



### CEZD Disease Signals of Interest Q1

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Dr. Andrea Osborn provided a review of disease signals that presented to the Community of Emerging and Zoonotic Disease (CEZD) over the past quarter.

#### African Swine Fever (ASF)- Global Case Distribution

- During Q1 there were a large amount of ASF events >2148 and in Q2 thus far there are 472 events reported to the World Organization of Animal Health (WOAH) ([source Empress i FAO website](#)).
- On March 15, 2023 media reported that “[China’s pig farms battle new surge in ASF](#)” after the Chinese New Year. It is interesting to note that the last report of ASF by China to the WOAH was in January 2021.
- In February of Q1, Indonesia reported a detection of ASF that was located very close to Australia. Case reporting by Indonesia to WOAH has also been sporadic and it is suspect that this may be due to this countries response to a current outbreak of Food and Mouth Disease (FMD).
- The Dominican Republic has announced that they are shifting from ASF eradication efforts to managing the disease. New regulations will require testing every 21 days if there are >25 pigs on a farm, mandatory reporting of suspicion of disease and prohibition on restocking pigs at positive sites. There has been no communication from either the Dominican Republic or from Haiti on acquiring and using vaccination to control the spread of disease.
- Italy also saw a very big geographical jump in ASF cases being reported in late April early May in the southern part of this country. Cases had only been detected in the northern and central part of this country until this quarter.



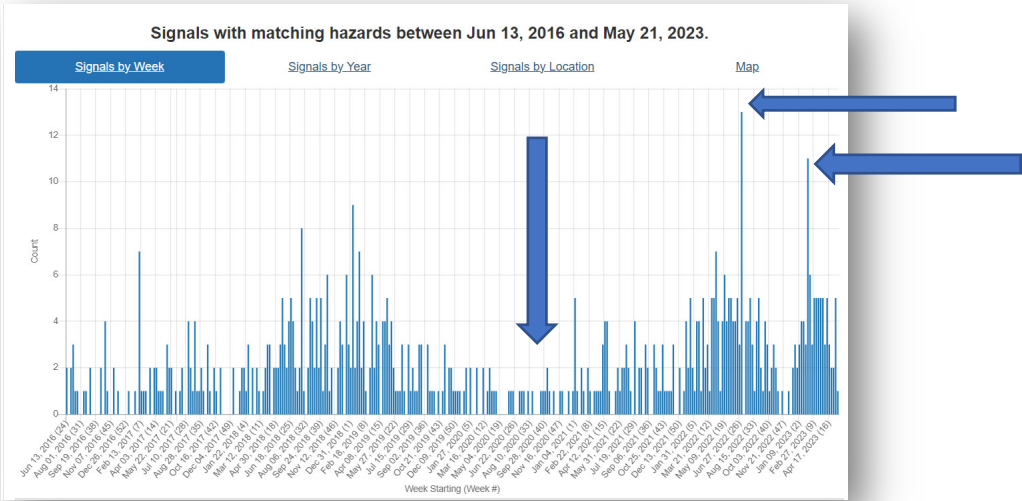
Map 1: Demonstrates geographical jump in ASF detections in Italy. Source: Empress i

# CEZD Disease Signals of Interest in Q1 Continued...

- Foot and Mouth Disease (FMD) has spread into the Middle East and Western Asia.
- The serotype SAT-2 seems to be more aggressive than the serotypes normally present in this region.
- Russia has produced 3.5 M doses of vaccine containing strain SAT-2 and released a total of 2.5M doses of vaccine to countries of the Persian Gulf.
- EU FMD vaccine bank released SAT-2 monovalent vaccines to Turkiye. Vaccination strategies have been strategically placed in high-risk areas next to Armenia and Iraq and in Thrace to protect Balkan countries. Iran has a large susceptible population (5.4M cattle and 58.2M small ruminants) so is at risk of disease introduction and spread.
- In May 2023 FMD was reported to reoccur in Korea. This is the first time in 4 years, as they were about to declare disease freedom. Serotype is not yet known. A total of 6 cases has been detected to date.



Map 2: Stars (red and purple) demonstrate border locations surrounding Turkiye where FMD vaccinations has been concentrated. Source: Empress i



Graph 1: This graph demonstrates FMD signals over time. Points to highlight is the lack of signals during the pandemic, the spike seen during the summer of last year due to detections in Indonesia and the most recent spike due to SAT-2 in the middle east.

# *Streptococcus Zooepidemicus* (*Strep. Zoo*) Alberta Case Update

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## CWSHIN (Western Provinces)

Dr. Frank Marshall provided an update on the case of *Strep. zoo* that was reported in a sow herd in Alberta in 2022 Q3 and Q4. This was a 5600-sow unit that initially saw 300 sows die acutely in late 2022. **Clinical signs** included sows off feed, severe depression, severe polyserositis and death within 12 hours of sows going off feed they would die. **Post-mortems** revealed pulmonary edema, froth filled airways, stomachs half full, enlarged kidneys and a dramatically large splenomegaly with fibrin tags over focal infarcted-necrotic areas of the spleen. The sows affected were treated individually and the herd was placed on antibiotics (Pulmotil) until clinical signs resolved. After the clinical signs were non-existent, the antibiotics were withdrawn. Unfortunately, in Feb 2023, a rebreak occurred and this herd lost another 400 sows due to acute mortality with abortions and early farrowings. Interestingly, 4% of the sows that were involved in the original outbreak were involved again in this second outbreak of disease. Dr. Matheus de Oliveira Costa found that this strain was directly related to an Asia human strain cluster. Historically, in the other outbreak in Manitoba where herds rebroke after depopulation-the staff on these farms had never changed. Dr Costa has uncovered an attenuated clone-vaccine strain that provides protection against our ST194 strain. A project to initiate the manufacturing of the vaccine requires a 1.2 million dollar investment at this time. A downtime of 7 days was required for all staff after any international travel. This finding emphasised the importance of wearing PPE for people working directly with pigs.

It is important to note that *Strep. zoo* mimics ASF or CSF clinically and that lab confirmation is required to determine the cause of disease. **The lesions seen in the spleen are indistinguishable from ASF and Classical Swine Fever (CSF) on the list of differentials.** If a good response to antibiotics is seen then this makes a bacteriological cause more likely than a viral cause of disease, but if not then CFIA should be contacted for FAD suspicion.

## Sapovirus

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### CWSHIN (Western Provinces)

Dr. Tony Nikkel reviewed a case that presented with neonatal diarrhea in young piglets that looked clinically like Rotavirus. All piglets tested negative for Rotavirus on PCR and had a low CT level indicating positivity for Sapovirus. The treatment of choice was the same regime that is used to treat Rotavirus cases. Dr. Nikkel mentioned that diagnosis of this pathogen was difficult due to limited PCR testing availability. IHC was also supportive of samples being positive for Sapovirus.

Dr. Kurt Preugschas also provided an overview of a more recent case that presented with persistent piglet diarrhea and CT values are supportive of the causative agent being Sapovirus.

The treatment of choice in both herds has been feedback and this has helped a lot with decreasing the severity of clinical signs and for control of disease spread.

### OAHN (Ontario)

Dr. George Charbonneau indicated that in 2023 Q1, the Animal Health Laboratory (AHL) in Guelph, Ontario reported 1 case of Sapovirus in nursing pigs that presented with diarrhea and atrophic enteritis. Testing was confirmed with IHC. A second case involving nursery pigs was also positive for Sapovirus on PCR with low Ct values. In this case there were no lesions of atrophic enteritis. One veterinary practitioner flagged Sapovirus as a concern on the OAHN Q1 clinical impression survey. In Ontario cases where Sapovirus is suspected, the samples are sent to Iowa State University laboratory for PCR and IHC testing. The AHL is working on having a PCR test for Sapovirus in place in house within a few months.

There is no commercially licensed vaccine available to prevent Sapovirus in North America. Autogenous vaccinations are a valuable disease prevention measure. Autogenous viral vaccines are being used in the U.S.A. In the U.S.A multiple viruses and bacteria strains isolated from an individual farm can be added to a single vaccine. The mixing of bacterial and viral agents in a single autogenous vaccine is not allowed in Canada and the number of viruses that can be included in one autogenous vaccine is limited. With loose-sow housing becoming increasingly common, producers are requesting that the total number of vaccines given to sows is limited to prevent health and safety concerns for workers that are tasked with vaccinating the same animals' multiple times. Also, in Canada the approval times to add new isolated viruses like Sapovirus into an autogenous vaccine that is already in use is a slow process and often will not help in an outbreak case situation.

**Take Home Messages:** Currently diagnostic testing for Sapovirus is limited in Canada. All samples need to be sent to the U.S.A for diagnostics. Several labs within Canada are currently working on adding this test to in-house testing regimes. Due to current regulations and time delays associated with the production of autogenous vaccines in Canada, these vaccines cannot be used to help in an outbreak scenario.

## Swine Influenza Regional Vaccine- Quebec Update

### RAIZO (Quebec)

Dr. Christian Klopfenstein provided an update that discussions with the CFIA on the development of a swine Influenza regional vaccine are going well. This is a step-by-step process. Approvals for a regional vaccine will allow for Quebec swine producers to have the choice to use the same vaccine to prevent circulating Influenza strains. Currently there is a need to get more sequences from positive samples submitted to labs and this has been challenging in Quebec due to the fact that most samples submitted are oral fluids which makes sequencing more difficult.

*This information is a professional communication for swine producers. This information is not validated and may not reflect the entire clinical situation. Your judgment is required in the interpretation and use of it. It is the intent of CSHIN to improve the health of the national swine herd. CSHIN is funded by the Canadian Association of Swine Veterinarians (CASV), The Canadian Pork Council (CPC) and The Canadian Animal Health Surveillance System (CAHSS).*

# MEET YOUR CSHIN Q1 NETWORK TEAM

#### CSHIN Manager

Dr. Christa Arsenault  
Christa.arsenault@outlook.com

#### Quebec RAIZO Representation

Dr. Claudia Gagné-Fortin  
Dr. Roxann Hart  
Dr. Simon Vaillant  
Dr. Isabelle St-Pierre

#### Ontario OAHN Representation

Dr. George Charbonneau  
Dr. Tim Pasma  
Dr. Christine Pelland

#### Canadian Association of Swine Veterinarians (CASV)

Dr. Christian Klopfenstein

#### Canadian Food Inspection Agency (CFIA)

Dr. Andrea Osborn  
Dr. Nicholas Bachand  
Dr. Rajiv Arora

#### Western Provinces CWSHIN Representation

Dr. Jette Christensen  
Dr. Jewel White  
Dr. Kurt Preugschas  
Dr. Yanyun Huang  
Dr. Tony Nikkel  
Dr. Frank Marshall  
Dr. Glen Duizer

#### Maritimes Representation

Dr. Dan Hurnik

#### Canadian Pork Council (CPC)

Gabriela Guigou  
Dr. Egan Brockhoff

#### Canadian Animal Health Surveillance System (CAHSS)

Dr. Doris Leung