THE ONE HEALTH TOOLKIT: WHAT DOES THIS LOOK LIKE IN THE FACE OF COVID-19?

Canadian Animal Health Surveillance System & Community for Emerging and Zoonotic Diseases

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One Health Consultant

November 2, 2022

Canadian Animal Health Surveillance System

CAHSS

CEZD

COMMUNITY FOR EMERGING AND ZOONOTIC DISEASES

Territory Acknowledgment

I would like to acknowledge that I am a settler and uninvited guest on the territory of the Stó:lō, Semiahmoo, W̱SÁNEĆ, Kwantlen, and sc̓əwaθenaʔɬ təməxʷ Nations.

Presentation Outline

- Importance of robust surveillance systems
- Canadian Animal Health Surveillance System (CAHSS)
- Community for Emerging and Zoonotic Diseases (CEZD)
- Network collaborations CAHSS and CEZD
- One Health tools for collaborative surveillance
- Call to action
- Q&A

Canadian Animal Health Surveillance System CAHSS

CEZD COMMUNITY FOR EMERGING AND ZOONOTIC DISEASES

Delivering robust & resilient national surveillance

Monitoring for signals

Lab submissions (syndromes)

Abattoir condemnations

Animal health data collected for other purposes

Observing & Telling

Farmers, veterinarians, wildlife professionals, citizens report observations of change

Counting cases

Laboratory test results

Horizon scanning

Trying to predict what might be coming

Monitor determinants of health and reflect on how this might impact health

Modeling

Reports from other places

Data-driven Information

To avoid surprise

To demonstrate good health

Active testing

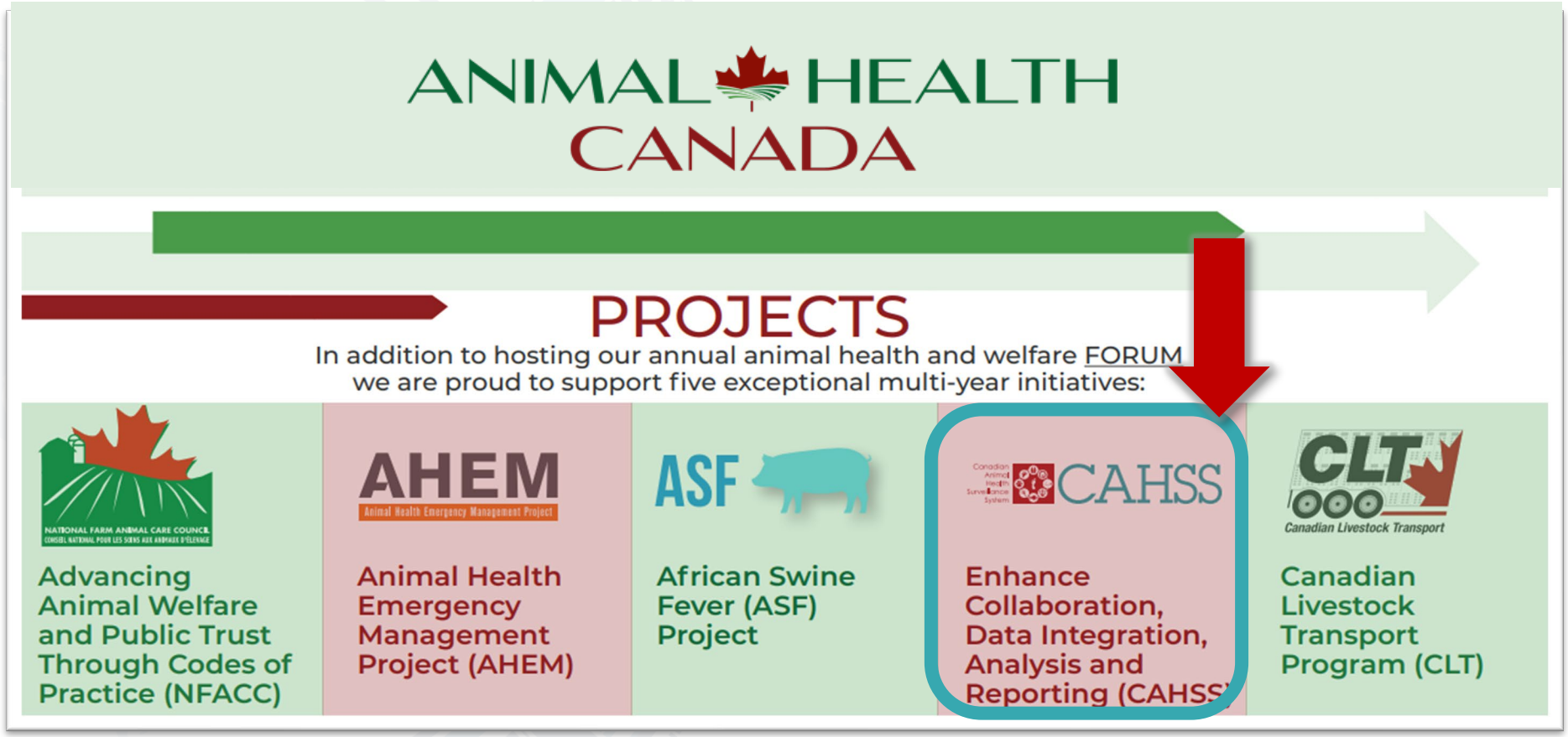
Initiatives to systematically collect data about levels of a disease of interest

Canadian Animal Surveillance System

Observe | Connect | Detect | Protect

Canadian Animal Health Surveillance System CAHSS

About CAHSS



Canadian Animal Health Surveillance System CAHSS

About CAHSS

- CAHSS's work is to support **effective, responsive, and integrated animal health surveillance** in Canada
- CAHSS has **four work areas**:

Canadian Animal Health Surveillance System CAHSS

CAHSS' Network of Networks

Canadian Wildlife Health Cooperative

Canadian Swine Health Intelligence Network

Canadian Integrated Program for Antimicrobial Resistance Surveillance

Community for Emerging and Zoonotic Diseases

Canadian Food Inspection Agency

Council of Chief Veterinary Officers

Animal Health Laboratories

Universities

RAIZO
RÉSEAU D'ALERTE ET D'INFORMATION ZOOSANITAIRE

ONTARIO ANIMAL HEALTH NETWORK

Western Canadian Animal Health Network

Atlantic Canadian Animal Health Network

Canadian Animal Health Surveillance System CAHSS

CAHSS' Network of Networks

Canadian Animal Health Surveillance System CAHSS

Identifying emerging risks through collective intelligence

What is CEZD?

- CEZD is a Canadian virtual multidisciplinary network

- Provide early warning notifications of emerging and zoonotic disease threats through integration of **automated information mining** and **multidisciplinary member perspectives**

- Facilitate further discussion, analysis and reporting as needed for relevant signals

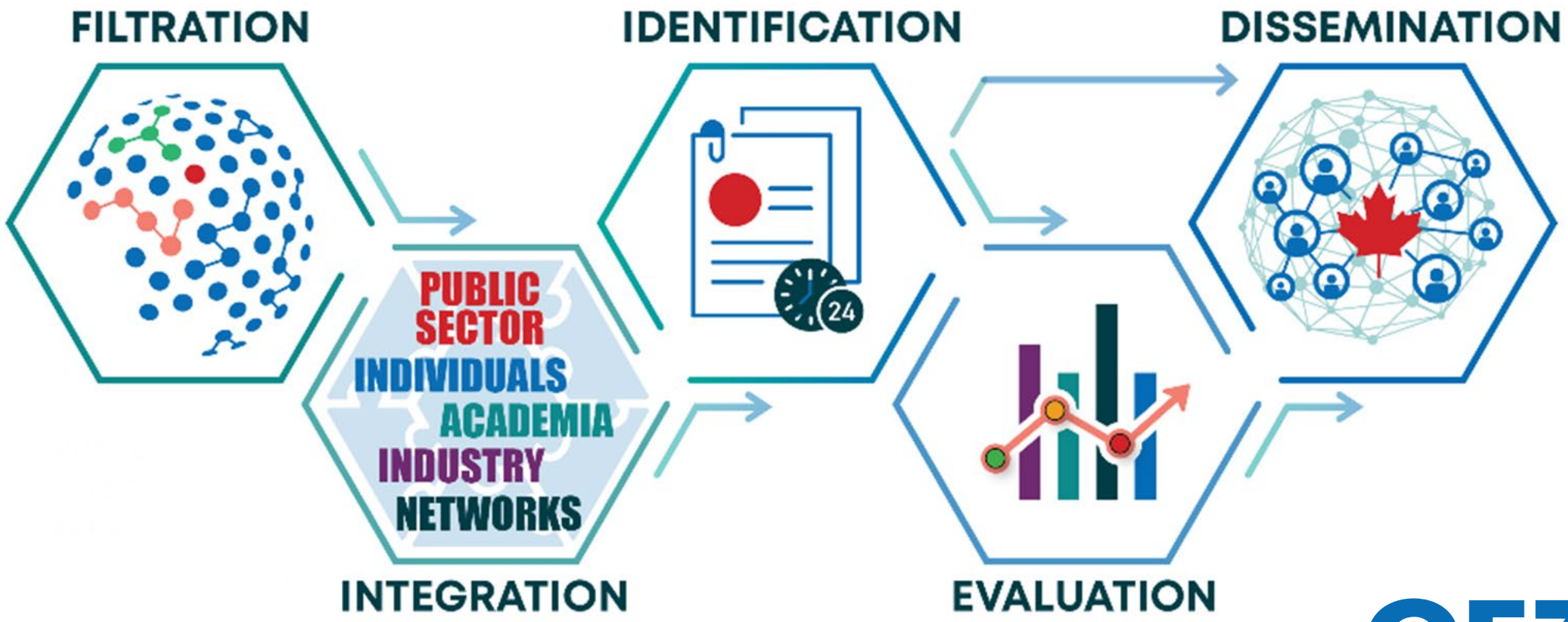
CEZD
COMMUNITY FOR EMERGING AND ZOONOTIC DISEASES

Why was CEZD Developed?

- To support Canada's animal early warning, preparedness and response capabilities for emerging and zoonotic diseases
- CEZD started as a project 2013-16, funded by the Canadian Safety and Security Program of the Department of National Defense
- Since the project phase, the community has collectively developed both our **capability (technology)** and **capacity (human network)** to produce early warning intelligence

CEZD
COMMUNITY FOR EMERGING AND ZOONOTIC DISEASES

How does CEZD work?



CEZD
COMMUNITY FOR EMERGING AND ZOONOTIC DISEASES

Collaboration between CAHSS and CEZD

- CAHSS and CEZD have been working in **collaboration since 2016**
- Partnership has:
  - Broadened and deepened reach of both organizations
  - Expanded the scope of both organizations
  - CAHSS network discussions provide **important contextualization and increase value of intelligence** from a Canadian perspective
  - Created **centralized information hubs**
  - Allowed for **quick information and resource sharing**

Canadian Animal Health Surveillance System CAHSS

CEZD COMMUNITY FOR EMERGING AND ZOONOTIC DISEASES

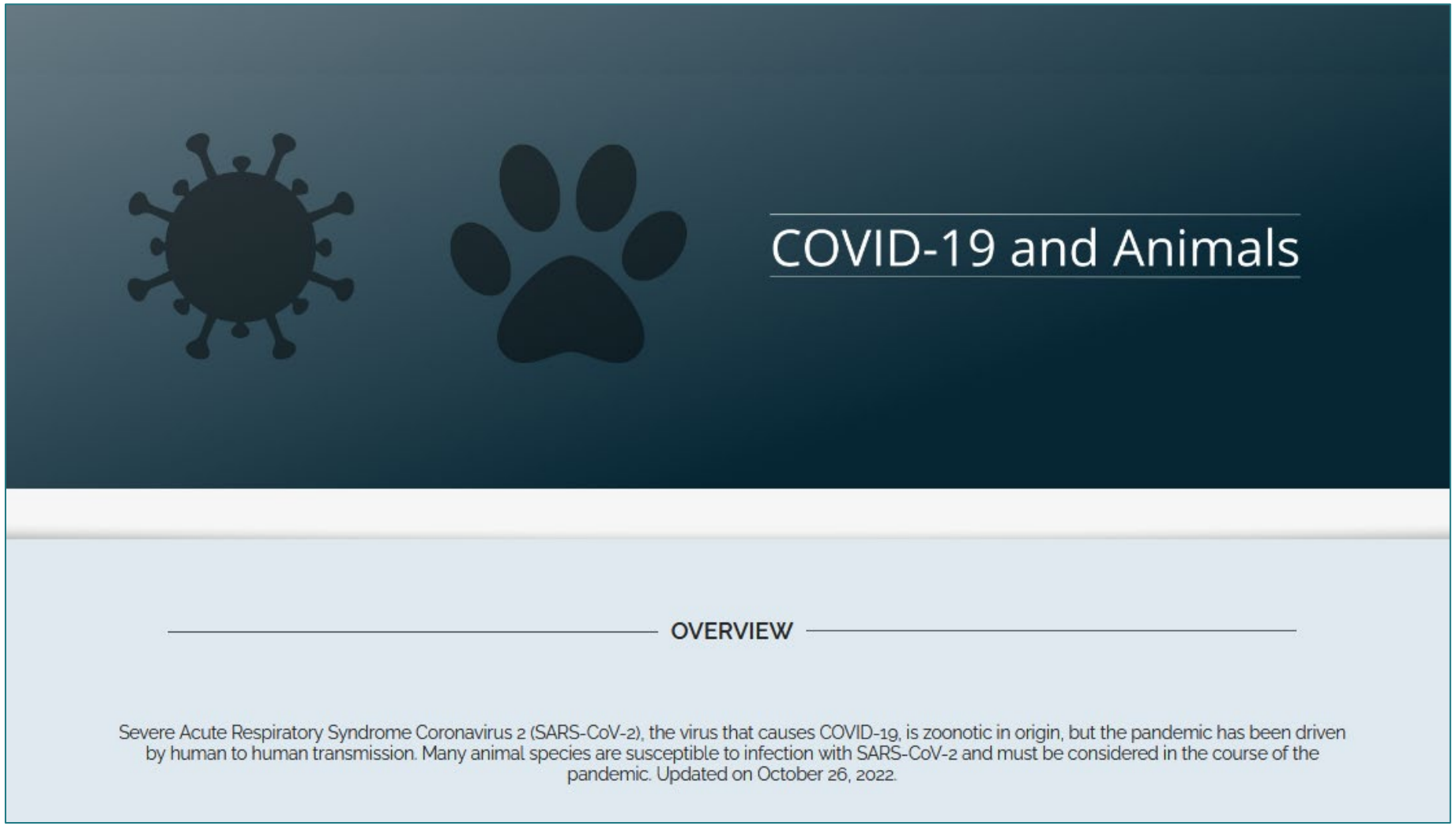
COVID-19

One Health Tools

- **SARS-CoV-2 Specific tools**
  - SARS-CoV-2 Species Susceptibility Information Page
  - SARS-CoV-2 Animal Case Dashboard

- **General Tools**
  - One Health Initiatives Inventory
  - CAHSS Resource Library
  - CAHSS Surveillance Initiatives Library
  - CEZD Reports Library

SARS-CoV-2 species susceptibility information page



https://cezd.ca/resources/covid-resources

SARS-CoV-2 species susceptibility information page

FARMED ANIMALS

Natural Infection

American mink (*Neovison vison*) are **susceptible to SARS-CoV-2 infection**. There have been a number of confirmed transmissions of SARS-CoV-2 from workers on mink farms to farmed mink, where the virus has then spread among the mink population. In addition, it has been demonstrated that the virus in mink can be passed back to humans.

Experimental Infection

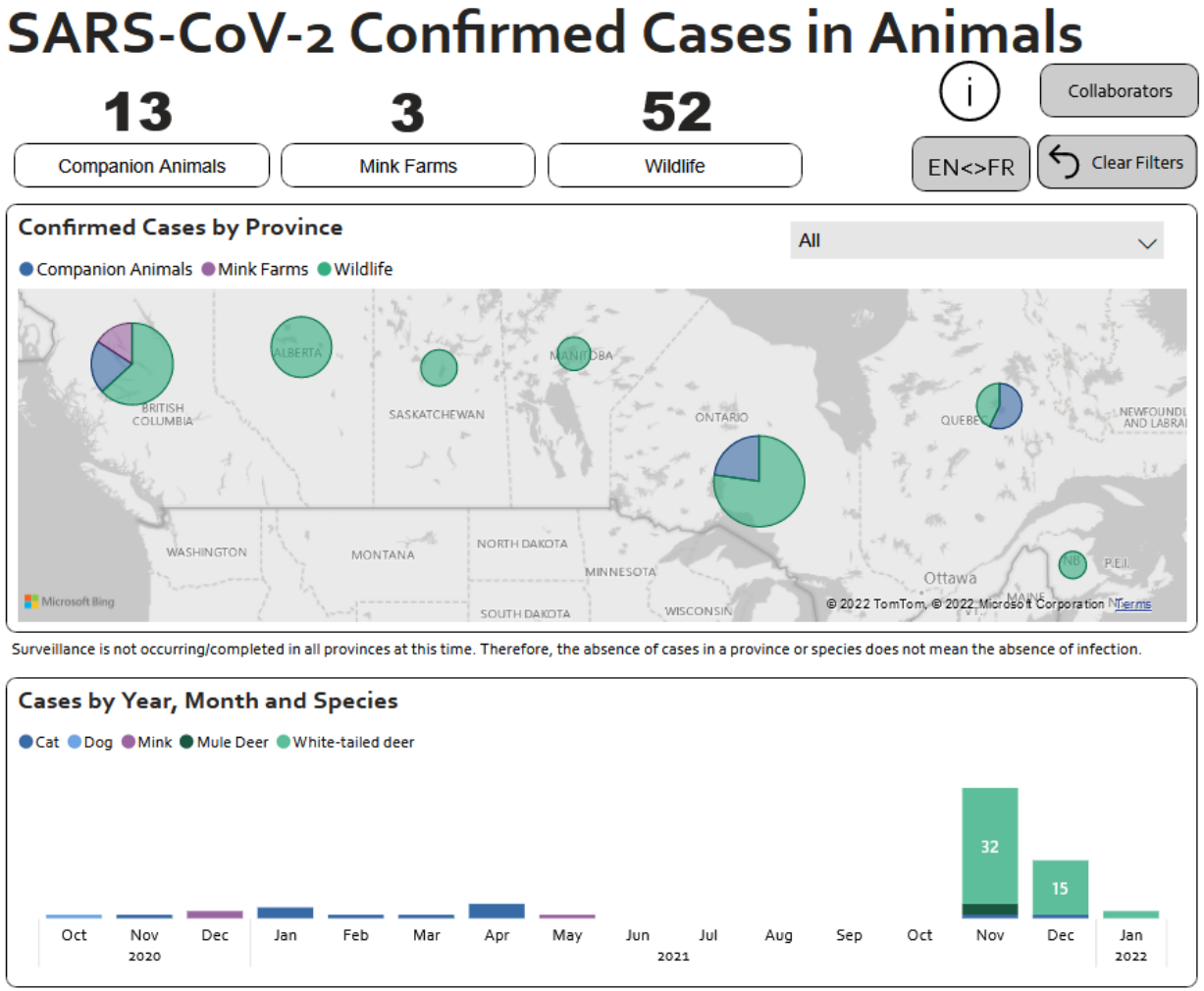
Several other **farmed animal** species have been found to be **susceptible to experimental infection with SARS-CoV-2**, including alpacas (*Lama pacos*), cattle (*Bos taurus*), goats (*Capra hircus*), New Zealand white rabbits (*Oryctolagus cuniculus*), sheep (*Ovis aries*), and swine (*Sus scrofa*).

Not Susceptible to Experimental Infection

A number of **farmed animal** species have been found to **not be susceptible to experimental infection with SARS-CoV-2**, including chickens (*Gallus gallus domesticus*), ducks (Pekin and Shaoxing) (*Anas platyrhinchos domesticus*), geese (Snow, White Chinese) (*Anser caerulescens caerulescens, Anser cygnoides*), Japanese quail (*Coturnix japonica*), and turkeys (*Meleagris gallopavo*).

https://cezd.ca/resources/covid-resources

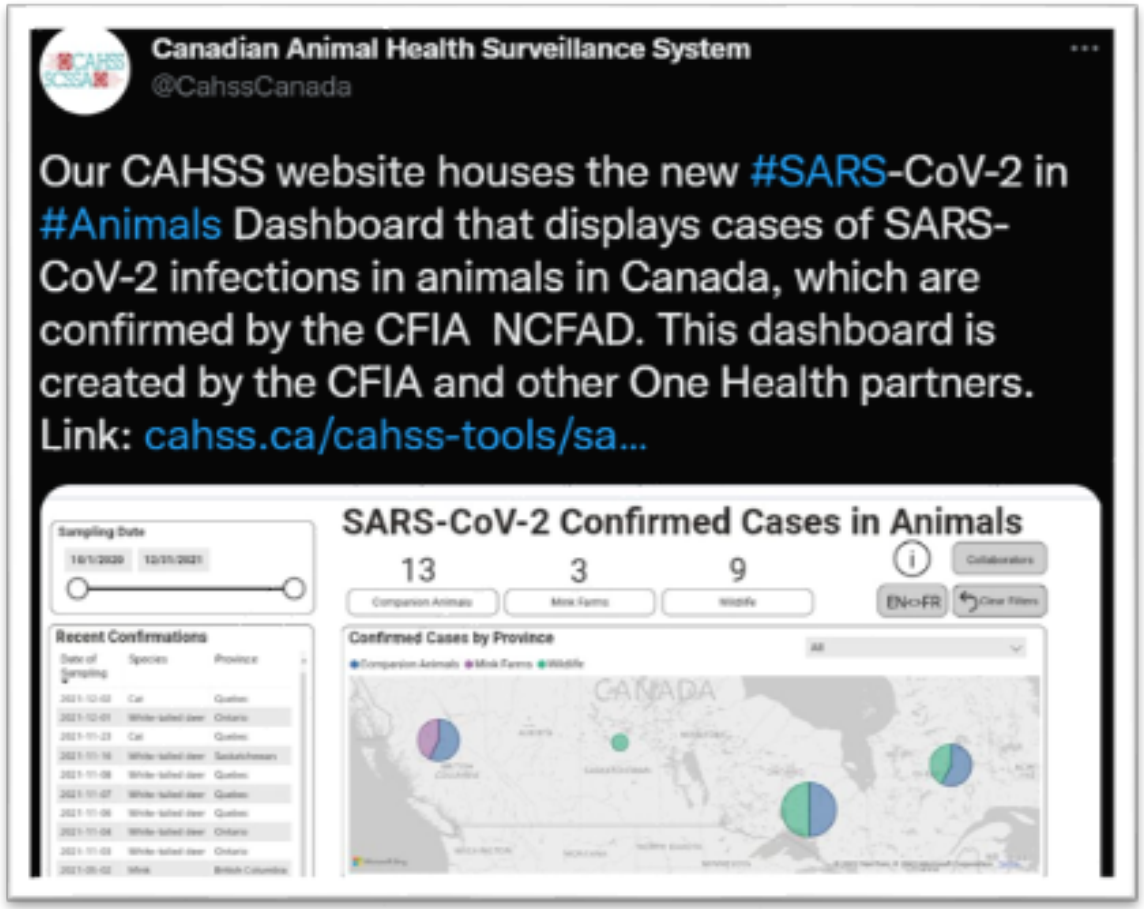
SARS-CoV-2 Dashboard

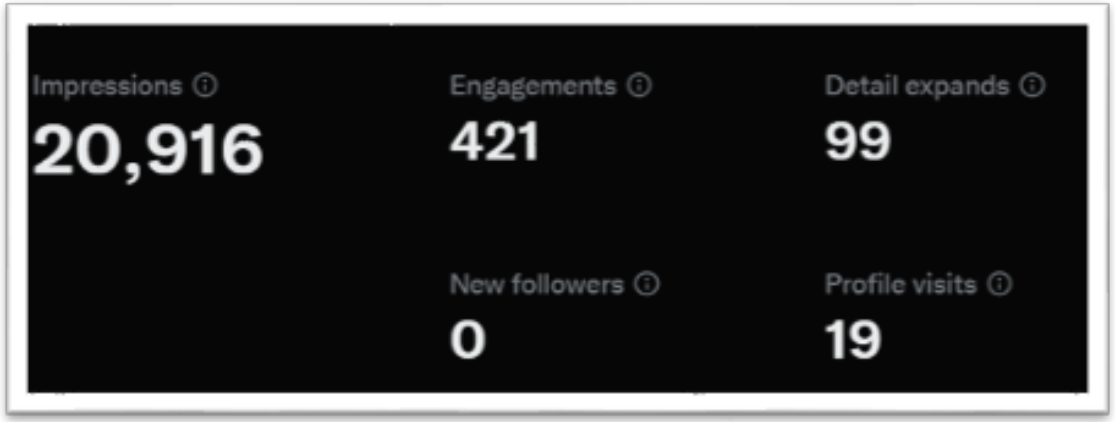


Environment and Climate Change Canada
Canadian Food Inspection Agency
Public Health Agency of Canada
Parks Canada
Defence Research and Development Canada
Canadian Wildlife Health Cooperative
University of Saskatchewan
University of Guelph
Université de Montréal
University of Calgary
Sunnybrook Research Institute
Government of British Columbia
Government of Alberta
Government of Saskatchewan
Government of Manitoba
Government of Ontario
Government of Quebec
Government of New Brunswick
Government of Nova Scotia
Government of Newfoundland and Labrador
Government of Yukon

https://cahss.ca/cahss-tools/sars-cov-2-dashboard

SARS-CoV-2 Dashboard

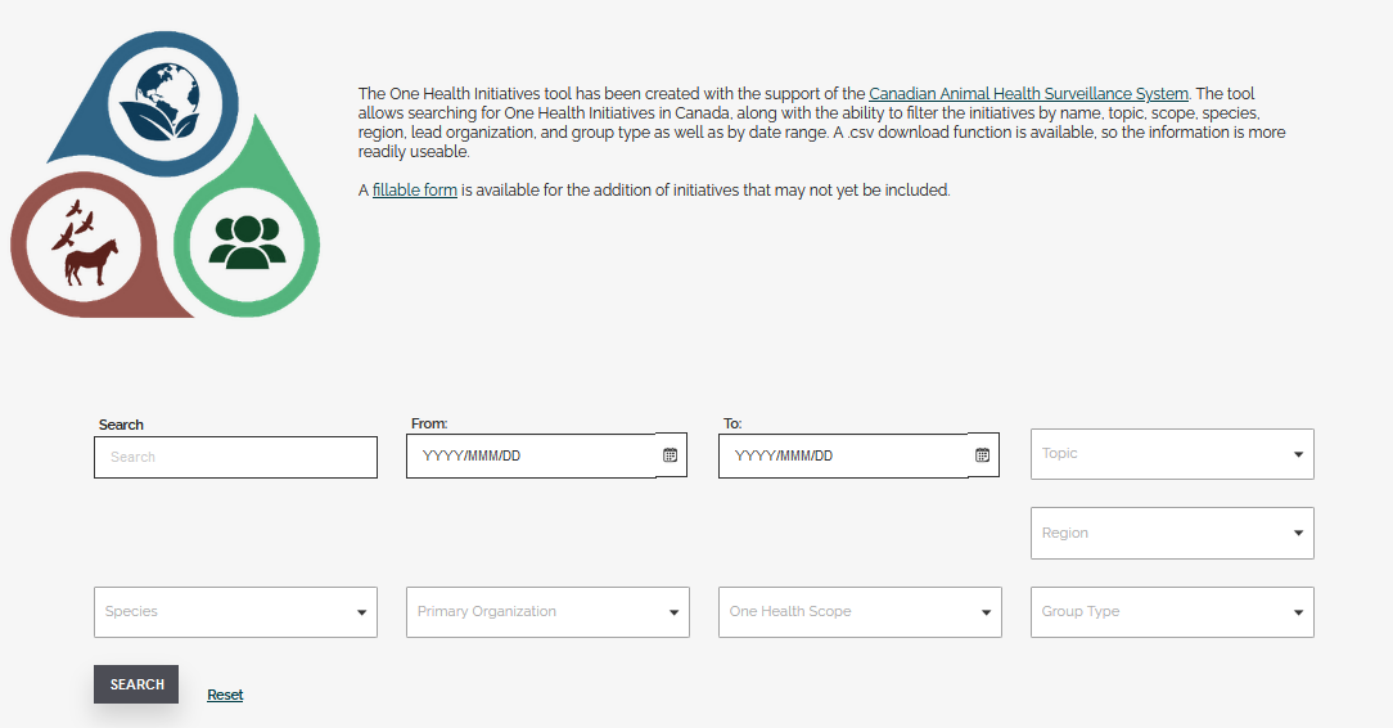


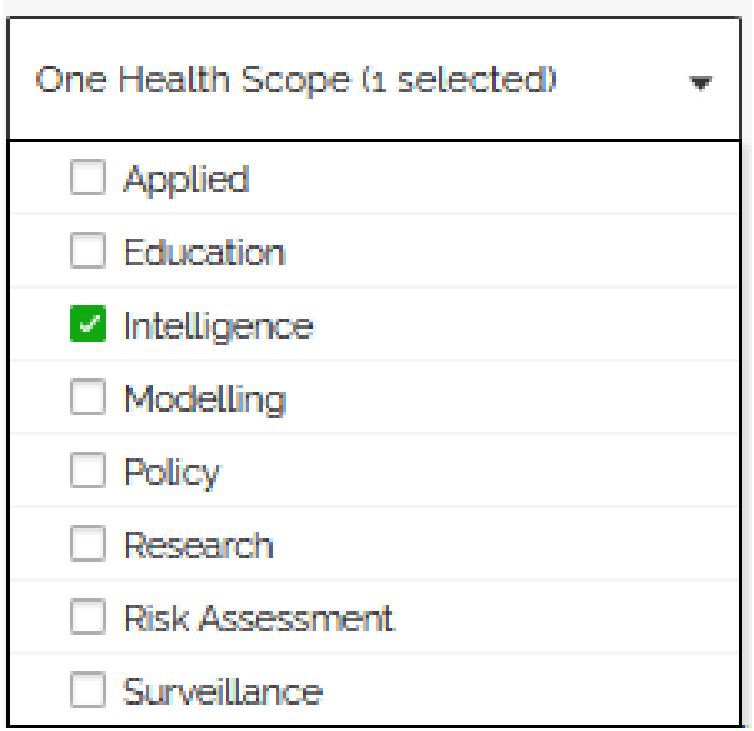


https://twitter.com/CahssCanada

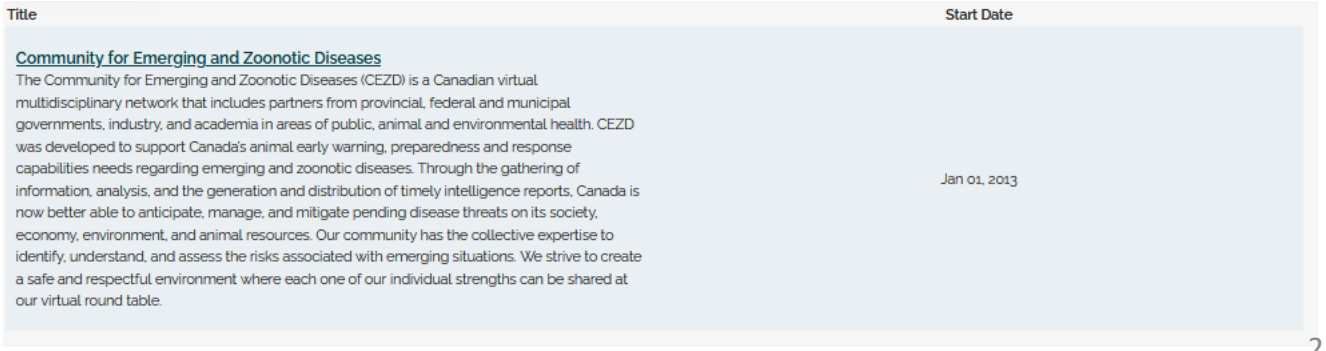
General Tools

One Health Initiatives Inventory

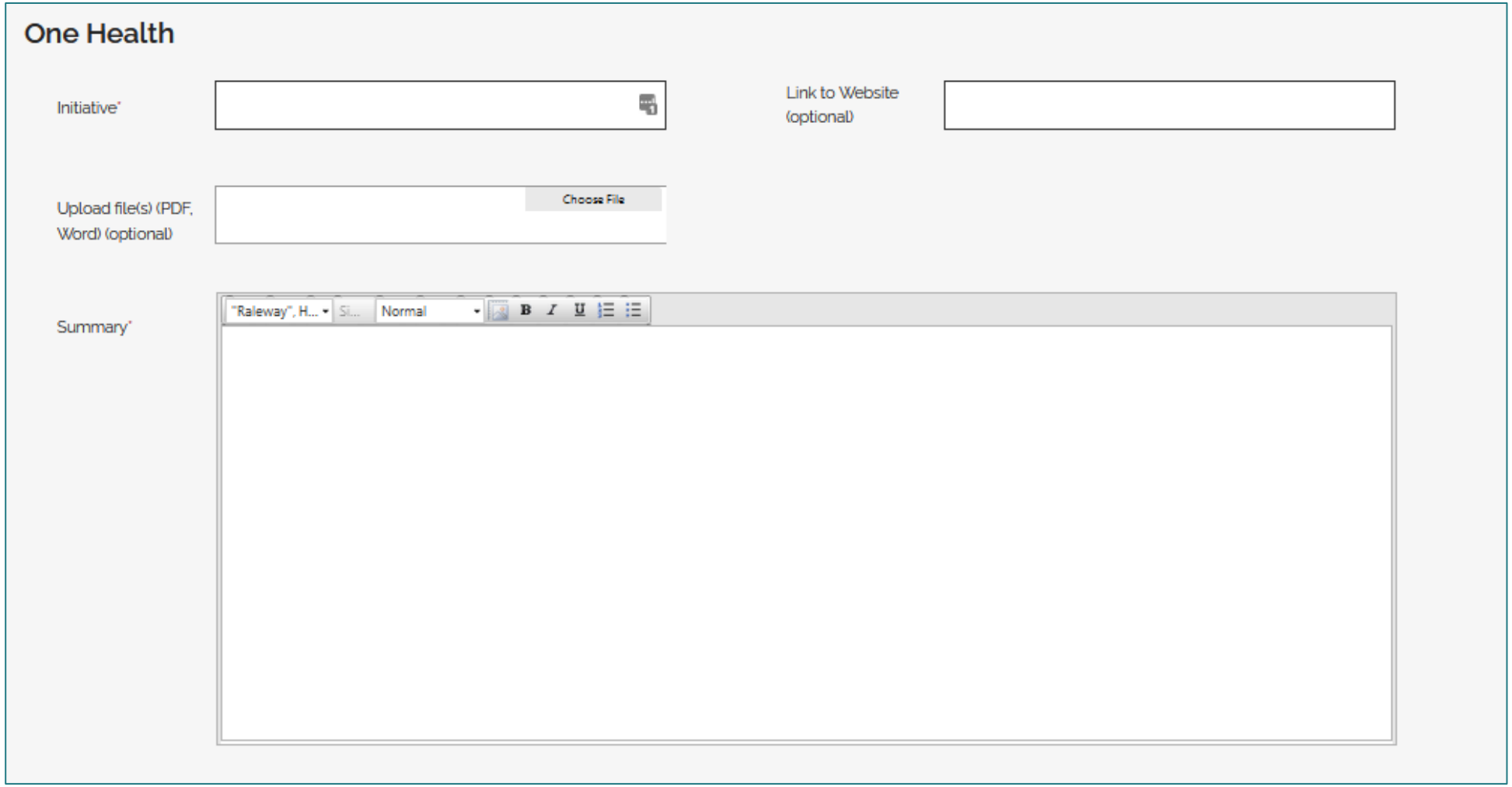




https://cezd.ca/resources/one-health

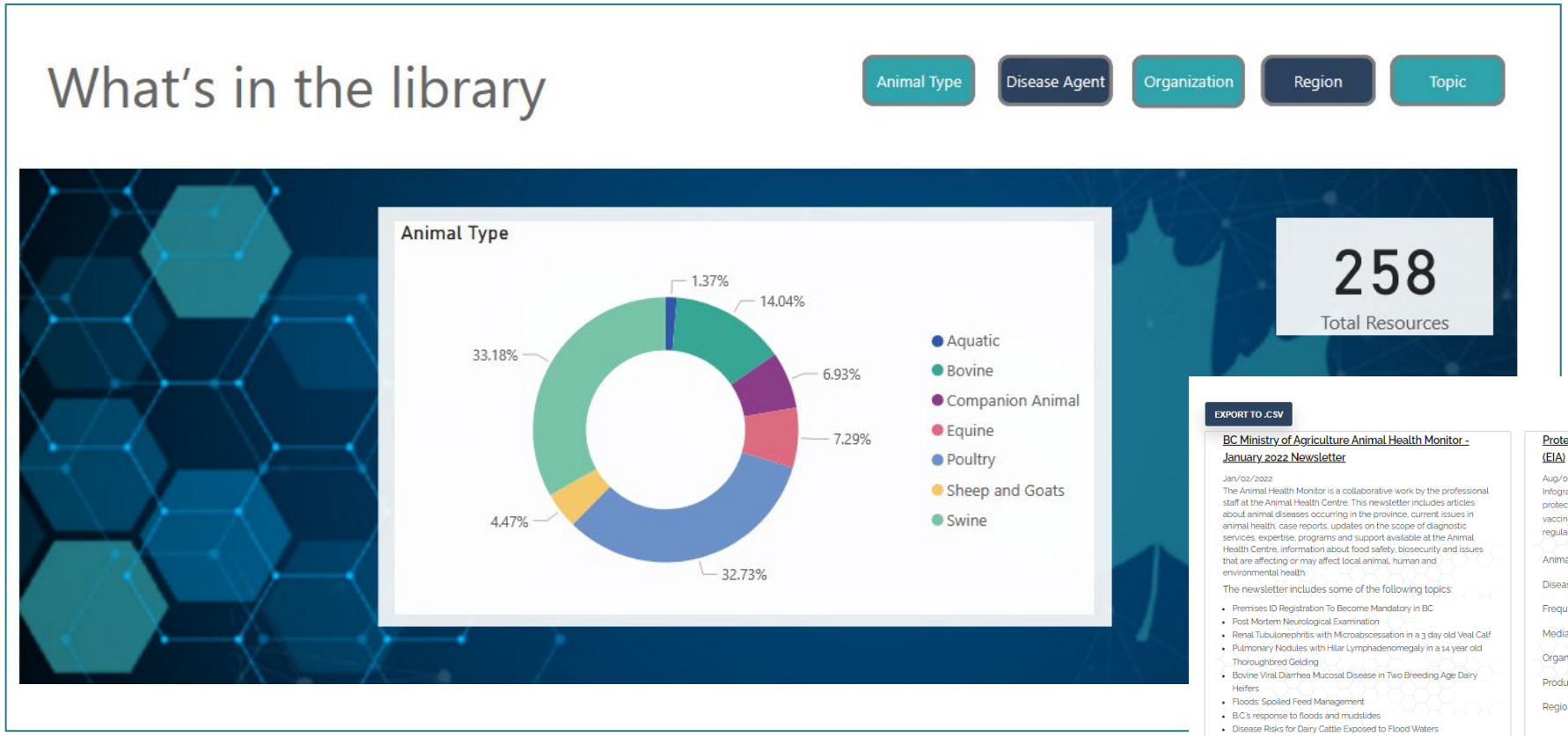


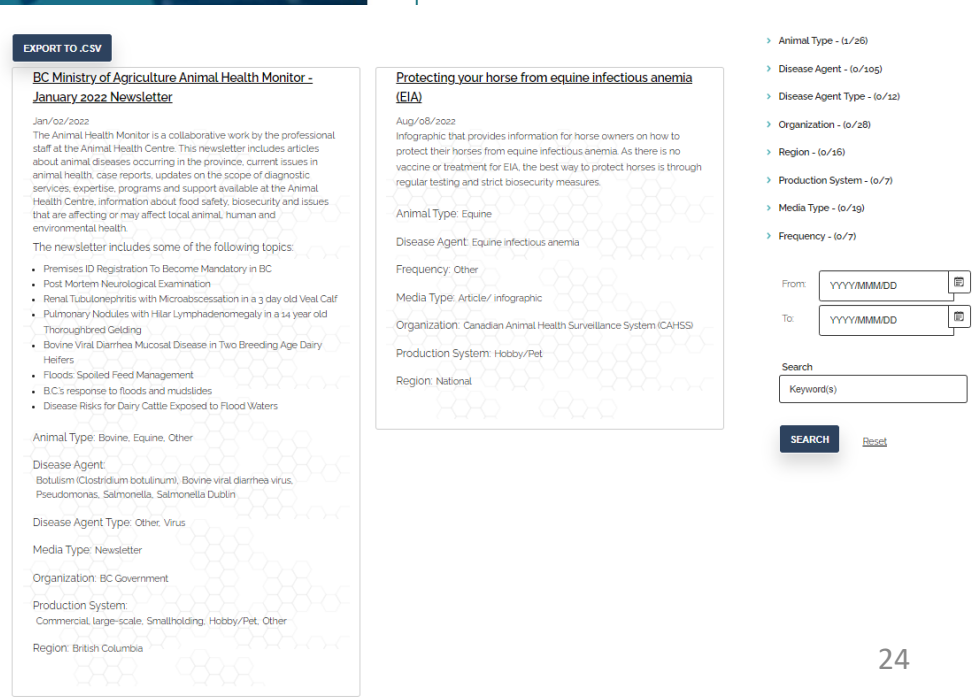
One Health Initiatives Fillable Form



https://cezd.ca/resources/one-health-submit?l=en-us

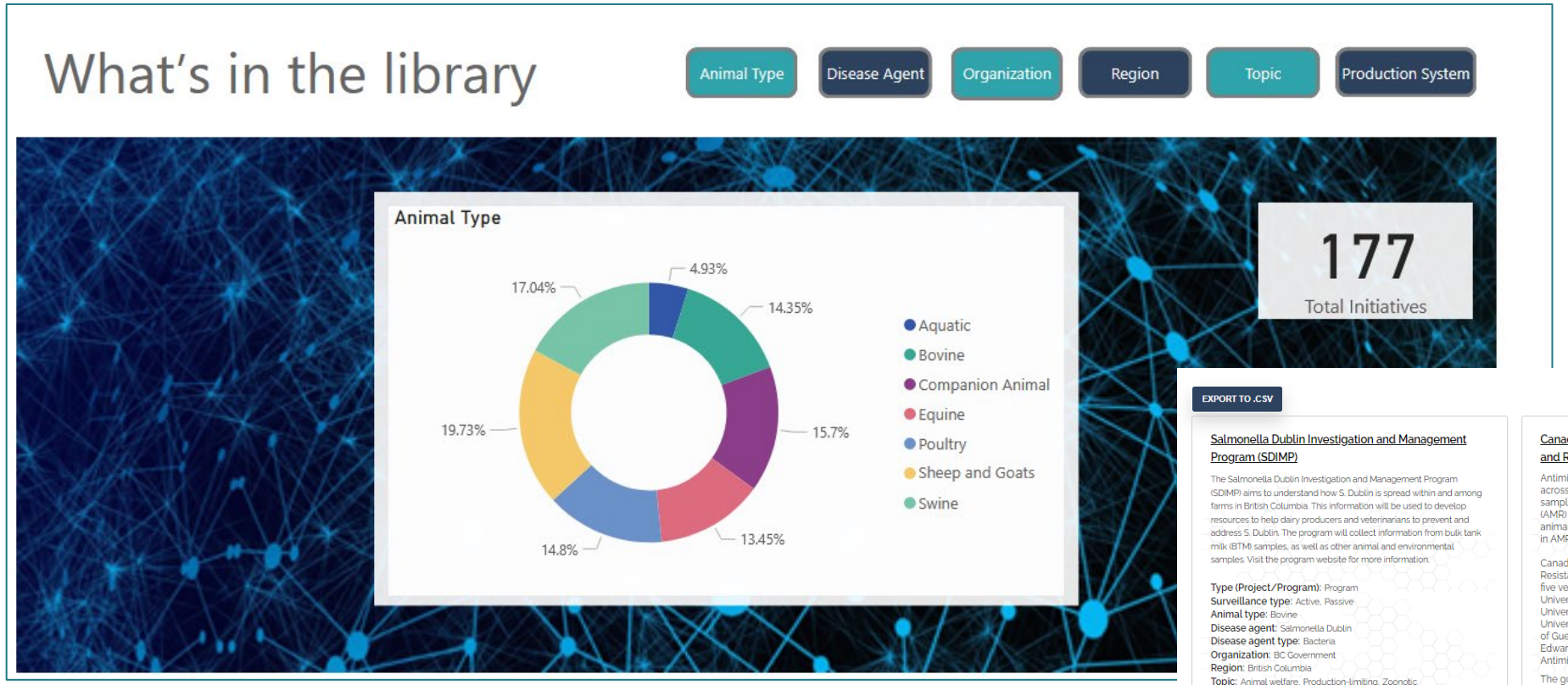
Resource Library

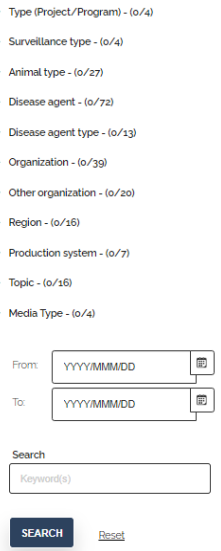




https://cahss.ca/cahss-tools/document-library

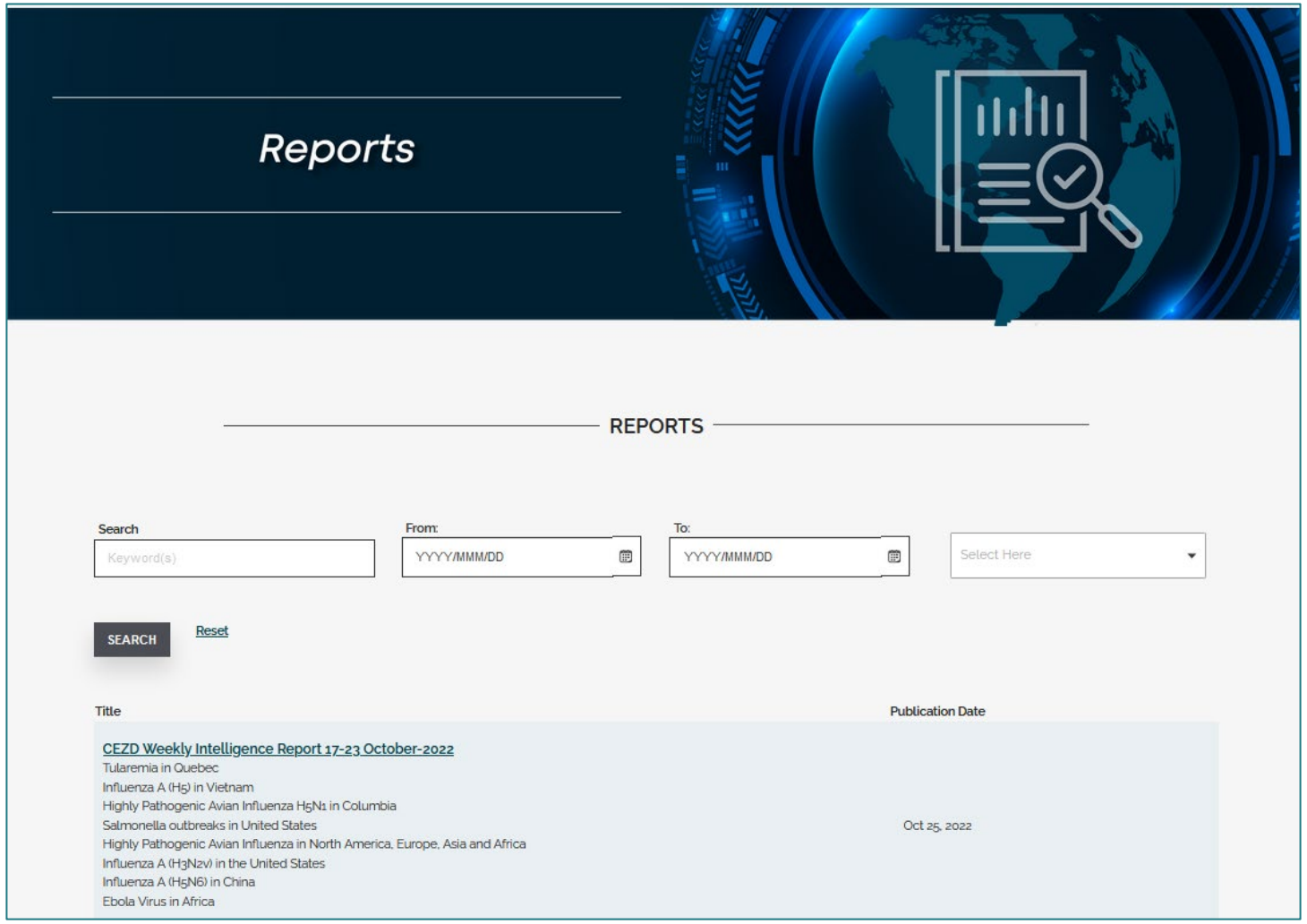
Surveillance Initiatives Library





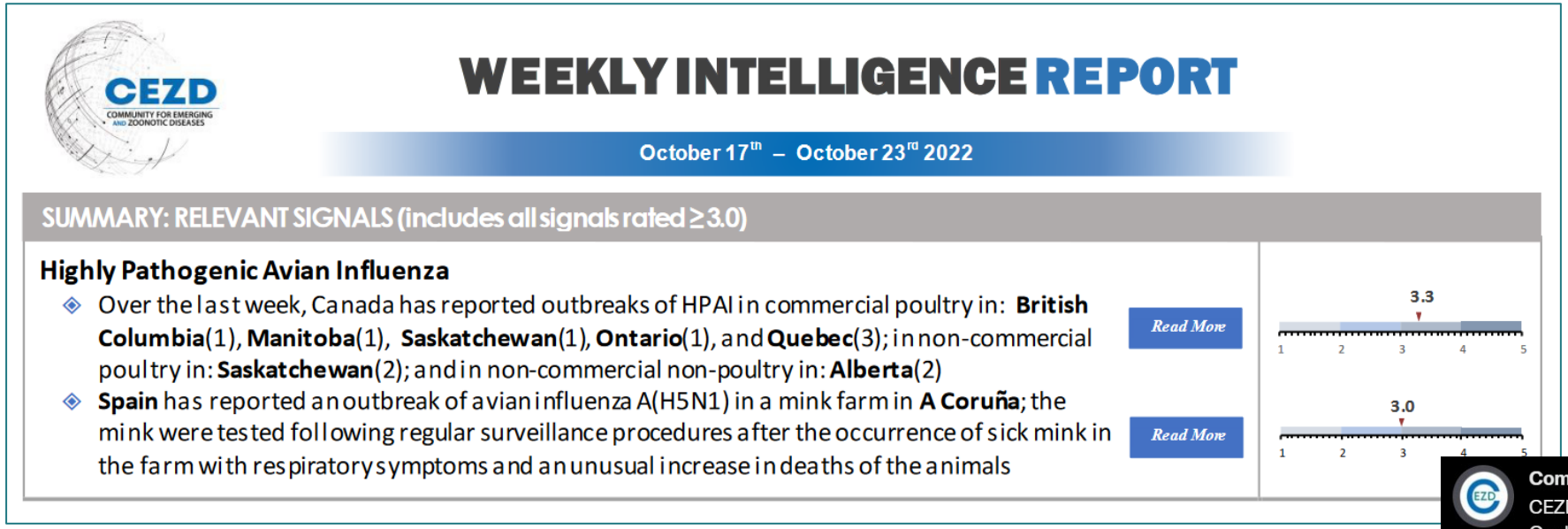
https://cahss.ca/cahss-tools/surveillance-initiative-library

CEZD Reports Library



https://cezd.ca/reports

CEZD Intelligence Reports



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WEEKLY INTELLIGENCE REPORT

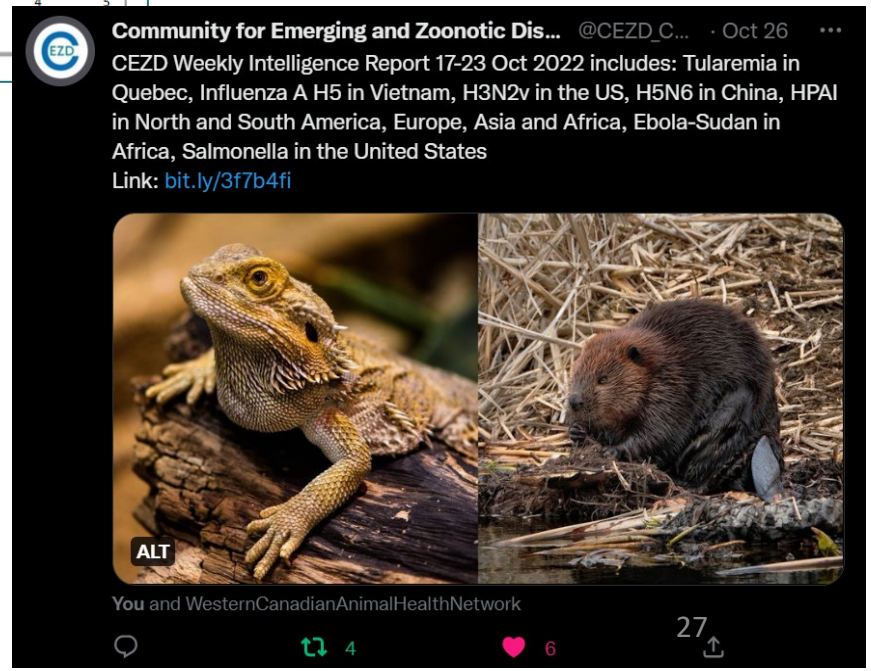
October 17th – October 23rd 2022

SUMMARY: RELEVANT SIGNALS (includes all signals rated ≥ 3.0)

Highly Pathogenic Avian Influenza

- Over the last week, Canada has reported outbreaks of HPAI in commercial poultry in: **British Columbia**(1), **Manitoba**(1), **Saskatchewan**(1), **Ontario**(1), and **Quebec**(3); in non-commercial poultry in: **Saskatchewan**(2); and in non-commercial non-poultry in: **Alberta**(2) — Read More
- **Spain** has reported an outbreak of avian influenza A(H5N1) in a mink farm in **A Coruña**; the mink were tested following regular surveillance procedures after the occurrence of sick mink in the farm with respiratory symptoms and an unusual increase in deaths of the animals — Read More

https://cezd.ca/reports/cezdweeklyintelligencereport1723october2022



Community for Emerging and Zoonotic Dis... @CEZD_C... · Oct 26

CEZD Weekly Intelligence Report 17-23 Oct 2022 includes: Tularemia in Quebec, Influenza A H5 in Vietnam, H3N2v in the US, H5N6 in China, HPAI in North and South America, Europe, Asia and Africa, Ebola-Sudan in Africa, Salmonella in the United States
Link: bit.ly/3f7b4fi

You and WesternCanadianAnimalHealthNetwork

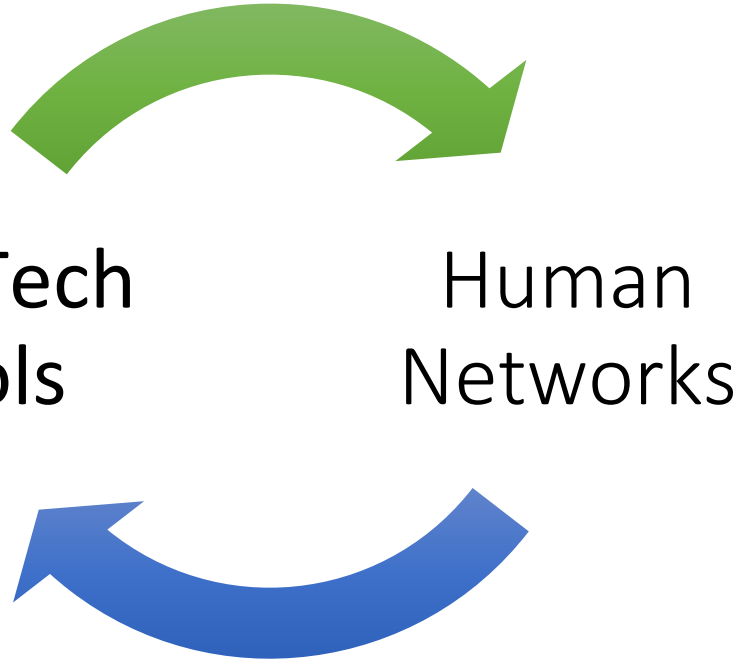
4 6 27

https://twitter.com/CEZD_CMEZ/status/1585409468787040258

The most important tool in the One Health Toolkit

Developed tools can only go so far...

The most important tool is still the **human network** that helps to assess, refine, and sustain our OH tools as we continue to advance animal and human health in Canada



Calls to Action

- Become a member of CAHSS and CEZD
- Follow us on social media
- Use our One Health tools

Funding Acknowledgement

Funding for CAHSS activities has been provided through the AgriAssurance Program under the Canadian Agricultural Partnership, a federal-provincial-territorial initiative.

Thank you for listening!

CAHSS:
cahssinfo@animalhealthcanada.ca

CEZD:

cezd@inspection.gc.ca