Canadian Swine Health Intelligence Network

Réseau canadien de surveillance de la santé porcine

CSHIN QUARTERLY PRODUCER REPORT

REPORT Q3 JUL-SEPT 2024

HIGHLIGHTS FOR SWINE PRODUCERS

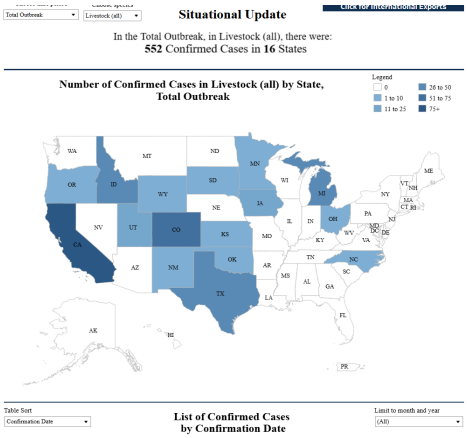
H5N1 Highly Pathogenic Avian Influenza Detection in Dairy Cattle in the U.S.A- Update

Dr. Murray Gillies from the Canadian Animal Health Surveillance System (CAHSS) provided the CSHIN network with an update on H5N1 Highly Pathogenic Avian Influenza (HPAI) detection in dairy cattle in the U.S.A. On March 25, 2024, the USDA announced that HPAI, specifically avian influenza virus type A (H5N1), had been identified in U.S. dairy cattle for the first time. Common clinical signs in affected cows include low appetite, reduced milk production, and abnormal appearance of milk (thickened, discolored). Most affected animals recover with supportive treatment.

This is an evolving situation in the U.S.A. As of November 21, 2024, there were 552 case detections in livestock in the U.S.A. involving 16 U.S. States (see map below, darker blue indicates more cases). Major swine production states have also declared detections in dairy e.g., Iowa. H5N1 has also been detected in humans, usually in those that have had close contact with infected animals. A total of 31 human infections from dairy cattle exposure and 21 infections from poultry exposure have been reported to date in the U.S.A. In November 2024, the first human case of HPAI H5N1 in Canada was confirmed in a teenager in B.C. there were no known animal or bird connections with this case.

The U.S. announced in early November that they will begin bulk milk testing for HPAI H5N1. They will begin in U.S. states where dairy cattle have contracted avian influenza to track the spread of this virus. They will also begin testing in U.S. states that have not identified the virus in dairy cows. USDA/APHIS has approved field safety trials for 4 vaccine candidates for H5N1 in dairy cattle in addition to other species. What is being referred to as “other species” has not been confirmed yet.

Tests so far indicate that the virus detected in U.S. dairy cattle is **the same clade that has been affecting wild birds and commercial poultry flocks** and that has caused sporadic infections in several species of wild and domestic mammals in the United States.



H5N1 Highly Pathogenic Avian Influenza Detection in Two smallholder pigs in Oregon, U.S.A.

On October 30, 2024, the USDA/ APHIS reported the first detection of HPAI H5N1 in a backyard small holder pig in Oregon, U.S.A. On November 7, 2024, the USDA confirmed a second pig on this same Oregon farm also tested positive for HPAI H5N1. This smallholder farm also had sick waterfowl that developed neurological symptoms and then would die after 3 days.

This farm had 3 Kunekune pigs that roamed free on this property, plus 2 mini teacup pigs that were housed with commercial poultry. The family also reported an illness that went through their household for 1 week's duration around the time of the initial sick animal inspection. The virus was confirmed in 2 pigs with a high CT. There wasn't enough virus present in these pigs for sequencing. Viral sequencing from poultry samples confirmed a similar virus to the HPAI strain circulating in wild birds, but not similar to the HPAI circulating in dairy cattle in the U.S.A.

Take Home Messages:

- **There have been no reported cases of H5N1 HPAI in dairy cattle, beef cattle or swine in Canada to date. Canadian herds with potential compatible clinical signs are being tested and all results have yielded negative results.**
- **Every effort must be made to keep HPAI H5N1 out of swine. The CSHIN network would like to remind all swine veterinarians and producers to continue with enhanced biosecurity measures to keep this virus out of swine herds. A few biosecurity tips include the following:**
  - **Avoid allowing swine to drink untreated surface water**
  - **Ensure bird-proofing in barns or swine housing areas**
  - **Restrict scavenger mammals**
  - **Don't' feed untreated milk to swine. Must ensure it has been pasteurized first.**
  - **Evaluate biosecurity risks poised from dairy operations e.g. shared workers, geographically close locations, shared equipment etc.**
- Those that work directly with swine should be encouraged to stay home whenever possible if sick or experiencing clinical symptoms of Influenza. People working with infected pigs need to ensure they follow good biosecurity practices and whenever possible, wear an N95 or equivalent mask, and wash their hands frequently. Any personnel that work with swine should be encouraged to get the "flu" shot for influenza yearly.

What has been done in Canada to prevent H5N1 from being detected in dairy cattle and swine thus far?

- Collaborative multi-stakeholder approach (Federal, Provincial, Territorial, Industry (FPTI))
- Education and surveillance (CSHIN, CAHSS, OAHN, RAIZO, CWSHIN, AtCan)
- Scientific working group, FPTI group, weekly network email updates
- Biosecurity at fairs and exhibitions guidelines (Animal Health Canada (AHC) Emergency Management (EM) division)
- Retail milk sampling (CFIA)
  - 911 samples all negative thus far, 4th round beginning soon
- The Canadian Animal Health Surveillance System (CAHSS), CSHIN, the Canadian Pork Council (CPC) and the Canadian Association of Swine Veterinarians (CASV) hosted a webinar on May 30, 2024, entitled "The Potential for H5N1 in swine: Lesson learned from the dairy industry so far" (see webinar bulletin on the next page):

This webinar has more information on what Influenza A testing is currently completed in swine across Canada. If you would like to view/listen to the recording you can do so via the following link.

- The Swine Health Information Center (SHIC) in the U.S.A put on a webinar providing more details on the detection of HPAI H5N1 in the smallholder swine farm in Oregon and further information on HPAI detections in dairy cattle in the U.S.A . If you missed this podcast, you can still access it via this link. This was a very informative webinar.

Take Home Message: Canada continues to prepare for detection of this virus. The CSHIN network would like to remind all swine producers and veterinarians to continue with enhanced biosecurity measures making all attempts to keep this virus from spreading to swine.

Influenza A- H3N2- Clade 2010.1- First Detection in a Quebec swine herd

RAIZO (Quebec)

Dr. Roxann Hart provided an update to the CSHIN Q3 team that on November 14, 2024, Quebec detected for the first time Influenza A H3N2 Clade 2010.1 strain in a commercial swine farm in eastern Quebec. This H3N2 strain was first detected in Ontario in April 2023, and quickly spread throughout Ontario swine herds over the first 1.5 years post detection. Until now no other province outside of Canada had detected this strain of Influenza A. Quebec has not been able to determine any epidemiological links between this swine herd and any Ontario connections, so it remains unclear on how this virus got into this herd. Quebec is expecting to see this pathogen spread to other swine farms over the next quarter.

Dr. Christian Klopfenstein from CDPQ in Quebec provide the CSHIN Q3 network team with an update on use of autogenous Influenza A vaccination currently being used in Quebec. More than 800,000 doses of this vaccine have been sold in 2 years since it became available. Quebec is now beginning planning for year 3 of this autogenous vaccine by comparing the most commonly isolated Influenza A strains from Quebec swine to decide which should be added to this vaccine for next year. H3N2 clade 2010.1 will be added to this autogenous vaccine at some point.

Quebec has completed an awareness communication campaign of this detection that was sent to all swine veterinarians and producers within Quebec. The hope is that this will increase sample submissions in Quebec. Next steps will be to compare the virus isolated from Quebec to the virus isolated from Ontario swine herds to see how it compares genetically. Dr. Christa Arsenault mentioned that Quebec should also seek comparison to similar H3N2 clade 2010.1 detections from virus databases

in the U.S.A. The Ontario strain was determined to be genetically similar to a strain detected in Pennsylvania U.S.A when first isolated.

CWSHIN (Western Provinces)

To date the western provinces still have not detected this H3N2 clade 2010.1 in swine, but laboratories are on the lookout for it. Dr. Tony Nikkel mentioned that Influenza H1N1 is the most common isolate being found in the western provinces right now. This strain is no longer commonly included in most autogenous vaccines being used in the western provinces so their may be a need to update these autogenous vaccines.

OAHN (Ontario)

Dr. Jordan Buchan stated that in Q3 2024 Ontario reported an increasing trend in Influenza cases. This increase seems to be driven by increasing H3N2 detections, with the majority being clade 2010.1. However, despite this trend, the overall number of positive Influenza cases this quarter is comparable to Q2 of 2024, with 30 and 31 positive cases respectively. The majority of Influenza detections this quarter were from grow-finish pigs, followed by nursery pigs. The majority of H1N1 detections this quarter were of the pandemic cluster, with four total detections originating from four different premises, two of which had the same owner.
The regional autogenous vaccine being used in Ontario for Influenza prevention in pigs has contained the H3N2 clade 2010.1 since January of 2024.

Sapovirus & Rotavirus type B

CWSHIN (Western Provinces)

Dr. Tony Nikkel provided an update that Sapovirus detections are on the rise in the western provinces. He was able to summarize with three case examples from the herds that he has had issues in with this pathogen.

The first case presented with a pre-wean scour that was usually seen in piglets 3-5 days of age. Diagnostic testing revealed only Sapovirus detection in these pigs and Rotavirus negative and bacterial culture negative results. On histology, lesions were very similar to Rotavirus. The use of Sequivity vaccine cleaned up these issues by only vaccinating the gilts.

The second case was an organic, antibiotic free farm. From Dr. Nikkel's experiences, organic markets tend to experience higher economic hits during low pork prices. This herd had been experiencing a pre-wean scour for over a year, that upon first examination, Dr. Nikkel thought looked very similar to a PED case, but testing results were negative. Samples sent to the lab came back positive for Rotavirus type B and this strain was sequenced. The plan is to use Sequivity vaccine in this herd soon.

The third case presented with a pre-wean scour at 3-7 days of age that looked very similar clinically to Sapovirus scours. Only Rotavirus type C was isolated from samples submitted to the lab. This herd is also working on developing a Sequivity vaccine for use.

OAHN (Ontario)

Dr. Jordan Buchan mentioned that the Animal Health Lab (AHL) in Guelph now has a Sapovirus PCR available to veterinarians. In her experiences, rarely is a scour caused by only Sapovirus, but rather usually always see a combination that includes Rotavirus. To date, more focus has been placed on using intense feedback protocols to piglets and sometimes with sequencing they will also use an autogenous or the Sequivity vaccine for control purposes.

Circovirus Type D (PCV2)

OAHN (Ontario)

Dr. Jordan Buchan reported that 30% of responding veterinarians to the clinical impression survey for OAHN's Q3 survey indicated that they perceived an increase in PCV2 type D disease. An increase in PCV2 incidence has trended upwards for the last two quarters. Many responding vets have reported increased PCV2 challenges, specifically with PCV2 type D.

RAIZO (Quebec)

In the CSHIN Q2 2024 reports, Dr. Laurie Pfleiderer provided an update that in Quebec, veterinarians have seen an increase in PCV2 type D detections over the past year. Dr. Pfleider explained that in one case the clinical signs presented with an increase in mummified piglets in a sow herd. Sows are often vaccinated with Circovirus vaccine and still this herd saw 1-2% mummified piglets and PCV2 type D was detected.

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