that minimize the impact of future disease threats, and analysis of swine health data. Launched in 2015 solely with Pork Checkoff funding, in 2021, the National Pork Board's (NPB's) Board of Directors voted to provide $15 million to fund SHIC's work through 2027.

Governed by an independent board of directors, SHIC's activities, reach, and impact grow annually. SHIC's Monitoring and Analysis Working Group and Preparedness and Response Working Group continue to provide program oversight and decision-making. Each actively meet via conference calls to fulfill their respective objectives. In 2021, the NPB agreed to continue the work with another six years' funding and the SHIC Board of Directors voted to hire an associate director who will work with Executive Director Paul Sundberg, DVM, PhD, DACVPM, to guide the Center's projects. This position will be filled in early 2022.

In addition to reporting on the results of individual research and other projects to satisfy the 2021 Plan of Work, the 2021 Progress Report also gives details about SHIC's programs. SHIC's Global Swine Disease Monitoring Report provides near real-time information on disease occurrence and movement internationally, a particularly valuable resource for African swine fever monitoring. The Swine Disease Reporting System provides information on prevalent domestic swine disease movement and occurrence based on veterinary diagnostic lab data. SHIC's Rapid Response Program is designed for epidemiological investigations of transboundary or newly emerging swine diseases to help investigate potential emerging disease occurrences. In cases of high morbidity/high mortality, where an etiology is either not identified or there is a strong supposition the identified pathogen is not the likely cause of the outbreak, there may be a need for further diagnostic work. In these cases, support for the fees of further diagnostic work may help identify newly introduced or emerging swine diseases. SHIC offers funding for additional diagnostic testing in approved cases. SHIC-funded Morrison Swine Health Monitoring Project (MSHMP) continues to monitor trends in pathogen incidence and prevalence.

SHIC 2022 Plan of Work Targets Disease Monitoring, Transport Biosecurity, More

Approved by the Swine Health Information Center (SHIC) Board of Directors, the 2022 Plan of Work outlines efforts to be taken in the areas of swine disease monitoring and reports, African swine fever (ASF), transport biosecurity, and other significant projects to protect the US swine herd from emerging diseases. Existing SHIC programs will also continue to be refined and improved.

In 2022, SHIC's Rapid Response Program and Diagnostic Fee Assistance will be reviewed and changes made to address the current context of emerging disease issues in the US. Additionally, the Morrison Swine Health Improvement Program, funded by SHIC, will expand its capabilities and deliverables for the benefit of the US pork producers. On-going research into emerging disease identification, mitigation, preparedness, and response will always be one of SHIC's highest priorities.

Global and Domestic Disease Monitoring Reports are among the most viewed elements of the SHIC newsletter and website. These reports provide near real-time information needed for the pork industry as SHIC watches emerging diseases in the US and around the globe.

SHIC-directed ASF research going on in Vietnam has yielded valuable data to help the US industry prepare in the event of an outbreak. Additional information from this work will be reviewed and evaluated will provide insights for preparedness efforts.

Transport biosecurity presents a challenge for the US swine industry. While some studies were done following the porcine epidemic diarrhea virus (PEDV) outbreak in 2015, more needs to be done. SHIC has data available from ongoing monitoring projects to do additional work to provide guidance to the industry in 2022.

The EpiX study conducted in 2021 showed feed safety is a gap for the pork industry. SHIC has several studies already completed to further examine the risks, gaps, and threats posed by feed with more underway. SHIC in 2022 will take this information and the new research results to offer actions for pork producers.

The entire Plan of Work includes projects in the key areas of SHIC's mission:

- Improve swine health information
- Monitor and mitigate risks to swine health
- Responding to emerging disease
- Surveillance and discovery of emerging disease
- Swine disease matrices

SHIC-Funded Study on Feed Goes Beyond Mathematical Half-life Calculations

The Swine Health Information Center (SHIC) funded a study on time by temperature risk mitigation practices in feed storage. For the first time, scientifically sound data based on the use of infectious agents and representative conditions are available to inform the industry on how long, and at what temperature, to store feed and feed ingredients to minimize risk. Previous storage periods for feed were based only on mathematical half-life calculations, not controlled studies using live pathogens and representative conditions.

Per the study summary, viruses of veterinary significance, such as African swine fever virus (ASFv), foot-and-mouth disease virus (FMDv), pseudorabies virus (PRV), and classical swine fever virus (CSFv) are known to survive for extended periods in plant-based feed ingredients. These types of feed ingredients are commonly imported into North America. High risk ingredients, such as oil seed meals, can be stored in designated facilities for extended periods under controlled environmental conditions to minimize viral infectivity prior to use. The results from this study, conducted by Dr. Scott Dee of Pipestone Research, suggest that a storage period of 30-days at a temperature of 23.9° C (75° F) are required to reduce virus infectivity in plant-based feed ingredients such as soybean meal. Hopefully, this information will enhance the application and efficacy of responsible imports protocols as we collectively work to manage the global risk of feed.

New Research Project to Investigate Feed Mill Decontamination in the Event of an ASF Outbreak

The Institute for Feed Education and Research (IFEEDER), Animal Nutrition Association of Canada (ANAC) and United Soybean Board (USB) have joined with the Swine Health Information Center (SHIC) to launch a research project that will evaluate several methods for cleaning and disinfecting feed mills following a potential African swine fever (ASF) outbreak. The information gained from the study's results will inform North American feed industries' ASF preparedness plans as well as feed mill biosecurity plans to minimize supply chain and trade disruptions in the event of an outbreak.

"SHIC continues to look into all routes of entry and dissemination of emerging diseases, not just to identify these pathways, but to do something about them with research of this kind," said SHIC Executive Director Paul Sundberg, D.V.M., Ph.D., DACVPM. "With partnership across the allied feed-related groups to benefit the U.S. swine herd, SHIC is encouraged to see this project move forward. We have learned that once ASF virus is in a feed mill, it will remain in that environment for a long time. This work is essential to address this risk to the U.S. swine herd."

The 12- to 18-month project will examine the optimal methods for disinfecting feed mills, paying particularly close attention to feed manufacturing equipment that is not designed for disinfection. Researchers will test several disinfection and flushing procedures using three viruses known to be most stable in feed and endemic in the United States – Seneca Virus A (SVA), porcine epidemic diarrhea virus (PEDv) and porcine reproductive and respiratory syndrome virus (PRRSV). The project will also determine the infectivity of feed and environmental samples after completely flushing and decontaminating equipment.

The feed inoculation and manufacturing will occur in Kansas State University's Cargill Feed Safety Research Center, which includes a pilot-scale feed mill with pelleting capabilities and is approved for handling biosafety level 2 pathogens. Samples tested for infectivity will occur at Iowa State University.

"Over the past few years, the U.S. feed industry has taken steps to improve its biosecurity procedures to reduce the risk of ASF introduction and transmission at feed mills, such as voluntarily holding ingredients for extended periods and reducing foot-traffic onsite," said Lara Moody, IFEEDER executive director. "Now, we are looking at filling knowledge gaps within the milling process – should an outbreak occur. There are currently no recommendations for best practices to clean and disinfect a feed manufacturing facility experiencing ASF contamination. With the support of American Feed Industry Association (AFIA) members, we are backing this research to provide guidance to companies to quickly and safely get their operations back up and running, minimizing any long-term shutdowns, which could have detrimental food supply chain and economic consequences."

"The Canadian feed industry recognizes the devastating impact the introduction of ASF in North America would have on the swine industry," said Melissa Dumont, ANAC's executive director. "A strong biosecurity and supplier approval program is key to keeping animal diseases out of feed mills and these programs continue to evolve as the science evolves. However, if ASF were to be introduced in North America and enter feed mills, facilities are lacking the crucial information on how to decontaminate a feed mill. ANAC is excited to support this research project, which will provide critically important knowledge so we can adequately be prepared in the event of an outbreak and continue to provide all livestock with safe feed."

ASF poses no health concerns to humans but is a highly contagious and deadly viral disease affecting pigs and it has devastated swine industries across Africa, Europe and Asia. In the summer of 2021, it was detected in the Caribbean, the closest it has ever been to the U.S. mainland. Recent estimates show that an outbreak of ASF in the U.S. could cost upwards of $50 billion to the U.S. economy.

"The United Soybean Board has partnered with the swine and feed industries since 2015 to ensure a long-term, sustainable and biosecure swine supply chain—including investment in development of a risk-free ASFv surrogate, the investigation of feed mitigants, virus survival in transportation and virus survival during the feed milling process," said Philip Good, USB's Demand Action Team chair and a Mississippi farmer. "Our collaborative investments help ensure that the U.S. swine supply chain is prepared and able to minimize risk from foreign animal diseases."

About ANAC

The Animal Nutrition Association of Canada (ANAC) is the national trade association of the Canadian livestock feed industry. Originally formed in 1929 under the name Canadian Feed Manufacturers' Association, ANAC has been representing the Canadian feed industry for nearly 100 years. ANAC advocates on behalf of the feed industry with government regulators and policymakers to foster a favourable business environment for its members. As an international partner in sustainable animal nutrition, the association promotes and enables the highest standards of feed and food safety in Canada. Our members include feed and ingredient manufacturers and distributors, as well as suppliers of a wide range of goods and services to the feed industry. Taken together, ANAC's membership represents 90 percent of commercial feed manufactured in Canada.

About IFEEDER

Founded in 2009 by the American Feed Industry Association (AFIA), the Institute for Feed Education and Research is a 501 (c)(3) public charity and is a critical link in the ever-evolving food supply chain. Serving as a champion for the animal food industry, IFEEDER supports critical education and research initiatives that ensure consumers have access to a safe, healthy and sustainable food supply. IFEEDER focuses its work in two primary areas: funding critical animal feed and pet food research to support AFIA's legislative and regulatory positions, and developing appropriate messaging for policymakers, consumer influencers and stakeholders which highlights the industry's positive contributions to the availability of safe, wholesome and affordable food, and the preservation of our natural resources.

About SHIC

The Swine Health Information Center (SHIC),

launched by the National Pork Board in 2015 solely with Pork Checkoff funding, continues to focus efforts on prevention, preparedness, and response to novel and emerging swine disease for the benefit of U.S. swine health. As a conduit of information and research, SHIC encourages sharing of its publications and research. Forward, reprint, and quote SHIC material freely. SHIC is funded by America's pork producers to fulfill its mission to protect and enhance the health of the U.S. swine herd. For more information, visit swinehealth.org or contact Dr. Sundberg at psundberg@swinehealth.org.

About USB

United Soybean Board's 78 volunteer farmer-leaders work on behalf of all U.S. soybean farmers to achieve maximum value for their soy checkoff investments. These volunteers create value by investing in research, education and promotion with the vision to deliver sustainable soy solutions to every life, every day across the three priority areas of Infrastructure & Connectivity, Health & Nutrition, and Innovation & Technology. As stipulated in the federal Soybean Promotion, Research and Consumer Information Act, the USDA Agricultural Marketing Service has oversight responsibilities for USB and the soy checkoff. For more information on the United Soybean Board, visit unitedsoybean.org.

SHIC Update on ASF Found in Italy; Macedonia and Thailand Report Cases

(January 12, 2022) African swine fever (ASF) has been diagnosed in Italy. A dead wild boar found in Ovada, in the province of Alessandria, was found to have ASF, per the Italian news wire service ANSA on January 7, 2022, and subsequently confirmed by OIE, the World Organisation for Animal Health. Since this first ASF diagnosis was reported, others have been found. Per an Italian news report, there are five cases and the number of municipalities in the infected area rose to 114 overall, 78 in Piedmont and 36 in Liguria. These were all included by the Ministry of Health in the ASF control zone as required by European Commission (EC) protocol.

The outbreak report posted by OIE on January 10, 2022, said, "Following the finding of a dead wild boar in northern Italy, the positivity for genotype 2 is reported, the same strain currently circulating in Europe, that characterizes the epidemic wave that began in 2007." Also on January 10, the EC said Italy will need to ensure that an infected zone for African swine fever is established immediately and also ensure that consignments of porcine animals kept in the areas listed as an infected zone in the Annex and products thereof are not authorized for movements to other Member States and to third countries. These restrictions currently apply until April 7, 2022.

The Swine Health Information Center, American Association of Swine Veterinarians, National Pork Board, and National Pork Producers Council have been gathering information about whether the presence of ASF in Italy, and the response there, could increase risk to the US swine herd or affect the movement of pork products exported from Italy. The US has an agreement with the European Union (EU) to recognize the EU response and the application of control zoning in Italy, as in other affected EU countries. And the zoning and control actions underway in Italy, taken in response to this ASF diagnosis per the EU directive, apply to Member States and third countries, so they apply to products destined for the US.

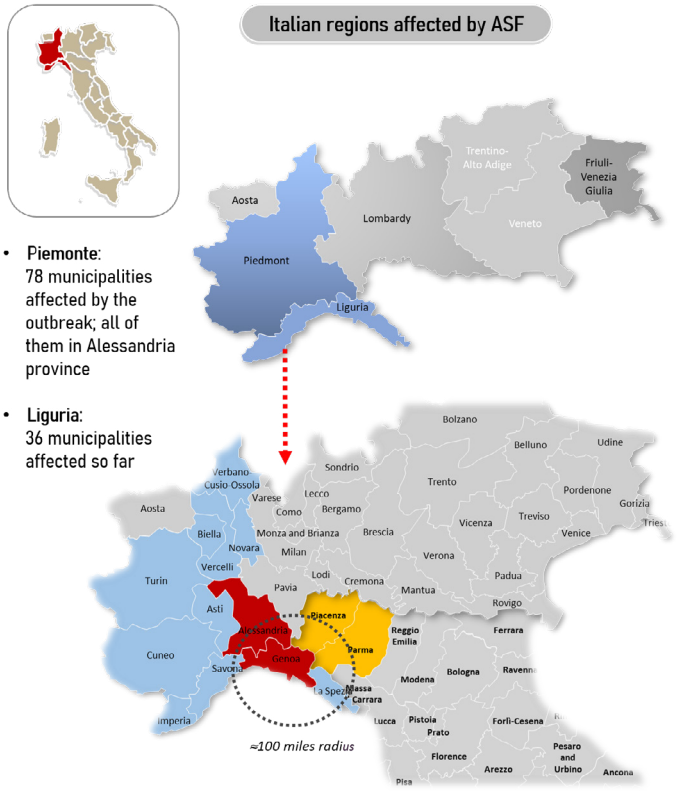
USDA-Food Safety Inspection Service informs USDA-Animal Plant Health Inspection Service with map locations of slaughter facilities approved for export to the US and, thus far, no facilities are located within the control area. In addition, as a condition of export, the facilities must attest that slaughtered animals do not come from, or travel through, the affected area. Also, facilities processing Parma hams are not located in the affected area, as in the US no clinically sick pigs are allowed for slaughter and the extended Parma ham curing process has been shown to mitigate ASF risk from the meat.

The map on the following page gives some perspective about the geographical scope of the outbreak, so far.

According to OIE, ASF has been found in North Macedonia and the occurrence is not connected to the case in Italy. Per OIE's report, clinical signs were noticed by the farmer on December 29, 2021, and dead cases were reported on January 1, 2022, in a small backyard farm located in the eastern part of country. On January 5, 2022, blood samples,

swabs, and organs were submitted for analysis. Positive results for ASF were obtained January 6, 2022, via real time PCR in the Laboratory of Faculty of Veterinary Medicine, Skopje. According to the epidemiological investigation, possible entrance of the disease was contact with wild boars. The Food and Veterinary Agency issued a decision on January 7, 2022, regarding protective and control measures, establishing protection zone of 3km and surveillance zone of 10km with accompanying measures that will apply to holding zones. A stamping out policy was carried out among all pig holdings in the 3km area on January 10, 2022.

And while Thailand hasn't officially notified the OIE of an ASF outbreak, several press reports indicate a case was found in a slaughterhouse. The complex, evolving situation will continue to be closely monitored.



Map Legend
In blue: provinces from Piemonte and Liguria region;
in red the most affected provinces;
in yellow: neighboring provinces from Emilia-Romagna region in high alert.

SWINE DISEASE MONITORING REPORTS

As the world deals with the COVID-19 pandemic, SHIC continues to focus efforts on prevention, preparedness, and response to novel and emerging swine disease for the benefit of US swine health.

DOMESTIC

This month's Domestic Swine Disease Monitoring Report shows a moderate decrease in detection of porcine reproductive and respiratory syndrome virus (PRRSV) in wean-to-market sites. Overall, there have been three consecutive year-over-year increases in submissions and positivity of PRRSV PCRs. In the second half of January, more intense activity of enteric coronavirus, i.e., porcine epidemic diarrhea virus (PEDV), porcine deltacoronavirus (PDCoV), transmissible gastroenteritis virus (TGEV), has been detected. The levels of PEDV detection were above expected in the last week of January. The SDRS bonus page brings a 2021 PRRV strains detection retrospective. In the podcast, Drs. Linhares, Magalhães, and Trevisan discuss the report, potential reasons for the observed changes, and the information presented on each page of the PDF report.

VIEW REPORT

GLOBAL

African swine fever (ASF) has been found in a genetic multiplier in the Dominican Republic for the first time (not yet reported to OIE). Authorities there keep registering new disease reports; over 782 reports have been confirmed since the start of the epidemic. In Thailand and North Macedonia, the first ever officially reported outbreaks of ASF were reported. In Thailand, ASF was found in Nakhon Pathom a province adjacent to Bangkok, and has been registered. Officials in Hong Kong reported an ASF outbreak in wild boar. No other abnormal deaths had been observed in other areas so far. ASF outbreaks in wild boar spread as more cases are reported in northern Italy. Porcine epidemic diarrhea virus (PEDV) has been reported in Manitoba with 27 outbreaks in January.

VIEW REPORT