REPORT Q3 JULY- SEPT 2021 VETERINARY SURVEY

HIGHLIGHTS FOR VETERINARIANS

CEZD Disease Signals of Interest from Q3

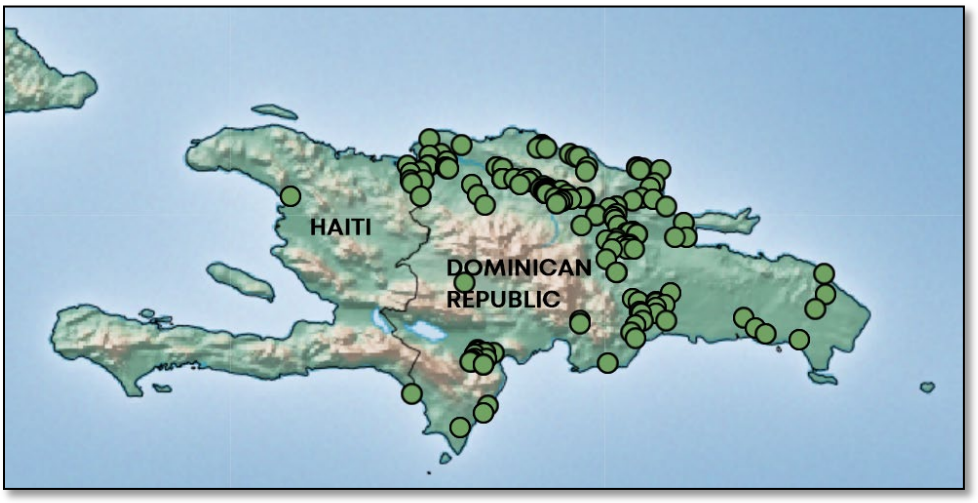
Dr. Andrea Osborn provided a review of disease signals that presented to the Community of Emerging and Zoonotic Disease (CEZD) over the past quarter.

African Swine Fever (ASF) Signals

ASF in Domestic Swine in Germany

- Germany announced detection of ASF cases in domestic swine located in Brandenburg in July of 2021. All infected animals were culled and there was no further spread of disease in domestic swine until Nov 2021.
- On Nov 16, 2021, Germany announced that a new case of ASF was found in domestic swine on a farm near Rostock in the state of Mecklenburg-Vorpommern. ASF had not been detected in this area to date in both domestic pigs and in wild boar. **This area is a considerable distance from the known ASF infected areas in Germany which is concerning.**
- Germany has detected ASF in >2000 detections in wild boar since this virus was first detected in this country.

ASF in the Dominican Republic and Haiti



This map above shows the locations of reported ASF cases in the Dominican Republic and in Haiti (Source: Empress-i) https://empres-i.apps.fao.org/

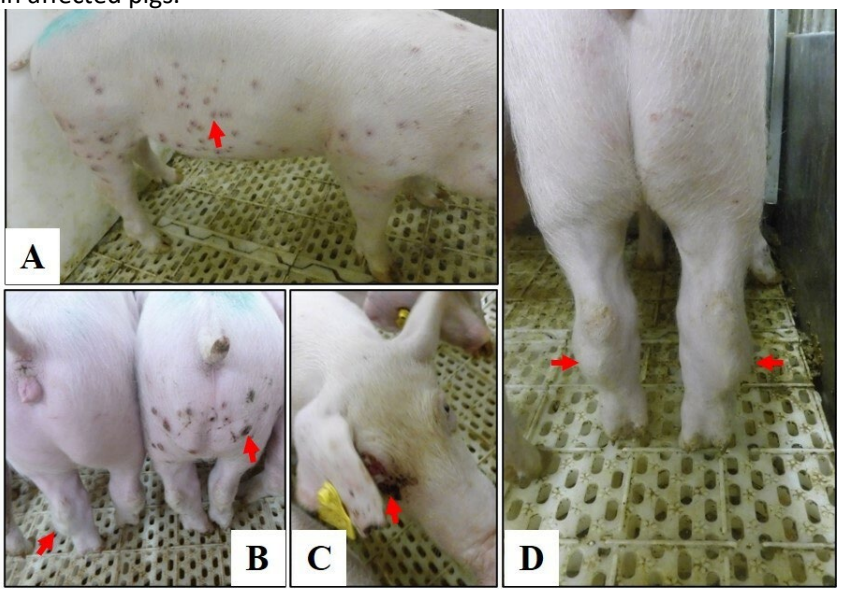
Dr. Andrea Osborn reported that ASF has continued to spread and mapping of the cases shows that virtually the entire island is affected. Haiti was originally reporting most of the ASF detections to the north, but cases have now been detected in the southern aspect of this country.

CEZD Disease Signals of Interest from Q3 Continued…

A Canadian veterinarian published an interesting article on how previous swine depopulation efforts were perceived by the Haitian community and the connection to Canadian Imperialism when ASF was last detected in this county in the 1980s: The Curious Case of Haitian Pigs and Canadian Imperialism - Global Research - Centre for Research on Globalization . This negative perception may well impact current depopulation response efforts if producers are not willing to cooperate and hide pigs from authorities.

ASF Genotype 1 in China

- A strain of ASF virus known as genotype 1 has now emerged in China. Article link: PigProgress - ASF China: Genotype I also reported in China
- Two genotype 1, ASF viruses, were isolated from pigs in Henan and Shandong province.
- The phylogenetic analysis of the whole genome sequences suggested that both isolates share high similarity with two genotype 1 viruses isolated in Portugal in 1968 and in 1988.
- Where did these new strains of this virus come from? How did they surface in China? There are no answers to these questions currently.
- Reports state that the genotype 1 ASF viruses in China have been associated with a low virulence, efficient transmissibility, mild onset of infection and chronic disease. Clinically these viruses have caused necrotic skin lesions and joint swelling in affected pigs.



"Figure 1 demonstrates typical lesions that have been reported to be associated with genotype 1 ASF viruses in China. Clinical signs include skin lesions (photos A, B.C) and swollen joints (photo D) (Source: Encheng Sun et al 2021)

ASF Vaccine Field Trials in Vietnam

Recent laboratory trials by NAVETCO (National Veterinary Joint Stock Company) have shown the live attenuated vaccine ASFV-G-ΔI177L is effective for both European and native Vietnamese pigs. This research was published through the following link: African swine fever virus vaccine candidate ASFV-G-ΔI177L efficiently protects European and native pig breeds against circulating Vietnamese field strain - PubMed (nih.gov)

- ASFV-G-ΔI177L is the most effective of the live attenuated vaccines produced to date.
- This vaccine produced no virus shedding, gives sterile immunity with no wild type virus detectable after challenge.
- Lab trials were successful in European and Asian breeds of pigs.
- Field trials are set to begin in Vietnam and if all goes well, NAVETCO could have a commercial vaccine in Vietnam by mid 2022.
- Regulatory requirements for licensing are not the same in Vietnam as in other countries, thus follow-up testing of this vaccine will be required before it can be approved for use in other countries.

Update on Influenza in swine virtual session Jan 2022

Drs. Theresa Burns and Christa Arsenault provided an update on the influenza in swine virtual session being planned for January 20, 2022. This session will be hosted jointly by the Canadian Animal Health Surveillance System (CAHSS) and the Canadian Swine Health Intelligence Network (CSHIN).

Scope of this session: 1) Sharing of Influenza surveillance initiatives that are ongoing in Canada, in order to develop the national swine surveillance picture. 2) Develop a plan on how to best coordinate and communicate national Influenza in swine surveillance initiatives moving forward. Considerations will need to be made on available finances/budgets, time constraints and resource limitations when developing this plan.

This virtual session will be divided into two parts: **Part 1:** A pre-meeting survey will be circulated to gather information on ongoing initiatives in influenza in swine surveillance across Canada. The information gathered will be analyzed and discussed during part 1 of this session. **Part 2:** Develop a plan that identifies gaps and proposes solutions and a path forward to national coordination and communication of influenza in swine surveillance.

Goals of this session: 1) Determine what information is required to complete a useful report on influenza in swine surveillance, determine how this information could be obtained and the required frequency. 2) Determine the target audience(s) for reporting and preferred routes of communications. 3) Determine what information/data is required in order to achieve regional influenza in swine vaccination goals.

Smallholder Swine Veterinary Training Course Update

Dr. Theresa Burns provided an update on the smallholder swine veterinary training course that is currently being offered through CAHSS. The goal of this training was to provide veterinarians that don't normally see pigs with the information/knowledge required in order to make them more comfortable with being able to offer veterinary advice. There is an identified need for more swine veterinary expertise for pet pigs and smallholder swine. To date, four virtual training sessions have taken place over a 4-week period on the following topics: 1) The normal pig 2) Approach to the sick pig 3) Routine procedures and disease prevention 4) The pet pig. Dr. Sue Burlatschenko is the veterinarian that is presenting this course material. Overall this course has been a huge success! On average, 55-70 vets have participated in each of the 4 sessions. At the end of these sessions CAHSS hopes to be able to provide a list of names of veterinarians that have completed this course and now feel comfortable listing their names on provincial lists to provide veterinary services to these clients. There are also plans to conduct this training course in French and to re-offer the English sessions in about 6 months time for those that may want to still register. **Congratulations CAHSS and Dr. Sue Burlatschenko on this veterinary training initiative! Job well done!**

CanSpotASF Surveillance Q3 Update

Dr. Claudia Gagné-Fortin (RAIZO), Dr. Jette Christensen (CWSHIN), Dr. Dan Hurnik (Maritimes) and Dr. Tim Pasma (OAHN) provided an update on the CanSpotASF surveillance pilot project. A bilingual report has been created to share testing numbers broken down quarterly per region for this pilot project.

Maritimes **Period / Période**	**Number of eligible cases / Nombre de cas admissibles**	**Number of negative cases / Nombre de cas négatifs**	**Number of positive cases / Nombre de cas positifs**
2021 Quarter 3 (July 1 to Sept 30) T3 (1er juillet - 30 septembre)	7	5	0
Cumulative / Cumulatif	**19**	**11**	**0**

RAIZO (Quebec) **Period / Période**	**Number of eligible cases / Nombre de cas admissibles**	**Number of negative cases / Nombre de cas négatifs**	**Number of positive cases / Nombre de cas positifs**
2021 Quarter 3 (July 1 to Jun 30) T3 (1er juillet - 30 septembre)	82	37	0
Cumulative / Cumulatif	**508**	**109**	**0**

OAHN (Ontario) **Period / Période**	**Number of eligible cases / Nombre de cas admissibles**	**Number of negative cases / Nombre de cas négatifs**	**Number of positive cases / Nombre de cas positifs**
2021 Quarter 3 (July 1 to Sept 30) T3 (1er juillet - 30 septembre)	60	13	0
Cumulative / Cumulatif	**195**	**50**	**0**

CWSHIN (Western Provinces) **Period / Période**	**Number of eligible cases / Nombre de cas admissibles**	**Number of negative cases / Nombre de cas négatifs**	**Number of positive cases / Nombre de cas positifs**
2021 Quarter 3 (July 1 to Sept 30) T3 (1er juillet - 30 septembre)	35	53	0
Cumulative / Cumulatif	**241**	**192**	**0**

Disclaimer: The number of eligible cases is estimated differently at the participating laboratory level and the methodology differs amongst the reporting networks. CanSpotASF is a voluntary pilot project.

Avertissement: Le nombre de cas admissibles est estimé différemment par les laboratoires participant et la méthodologie diffère selon les réseaux qui rapportent l'information. CanaVeillePPA est un projet pilote à participation volontaire.

It is important to note that <u>all testing</u> conducted to date has yielded <u>negative ASF results</u>. Not all cases deemed to be eligible can be tested for ASF due to a multitude of reasons including but not limited too; tissues submitted not approved by the CFIA for ASF testing, samples submitted not viable and vet or producer consent not given.

It is important to continue to communicate the importance of Canada's ability to increase enhanced passive surveillance for ASF especially to producers. **We are asking veterinarians to ensure that their clients are aware if samples are to be included in CanSpotASF. This pilot project is a positive step in granting provincial labs the ability to perform ASF testing in low-risk cases. It is very important that veterinarians and producers support this initiative.**

Porcine Epidemic Diarrhea Virus (PEDv)

CWSHIN (Western Provinces)

Dr. Glen Duizer reported that there is a new PEDv outbreak in the Southeastern area of Manitoba. This is the same region that had the previous outbreak of PED. The full epidemiological investigation is not complete yet, but findings to date have revealed that there were some potential transport biosecurity issues and that routine on-farm biosecurity protocols that were in place after the last PED outbreak have lessened over time. There have also been some findings of equipment being exposed to a PEDv positive premise not being effectively cleaned and disinfected. Thankfully, this equipment was not taken to any other pig farms after unknowingly being in contact with an infected premise. Investigations have also revealed the potential for virus transmission even when loadout docks are properly managed and normal loadout protocols are followed. A component of the outbreak of PEDv was picked up via routine processor surveillance testing, indicating that this testing is working! Abattoir surveillance in Manitoba has been valuable in the outbreak investigation, providing information on the scope of the outbreak and the continued disease pressure on the sector.

PEDv has also been detected in another segregated area of Manitoba that has never had PEDv detections from previous outbreaks. Two farms have been confirmed to be positive and are linked through pig flow in this area. At this time there are no known epidemiological links between these 2 cases and the other PEDv positive area. Dr. Melissa Desrochers reported that the goal is to eradicate PEDv from these premises within 28 days.

The CSHIN Q3 team would like to congratulate Manitoba on how quickly their teams were able to mobilize for this new PEDv outbreak. This team works so well together and this can serve as a model for others. Jenelle Hamblin from Manitoba Pork is organizing weekly communication meetings with all swine veterinarians within the province keeping everyone up to date on this situation. Well done!

OAHN (Ontario)

Dr. George Charbonneau mentioned that Swine Health Ontario (SHO) has reported 1 new case of PEDv in Q3 that occurred in a nursery operation and there have been no new cases of Porcine Deltacoronavirus since January 15, 2021. Dr. Jim Fairles reported that the Animal Health Lab (AHL) is conducting a normal amount of testing for PEDv for this time of year, but there is a low incidence of positive tests. Dr. Fairles did mention that the AHL reported 2 new PEDv cases in the last 2 weeks corresponding with Q4. Dr. Christine Pelland mentioned that both of these new PEDv cases were in finishing barns. The most likely source of infection in these finishing barns is suspected to be through transport vehicles that had contact with the loading docks that were used for dropping off cull sows. Proper biosecurity was not maintained. Both herds plan to eradicate this virus. To view the SHO PEDv tracking please go to the following link: http://www.swinehealthontario.ca/Disease-Information/PED-PDCoV-Tracking-Map

RAIZO (Quebec)

Dr. Claudia Gagné-Fortin reported that Quebec has regained their negative status for PEDv since September 2, 2021, and Quebec is still free from Porcine Deltacoronavirus. **The threat is always present so this is a good reminder of the importance of biosecurity and maintaining vigilance in proper cleaning and disinfecting procedures.**

Influenza A Virus in swine (IAV-S)

RAIZO (Quebec)

Dr. Claudia Gagné-Fortin reported that in Quebec the most common subtypes of Influenza reported in swine were H3N2 and H1N2. Quebec continues to work with the National Centre for Foreign Animal Diseases (NCFAD) in Winnipeg where they are conducting the sequencing of PCR positive samples for IAV-S. From this data; April 26-July 20, 2021, there were 27 isolated sequences and results revealed 15 x H1N1 (4x pdm) and 12 x H1N2 or H3N2. The plan is to use more sequencing information that comes out of this project moving forward.

OAHN (Ontario)

Dr. George Charbonneau commented that in the OAHN Q2 clinical impression survey, Ontario swine practitioners reported no increase in the frequency of IAV-S in Ontario. This was the first time in a very long time that this virus was not reported to be increasing on the veterinary clinical impression survey. In Q2 it was also noted that lab submissions for IAV-S were almost double normal levels. It was determined that a significant amount of this increased testing was for research projects or for routine swine herd monitoring.

In the OAHN Q3 clinical impression survey, 30% of responding veterinary practitioners indicated that IAV-S was increasing in prevalence. **Take home message: It is important to compare both veterinary comments to levels of submissions through laboratories in order to get the accurate surveillance picture.**

Streptococcus equi zooepidemicus (Strep. zoo)

OAHN (Ontario)

OAHN reported that there were 2 pathology cases with 2 separate isolates of *Strep. zoo* that were identified during Q3 in Ontario. There were no indications of these findings on the clinical impression survey from swine veterinarians. Both cases were reported into the OAHN through the AHL. The first case was found in finisher pigs from the same herd that previously had detected this pathogen back in Q4 of 2020. This herd had attempted to eliminate this pathogen, but it appears to still be present in this population and was the cause of a significant increase in mortality in the finishing pigs. In this case the virulence genes known as SZM were found to be present in the *Strep. zoo* isolate. The second case was found in 1 pig only from a small mixed species farm. In this case the virulence genes SZM were not present. The clinical presentation and postmortem findings were consistent with septicaemia.

CWSHIN (Western Provinces)

Dr. Jette Christensen reported that the project on *Streptococcus* laboratory investigations in the western provinces that began in April 2021 is still ongoing and all cases of *Strep zoo.* would qualify for full genome sequencing through this project. **It is important to note that no new sites of *Strep. equi zooepidemicus* have been detected as part of this project**.

Streptococcus suis (Strep. suis)

CWSHIN (Western Provinces)

CWSHIN is reporting that a new type of *Strep. suis,* known as type 14, has been isolated and seems to be spreading slowly between some farms in Saskatchewan. These cases are causing an increase in mortality rates, sometimes

doubled in nurseries, and then seems to slowly (4-6 weeks) return to lower levels. Some herds with high mortality had concurrent influenza infections. Treatment with amoxicillin has been useful in some herds. Dr. Melissa Desrochers reported that associated clinical signs include meningitis and swollen joints. These isolates are being included in the *Streptococcus* laboratory investigations project mentioned above but have not been fully sequenced to date. Ventilation issues and seasonal weather trends seem to be associated with detection of this pathogen.

Dr. Jette Christensen provided a reminder that septicemia is an eligible criteria listed under the CanSpotASF surveillance project. These samples should be submitted to approved labs with practitioner comments requesting that these samples be included in the CanSpotASF surveillance project. When you request ASF rule-out testing, remember to submit spleen, lymph nodes and include the premises ID.

Salmonella

RAIZO (Quebec)

RAIZO reported that Quebec has detected 14 salmonellosis cases in necropsy at the laboratory and 10/14 isolates were due to the monophasic variant of *Salmonella Thyphurmurium*. One practitioner reported an interesting case in a finishing operation where the producer didn't change their boots after performing some maintenance outside and then came back into the barn which contaminated the finishing barn with this pathogen. What was interesting was that only the first few pens that made contact with the producer's boots saw positive cases. This demonstrates nicely the connection between pathogen transmission from biosecurity breaches. **Take Home Message: This case serves as a reminder that simple biosecurity measures work and must be maintained!**

CWSHIN (Western Provinces)

Dr. Jette Christensen reported that *Salmonella* would have been on CWSHIN's top 5 topic list for this quarter. Veterinarian comments were that some cases of wasting occurred in the mid-late nursery stage in Manitoba and in British Columbia. Although the clinical signs associated with these cases were wasting, *Salmonella* was detected.

OAHN (Ontario)

Dr. George Charbonneau reminded the CSHIN team that this pathogen has the potential to be a public health issue and has spread downstream to processors and consumers. For this reason, it is important to continue surveillance and to communicate findings for awareness reasons. The Animal Health Lab usually reports somewhere between 15 and 20 Salmonella isolates in swine each quarter and approximately 25% are the monophasic variant.

Porcine Circovirus (PCV-2 and PCV-3)

RAIZO (Quebec)

In Quebec 26% of veterinarians reported an increase in PCV-2 on the veterinary clinical impression survey for Q3. It is suspect that this may be attributed to a very bad year with PRRSv infections and/or associated with variations in vaccination protocols. Quebec reported 2 cases of PCV-3 in 2007 and 3 cases in 2019. No cases of PCV-3 have been reported lately, but practitioner questions on this pathogen have increased. It can be extremely difficult to observe clinical lesions for this virus in abortion cases so these numbers could be higher.

OAHN (Ontario)

OAHN reported that in Q2 veterinarians reported zero cases in the past year that they would attribute to PCV-3. This was in response to a specific question about frequency of PCV-3. Dr. Josepha DeLay continues to report pathology cases that have clinical signs, pathology lesions that are PCV-3 positive on PCR. This pathogen should be on the surveillance radar as it has the potential to increase in frequency much the same as PCV-2 gradually became more widespread and clinically more severe over time. Sequencing for PCV-3 is available in Canada, however, to associate lesions with antigen (with IHC) and ISH (in situ hybridization) is currently sent to a lab in the U.S.A.

CWSHIN (Western Province)

The western provinces lab testing seems to be stable for PCV-2, but there is an increased detection of PCV-3 based on the lab data. This pathogen was not discussed on the CWSHIN Q3 call.

The Canadian Pork Council, the Canadian Association of Swine Veterinarians and the Canadian Animal Health Surveillance System support the reporting activities of the Canadian Swine Health Intelligence Network.

This information is a professional communication for swine veterinarians. The information was obtained from a survey of the clinical impressions of participating practising veterinarians with input from other swine health professionals. This information is not validated and may not reflect the entire clinical situation. Your professional judgment is required in the interpretation and use of it. It is the intent of CSHIN to improve the health of the national swine herd.

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