

September 10, 2024

## **Biannual report on Influenza A in Ontario Swine herds: January to June 2024**

### **Background Information on Influenza A in Swine**

The purpose of this update is to provide information on influenza A in Ontario swine herds based on laboratory data collected from January 2024 to June 2024. Influenza A is an immediately notifiable hazard to the Ontario Ministry of Agriculture, Food and Agribusiness (OMAFRA) under the *Animal Health Act*, 2009. This report was created from data that was directly reported to OMAFRA by the Animal Health Laboratory (AHL) in Guelph.

Influenza is a common virus that affects multiple animal species, including swine, birds, horses, dogs, and cattle. Additional information on influenza and animal health can be found at [Animal health: Influenza | ontario.ca](https://www.ontario.ca/animal-health/influenza).

Influenza is a zoonotic disease and in rare cases influenza viruses from pigs can affect humans. There is no risk of contracting influenza from pork products that are properly handled and cooked. If a case of influenza virus from swine is identified in a person, OMAFRA will assist the Ontario Ministry of Health and the Public Health Agency of Canada with an investigation. People can help prevent transmission of influenza between animals and themselves by wearing gloves and an N-95 respirator mask, and by washing their hands after working with or handling animals. If you have questions about your health, please contact your physician.

Human influenza viruses can also be transmitted to pigs. If you are sick with a cold or flu, stay home and ask someone else to look after your animals.

Under the authority of the *Animal Health Act*, OMAFRA has a mandate to protect animal health and take appropriate action on animal diseases that may affect human health. Therefore, influenza in all animal species is designated as an immediately notifiable hazard which requires all veterinary laboratories in Ontario to notify OMAFRA when the virus is identified by a laboratory test.

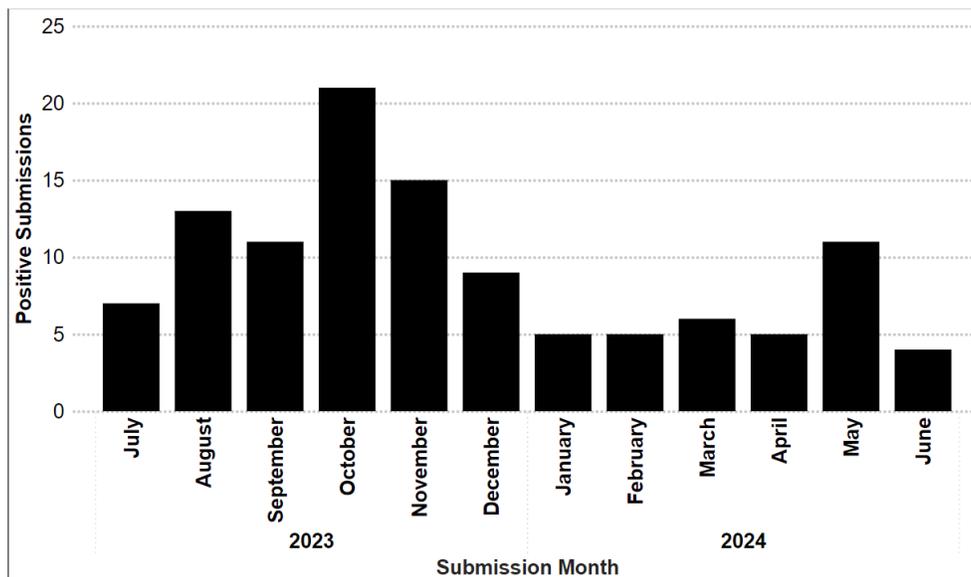
Influenza virus in swine has various subtypes, including H1N1, H3N2 and H1N2. The H1N1 subtype was the predominant subtype detected until 2004 when H3N2 influenza was identified in Canadian pigs and spread to swine herds throughout all provinces including Ontario. The H1N2 influenza subtype was first identified in Ontario pigs in February of 2015 and since October of 2016 has become more common in Ontario swine herds. At the time

of this report publication, there have been no detections of Influenza A subtype H5N1 in Canadian or Ontario ruminants or swine to date. Some influenza strains can circulate and cause little or no signs of disease in pigs, while others cause coughing, fever, laboured breathing, muscle stiffness and abortion. In most cases, pigs infected with influenza viruses quickly become ill and recover, although severe cases can result in death. The virus can also make infected pigs more susceptible to infection with other bacteria and viruses.

## Influenza A in Ontario Swine, January to June 2024

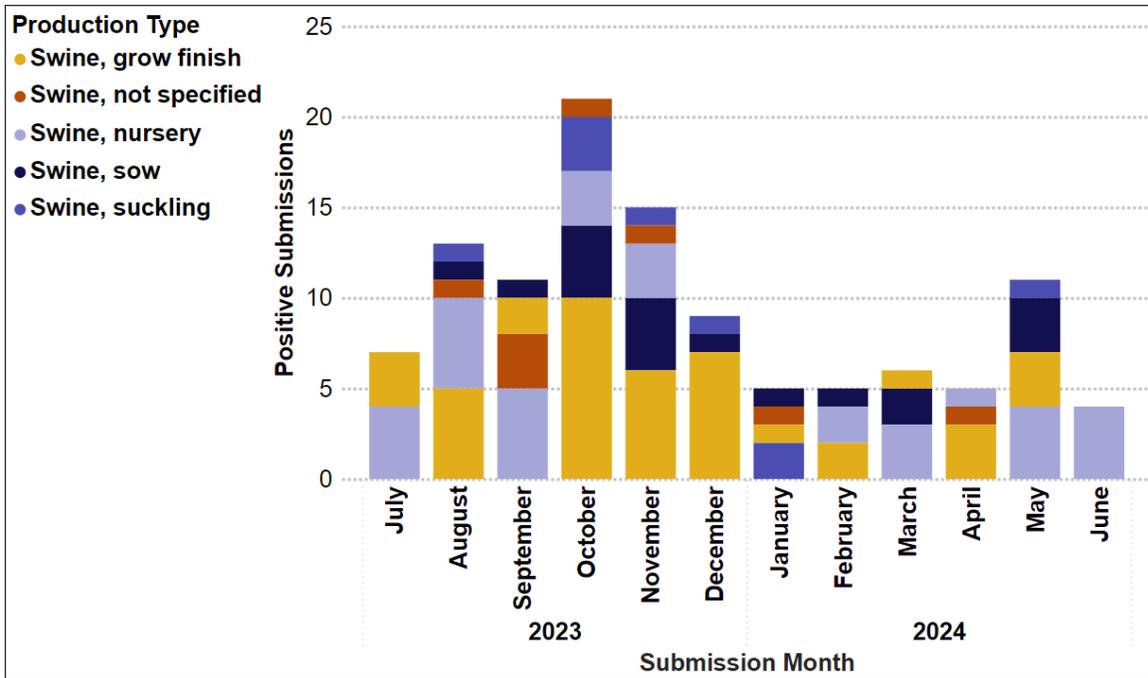
The information presented in this report is limited to the information provided in the laboratory submission to the AHL. In cases where adequate information on herd production type was not available, disease data is displayed under the category titled “swine, not specified” (see Figure 2 below). Isolations from all investigation types or submission purposes (e.g., monitoring, elimination) and clinical contexts (e.g., uncomplicated infections, co-infection with other respiratory pathogens) are included in this report and should be considered when interpreting the data.

From the data received for the reporting period, monthly detections of influenza were relatively stable, with the exception of May 2024 where the number of positive submissions received was 11 (Figure 1).

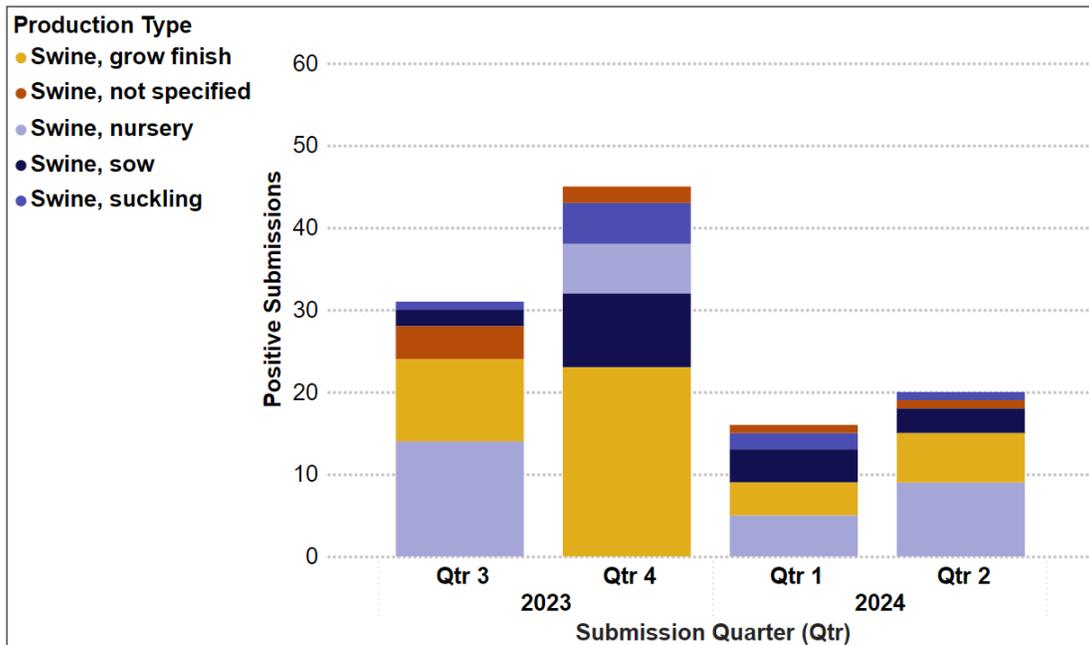


**Figure 1.** Submissions with positive tests (not including ELISA tests) for influenza in swine by submission month, Ontario, July 2023 to June 2024.

Most positive submissions were sent from nursery and grow-finish units across most months (Figure 2) and (Figure 3) in this reporting period. In quarter (Qtr) 4 2023 and Qtrs 1 and 2 2024 there were also a number of positive submissions from sow herds (Figure 3).



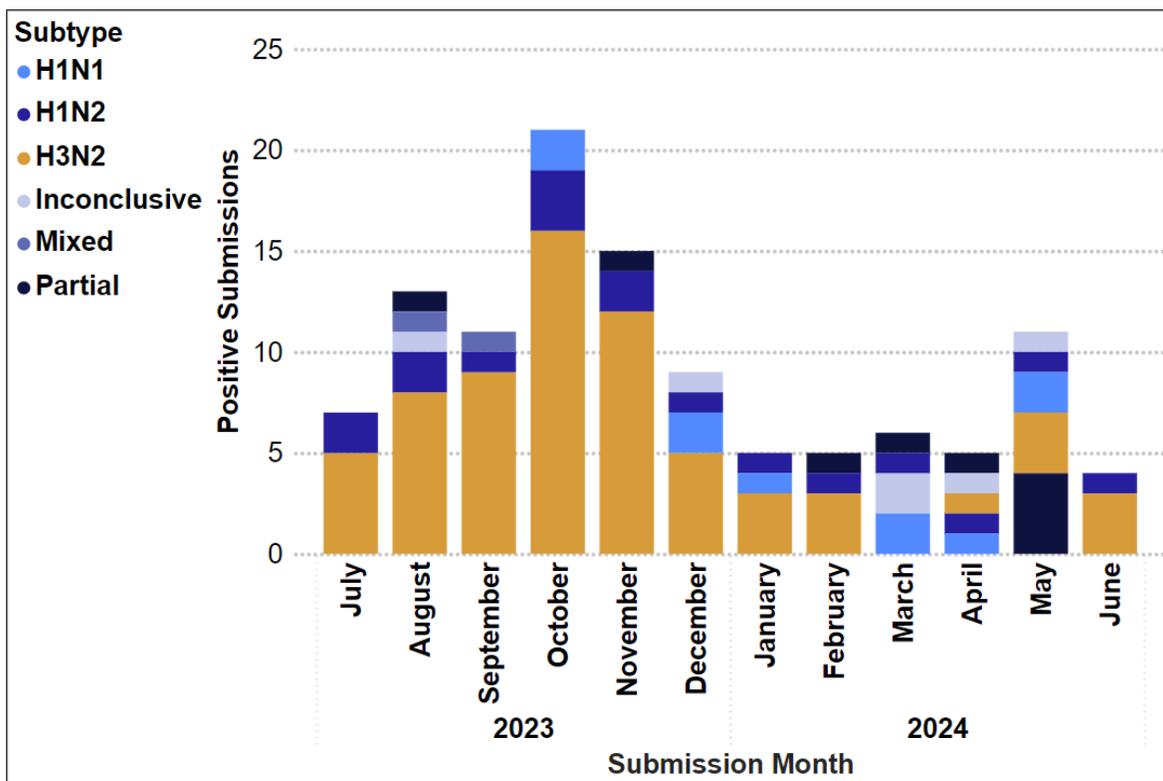
**Figure 2.** Number of submissions with positive tests (not including ELISA tests) for influenza in swine by production type and submission month, Ontario, July 2023 to June 2024.



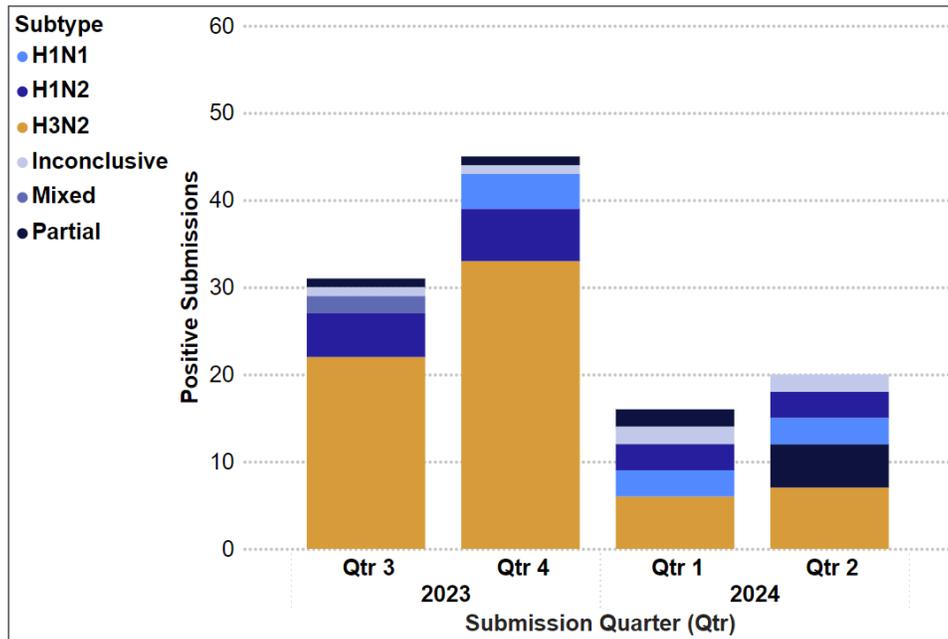
**Figure 3.** Number of submissions positive for influenza (excluding ELISA tests) in swine by production type

and quarter, Ontario, July 2023 to June 2024. Quarter (Qtr) 3: Jul-Sept, Qtr 4: Oct-Dec, Qtr 1: Jan-Mar, Qtr 2: Apr-Jun.

Figures 4 and 5 below displays subtype information, including the main subtypes of H1N1, H1N2, H3N2 and counts of partial, mixed, and “inconclusive” subtypes isolated from Ontario swine herds from July 2023-June 2024. A mixed subtype refers to a submission containing a combination of more than one H or N subtype, while a partial subtype refers to submissions where only an H or N subtype is detected. Submissions where influenza was detected but subtyping could not be completed are captured in the “inconclusive” category. Over a third (13/36, 36%) of positive submissions from January to June 2024 involved the subtype H3N2 (Figure 4, 5), though the number of submissions with this subtype isolated has markedly decreased compared to the previous six-month period. Submissions where subtyping could not be completed were most common in March relative to the other months during the reporting period.

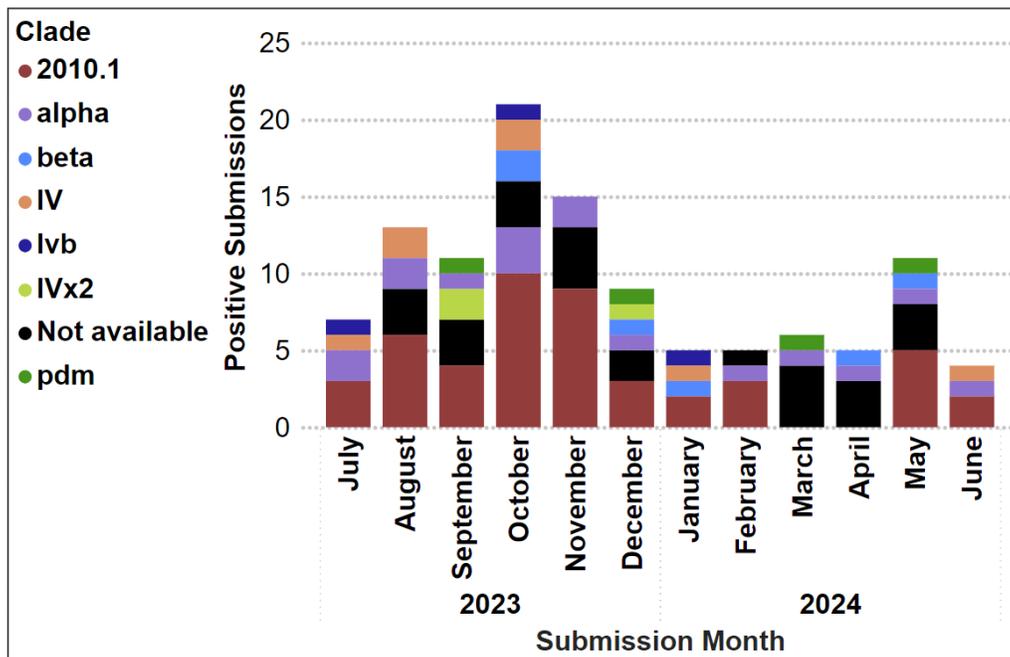


**Figure 4.** Submissions positive for influenza (not including ELISA tests) in swine by subtype and submission month, Ontario, July 2023 to June 2024.



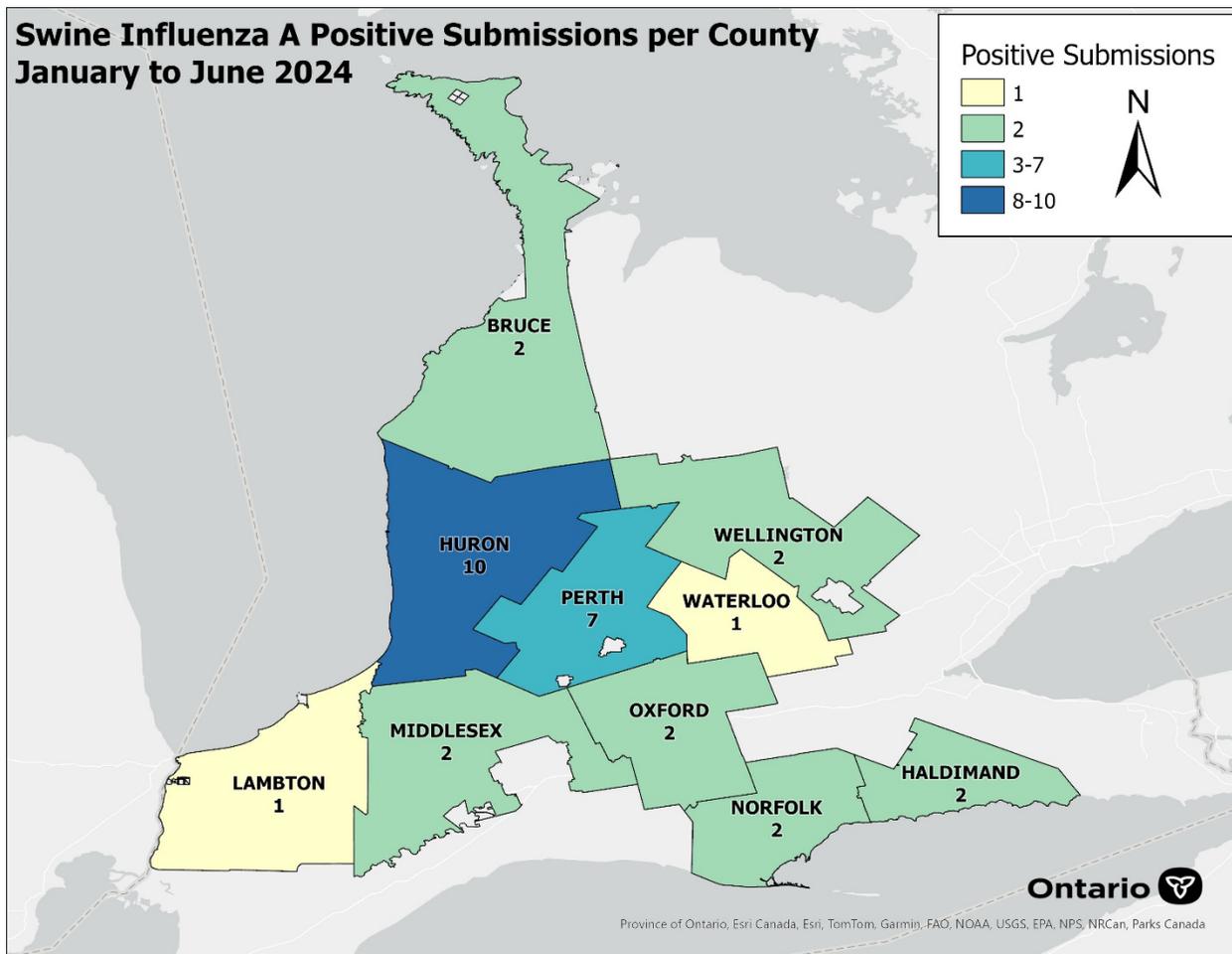
**Figure 5.** Submissions positive for influenza (not including ELISA tests) in swine by subtype and submission quarter (Qtr), Ontario July 2023 to June 2024: Qtr 3: Jul-Sept, Qtr 4: Oct-Dec, Qtr 1: Jan-Mar, Qtr 2: Apr-July.

The majority of influenza detections during this report period belong to the 2010.1 clade of the H3N2 subtype (Figure 6), which was first isolated in Ontario swine in April 2023.



**Figure 6.** Submissions positive for influenza (not including ELISA tests) in swine by clade and submission month, Ontario, July 2023 to June 2024.

Most influenza submissions in swine continue to come from the swine dense counties of Huron and Perth, followed by counties that were not identified by the submitting veterinarians (Figure 7).



**Figure 7.** Submissions positive for influenza (not including ELISA tests) in swine by county, Ontario, Jan 2024 to Jun 2024.

## Take Home Messages

**A notable finding of this report was the continuation of dominance of subtype H3N2 during quarter 1 to quarter 2 of 2024 (Figure 5).** In April of 2023, the Animal Health Laboratory (AHL) in Guelph, identified a “new” clade of subtype H3N2 known as 2010.1 in Ontario pigs. More information on this finding and the origins of this virus was made available in the September AHL newsletter and can be accessed via the following [link](#). Clade 2010.1 of subtype H3N2 strain was added into regional autogenous vaccines in Ontario as early as January 1, 2024. The decrease seen since then of this “new” influenza clade in swine laboratory submissions is a good news story for the Ontario swine industry.

There are no known detections of this new clade infecting humans to date, but the importance of following good biosecurity practices and using personal protective equipment when working with sick pigs, as well as the important practice of swine farm workers staying home if they may be sick with respiratory illness and/or are experiencing a fever must be emphasized. The goal is to prevent further virus transmission and the potential to infect other species. Your veterinarian can provide advice on how to prevent and manage influenza infections, including vaccination strategies, isolation for incoming animals, and good biosecurity measures.

Disease surveillance activities that include subtyping and genotyping of detections of Influenza A in swine are funded through the Ontario Agri-Food Innovation Alliance. This report showcases the importance of this funding which allows for the monitoring of genetic reassortments and mutations of this virus.