



# IN THIS ISSUE

- Disease Surveillance Discussion
- Swine Disease & Syndromic Surveillance
- Animal Health Laboratory Diagnostic Reports
- Ontario Slaughter Statistics
- CanSpotASF Surveillance Update
- International Disease Surveillance Topics

## Disease Surveillance Discussion

### Porcine Reproductive and Respiratory Syndrome (PRRS)

The veterinary clinical impressions survey indicated that 50 % of practitioners noted an increase in PRRS infections in sow barns in Q1 compared to Q4. There were 50% of practitioners that indicated increased PRRS infections in growing pigs in Q1 compared to Q4. PRRS continues to be a significant problem.

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

Jessica Fox, manager at Swine Health Ontario, reported that the overall incidence of PEDV and PDCoV has been low in Q1 2023 in comparison to previous winters. Winter commonly presents the greatest challenge to controlling the spread of the virus due to increased virus survival time in cold weather and increased challenges in cleaning and disinfection. The following cases were reported in Q1 2023:

Jan 18, 2023 Perth	PED	Nursery-to-finish
Jan 18, 2023 Oxford	PED	Farrow-to-wean
Mar 31, 2023 Bruce	PED	Finisher

Jessica also reported that there have been 2 additional cases in Q2 2023 thus far.

Apr. 6, 2023 Bruce	PDCoV	Finisher
Apr. 14, 2023 Oxford	PED	Farrow-to-wean

The PED and PDCoV Tracking map is available at the Swine Health Ontario website and shows current and annual cases by county. <http://www.swinehealthontario.ca/Disease-Information/PED-PDCoV-Tracking-Map>



## Disease Surveillance Discussion Continued ...

### Influenza A (IAV)

Ninety-three percent of practitioners ranked the frequency for IAV as common (50%) or very common (43%). At the Animal Health Laboratory, the following genotypes were identified in 41 submissions in Q1 2023: Subtype H1N1 classical = 2 with 0 alpha, 1 beta, 1 gamma. Subtype Pandemic H1N1= 3. Subtype H3N2 = 14. Subtype H1N2 = 15 with 2 cluster Ivb and 2 cluster Ivx and 11 untypable by cluster. There was only 1 case with 2 or more subtypes in a single case (H1N2 +H3N2). Gallant Laboratories reported isolating H1N2 (0), H3N2 (2) and H1N1 (0.)

### Erysipelas

Fifty percent of veterinarians reported an increase in cases of erysipelas compared to the last quarter of 2022. Erysipelas can affect all ages of pigs but grow/ finish facilities were primarily affected in these recent cases. Newborn pigs receive maternal antibodies from sows via colostrum however these passively acquired antibodies decline by the time the pig reaches the finishing barn. The increased frequency of erysipelas reported in Q1 compared to Q4 is consistent with a seasonal pattern of increased carcass condemnations due to erysipelas during Q4 and Q1 compared to Q2 and Q3.

### Brachyspira Hampsonii

The Animal Health Laboratory in Guelph had no further cases of *Brachyspira hampsonii*. There have been two previous cases of *B. hampsonii* in Ontario. The first case was in Q3 2020. There are recent reports of increased numbers of cases of *B. hampsonii* in Quebec. Some of these infections have been difficult to eliminate. *Brachyspira* clinical disease is quite low in Ontario in comparison to other regions.

## Swine Disease & Syndromic Surveillance

Dr. Hannah Golightly summarized findings from swine disease and syndromic surveillance activities for Q1 2023

### Influenza Type A (IAV)

For each disease, weeks are identified as signals if the number of positive submissions is 3 standard deviations beyond the calculated baseline. The following IAV signals were detected in Q1 2023:

- Week 9 (Feb 26 to Mar 4) - Coughing or respiratory clinical signs in various stages of production (1x suckling, 3x nursery, 2x grow finish) with 3x H1N2, 1x H3N2, 1x H1N1, and 1x H3



## Swine Disease & Syndromic Surveillance Continued ...

- Week 12 (Mar 19-25) -- Coughing or respiratory clinical signs in various stages of production (1x sow, 2x suckling, 1x nursery, 2x grow finish) with 5x H1N2, 1x H3N2

Over the last year H3N2 (34.8 %) has been the dominant IAV subtype but has been followed closely by H1N2 (28.9 %) and then H1N1 (11.1 %). The category of partial subtypes (15.6%) has declined slightly since Q4 2022. These patterns ebb and flow from one quarter to the next. In Q1 2023 the number of cases with H3N2 (34.2 %) and H1N2 (34.2 %) were equal.

### Salmonella Surveillance

The following Salmonella signals were detected in Q1 2023:

Week 2 (Jan 8-14): Four nursery barns had clinical signs with the identification of various strains of Salmonella.

Week 10 (Mar 5-11): Two nursery barns and one grow-finish facility had clinical signs including the identification of Salmonella bacteria.

## Animal Health Laboratory Diagnostic Reports

Dr. Delay provided an update on AHL activity in Q1 2023

### PATHOLOGY CASES

A total of 1328 swine cases, representing all test types, were submitted to the AHL during 2023 Q1. Of these, 97 cases had a pathology component (gross post-mortem and / or microscopic examination of tissue) and originated from commercial herds.

It is important when submitting samples to the lab to include the premises ID (PID). The PID inclusion rate in Q1 improved to 78%. Age or commodity group was provided for 100% of cases, and an adequate clinical history was provided for 98% of cases. **Thank you for your cooperation!!**

#### All swine cases:

- PRRSV- and influenza A virus-positive case numbers are mildly increased over the previous quarter and are similar to 2022 Q1.
- Rotavirus-positive cases are mildly increased over the previous quarter, with 48 cases, and case numbers are similar to those in 2022 Q1. There is a trend in the most recent 2 quarters for more frequent detection of rotavirus C compared with rotavirus A.
- *Brachyspira hyodysenteriae* was detected in 2 cases.
- *Brachyspira murdochii* was detected in 1 case. This organism is of low disease-causing ability in pigs but can cause clinical or subclinical inflammation of the colon at the grow-finish stage.
- *Actinobacillus pleuropneumoniae* (App) was isolated in an increased number of cases. There were 5 cases in Q1 compared with 2 cases in both Q4 and Q1 2022.



## • Animal Health Laboratory Diagnostic Reports Continued ...

- *Erysipelothrix rhusiopathiae* (Erysipelas) was isolated from 1 case. This was a pet pig.
- Although Porcine Circovirus PCV2 and PCV3-positive identifications remain high (49 and 62 cases respectively) the number of cases where PCV was considered likely to be causing disease remained low. There were only four cases where PCV2 was likely causing clinical signs and one such PCV3 case. The other positive identifications had low amounts of virus identified and were most likely coincidental findings.
- *Glaesserella australis* was isolated from lung and pericardial swab samples from 2 herds. This is the first identification of this organism in Ontario. This bacterium has caused health issues in Australia that look similar to *Actinobacillus pleuropneumonia*. The Animal Health Lab will continue to monitor this organism.

### Swine pathology cases:

- Porcine sapovirus was detected in 2 cases (one in suckling and one in nursery pigs) but was associated with diarrhea in just 1 case (suckling pigs). Sapovirus PCR was positive, with low cycle time (Ct) values, from intestinal content in both cases, although only the suckling piglets had microscopic lesions of atrophic enteritis, i.e. shorter intestinal villi. Porcine sapovirus *in situ* hybridization (ISH) in the suckling pigs (a test to identify the virus in tissue) confirmed the PSV organisms at the site of the intestinal damage, i.e., caught red handed.
- Porcine parainfluenza virus 1 and porcine astrovirus 4 (PoAst-4) were detected (1 case each) by PCR in lung from nursery pigs with pneumonia (PI-1) and in suckling pigs with inflammation of the bronchioles. (small airways) PoAst-4 genetic material was also identified by ISH in the injured lining of the small airways.

## Gallant Custom Laboratory Diagnostic Reports

Anna Pietruszkiewicz reported on the highlights of the 13 cases submitted to Gallant Labs from Ontario in Q1 2023. This represents a decrease in the number of isolates in comparison to Q4 2023.

- Strep suis was identified with increased frequency with 7 cases in Q1 2023 compared to 4 cases in Q4 2022. There were a similar number of cases (6) of Strep suis in Q1 2022.
- Glasserella parasuis was identified in only 1 case in Q1.

## Ontario Slaughter Statistics

### Federal Slaughter Statistic Summary (Q1 Aggregate)

Dr. Christine Pelland reported the following:

#### Carcass Condemnations

- Erysipelas carcass condemnations constituted 7.4 % of all carcass condemnations. Absolute numbers of erysipelas condemnations / 100,000 inspected declined in comparison to Q4 2023 but were greater than Q1



## Ontario Slaughter Statistics Continued ...

2022. The seasonal pattern of increased carcass condemnations due to erysipelas in Q4 and Q1 is continuing.

- Peritonitis carcass condemnations had been increasing but there has been a reduction in absolute terms in Q1 2023. This is good news.

### Provincial Slaughter Statistic Summary

The provincial condemnation data shows no significant changes in the causes of partial or whole carcass condemnations in Q1.

Swine herd health monitoring should include regular reviews of whole and partial condemnations (trims). Understanding when and why condemnations are occurring can provide valuable herd health information. Your veterinarian can assist you in interpreting these numbers as well as potential steps to reduce these losses.

## CanSpotASF Surveillance Update

There were 24 African Swine Fever (ASF) tests in Q1 2023 as part of the CanSpotASF testing program out of 59 cases that were eligible for testing. The main reason that eligible cases were not tested is because fresh spleen tissue was not included in the sample submission. Even when it appears that there are no visible lesions suggestive of ASF, it is possible that there are microscopic lesions consistent with an ASF infection when tissues are examined under the microscope. It is therefore beneficial to include spleen in as many laboratory submissions as possible when field postmortems are carried out. Remember to “Make Spleen Routine!” so that our early detection program will be better able to limit the spread of ASF should it occur in Canada. More information is available on the OAHN website.

More information is available on the OAHN website:

<https://www.oahn.ca/wp-content/uploads/2022/05/OAHN-CanSpot-17MAR2022.pdf>

## International Disease Surveillance Topics

Dr. Al Scorgie reported interesting international and domestic disease topics.

### Investigation Into Water Line Biofilm and its Possible Impact on Swine Health

Iowa State University did a study on the biofilm of water lines. A 3 inch section of water lines from a large swine operation in Iowa were submitted to the diagnostic lab. They tested the biofilm to determine what organisms were living inside the water line.



## International Disease Topics Continued ...

The lab found that 47% of the biofilm organisms were from the Enterobacteriaceae family. In addition there were antimicrobial resistance genes for multiple drug classes found in these bacteria living in the water lines. From the findings of this study, the Iowa State University Diagnostic Laboratory made several recommendations:

- Do not consider that your groundwater is always a protected source.
- Consider testing the water annually for water quality, trace minerals and coliforms.
- Flush dead end from the ends of water lines frequently to remove debris.
- Prepare fresh medicated stock solutions daily and discard any residual medicated water after 48 hrs.
- Cover stock solutions to prevent contamination.
- Flush water medicators after use with water.

Further work on biofilm composition, water line disinfection and possible transmission of swine pathogens through groundwater is being done. (Swine Disease Reporting System February 06<sup>th</sup> 2023)

### Missouri Gene Therapy Bill Voted Down

The Missouri House Committee on Emerging Issues voted 10-4 against bill HB1169. This bill had several requirements including a label on beef or pork that listed all the vaccines the cattle or pigs had received in their life as well as indicating whether GMO corn or soybeans had been fed. The vaccine listing was focused on mRNA vaccines. Part of the bill stated “any product that has been created to act as, or exposed to processes that could result in the product potentially acting as, a gene therapy or that could otherwise possibly impact, alter or introduce genetic material or genetic change into the user of the product...” One of the possible reasons that mRNA vaccines were included in this bill was that there was confusion and misunderstanding about mRNA Covid vaccines. Besides the cost of listing all the vaccines on the beef or pork label there was concern about cattle and pigs moving from state to state. Similar legislation has been introduced in Arizona and Tennessee. (Progressive Farmer 2023/04/210)  
(Carol Malgarin et al, Lemman Conference 2023)



## How can you Participate in OAHN?

Share the information contained within this report with others involved in the swine industry and with other swine producers. Help us spread the word! Ask your veterinarian for more information about topics included in this report.

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Email: [oahn@uoguelph.ca](mailto:oahn@uoguelph.ca)  
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### Practice Veterinarians

Dr. Christine Pelland  
(network co-lead)  
Dr. Allister Scorgie  
Dr. Sue Burlatschenko

### OMAFRA

Dr. Tim Blackwell  
Dr. Tim Pasma  
Dr. Laura Eastwood  
Dr. Jaydee Smith  
Dr. Andrew Vince

### CSHIN Rep

Dr. George Charbonneau

### OAHN coordinator

Dr. Tanya Rossi

### Ontario Veterinary College

Dr. Robert Friendship

### Animal Health Lab

Dr. Josepha DeLay  
Dr. Hannah GoLightly

### Gallant Custom Labs

Kalena Statutiak  
Anna Pietruszkiewicz

### Industry

Stacey Ash OP  
Jessica Fox SHO

