Senecavirus A (SVA)

The Chameleon of Vesicular Reportable Diseases

- Moderately nasty for pigs.
- Very complicating for our industry

Dr. Martin Misener

South West Vets

Canadian Stats

- The Canadian pork sector is a major economic driver that generates **$24 billion** annually for the Canadian economy.
- A single case of a reportable Foreign Animal Disease (FAD) occurs in Canada, it would result in Canada ceasing its pork and live hog exports.
- According to the October 2024 edition of Canadian Pork Marketing Report by Kevin Grier, the Canadian swine industry exports a total of approximately **6.6 million live hogs annually**.

This number includes:

- 4.7 million weaners and feeders,
- 1.5 million market hogs
- 340,000 cull sows and boars

Senecavirus A

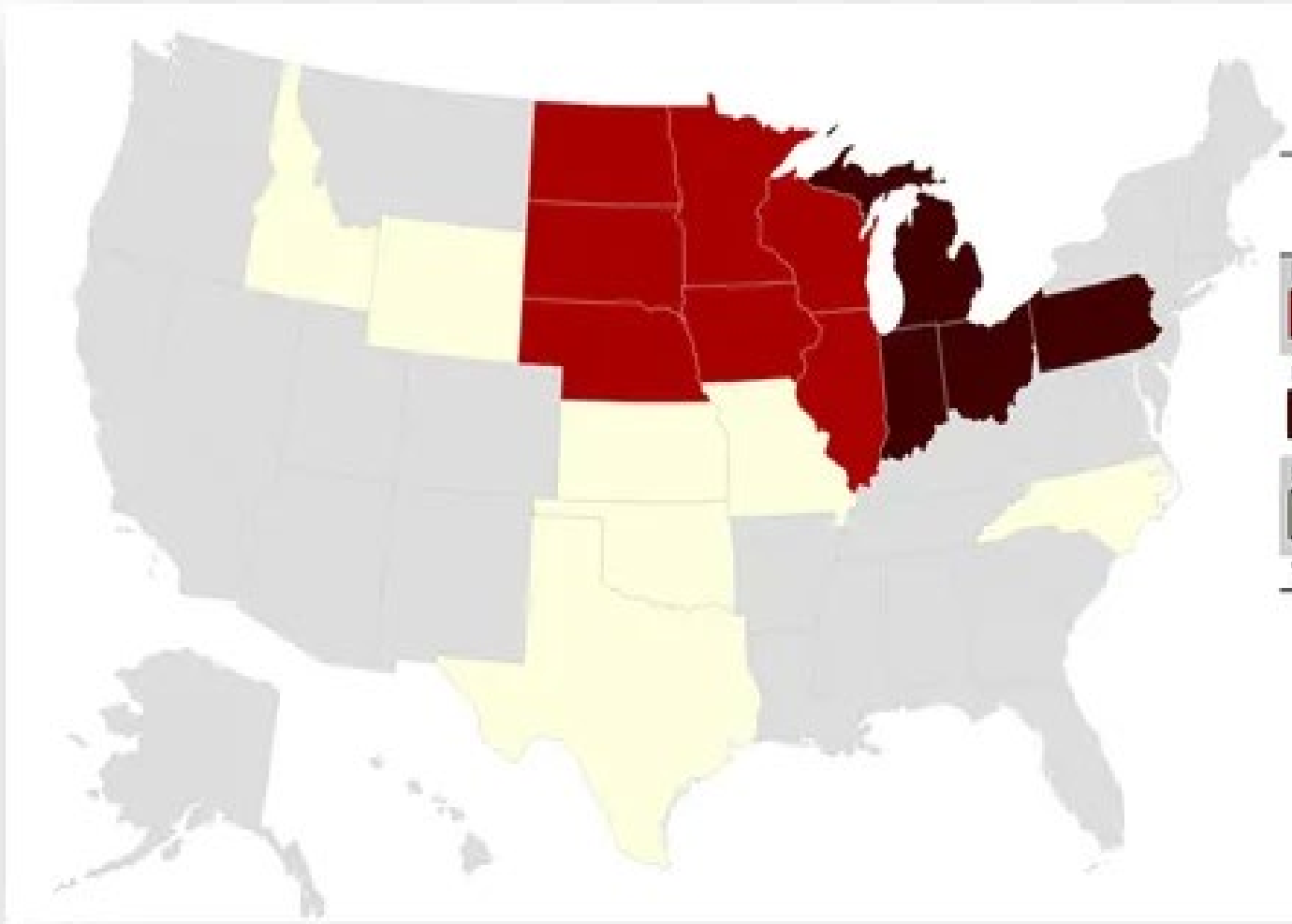
- A positive-stranded RNA virus
  - Genus: Senecavirus
  - Family: Piconaviridae
- Incubation period: 3-5 days
- Clinical signs:
  - Lethargy, lameness and vesicles on the snout and feet.
  - The vesicles tend to burst within 24 hours.
  - Lesions resolve in 7 to 14 days.
  - Severe diarrhea in young piglets.
- 3-10 days of viremia and shedding for up to 35 days. Can have carrier sows that will shed intermittently under stress.
- Flies, Culicoides and mice can carry the virus from farm to farm.
- There is a summer, fall seasonality to increased incidence.
- Survival in the environment outside the host is not well documented but it's cousin Swine Vesicular Disease virus can survive up to 160 days.

Brazil

- In 2014 SVA swept through the Brazilian swine herd.
- 2nd wave 2018.
- 3rd wave 2020.
- Three explanations have been suggested for this outbreak pattern;
    1. Emergence of new strains.
    2. Duration of immunity.
    3. Breeding stock replacement rate with naive gilts.

Take home:
It is still a problem in a country that ended 2014 with a very, very high prevalence.

Figure 1: Seroprevalence of SVA at sow farms in major swine producing states in the United States



Region	States	Total herds evaluated (n)	Number of positive/total herds (%)	95% CI
Region 1	ND, SD, NE, MN, IA, WI, IL	41	31/41 (75.6)	62.45-88.75
Region 2	MI, IN, OH, PA	24	20/24 (83.3)	68.38-98.22
Region 3	WY, KS, MO, TX, OK, NC, ID	26	18/26 (69.2)	51.45-86.95
Total		91	69/91 (75.8)	67.0-84.6

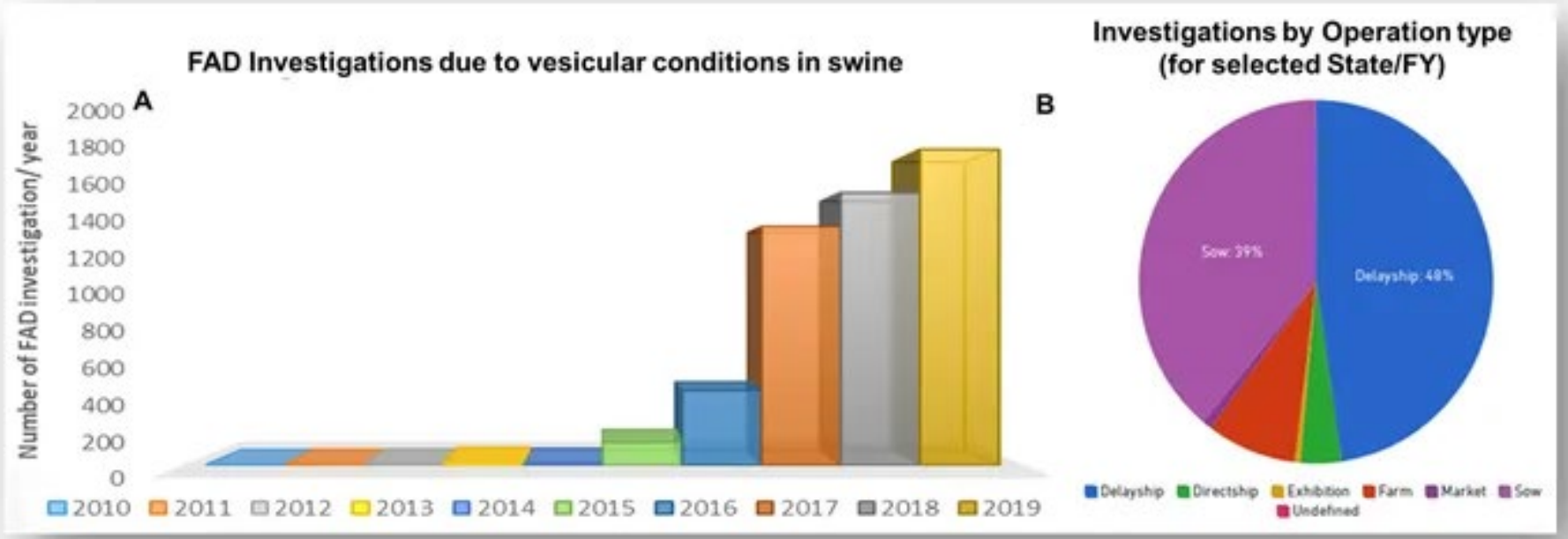
High Prevalence - Low Annual Incidence

- The most recent seroprevalence in the US is estimated at 72% of sow herds.
- As seen in the previous slide there is a clear geographical distribution.
- Annual incidence is currently estimated at 2-3% of US sow herds.
- This makes SVA an endemic disease.

- All ENDEMIC DISEASES will inevitably contaminate comingling facilities (assemblies, buying stations and slaughter facilities) if the age group of animals can still be shedding the disease.

Impact of Senecavirus A

Figure 4: A) Number of FADI reported by USDA from 2010 to 2019 and B) proportion of positive case by operation type.

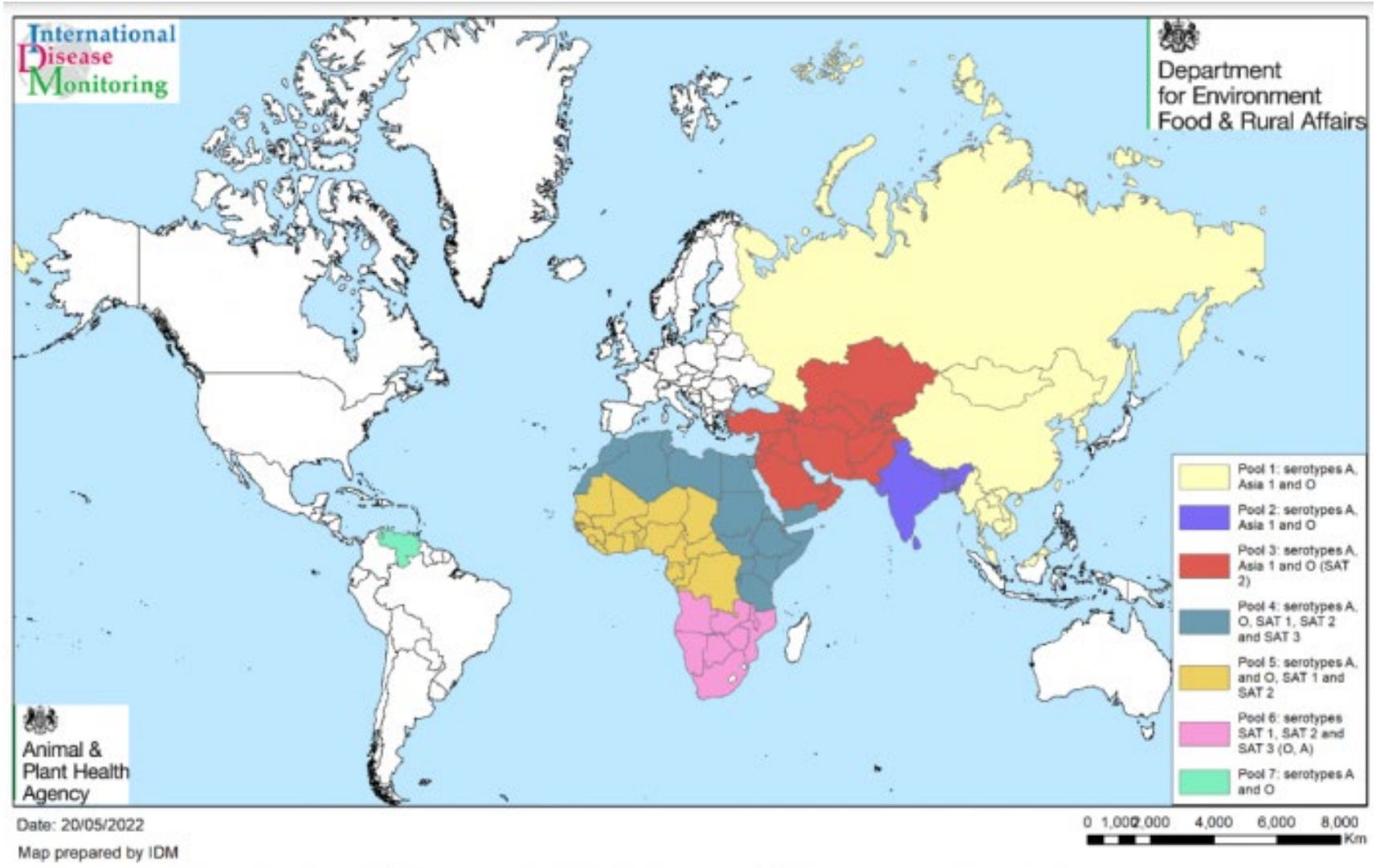


Source: USDA APHIS Veterinary Services

The Problem: 4 different diseases, 3 are reportable.


Figure 5: Subacute lesion on the snout of a gestating sow.

The Biggest Concern: Foot and Mouth Virus



Distribution of Endemic Viral Pools of Foot and Mouth Disease
(Correct as of May 2022)

2025 Outbreaks

- Germany
- Hungary
- Slovakia

To impact the present, often history is a teacher.

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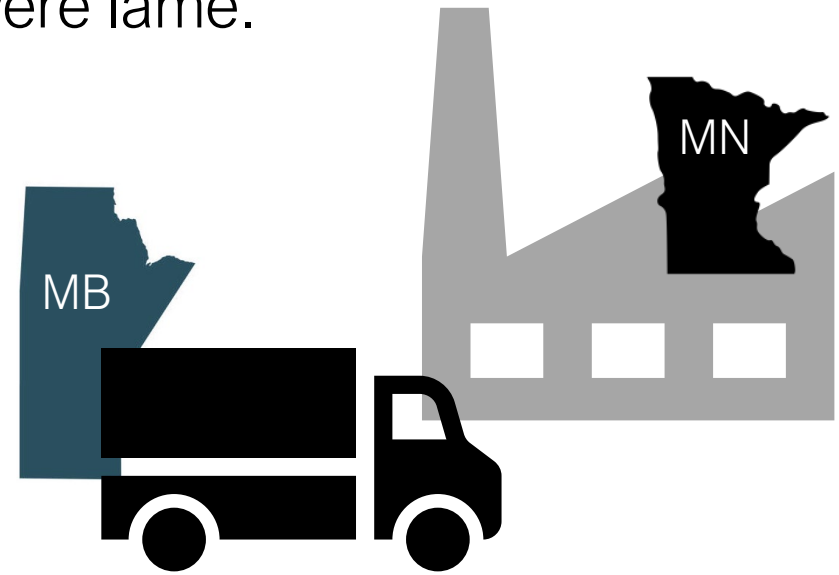
- In the next part of this presentation, I hope to provide some background to our current situation with Senecavirus A.
- I will review what happened in 2016.
- I will mention the 2022 Manitoba situation.
- I will present what's happening now.

Hopefully leave you with some points to ponder.

Canadian Situation – June 2007

- 187 market hogs sent from a Manitoba assembly to a Minnesota packing plant; one animal identified with a vesicle on its nose.
- 12 additional pigs had red coalescing erosions on their snouts.
- 25 to 30% had coronary band lesions and 80% were lame.
- 7 farms shipped pigs to the assembly.
- No evidence of clinical SVA at any of the farms.



Canadian Situation – Fall 2015

- Cull sows from Manitoba and Ontario were identified with vesicular lesions at packing plants in the US.
- CFIA investigations identified SVA at the Ontario assembly (no animals were on site at the Manitoba assembly).
- No farms were identified positive
- At the same time, a drastic increase of US on-farm SVA cases were occurring

What Happened Post 2015

- August 2016, 13 animals exhibited vesicular lesions at a plant in the US.
- FSIS sent a memo to USDA asking for more scrutiny at the border.
- USDA sent a memo to border vets to be diligent with respect to Canadian pigs and vesicles.
- September 14th loads of cull sows got turned back.

Crisis without Policy

- CFIA was confronted with a foreign animal disease (FAD) presentation due to SVA (looks like bad stuff) and does not have a policy.

- Under the circumstances they did the best they could and treated this presentation as a suspect negative for FAD while still trying to balance FAD surveillance.

SVA Lesion

Kept the Border Open

A collaborative effort including:

- Aggressive testing for FAD
- Preload screening
- Great communication with USDA

Kept the border open and allowed disrupted, but orderly marketing of cull animals to the US, 2016.

Priorities

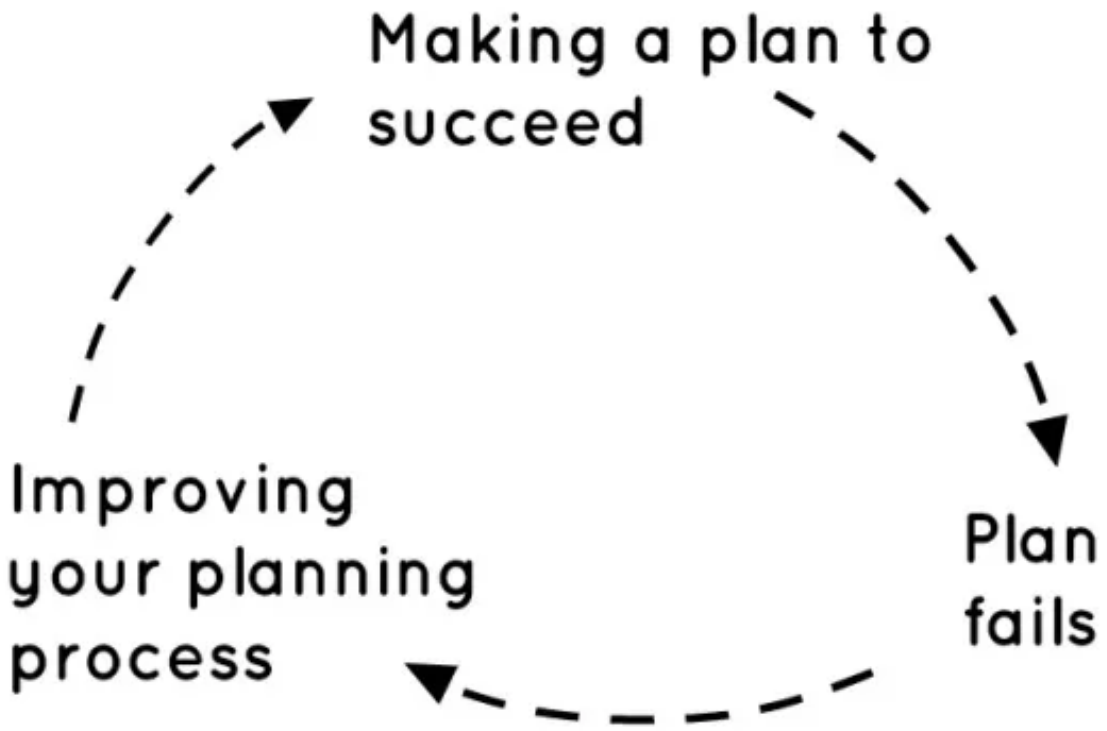
• Have PCR and serological tests available in Ontario	*Done*
• Test historic submissions to establish an estimated prevalence in our provincial pig herd.	*Not Done*
• Proactively set up policy for orderly marketing of known positive SVA pigs.	*Not Done*
• Prioritize continued disease control, containment and elimination efforts.	*In Progress*
• Stay very vigilant for any swine vesicular disease presentations (Everyone's responsibility)	*Continuing*

Canadian Situation - 2022 - SVA indigestion

Others can provide far more detailed information regarding the next SVA situations in Manitoba.

- My understanding: Sows from assembly sites triggered foreign animal disease concerns at the border and were turned back.
- The focus changed from aggressive testing to rule out Foreign Animal Vesicular disease to emptying assemblies following up with a clean and disinfection program.
- Manitoba Pork worked closely with the assemblies and CFIA and USDA initiated next steps.
- A Draft National Action Plan for Assembly Yards –Disease of Significance resulted. (National Action Plan)

A plan was made

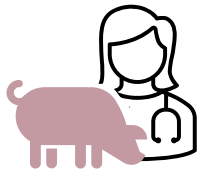


Canadian Situation – June 2025

- Vesicular lesions caused foreign animal disease investigations in US packing plants involving Canadian cull sows.
- An assembly in Manitoba and Ontario were the origin points of the sows.
- I will describe the Ontario situation.

The implementation of the National Action Plan was a surprise to our Ontario Assembly owners.

Included on most communications between CFIA and our largest assembly.



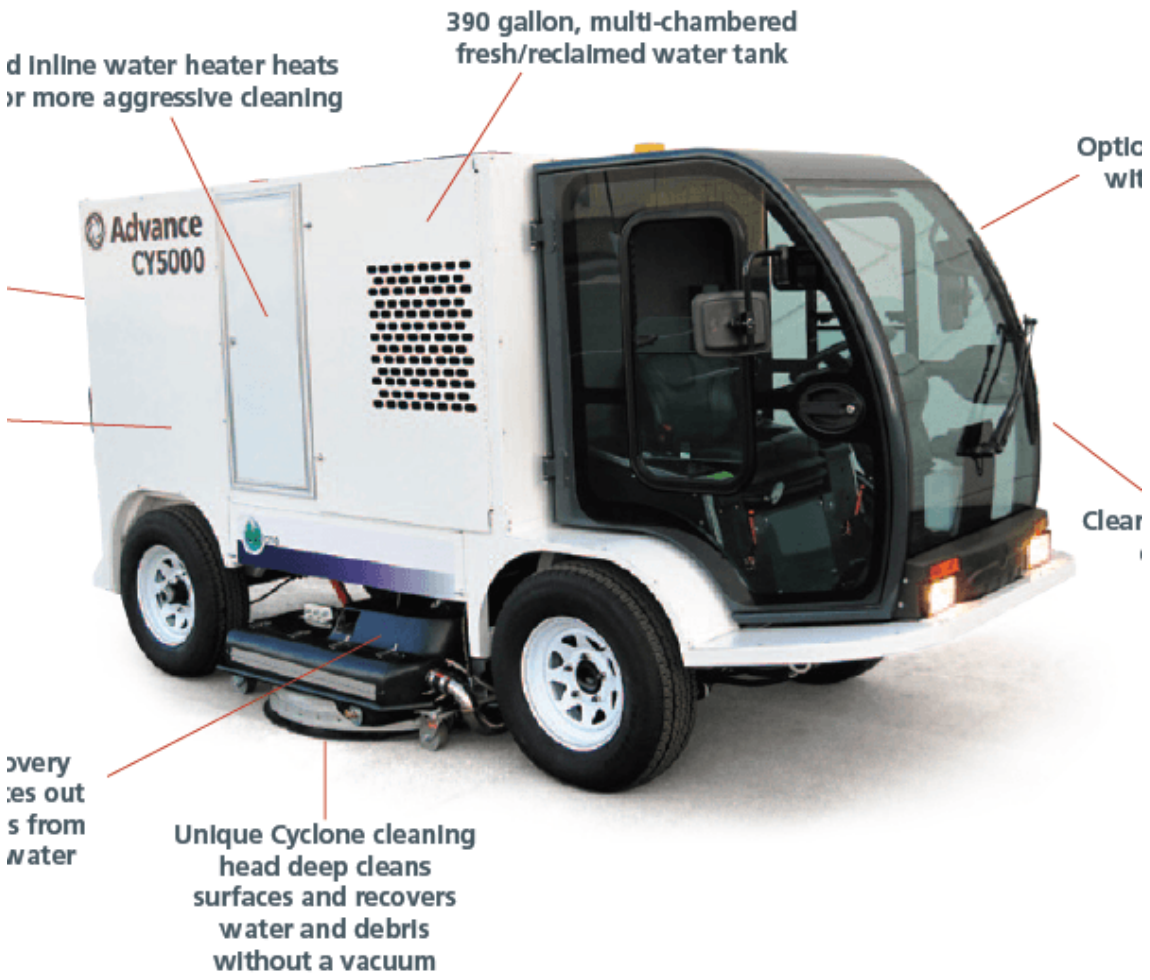
- If **2 or more FAD investigations** occurred involving sows from an exporting address, that facility required accredited veterinary inspection of animals and a new health certification process.

- If **1 additional FAD investigation** occurred, the site was not allowed to continue exporting and the animals were required to be harvested through domestic slaughter options.

- The site once emptied required an aggressive C&D program and negative SVA environmental sampling.

If only it was this easy

- Multiple attempts to produce a protocol were infuriating.
- Many facilities are solid floor straw bedded.
- The National Action Plan stated reduction of viral load, the requirement became elimination.



The National Action Plan

- What if SVA is endemic in Canada and we just “cleaned the house” ??
- We get to clean it again tomorrow??
- We all know how intensive an elimination clean-up effort is for PED virus or PRRS virus.
  - Would we invest all that effort and move shedding pigs back into that sparklingly clean facility???

- Do we need disease risk reduction for our Primary Canadian Assembly yards?
  - YES

In a “cleaned” assembly less than 24 hours.

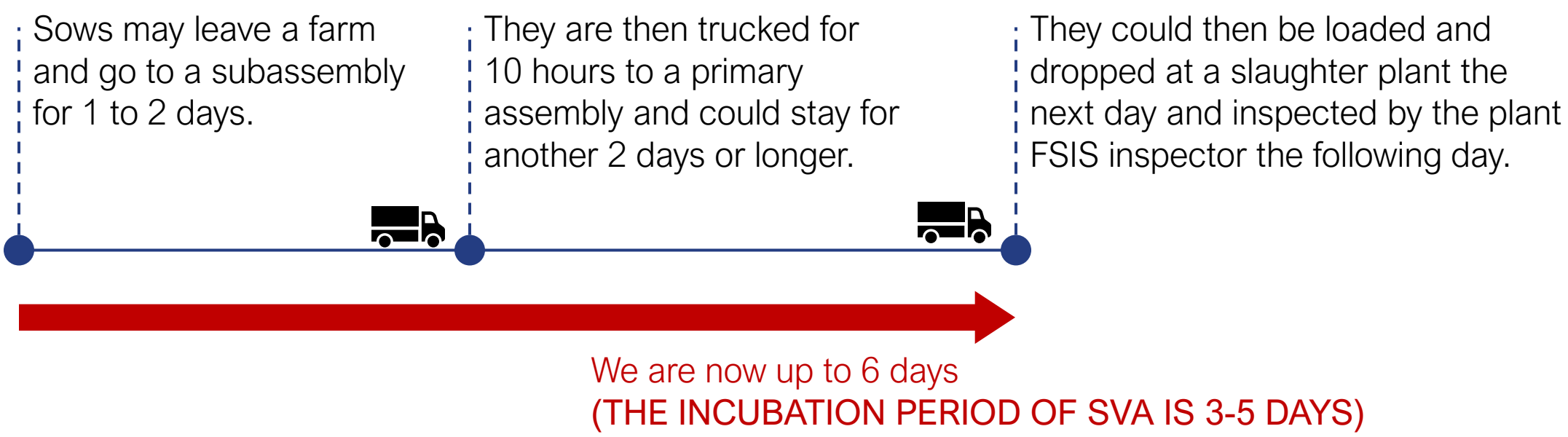
Monday October 6th, an on farm case of SVA in Ontario was confirmed.

South West Vets

December 2025

0 sites	With an inventory of “held animals”
All sites	Have gone through C&D procedures and inspections
2 sites	Require animal inspections by accredited veterinarian
Multiple sites	Being used as temporary exporting sites
2 sites	Not been affected

Inspection for Clinical Signs: Problems!



- A sow could cross the border without a vesicular lesion and be found at the plant with a vesicular lesion.
- A healing vesicle and trauma to the snout of a sow can look identical.

The Risk

The current National Action Plan could stop the movement of cull sows across the border to US slaughter facilities.

What do you do with a Chameleon?

- Establish a testing (surveillance) program at our 4 national assembly points to screen the Canadian herd for Foot and Mouth disease.
- Increase the labs that can perform the test for Foot and Mouth.
- If clinical signs are identified call CFIA and rule out all swine vesicular diseases and test for SVA
- If negative for FAD and positive for SVA trigger an orderly marketing program.

Surveillance for reportable swine vesicular diseases

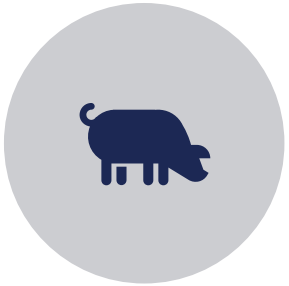
- Over 80% of our Canadian cull sows stop at one of 4 primary assembly sites.
  - Manitoba (2) and Ontario (2).
- Routine rope saliva samples taken from facility sentinel animals at whatever number and frequency set by a smart epidemiologist, tested by PCR for FAD seems intuitive.
- FAD surveillance at 4 sites would give Canada a robust program, maybe the best in the world.

OMG what if we get a false positive test?

- I have been asked this question, and my answer is, thank God it is a false positive test.
- All things become clear in time.
- To not do FAD surveillance is, in my opinion acting like the bird in the picture.
- Not a very safe position if you ask me.

What do we need to achieve orderly marketing?

Every Sow must leave the farm with a RFID tag.



RFID tags would not only enhance traceability but, it would also allow time measurement from farm to slaughter.

Adjustments to the pig trace program because clinical SVA inventories may need to be parked.

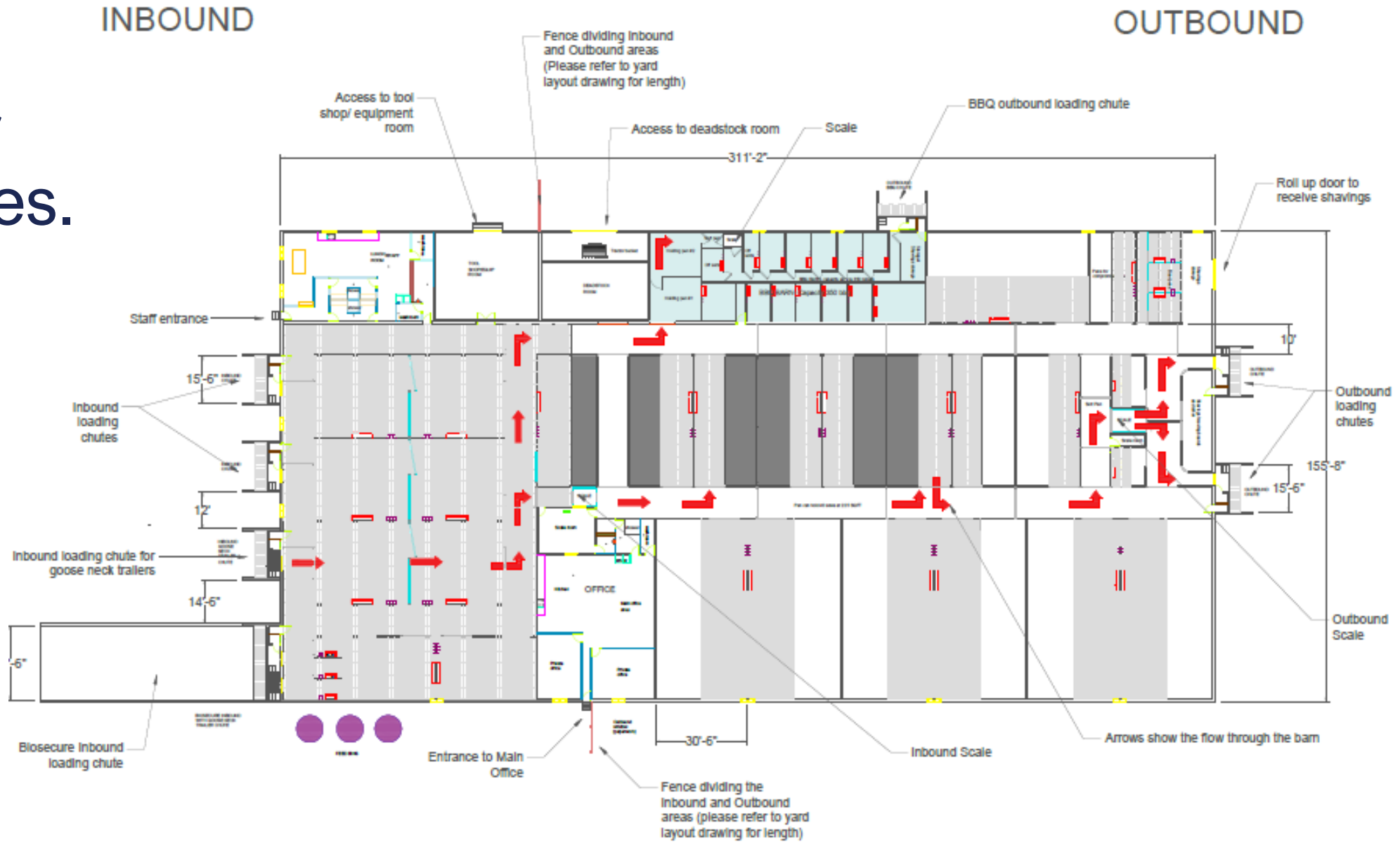
RFID tags and tag readers would make that feasible.

Starting at the farm and ending at the slaughter facility efforts for short time duration must be a priority.

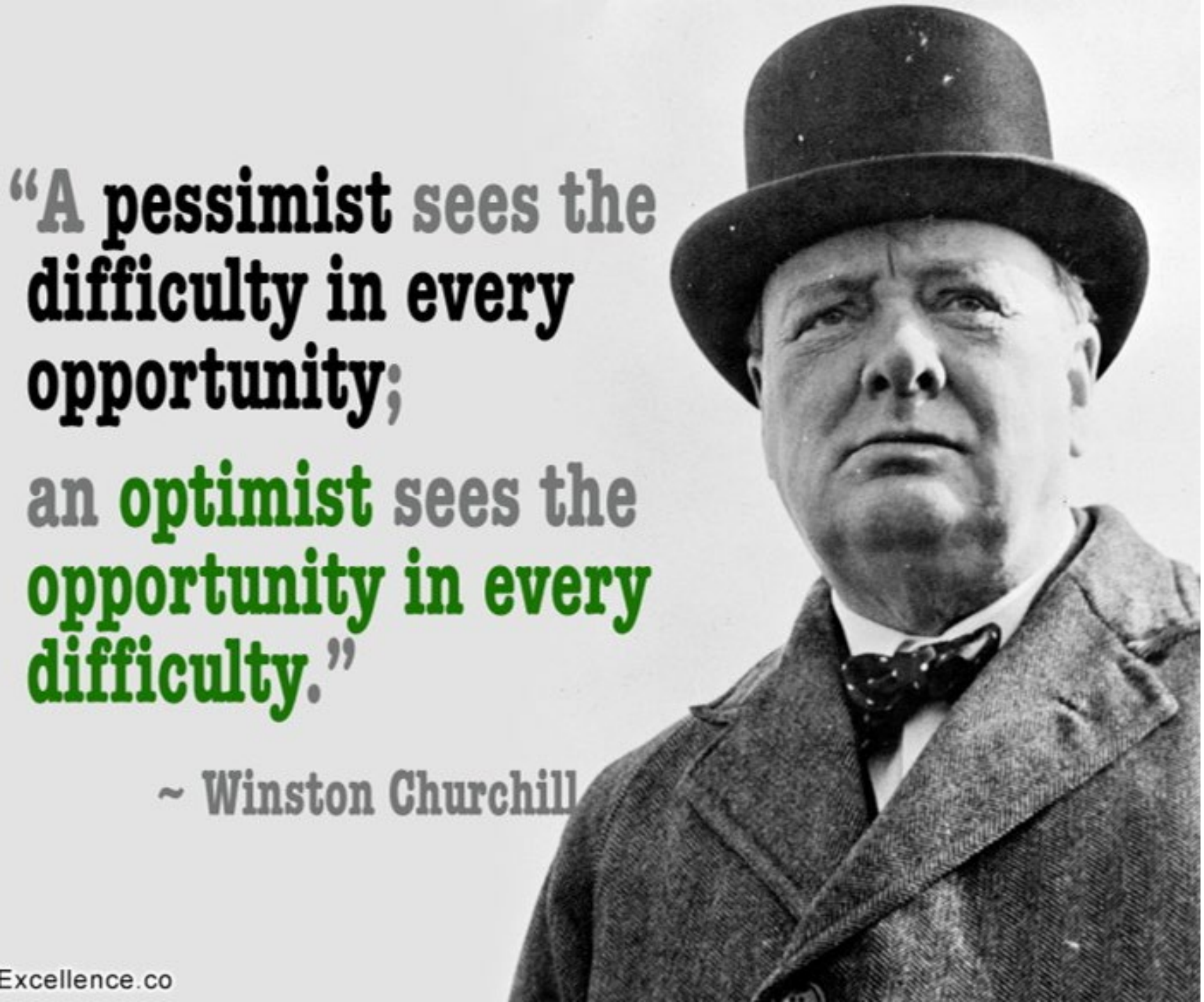
Rigid regulations won't work, statutory holidays happen, supply and demand changes, plant breakdowns occur.

However, the intent needs to be embraced.

Better facilities.



Washed trailer loading at “outbound”



SVA can force positive change.

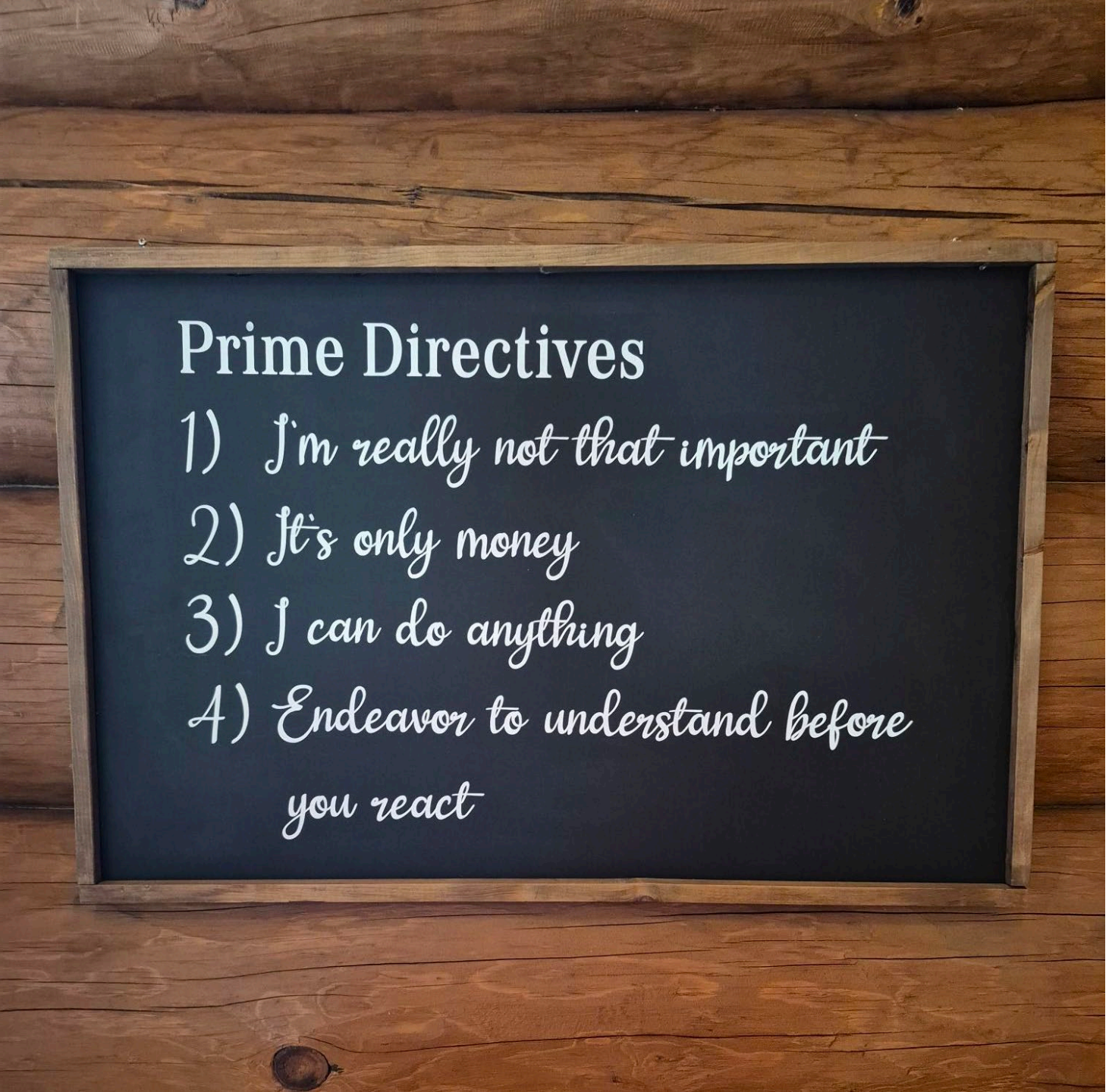
- We will reduce disease risk by improving assembly design and function.
- We should initiate the best FAD surveillance program in the world.
- We must improve common sense communication with both Canadian and US regulatory divisions.

PED: An opportunity moving forward

- For the first time since 2014, Ontario's primary assemblies are negative for PED

- Early identification and good communication are required in outbreak herds to take advantage of this opportunity

- In Ontario, we might have the fewest number of cases since 2014



Thank you

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