

A microscopic image of plant tissue, likely a cross-section of a stem or root, showing various cellular structures. The image is overlaid with a semi-transparent purple filter. The text is centered over the image.

#Diseasehappens

Dr. Egan Brockhoff

RDSTW – October 2023



We Now Live In A Transboundary Pathogen World

#diseasehappens



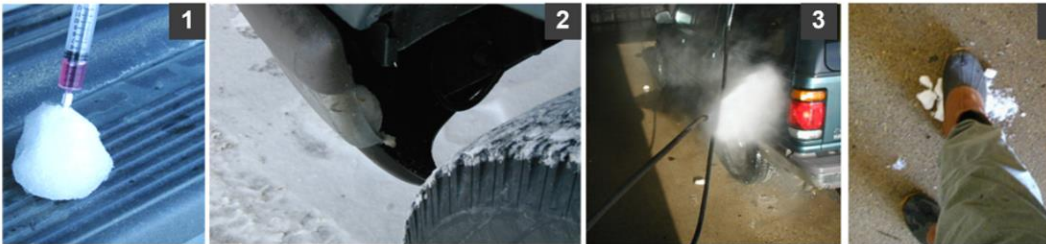
We have had our challenges

- 1990's – PRRS Virus
- 2000's – PCV2 Virus
- 2009 – 2009 H1N1
- 2014 – PED Virus
- HP PRRS, ASF Virus ...

We have learned a lot

STUDY 1:

How to drag a germ with you all day



STUDY 1:

How to drag a germ with you all day



Biosecurity

The application of Biosecurity Measures are the most **POWERFUL** set of tools you have at your disposal to keep your herd healthy and your farms **productive** and **sustainable**





Early Detection

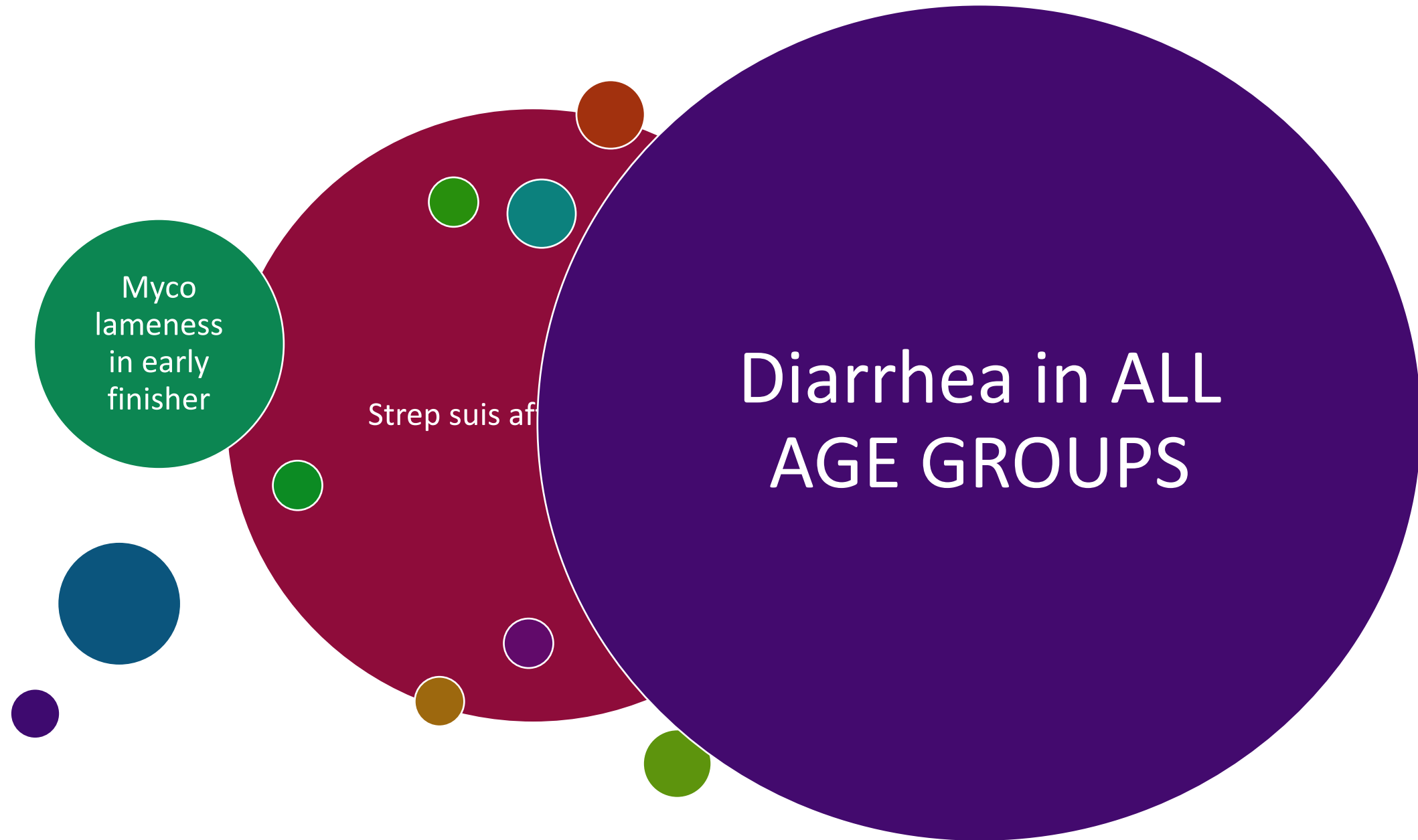
Minimizing the Impact of Disease



What is Normal and Expected?

- Health Status
 - What is expected? Define it.
 - What does unexpected look like? Discuss it.
- Mortality & Treatment Records
 - You can't manage what you don't measure
 - What is expected?
 - Have you defined a threshold?
- Seasonality, Stage of Production, Barn and Room Specifics ...







Work closely with
your Service
Providers &
Stakeholders

- Veterinarian
- Nutritionist
- Data Base Provider
- Harvest Health
Records



You will miss more from not
looking than not knowing.

Dr. Otto Radostits



When you hear hoofbeats ...



The Horses

- *Streptococcus suis*
- *Glaesserella parasuis*
- *Actinobacillus suis*
- PRRS Virus
- PCV2
- Influenza Virus
- *Mycoplasma hyopneumoniae*
- *Lawsonia intracellularis*
- ETEC E. coli
- Rotavirus



The Zebras

- PED Virus
- Sapovirus
- Astrovirus
- PCV3
- *Streptococcus equi zooepidemicus*
- Seneca Valley Virus
- ASF Virus
- FMD Virus

Masking Diseases

- Remember, sometimes what looks like a Horse is actually a Zebra and sometimes what looks like a Zebra is in fact just a Horse
- Work with your Veterinarian





Health Intelligence

Hope for the best, prepare
for the worst.





The Big Picture

- How we protect the Canadian Pork Sector from new and emerging Disease



SWINE SURVEILLANCE

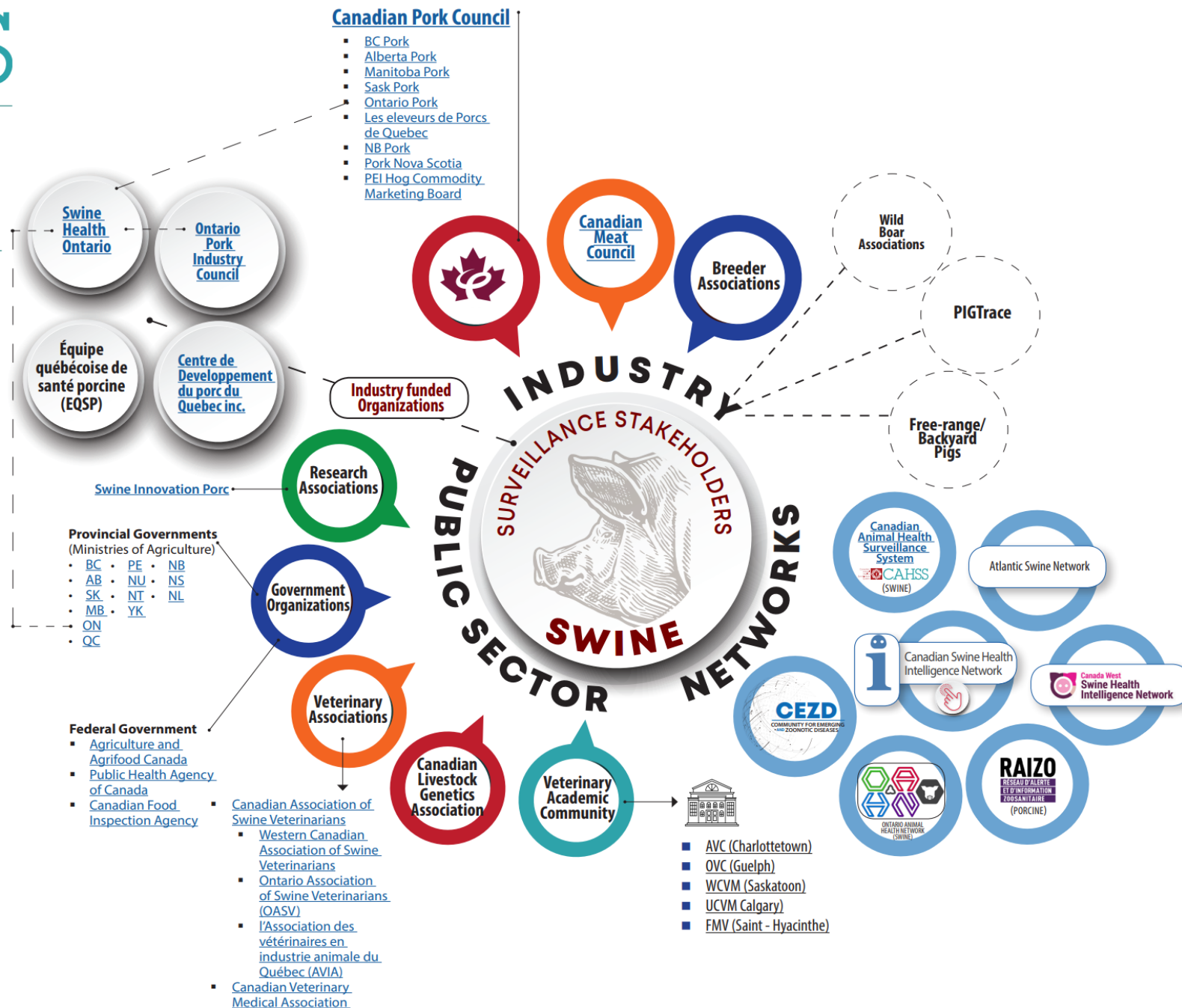
from a stakeholder perspective

CONTEXT

The *Swine Network* links the diverse swine community to encourage and support integrated and whole-of-system swine health surveillance. Effective and responsive health surveillance safeguards the prosperity of Canada's swine industry.

The *CAHSS Swine Network* includes members from the National and Provincial pork councils/organizations/networks, Veterinary colleges, Diagnostic laboratories, Provincial governments, CFIA, AAFC, PHAC, National and Regional Veterinary organizations/networks.

The *Swine Network* is part of the *Canadian Animal Health Surveillance System (CAHSS)*, which connects animal health, public health and wildlife health experts from Canada's animal sectors. In addition to the *Swine Network*, CAHSS member networks include AMU, aquatic, beef and dairy cattle, equine, poultry and wildlife. CAHSS members work on diseases and issues of concern, including reportable and zoonotic diseases, production limiting diseases and antimicrobial use surveillance.



Emerging Disease Intelligence

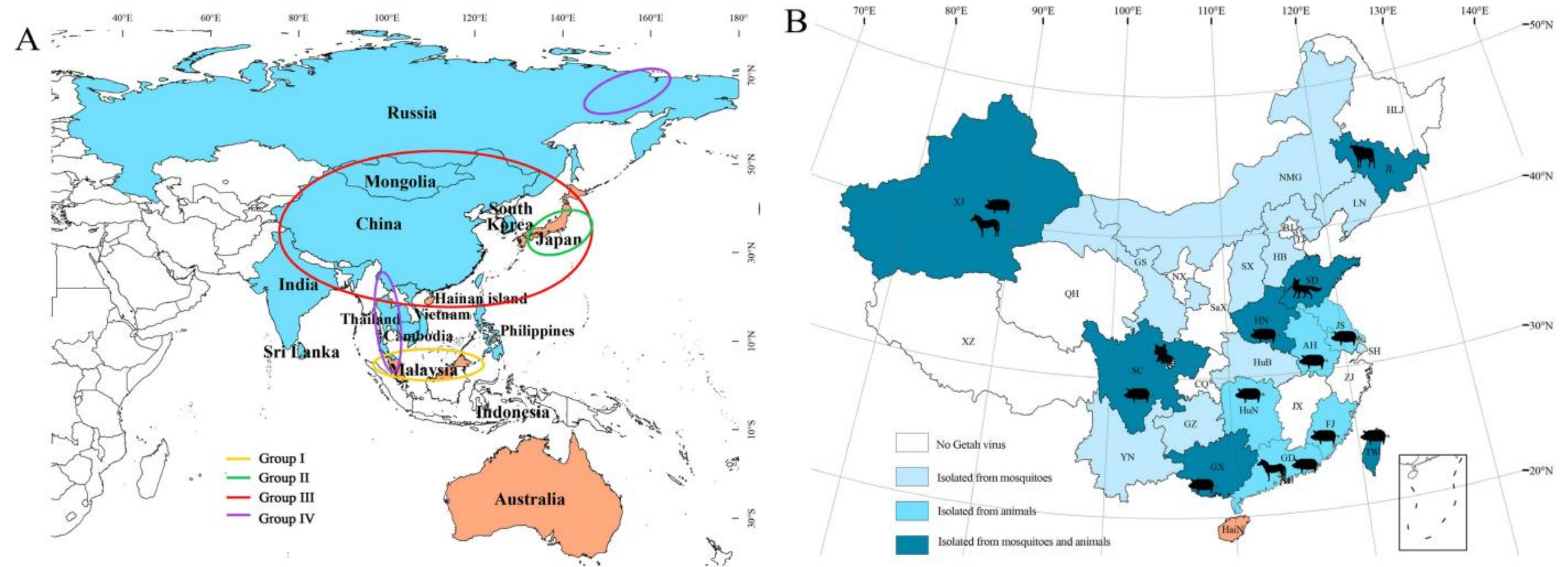


Great Britain pig quarterly report: disease surveillance and emerging threats (publishing.service.gov.uk)

- 1st detections of Seneca Valley Virus in UK
- 5 commercial breeding facilities between June and September
- Strain shares a common ancestor with an SVV strain from the US
- Negative tests for SVV in:
 - Feed and soy bean meal samples
 - Boars supplying semen tested negative
- No imported animals on the farms
- No indication of the source of the infection



Pathogens | Free Full-Text | Getah Virus (Alphavirus): An Emerging, Spreading Zoonotic Virus (mdpi.com)



MPox (monkeypox) - WOAHA - World Organisation for Animal Health

- Follow up to September 2022 report of mpox in piglets in DRC
- 2 ½ month old piglets
 - 1 died and buried
 - 1 with wounds, vesicles and scabs
- 2nd piglet necropsied
- Blood samples and swabs taken from three other piglets
- PCR positives for mpox at two laboratories in DRC
- Blood samples and swabs taken from the breeder's family members and neighbors
- Cannot rule out contamination by humans
- Source of disease remains unknown
- No further investigation conducted due to lack of financial means

SHIC Follows-Up on APP15 Outbreak and Finds Unique Results – Swine Health Information Center

APP15 in November 2021

- 50% mortality in some herds
- Geographic spread suggested lateral transfer between farms

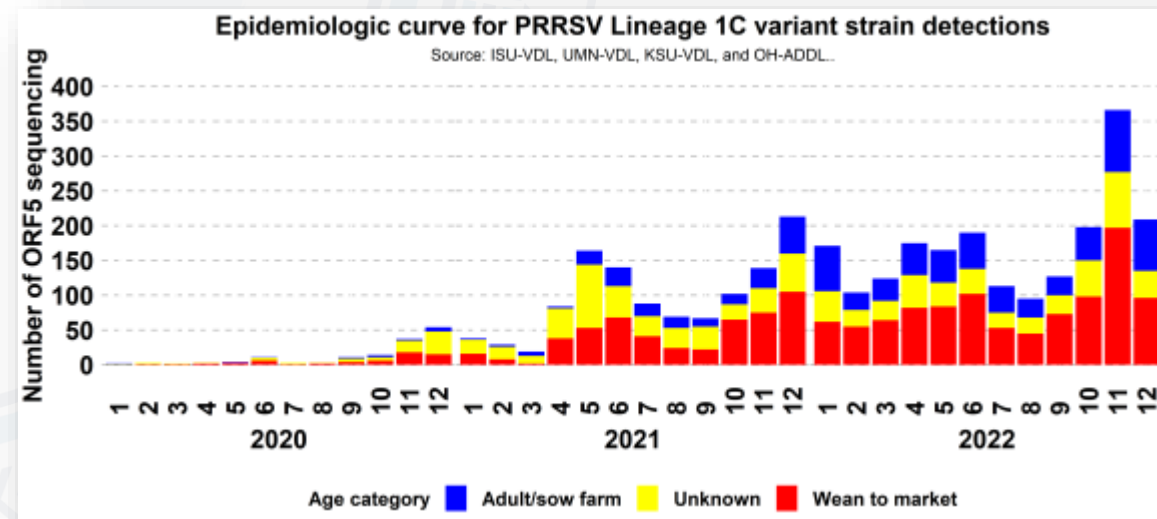
Serosurveys of 16 sow farms

- 12/16 seronegative sows
 - Suggests horizontal transmission of APP15 during the outbreak as their offspring were involved in outbreaks
- 4/16 seropositive sows (type 3, 6, 8 and 15)
 - Further testing of positive farms to occur
 - Identify sows positive only for APP15
 - Tonsil scrapings, bacterial isolation, PCR, whole genome sequencing

December SHIC report:

High level of PRRS circulating in US

- Highest numbers of PRRS 1-4-4 L1C since emergence in 2020
- All age groups affected
- Highest number of variant viruses were in Iowa, Minnesota and Missouri
- Increased rate of lateral spread from grow-finish to grow-finish
- Increased spillover to Sow farms





SWINE SURVEILLANCE

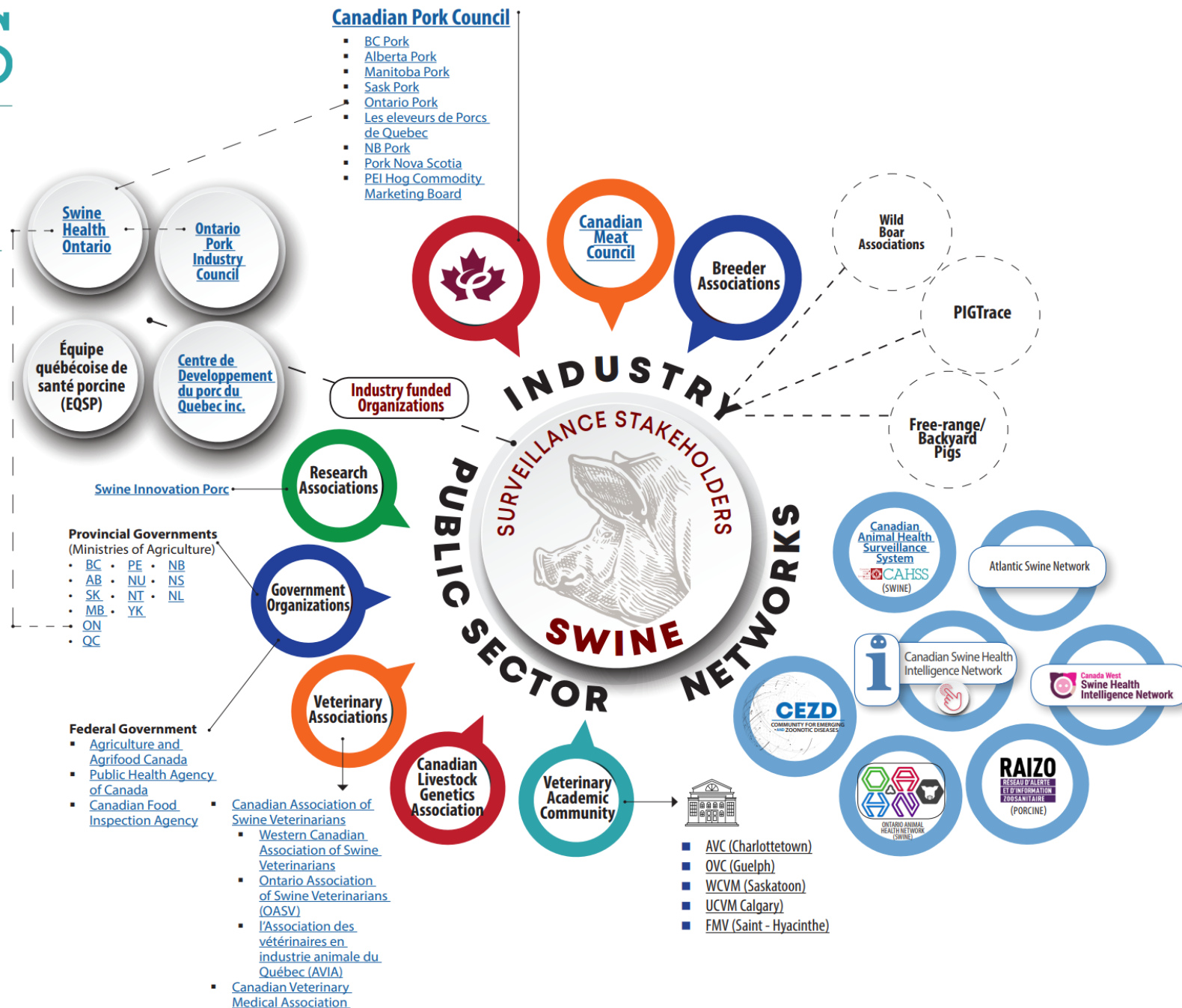
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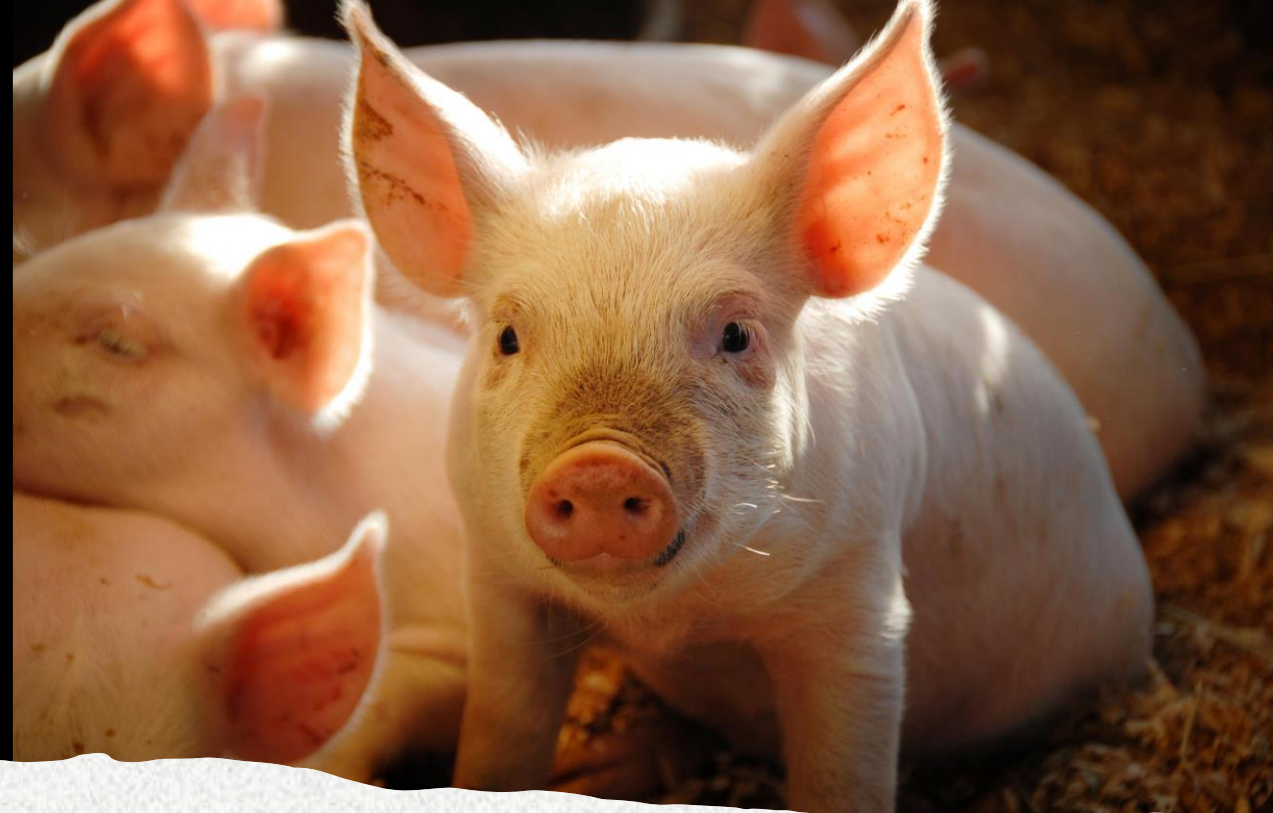
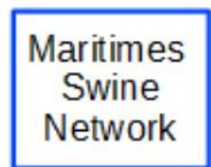
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Industry Driven Health Intelligence

CWSHIN Objectives

- Detect new emerging swine health issues
- Detect unusual clinical presentation of known diseases
- Provide information about endemic diseases
- Help provide evidence of freedom of foreign animal diseases



Swine Health Surveillance
2nd Quarter 2023

Producer Report

CWSHIN serves western swine producers, swine herd practitioners and governments to improve swine health, production, and the economic prosperity of the sector.

Our surveillance objectives are to:

- Detect new emerging swine health issues,
- Detect unusual clinical presentation of known diseases,
- Provide information about endemic diseases, and
- For diseases absent in western Canada (such as Foot and Mouth Disease and African swine fever) the objective is to help provide evidence of absence of disease to support trade.

www.cwshin.ca

AUGUST 25

By: Jette Christensen, CWSHIN Manager



Knowledge
is Power

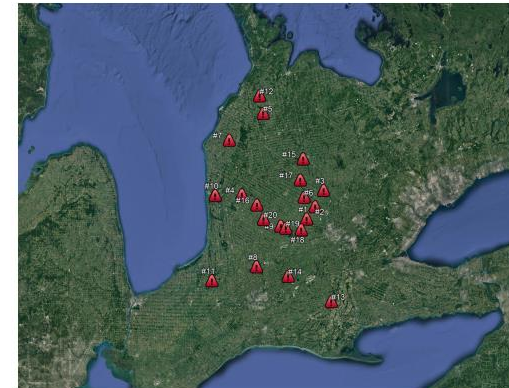
Novel H3N2 Influenza A Detected in Q2

Dr. Kevin Vilaca from South West Ontario Veterinary Services provided an overview to the CSHIN Q2 team about the detection of a new emerging strain of H3N2. On April 7, 2023, a new influenza strain of H3N2 known as cluster 2010.1 was detected in Ontario. This virus is not genetically similar to any of the current regional strains or to any other virus documented in Canadian databases. This virus originated in humans in 2010, but since has established itself in the swine population likely from humans working closely with pigs. This virus was determined genetically similar to a strain first detected in swine in the U.S.A. in 2013 and became the dominant strain in the U.S.A by 2017.

Over the next 7 weeks, 12 more cases were detected, reported, and sequenced in Ontario. This new strain often clinically presents as a sudden onset of coughing across all stages of production. Sows going off feed with high fevers and abortions is common. Growing pigs present with a sudden onset of coughing, off feed, followed by an increase in mortality due to secondary bacterial pneumonia. To date, it appears that previous influenza vaccination did not have any influence.

Dr. Ojkic from the Animal Health Lab (AHL) communicated to Dr. Kevin Vilaca that this new strain is now 67% of the isolates sent to the AHL and this novel strain now consists of 85% of the H3's detected.

Detections with this novel strain of influenza has spread rapidly in swine throughout Ontario.



Map 1: Demonstrates the diverse geographical distribution in the novel H3N2 Influenza strain detected in Ontario in Q2 in sequential order of detection

A 3D puzzle with one red piece standing out. The puzzle is composed of white and grey pieces, with one red piece in the center-right. The red piece is slightly raised and has a glossy finish. The background is a dark grey gradient.

Take Home Messages

- Work closely with your Veterinarian and other Service Providers
- Read the CWSHIN Producer Reports and discuss them with your Veterinarian
 - AB Pork website
- Try to define the expected so the unexpected stands out
- Be **CURIOUS** – you will miss more from not looking than not knowing



Biosecurity

One of the best vaccines out there

Dr. Egan Brockhoff
Veterinary Counselor

brockhoff@cpc-ccp.com



Canadian Pork Council
Conseil canadien du porc