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H5N1 Highly Pathogenic Avian Influenza (HPAI) Detected in a Smallholder swine farm in Oregon U.S.A.

On Nov 6, 2024, the United States Department of Agriculture (USDA) and APHIS provided updates with further information on the detection of HPAI H5N1 in a backyard (smallholder) farm operation in Crook County, Oregon, U.S.A. This case was first announced on October 30, 2024, and was the first known case of H5N1 HPAI Influenza detected in a pig. Later that week, the USDA National Veterinary Services Laboratories (NVSL) communicated that a second pig on this same farm had also tested positive for HPAI H5N1. Genetic sequencing from the positive pig samples were incomplete due to the low virus levels, but sequencing from clinically infected poultry on this same premises indicated infection from the D1.2 genotype of H5N1. This is a different genotype than the one currently spreading in dairy cattle in the U.S.A. known as B3.13. Genomic sequencing of samples from migratory birds in the area showed very similar sequences, which increases the probability the pigs and poultry on this farm became infected after contact with infected migratory birds, not dairy cattle or other livestock. This farm is a non-commercial operation, and the animals were not intended for the commercial food supply. There is no concern about the safety of the nation's pork supply because of this finding. (SHIC Webinar, Nov 20, 2024)

Update on H5N1 Highly Pathogenic Avian Influenza In U.S.A Dairy Cattle and U.S. and Canadian poultry flocks

As of Dec 6, 2024, the USDA reported influenza H5N1 HPAI in a total of 722 outbreaks in 16 states in livestock, with 272 of these outbreaks occurring in the last 30 days. The majority of these cases continue to be reported from the state of California, particularly those who work with affected dairy cattle. It is important to note that cases reported are an underestimate. Many U.S. states have not been conducting surveillance, though on Dec 6th, the USDA announced a [new Federal Order](#) requiring that raw (unpasteurized) milk samples nationwide be collected and shared with the USDA for testing to facilitate comprehensive H5N1 surveillance of the nation's milk supply and dairy herds. The first round of testing under the Federal Order is scheduled to begin the week of Dec 16, 2024. The majority of the 58 human cases reported by the CDC have also come from California, particularly those that work with infected animals. As of Dec 9, 2024, in Canada, the CFIA is reporting 77 infected poultry premises (some with Low Pathogenic Avian Influenza (LPAI) and the USDA is reporting that 7.21 M birds have been affected in the last 30 days in the U.S.A. Outbreaks have concentrated in the south-west particularly around California, in the mid-north and the general south. Many of these outbreaks have involved turkey operations. In Canada, BC has reported the majority of the HPAI in poultry detections with 67 flocks, Alberta 4, Saskatchewan 1, Manitoba 1, Quebec 4. (Murray Gilles, AHC)



Influenza A- H3N2 clade 2010.1- First detection in a Quebec Swine Herd

In Q3 of 2024, there appears to be an increasing trend in Influenza cases over the course of the quarter. This increase seems to be driven by H3N2 detections. The majority of Influenza detections this quarter were from grow-finish pigs, followed by nursery pigs. Most isolations this quarter were H3N2 cluster 2010.1, with its prevalence increasing over the course of the quarter. 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.

Unfortunately, on Nov 19, 2024, RAIZO (the swine surveillance network in Quebec) released a statement that the first case of H3N2 clade 2010.1 Influenza was detected in a swine herd in Eastern Quebec. There have been no identified epidemiological links to Ontario with this detection. Quebec is the only other province to have detected H3N2 clade 2010.1 outside of Ontario to date. Ontario first detected this clade in April 2022. All other provinces have been on the lookout for this virus since Ontario first detected it.

Porcine Epidemic Diarrhea (PEDV)/ Porcine Deltacoronavirus (PDCoV)

Jessica Fox from SHO provided an update on coronavirus cases in Ontario for Q3 of 2024. This quarter there were 8 new cases of PED- three nursery sites and five finisher sites. Five of these eight cases were determined to originate from pig movement, with three resulting from suspected transport contamination. This quarter there were also two new cases of PDCoV, both at finisher sites. One case is suspected to be a result of transport contamination, whereas the other is unknown.

Of the 66 reported cases since Jan 2024, 40 are considered closed and several more should be cleared soon. **SHO encourages members of the industry to be vigilant with biosecurity and continue to support elimination as the best strategy for disease control.** The PED and PDCoV Tracking map is available and shows current and annual cases by county. <http://www.swinehealthontario.ca/Disease-Information/PED-PDCoV-Tracking-Map>

Topic of Interest- PRRS now costs US pork producer \$1.2 billion/yr

An Iowa State University study found that PRRS caused an estimated \$1.2 billion per year in lost pork production in the U.S. from 2016 to 2020. This is an 80% increase from a decade earlier. An earlier study in 2012 had estimated losses from 2006 to 2010 were \$664 million per year. Changes in market prices, increased cost of production and the size of the U.S. pig inventory account for \$108 million of the \$536 million increase. The remaining \$408 million increase is due to the portion of the herds affected and the difference in productivity between affected and unaffected herds. Another difference found between the early study and the recent study is that there was an increase in amount of production losses from growing pigs. The earlier study found 55% of the lost production was from growing pigs and the new study found it was now 68% of the losses. One of the study's authors, Dr. Holtkamp, attributes part of the increase to new more virulent PRRS strains. (Pork, Jennifer Shike, August 06th 2024)



Topics of Interest- Cleanliness in farrowing rooms matters

Dr. Al Scorgie provided a summary on two recent studies looked at cleanliness in the farrowing rooms. The first study was funded by the Swine Health Information Center (SHIC) and led by Dustin Boler at Carthage Innovative Swine Solutions. The purpose of this study was: to determine the areas in the farrowing crates with the greatest surface contamination risks and determine the correlation between bacterial counts and relative light units as detected by ATP bioluminescence.

The study was done in April and May 2024 on a 5,600 commercial sow operation. The farm had recently eliminated PRRS and Mycoplasma but was struggling with Rotavirus. Each week the farm farrowed approximately 200 litters in four farrowing rooms of 54 crates each. The rooms were washed with high pressure hot water, visually inspected and then an accelerated hydrogen peroxide disinfectant was applied.

Five crates from each room were swabbed for ATP testing as well as the entryway floor. Six locations within the farrowing crate were swabbed. In total 105 crates from 21 rooms were tested. 13 of the 21 rooms were also swabbed in the same location to measure bacterial levels, (total colony forming units, CFU) to compare to ATP testing. The study set a threshold of CFUs to rank areas as high bacterial contamination.

The study found the highest levels of contamination of the entryway floor, (93.8% of the samples) which is expected, followed by the sow feeder, (93.1%), sorting bar, (49.5%), back wall, (13.8%), piglet floor mat, (11.8%), and corners, (10.5%). There was good correlation between the ATP testing and bacterial swabbing.

The researchers concluded that ATP luminometers could be used as a tool to measure on farm cleanliness. They also recommended that extra attention be paid to the sow feeder and the piglet sorting bar. (SHIC, August 05th 2024)

Another study in Ireland looked at if enhanced cleaning in farrowing could reduce antibiotic use and disease incidence in the pigs during nursing and post weaning. Two methods of cleaning were used in the trial: high pressure cold water with no disinfectant versus using a detergent, a disinfectant and drying. Crates were swabbed for bacterial counts and ATP swabs were taken. The study was small involving 47 farrowings.

The study found lower bacterial counts in the farrowing crates that were washed with a detergent, disinfected and dried. **The number of cases of diarrhea was 75% less with the improved wash/disinfection program and antibiotic treatments were reduced 79%. Pigs from the improved wash/disinfection program had heavier weaning weights and improved ADG preweaning.** ADG was also higher from weaning to 49 days post-weaning, but this did not carry through to finishing. (Halpin et al., Transl Anim Sci 2024, Jn)



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