Canadian Swine Health Intelligence Network

Réseau canadien de surveillance de la santé porcine

CSHIN QUARTERLY PRODUCER REPORT

REPORT Q4 OCT-DEC 2022

HIGHLIGHTS FOR SWINE PRODUCERS

Invasive Wild Pigs

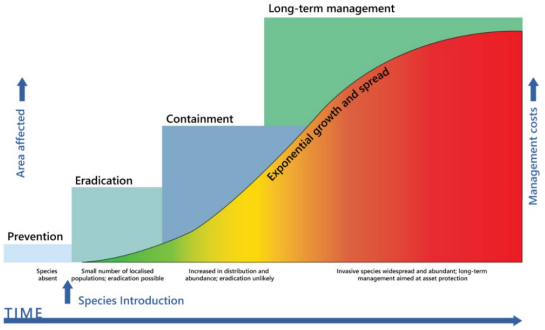
"Wild pigs are one of **the most prolific invasive mammals on Earth** and cause **extensive damage** to agricultural crops, native ecosystems, and livestock and are **reservoirs of disease**." Source: Kost and Brooks, 2017. Invasive wild pigs are a One Health issue through the environmental destruction that they cause, the reservoir that they can represent in spreading disease between farmed animals and wildlife, and the damage that they cause to human livelihoods. Some examples of pathogens that have been proven to transfer from wild pigs to humans include *Brucella suis*, Hepatitis E and *Trichinella*. Bree Walpole from Ontario's Ministry of Natural Resources and Forestry (MNRF) provided the CSHIN team with an update on wild pig initiatives that are an ongoing collaborative effort in Ontario. The definition of wild pigs in Ontario is any pig outside of a fence that is not contained or under the physical control of any person or is otherwise roaming freely.

Photo 1 Sorce: Ron W. Wild pot-bellied pig, Peterborough District, Ontario

Photo 2 Source: Wild pot-bellied pig, Peterborough District, Ontario.

The status of wild pigs in Ontario is that there are no self-sustaining breeding populations known to date putting this species on the threshold between prevention and eradication. Once populations become established an exponential growth in numbers and geographical spread increases along with the management costs making invasive wild pigs much harder to eradicate. Every province in Canada will differ in where their wild pig populations measure on this graph. This emphasizes the importance of each province being given the latitude to conquer this issue using different techniques and strategies.

Graph Source: Invasion-Curve - Invasive Species Council



Ontario (along with many other provinces) has mechanisms set-up to allow the public to report any wild pig sightings through to the MNRF who will then conduct a follow-up. A full list of how to report wild pigs in each province can be found here. MNRF has the ability to confirm any wild pig sightings, trap any wild pigs and to further remove them from the environment. Ontario has put in place a strategy that contains policy and regulations that have been put in place to support the ultimate goal of preventing the establishment of invasive wild pigs within the province. As of Jan 1, 2022, pigs are a restricted invasive species under the *Invasive Species Act, 2015* which restricts pigs from being released into the natural environment, prohibits live pigs from entering provincial parks and conservation reserves, prohibits hunting, and Eurasian wild boars are being phased out of the province by Jan 1, 2024.

Invasive Wild Pigs Continued

There is also a lot of great work being completed on wild pigs nationally in Canada. Danielle Julien from Animal Health Canada (AHC) and Gabby Nichols from the Canadian Council of Invasive Species (CCIS) provided an update to the CSHIN team on national invasive wild pig initiatives. A national invasive wild pig strategy was developed that spans over a 10-year period (2022-2032). This strategy is an evergreen document that will be posted for reference on the AHC website portal once input is received from First Nations and Métis Nations.

Gabby Nichols provided an update that CCIS is in the process of developing a national leadership group to lead and oversee the implementation of this strategy. The leadership group will also be responsible to apply for funding to support the actions that will be required for implementation.

Brachyspira hampsonii

RAIZO (Quebec)

Dr. Claudia Gagné-Fortin reported that Quebec saw an explosion of *B. hampsonii* outbreaks in Q2 to Q4 2022. In order to know how prevalent this pathogen is in swine samples that are submitted to laboratories, Quebec has decided to complete a surveillance project where all finisher pigs submitted for post-mortems will be tested for *Brachyspira hampsonii* no matter why they were initially submitted. The goal will be to test 100 pigs through this study to determine more information on the prevalence of this pathogen. Dr. Isabelle St-Pierre reported that this project began on Jan 16, 2023. A PCR test on the large intestine containing feces will be performed on each finisher pig with the goal to detect the pathogen. Histopathology of large intestine including Warthin-Starry staining will be performed on each PCR positive case to evaluate associated histopathologic lesions. Dr. Susan Detmer provided advice in that the area of the large intestine that you sample is very important to increase the odds of finding this pathogen and its associated lesions. It was recommended that the Quebec team take samples from the proximal spiral colon or from the cecum. RAIZO is also working on another project that would test trucks arriving in Quebec for this pathogen.

***Take Home Message: Brachyspira hampsonii* acts as an obstacle to decreasing antimicrobial usage and there is no commercially available preventative vaccine.**

OAHN (Ontario)

Dr. George Charbonneau reported that the Animal Health Laboratory (AHL) in Guelph, Ontario reported a PCR positive detection of *Brachyspira hampsonii* in a fecal sample in Q4 in Ontario. This is the first detection of this pathogen since 2020 Q3 in Ontario. This case was sows that presented with diarrhea. The OAHN team is looking forward to learning from the ongoing research projects in Quebec and will work closely with RAIZO colleagues.

CEZD Disease Signals of Interest from Q4

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)- Global Case Distribution

- ASF is still a global threat and outbreaks continue to be detected. During Q4 of 2022, there were over 846 events and in Q1 thus far there are 507 events reported to the World Organization of Animal Health (WOAH) (source Empress i FAO website).

- On Dec 2, 2022 ASF was detected in a wild boar piglet in the Czech Republic. This is the first time since April 2018 that ASF has been detected in this country. This positive piglet was found within 3 km from the Polish border and approximately 30 km from the German border. Both countries have reported ongoing ASF detections in wild pigs. The Czech Republic had previously made a self declaration of freedom from ASF in 2019 and was the first country since ASF outbreaks began to surge in 2019 to accomplish this. To action this resurgence of ASF, the Czech Republic has declared an infected area of **200 km^2** in which:
    - Entering forests is restricted.
    - Hunting and feeding wild boar is prohibited.
    - Inventory of all pigs is required.
    - All non-commercial pigs are slaughtered.
    - No outdoor housing of pigs

African Swine Fever Vaccine Update- Vietnam

- Vietnam has now vaccinated 600,000+ pigs at 8-10 weeks of age as part of their pilot project to complete a comprehensive review of the vaccine. Further reports on efficacy of this vaccine are expected shortly. Reports indicate that vaccines may be distributed nationwide throughout Vietnam in Feb 2023.

- Vietnam is the only country that has an approved ASF vaccine for use.
- **It is important to note that Canada currently has a no vaccination policy for ASF to support the maintenance of disease freedom for trade purposes.** Please refer to the CFIA website and the ASF Executive Management Board (ASF EMB) updates through the AHC website for more information on ASF prevention and management plans.

Streptococcus Zooepidemicus (Strep. Zoo) Case in Alberta

CWSHIN (Western Provinces)

Dr. Matheus de Oliveira Costa reported on another case of *Strep. zoo* in western Canada that was detected in a 5000 sow system in Alberta. This outbreak is still ongoing and approximately 650 sows were euthanized or died in total. There were two distinct waves seen with this outbreak. During the first wave, between October-December, 300 sows died and exposure (feedback of spleen and liver) under Pulmotil were the chosen treatments. In December the sow mortality returned to normal. Unfortunately, when the antibiotic treatments were discontinued in December the sow mortality increased again in January and another 350 sows were lost. **Clinical signs** included sows off feed, severe depression, and within 12 hours of sows going off feed they would die. **Post-mortems** revealed pulmonary edema, froth filled airways, stomachs half full, enlarged kidneys and a dramatically large splenomegaly with fibrin tags over focal infarcted-necrotic areas of the spleen. **The lesions seen in the spleen are indistinguishable from ASF and Classical Swine Fever (CSF) on the list of differentials.** If a good response to antibiotics is seen then this makes a bacteriological cause more likely than a viral cause of disease, but if not then CFIA should be contacted for FAD suspicion.

The source of this infection is still unknown. Over time this isolate of Strep. Zoo has developed some resistance to certain antibiotics e.g., tetracyclines. Fortunately, no resistance has been detected to Beta lactams. Whole genome sequencing revealed 99.9% similarities to original strains isolated.

Sapovirus

CWSHIN (Western Provinces)

Dr. provided a Sapovirus case overview that presented as neonatal diarrhea from a few days of age to 7 days of age. Clinically this case looked identical to a typical case of Rotavirus diarrhea. All piglets tested negative for Rotavirus on PCR test and had a

low CT level indicating positivity for Sapovirus. The treatment of choice was the same regime that is used to treat Rotavirus cases. Dr. Nikkel provided an overview on some of the research on this pathogen that he found. Dr. Nikkel found it interesting that young humans have very high antibody levels to Sapovirus that results in long-term immunity. This may be correlated to why this virus seems to affect only gilt litters as sows are able to pass along more maternal antibodies to their piglets.

It is important to note that no laboratory in Canada has the ability to test for Sapovirus. All PCR and in-situ hybridization (ISH) tests are being sent to the U.S.A for confirmatory diagnostics. All other agents must be ruled out first before testing for Sapovirus.

Dr. Jette Christensen reported that 2 other swine practices in Manitoba and one other in Alberta also reported Sapovirus detections in Q4 during the CWSHIN Q4 meeting.

OAHN (Ontario)

Dr. George Charbonneau reported that Ontario saw its first Sapovirus detection in Q1 2023. This case occurred in suckling piglets that presented with diarrhea. In this case all other causes were ruled out and this case was only positive for Sapovirus.

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