CAHSS
A Vision for the Future
Effective, Responsive, Integrated Animal Health Surveillance

ANNUAL REPORT 2016-2017

May 2017

Executive Summary

The Canadian Animal Health Surveillance System (CAHSS) is an initiative of the National Farmed Animal Health and Welfare Council (NFAHWC), with broad based collaborative support of industry and governments. CAHSS has been designed to address weaknesses in organization and decision making and in information and data-sharing, in animal health surveillance in Canada, as identified in the NFAHWC's report, "Surveillance in a Time of Transition in Farmed Animal Health".

CAHSS creates the space for individuals and groups to come together to collaborate, and seeks to link the diverse networks and individuals affected by animal health surveillance. Many successful networks precede CAHSS; the previous and ongoing work is credited to the individuals doing that work; the role of CAHSS is to link together the networks to encourage more effective, integrated and responsive animal health surveillance. CAHSS is inclusive of all those involved in or affected by surveillance decisions. Animal health, public health, and wildlife health are represented within the CAHSS networks and the members work on any diseases/issues of concern from reportable, zoonotic, and emerging to production limiting diseases and antimicrobial use surveillance.

In 2016-17 approximately 150 people representing 58 organizations collaborated on their surveillance priorities in CAHSS supported activities. To date the sectors involved include Swine, Poultry, Equine, Dairy Cattle and Aquatics; an ad hoc cross sectoral Antimicrobial Use surveillance collaboration, as well as the Directors and Champions. Initial discussions have been initiated with the wildlife and beef cattle sector networks to engage in CAHSS sponsored workshops in the coming year. The Community for Emerging and Zoonotic Disease has engaged with the CAHSS Directors and Champions for review of the CEZD annual and semi-annual reports, and provision of strategic advice.

The CAHSS business case and a review of data integration and interoperability were completed by members of the Director's group. An evaluation of the effectiveness of three surveillance components (Canada West – Swine Health Intelligence data network, Poultry industry flock sheets and the Ontario Animal Health Network) was carried out using the SERVAL tool, and feedback on successes and areas for improvement was provided.

At the request of members, a website was launched for CAHSS in 2016 to provide a place for communication with the general public, and provide an area for collaboration within the network of networks. The website underwent significant development at the end of the fiscal year to improve its' appearance and function. The updated site will be launched in the summer of 2017.

As this report will demonstrate, a vast amount of effort has been undertaken within the sector networks; the efforts of individuals and organizations require a great deal of time, energy and expertise, to create collaborative solutions to complex national challenges. Highlights in the networks achievements include the creation of collaborative proposals for surveillance priorities in swine and dairy cattle; the initiation of sharing of information on poultry diseases with a focus on avian influenza; the sharing of information among the network members on the notifiable diseases of horses; the initiation of a trial participatory surveillance system in aquatics; and the movement towards identification of the minimum data set required for successful antimicrobial use surveillance.

During the coming fiscal year, network connections are expected to be made with all major species groups. At that point, CAHSS energies will shift from rapid growth of the network of networks, to stabilization, sustainability, increased linkages among groups, and project work.

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Purpose of the Annual Report

The annual report for the Canadian Animal Health Surveillance System has been created to communicate the achievements of the network of networks in its second full fiscal year of implementation.

The audience for this report is the National Farmed Animal Health and Welfare Council and all current and future members of the Canadian Animal Health Surveillance System. The report serves to inform the founders and supporters of the network, of the successes that have been achieved in 2016-17, as well as the opportunities for growth and improvement going forward.

Background 2015 - 2016

The Canadian Animal Health Surveillance System (CAHSS) is an initiative of the National Farmed Animal Health and Welfare Council (NFAHWC), with broad based collaborative support of industry and governments. It has been designed to address weaknesses in organization and decision making and in information and data-sharing, in animal health surveillance in Canada, as identified in the NFAHWC's report, "Surveillance in a Time of Transition in Farmed Animal Health".

CAHSS creates the space for individuals and groups to come together to collaborate, and seeks to link the diverse networks and individuals affected by animal health surveillance. Many successful networks precede CAHSS; the previous and ongoing work is credited to the individuals doing that work; the role of CAHSS is to link together the networks to encourage more effective, integrated and responsive animal health surveillance. See Annex A for the list of organizations that have linked to CAHSS either formally, or by participation of one or more of their staff.

CAHSS is inclusive of all those involved in or affected by surveillance decisions. Animal health, public health, and wildlife health are represented within the CAHSS networks and the members work on any diseases/issues of concern from reportable, zoonotic, and emerging to production limiting diseases and antimicrobial use surveillance.

The foundational structures of CAHSS were created in 2015-16. The organizational concept network-of-networks model was defined, and its functioning as a self-organizing and self-governing model was accepted. The common principles of practice and organization were created, to guide the way that the network of networks functions together to achieve the common purpose.

The Director's and Champion's groups were established and they met face to face for the first time. Swine and Poultry workshops were held in the winter of 2016 and were the first sector networks to come together in CAHSS sponsored workshops.

At the request of members, a website was launched for CAHSS in 2016 to provide a place for communication with the general public, and provide an area for collaboration within the network of networks. The website underwent significant development at the end of the fiscal year to improve its' appearance and function. The updated site will be launched in the summer of 2017.

CAHSS Purpose Statement

"Shared" implies collaboration and partnership •

"Vision" means that which is conceived looking towards the future •

"Responsive" means responds readily and sympathetically to needs, appeals, efforts, influences, etc., whether it is a need of livestock producers or Canadian agriculture, public health, wildlife and ecosystem health or Canadian society in general •

"Effective" • means the surveillance achieves what we set out to do (e.g. meets the objectives)

A **shared** national • **vision** leading to • **effective, responsive,** • **integrated animal** • health surveillance in Canada.

"Integrated" means collective wisdom, and where it makes sense, we pull together people, activities, information, data, etc. to fill gaps, to create efficiencies and to build on each other's work

"Animal" includes domestic livestock, companion animals, wildlife, fish and bees, among others

CAHSS Principles of Practice

- Work to ensure the quality of life for Canadians by protecting animal health and public health, and supporting economic prosperity.
- Work to ensure scientific rigour and professional and technical competence, acknowledging that other factors must be taken into account in decision making.
- Encourage practices, behaviours and uses of technology that are consistent with the Purpose and Principles. In particular, encourage openness, collaboration and innovation.
- Resolve conflict compassionately, productively, cooperatively and respectfully.
- Freely and fully exchange information relevant to the Purpose while respecting confidentiality.
- Work to ensure clarity in animal health surveillance communications by providing relevant background and contextual information.

CAHSS Principles of Organization

- An Individual or Institution subscribing to the Purpose and Principles of the organization is deemed eligible for Owning Membership and participation.
- Have the right to self-organize around any event or activity consistent with the Purpose and Principles, encouraging innovation and flexibility.
- Conduct deliberations and make decisions by methods that reasonably represent all relevant and affected parties.
- Participating network members retain full authority to independently manage and implement their own roles, resources and priorities but agree to consult with other network members to find efficiencies and avoid unintended impacts that might affect the operations of other members or the network as a whole.

Membership in 2016/17

All those seeking membership in CAHSS are asked to sign a member's declaration when joining the network of networks (See Annex B). The declaration is an acknowledgement of the individual's agreement to follow the CAHSS principles of practice and organization when working towards the

shared purpose. The signed declaration provides both membership in CAHSS and to access the private side of the CAHSS website. All interested stakeholders are welcome to join the network of networks, by submitting a signed declaration.

Membership in CAHSS has grown steadily in 2016/17; there were approximately 150 owning members that have been involved in the various CAHSS activities, with 94 membership declarations signed (some members belong to more than one network group). Declarations have either been for full owning individual membership, or for organizational memberships that cover multiple individuals.

Networks interactions in CAHSS supported workshops and meetings occurred in the swine, poultry, aquatic, equine and dairy cattle sectors, in addition, a cross sectoral group came together to collaborate on antimicrobial use surveillance. The Champions and Directors groups continue to engage to build and support the network of networks.

Going forward into 2017/18 different types of memberships will be further clarified, from full owning members, to full owning organizations and associate members.

Network of Networks Activities 2016/17

Director's and Champion's Groups

Champion's Group
The CAHSS champions provide strategic support, enable and facilitate establishment of the network. In 2016/17 the Champions requested network groups identify priorities that the Champions could support, to continue the forward movement of the network of networks development. They recommended a greater focus be placed on activities and projects that provide tangible results. A Champion's Group priority was to support further development of the networks, and facilitate establishment of new network groups.

Director's Group
Throughout 2016/17, the Directors Group have been responsible for creating the infrastructure of the CAHSS. Subgroups were implemented to create key components of CAHSS and to undertake communications for the network.

Summary Activities and Accomplishments 2016/17 – Cross Sector Foundational Components

CAHSS Business Case

The business case for CAHSS was created in 2016/17, led by Dr Tim Pasma (a Director from the Ontario Ministry of Agriculture, Food and Rural Affairs) with input from the Director's group. Several models for the governance of a national animal health surveillance system were analysed, in order to identify the best way to move forward with animal health surveillance in Canada.

The business case reveals that:
- a status quo approach will accrue no operational costs but will result in ongoing risks to animal health, public health, environmental health as well as trade;

- a government-led model may have political and economic factors that can result in dismantling of well-established surveillance systems, resulting in economic and social costs; and,
- an industry-led surveillance network can achieve cost effective and efficient program delivery with leveraged funding and engaged stakeholders, but financial sustainability may be a challenge.

Through extensive discussion and consultation and review of these options, the directors of CAHSS have determined that a Network of Networks model will best achieve a solution to the opportunity presented in the business case. A Network of Networks model will build on current government and industry initiatives as well as on existing and future animal health surveillance networks, will develop collaborative partnerships to help reduce the overall costs of an animal health surveillance system, and will facilitate access to multiple streams of information and intelligence.

Data Interoperability and Integration

Data interoperability and integration was addressed by a sub-group led by Dr. Glen Duizer (a Director from Manitoba Agriculture, Food and Rural Initiatives); a foundational document entitled: "The interoperability and integration of animal surveillance information in Canada: Proposed attributes and evaluation framework for new and existing network components to link effectively within the Canadian Animal Health Surveillance System" was produced.

The important operational characteristics identified were:
- collaboration across sectors and/or regions;
- flexibility and efficiency;
- sustainability and cost effectiveness;
- confidentiality and trust;
- effective education and training;
- timely reporting; and,
- use of standardized approaches.

To meet the operational characteristics, the Directors of CAHSS are sanctioning the application of key surveillance attributes for the interoperability and integration of component systems into an overall synergistic surveillance network. The Directors of CAHSS are recommending that existing and developing surveillance components that want to collaborate within the network framework are assessed and integrated based on the attributes.

Evaluation of existing surveillance networks using SERVAL

A contract was implemented by the Ontario Animal Health Network with Dr. Bruce McNab to conduct an evaluation of current and potential components of the CAHSS using the SERVAL system. SERVAL, a SuRveillance EVALuation framework, is a novel generic evaluation tool for the evaluation of any animal health surveillance system. 22 surveillance system attributes are defined in the framework, and guidelines to their assessment are provided.
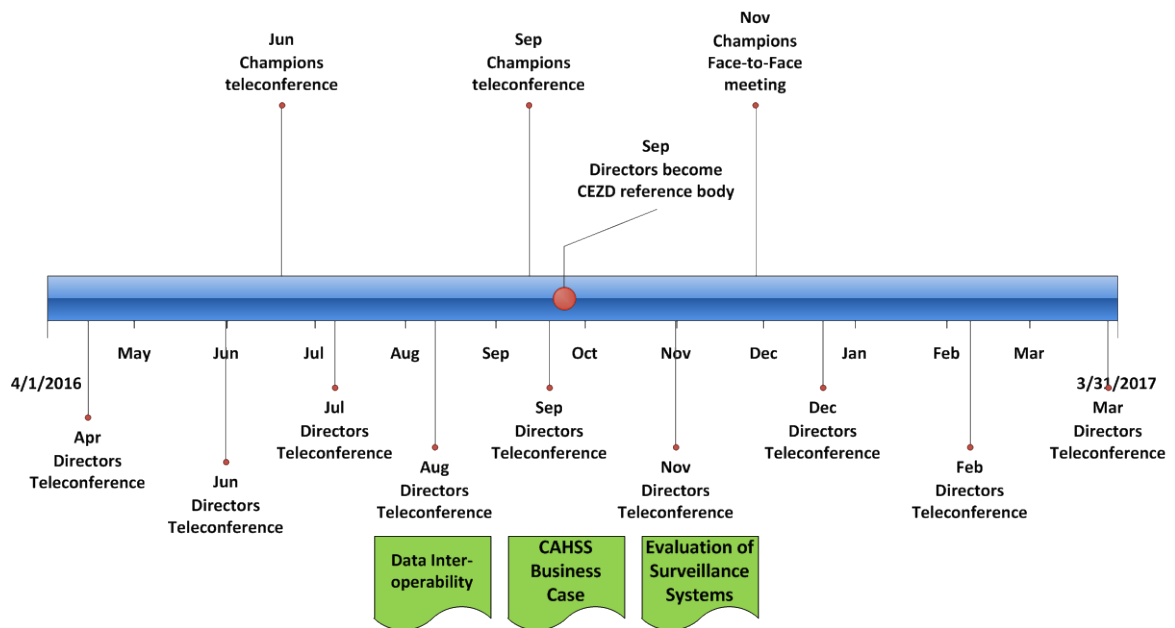
Surveillance components evaluated included:
- Canada West – Swine Health Intelligence Network;
- Poultry flock sheets; and,
- Ontario Animal Health Network.

Strengths of each component, and the areas for improvement of each were provided. The other surveillance components that could be evaluated for further sources of information within the Canadian context were also identified. These included:

- Lab data
- Official inspections
- Vet and technician observations

- Owner observations
- Owner actions
- Open source data

Recommendations include the prioritization and evaluation of the other surveillance components to assess their strengths and weaknesses and what they can contribute to the entire system.

Figure 1: Summary of Directors and Champions meetings and foundational documents produced in 2016/17

Summary of Activities and Accomplishments 2016/17 - Communications

CAHSS Website

The CAHSS website was created and launched in 2016 as a result of the need to collectively share information. The website includes a public side, where general information on the network of networks and surveillance in Canada is available; the private side of the website provides network groups with a place to share reports and information.

The site launch was accompanied by a document outlining the guidelines for posting information on the public side of the CAHSS website, to guide site administrators on which items could be shared with the general public. In addition, the site launch resulted in some media interest and media lines were created for the CAHSS directors to use for such inquiries.

A simple format was used for the first edition of the site, and consultations with the networks were conducted in order to develop the site in a manner that suits the members. The site has undergone significant development thanks to the work of the communications working group, many network members, the National Farmed Animal Health and Welfare Council and the site developers. Financial support from the CFIA has enabled both the implementation and upgrading of the site.

Publications and Presentations

An article was published in the Canadian Veterinary Journal in December of 2016 to increase awareness of CAHSS in the veterinary community.

Presentations about or including information on CAHSS were conducted by the CAHSS directors and secretariat at multiple forums:
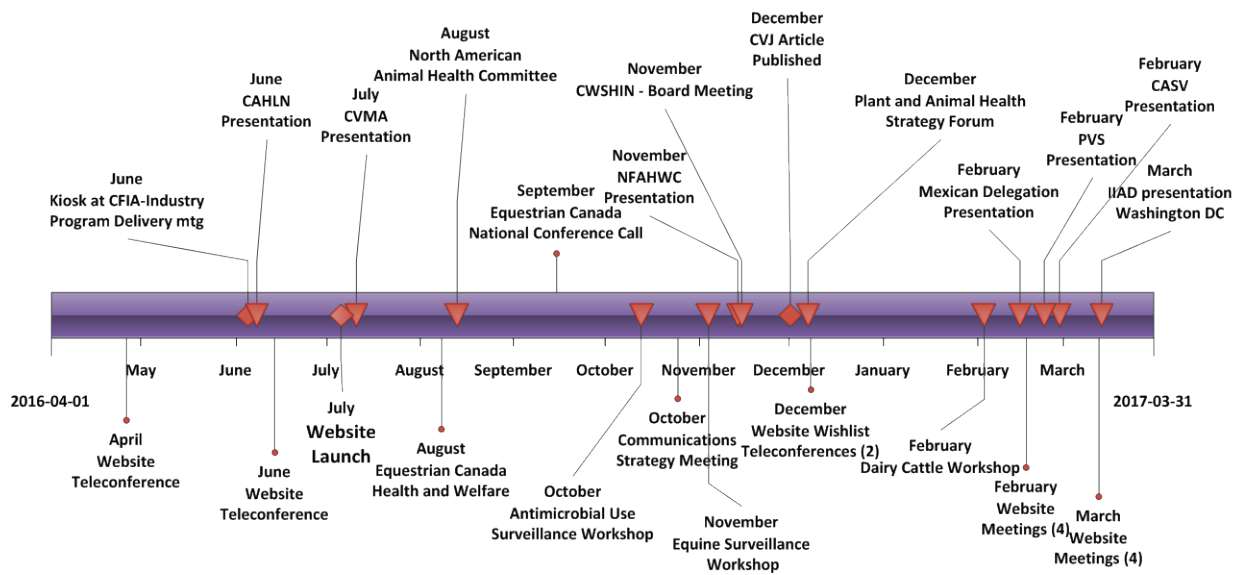
Domestic:
- National Farmed Animal Health and Welfare Council, Stewart Cressman and John Campbell (April 2016)
- CFIA Animal Health Directorate – Cheryl James (May 2016)
- Poster presentation at the CFIA Industry Program Delivery Meeting (June 2016)
- Canadian Animal Health Laboratorians Network Conference – Cheryl James (June 2016)
- Canadian Animal Health Surveillance Network Annual Meeting – Cheryl James (June 2016)
- Canadian Veterinary Medical Association Summit – Germaine Nappert (July 2016)
- Equestrian Canada Health and Welfare Committee – Cheryl James (August 2016)
- Equestrian Canada National Conference Call – Cheryl James (September 2016)
- Antimicrobial Usage Surveillance Workshop – Cheryl James (October 2016)
- Western Canadian Association of Swine Veterinarians – Chris Byra (October 2016)
- Equine Surveillance Workshop – Cheryl James (November 2016)
- National Farmed Animal Health and Welfare Council Forum, Germaine Nappert (November 2016)
- Canada West – Swine Health Intelligence Network Board Meeting Chris Byra (November 2016)
- Poster Presentation at the Plant and Animal Health Strategy Forum (December 2016)
- Dairy Cattle Surveillance Workshop – Cheryl James (February 2017)
- Canadian Association of Swine Veterinarians –Chris Byra (February 2017)

International:
- North American Animal Health Committee (August 2016)
- Mexican delegation to Canada – Cheryl James (February 2017)
- OIE Performance of Veterinary Services Evaluation Visit – Cheryl James (March 2017)
- Protecting the US Cattle Herd: A workshop towards improving knowledge of transboundary and emerging priority cattle diseases. Institute for Infectious Animal Diseases, Washington DC (March 2017)

Figure 2: Summary of Directors Communications Related Activities in 2016/17

CAHLN – Canadian Association of Laboratorians Network
CASV – Canadian Association of Swine Veterinarians
CVJ – Canadian Veterinary Journal
CVMA – Canadian Veterinary Medical Association
CWSHIN – Canada West Swine Health Intelligence Network
IIAD – Institute for Infectious Animal Diseases
NFAHWC – National Farmed Animal Health and Welfare Council
PVS – Performance of Veterinary Services

Preliminary Objectives for 2017/18

Much of the foundational work for the Directors has been accomplished since the creation of CAHSS in 2015-16; the Directors will create a core team in 2017-18 to guide the forward efforts in the network of networks.

The preliminary communications objectives for the next fiscal year are to continue to enhance the website usefulness and to communicate the need for CAHSS to a broader audience. The communications strategy needs to be updated for the current situation. The CAHSS co-ordinator is planning communications with government organizations and possible funding groups.

A major objective for the Directors for the coming fiscal year is to continue to grow the network to include all major species groups and enhance connectivity between networks where possible. The Director's focus also needs to address to the need for a long term strategic plan for CAHSS growth and maintenance.

Poultry Sector Networks

Summary of Activities and Accomplishments 2016/17

The poultry networks came together in early 2016 for a CAHSS sponsored workshop. The networks' primary goal was to expand existing connections and establish additional communications channels on poultry surveillance.
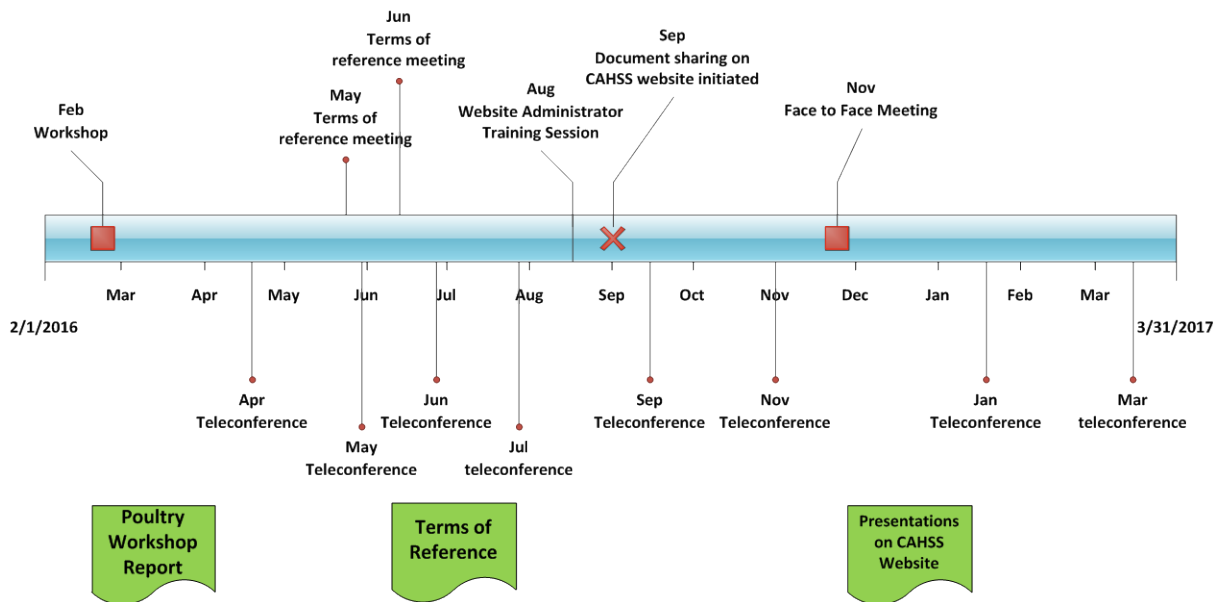
Three priorities were identified in the meeting report including: **1.** Develop a platform to share information **2.** Develop a social information sharing network **3.** Focus on trade limiting diseases.

Subsequent to the initial meeting, a sub-group of the participants, with CAHSS support, drafted a terms of reference. A training session was conducted for the group's website administrator, and document sharing was initiated subsequently. A second sub-group organized a face-to-face meeting in association with the National Farmed Animal Health and Welfare Council's Forum in November of 2016.

The November face to face meeting focused on existing surveillance activities in Canada and presentations were provided and discussion held on the following topics:

- Evaluation of current and potential components of the Canadian Animal Health Surveillance System (Dr Bruce McNab)
- Updates on CanNAISS (Drs Farouk El Allaki, Jette Christiansen, Surinder Saini)
- Canadian Animal Health Surveillance Network (Dr Harold Kloeze)
- Surveillance activities at Canadian Poultry Health Services (Dr Michele Anholt)
- The wildlife health intelligence platform (Drs Michele Anholt and Craig Stephen)
- Ontario Animal Health Network – Making use of multiple data sources and communications platforms (Dr Melanie Barham)
- Réseau d'alert et d'information zoosanitaire – Quebec Animal Health Surveillance Network (Dr Marie-Eve Brochu Morin)
- Canadian Integrated Program for Antimicrobial Resistance – Broiler farm surveillance on AMU and AMR (Dr Agnes Agunos)

Figure 3: Summary of Poultry Sector Networks Activities in 2016/17

Preliminary Objectives for 2017/18

For the coming year the developed social network will hold quarterly teleconferences to share information on poultry surveillance issues; the group has also agreed to hold ad hoc teleconferences as needed to address any issues that arise. The goal of information sharing on Avian Influenza and *Salmonella* Enteritidis are still very relevant to the group.

Another face to face meeting at the National Farmed Animal Health and Welfare Council Forum is being considered.

The networks have been surveyed for their needs and interests in poultry surveillance going forward. The survey report will be presented to the group in June 2017. This will lead to the prioritization and action items that the networks will focus on going forward.

Swine Sector Networks

Summary of Activities and Accomplishments 2016/17

Existing networks within the swine sector have been in place, and collaborating for many years. The networks came together in a CAHSS sponsored workshop in February of 2016 in order to strengthen and expand national connectivity and awareness of ongoing activities.

The workshop focussed on the development and implementation of bilateral agreements between the various stakeholders and networks. The bilateral agreements were implemented where possible, and they have resulted in improved communications nationally.
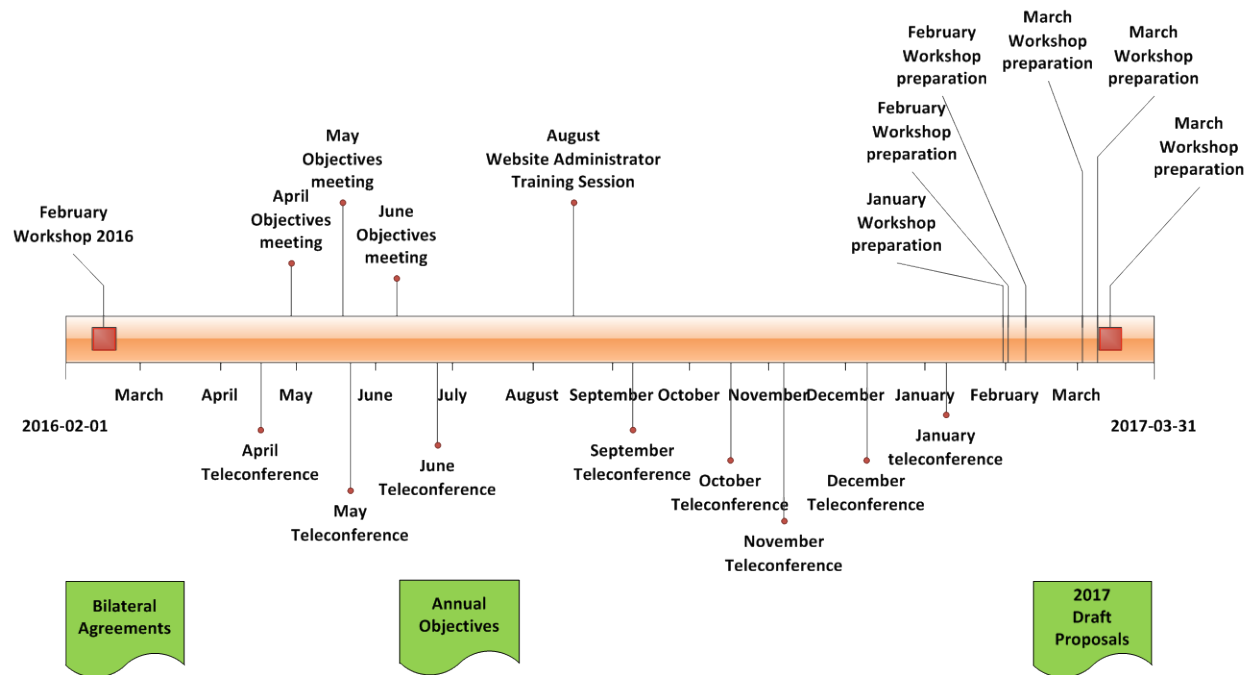
A few examples of the agreements put in place include:

- CIPARS and OAHN worked together to create media materials for OAHN use
- Quebec and Western Canada agreed to share information on disease and response in a more timely manner
- Exchange of reports between OAHN and EQSP

- CPC to receive veterinarian and producer reports from OAHN
- CPC invited to join certain swine health meetings in Quebec (EQSP, CDPQ, Eleveurs de porcs, MAPAQ)
- More OAHN related practitioners have been attending CSHIN calls

CSHIN provided summary information on their network on the CAHSS website, and CWSHIN initiated using the CAHSS website to create a library of reports and resources that its members could access.

The sub-group of the networks established shared objectives in the summer of 2016, a second sub-group organized a face-to-face meeting in March of 2017, to identify the prioritized needs for surveillance in the Swine sector in Canada. A workshop report was created and the three proposals were initiated during the March workshop and they will be further developed in the coming year.

Figure 4: Summary of Swine Sector Networks Activities in 2016/17

Preliminary Objectives for 2017/18

National surveillance priorities for the sector, identified in March of 2017 will be further developed to seek funding opportunities in the coming year; these priorities include:

- Supporting trade via implementation of a CAHSN proposal to create a Bayesian disease freedom model using existing data within CAHSN, and syndromic surveillance data from CSHIN as two of the many surveillance system components;
- The next steps for the Canadian Swine Health Intelligence Network; working towards a national data network through evaluation of the current syndromic surveillance system, and those of other sectors, to enhance and potentially expand the current data network;
- Development of a national initiative to share swine virus sequences, to understand incidence, prevalence, strain emergence and movement of economically important endemic diseases of swine in Canada.

Antimicrobial Use Surveillance Ad Hoc Group

Summary of Activities and Accomplishments 2016/17

A cross sector ad hoc antimicrobial use (AMU) surveillance group met for a face-to-face meeting in October of 2016.

The group developed a shared purpose statement: "AMU surveillance is necessary to inform decision-making to objectively address AMU stewardship and to maintain public trust in the sustainable production of safe and affordable food from humanely-raised animals"
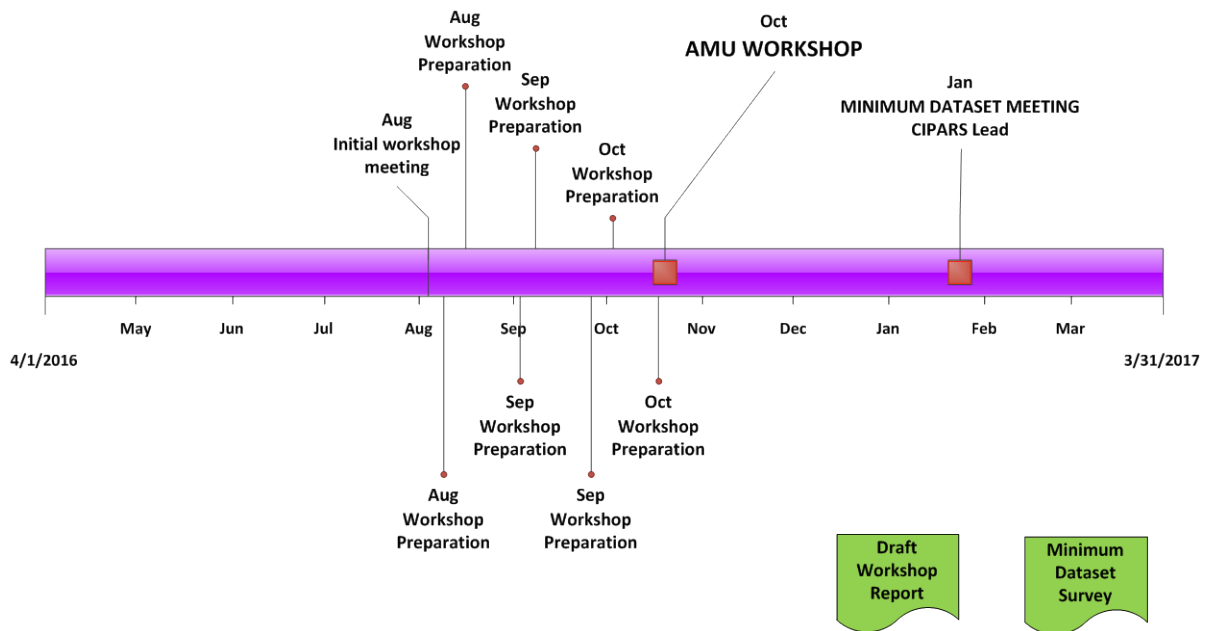
Areas of interest in AMU surveillance were identified during the face to face workshop including:

- Creation of a multi-commodity working group to explore the minimum AMU surveillance data necessary to meet industry goals and objectives.
- Identification of a mechanism for data sharing on the Canadian Network for Public Health Intelligence
- Support for the ongoing work of Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS)
- Joint communication plan
- Creation of a collaborative Roadmap

Work has progressed on the identification of a minimum data set during this fiscal year under the leadership of Dave Léger and CIPARS.

- An additional face to face meeting was held in January 2017 at the Canadian Pork Council (CPC) office in Ottawa, and chaired by Dave Léger; this one-day meeting built on the broad statement of purpose developed during the October meeting, by setting specific objectives for AMU surveillance and the associated outputs.
- Follow-up from the January meeting was to develop a questionnaire for all participants to complete, that would indicate which data elements were important to include in a minimum data set and the associated level of effort to collect these data. These will be summarized by Dave Léger and results distributed to participants.
- A project plan was created subsequent to the second face to face meeting.

Figure 5: Summary of AMU Cross Sector Group Activities 2016/17

Preliminary Objectives for 2017/18

The work of the cross sector working group will continue to identify the minimum data set required. A follow up meeting is planned for June 2017 to discuss the results of the questionnaire.
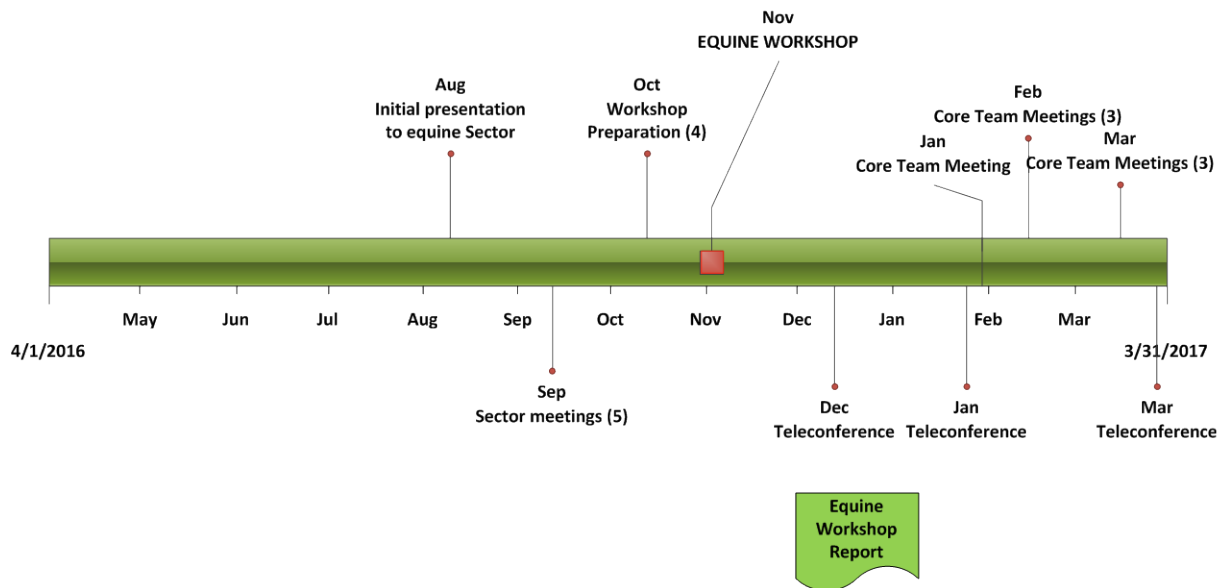
Equine Sector Networks

Summary of Activities and Accomplishments 2016/17

The equine network group met in November of 2016 for a face to face workshop and initiated an Equine National Health Surveillance Group.

The group identified the sharing of information on notifiable diseases as a priority for the coming year. A template report was created and shared on the CAHSS website as an initial step towards increasing information sharing across the country.

Figure 6: Summary of Equine Sector Networks Activities in 2016/17

Preliminary Objectives for 2017/18

The equine networks have established three working groups i) leadership ii) Equine Disease Communication Center, and iii) notifiable diseases. New projects for the upcoming year include analysing historic equine disease trends lead by the Ontario Veterinary College (OVC), and a case definitions working group. The equine network objectives for the coming year include identifying the options for mapping the distribution of diseases nationally and continuing to share reports on disease occurrence in the country.
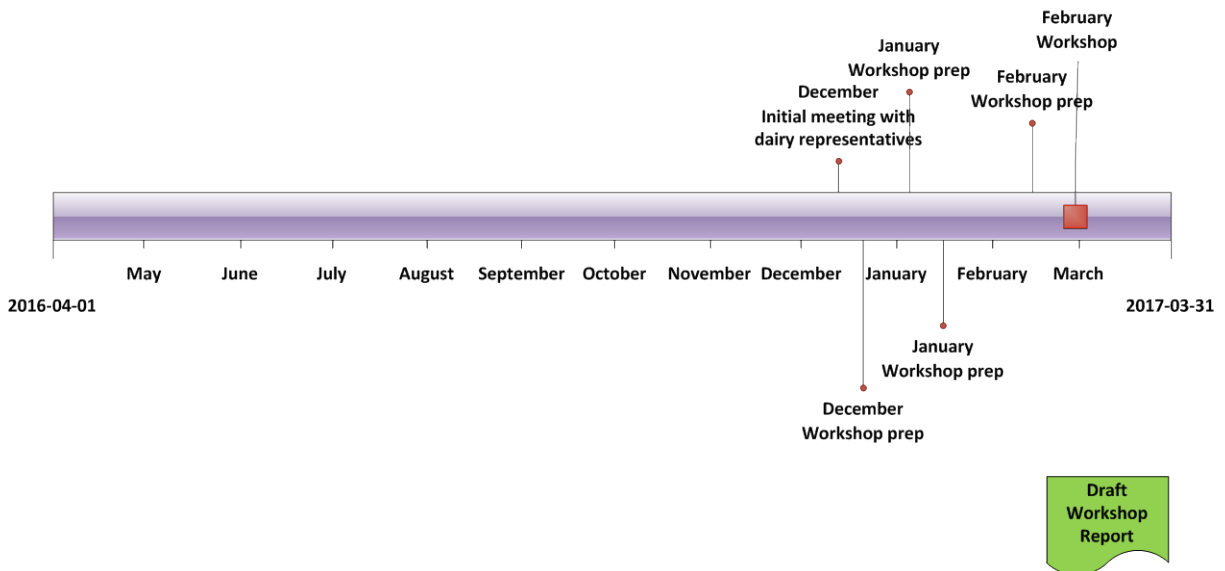
Dairy Cattle Sector Networks

Summary of Activities and Accomplishments 2016/17

Engagement with the dairy sector began in the latter half of the fiscal year. The networks organized and met face to face for a CAHSS sponsored workshop in February of 2017.

The goals identified for the sector included:

- Creation of a stakeholder engagement plan
- Creation of a national information sharing platform
- Identifying the existing data sources, important questions, needed outputs (data mining)
- Evaluating bulk milk tank testing: Improve disease management through knowledge of farm status and benchmarks

Figure 7: Summary of Dairy Cattle Sector Networks Activities in 2016/17

Preliminary Objectives for 2017/18

The workshop attendees will be surveyed to help identify those interested in actively participating in the Dairy Cattle Surveillance Network group, and those who wish to only access the information of the network due to time constraints. The survey will also help to identify other individuals or organizations that may want to participate.

The network expects to have regular conference calls or webinars, and develop a project plan with priorities. The need for face-to-face meetings will be determined by the group as required.

Aquatic Sector Networks

Summary of Activities and Accomplishments 2016/17

Phase I - Development proposal and stakeholder need analysis

A workshop on effective, responsive and integrated animal health surveillance held in Ottawa from 21 to 24 March 2016 examined needs and opportunities for improved information capture, management and use for animal health in Canada.

The participants, representing the swine and salmon industries as well as regulators, agreed on the value of a bottom-up approach to integrated information management, with a focus on creating benefit for data providers. The workshop developed a draft design and implementation plan to pilot such a system using an already available bottom-up data capture, integration, analysis and reporting system called Omnysian.

Phase II – implementation of a pilot project for the aquaculture industry

The objective was to develop and pilot a bottom-up information gathering and management system (A cloud-based information management instance using Omnísyan Nano) for estimating on farm clinical surveillance and reporting (ClinsuM) for the west coast Atlantic salmon industry.

The design of the pilot included:
- a consultation process with industry (private veterinarian of the 3 main Atlantic salmon companies in British Columbia),
- development of a standard spreadsheet template to be filled and submitted by each company for routine submission of daily cage-level mortality data;
- Design of efficient data structures for epidemiological analysis;
- Implementation of basic data tables;
- Implementation of the existing algorithm to estimate surveillance sensitivity; and,
- the development of automated output reports.

This Phase aims to rapidly provide the salmon industries and associated stakeholders with experience in the use of the system and evaluate whether to move to the complete pilot and later full roll-out. This phase involved the creation of a fully functional demonstration system led by the aquatic surveillance and epidemiology section of the CFIA in close consultation with Ausvet.

Preliminary Objectives for 2017/18

The demonstration system will be used during a series of other industry workshops to give prospective participants experience in how the system will work and an example of what it can deliver.

Phase III will encompass activities to rapidly integrate key existing data sources (e.g., FishTalk data for the salmon industry, and selected company).

Finally there will be a series of industry evaluation and feedback workshops to discuss experience. If positive feedback are received, the establishment of interoperability will be initiated and a fully operational system can be established (capturing the module that was created as part of the demonstration system) that is able to generate key live output reports. During this process, there will be further consultation with veterinarians and companies to assess output report needs and how the system can best create benefit. Key priority output reports will be developed, and made accessible via the secure web interface.

The following activities will also be included in this phase of implementation:
- Training of the Core Technical Team in design, development and operation of the system. Team members may participate in all the in-country activities to get experiences of the development process, but no specific training courses will be conducted; and
- long term hosting and technical management.

Community for Emerging and Zoonotic Diseases

The Community for Emerging and Zoonotic Diseases (CEZD) is a virtual network that integrates today's automated information-mining tools with professional multidisciplinary perspectives. CEZD's disease intelligence process is designed to provide early identification and warning of threats: timely and effective intelligence reports are provided to the communities at risk to help enable them to prevent, avoid or reduce their risk and prepare for an effective response.

Summary of Activities and Accomplishments 2016/17

The CEZD completed its 3-year project phase, funded by the Canadian Safety and Security Program (CSSP), in March 2016. Currently, CEZD is in a 2-year implementation phase, currently funded by the CFIA and PHAC, with strong in kind support from Provincial, Academic and Industry partners.
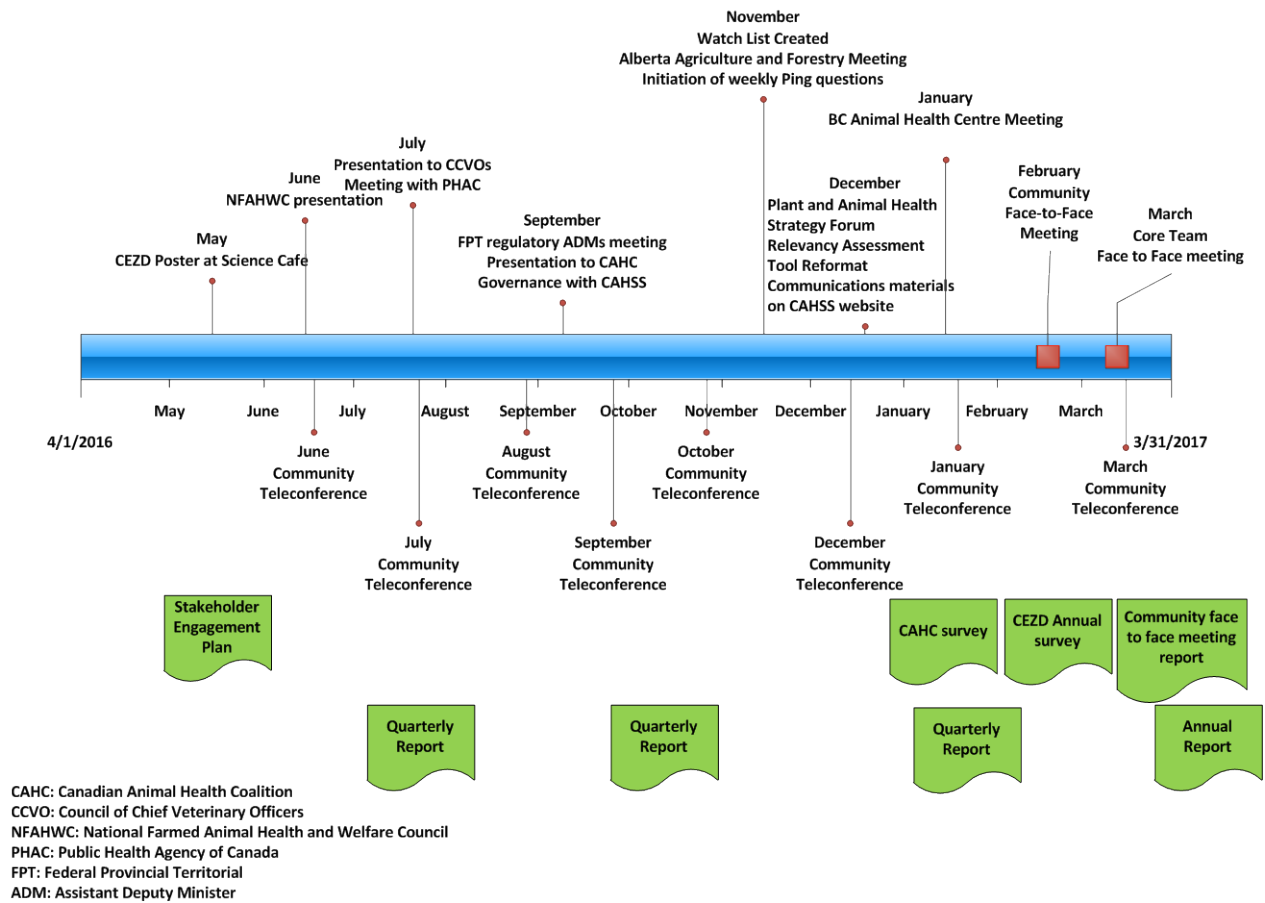
During the first year of implementation, the community grew to a total of 138 individuals, an increase of 84 since the project phase. This growth is attributed to the engagement activities and communications materials developed over the course of the year, as well as the ever increasing distribution of the CEZD intelligence reports. A total of 52 weekly intelligence reports were distributed in 2016/17.

In September of 2016, the CAHSS Directors agreed to become the governance body for CEZD. Responsibilities of the CAHSS directors are to review the CEZD annual and semi-annual reports and provide their strategic advice. CAHSS has provided a place for public information sharing on CEZD via the use of the CAHSS website.

In January 2017, as a way to identify more potential members, the CEZD collaborated with the Canadian Animal Health Coalition (CAHC) to survey its members' information and intelligence needs.

CEZD changed its name from the Centre for Emerging and Zoonotic Diseases –Integrated Intelligence and Response (CEZD-IIR) to the Community for Emerging and Zoonotic Diseases (CEZD). The CEZD core team in collaboration with partners completed refinement of its Relevancy Assessment Tool, which is essential to CEZD intelligence process.

Figure 8: CEZD Activities 2016-2017

CAHC: Canadian Animal Health Coalition
CCVO: Council of Chief Veterinary Officers
NFAHWC: National Farmed Animal Health and Welfare Council
PHAC: Public Health Agency of Canada
FPT: Federal Provincial Territorial
ADM: Assistant Deputy Minister

Preliminary Objectives for 2017/18

Guided by the CEZD sustainability plan and input from the community, going forward into the second year of implementation CEZD will focus on certain key priorities, including:

- organizational development and shared leadership;
- collaboration and integrated animal health surveillance;
- efficient and timely reporting and analysis;
- enhanced communication efforts; and,
- planning for the post-implementation phase.

Closing Remarks

The network of networks grew remarkably in 2016/17, as is evidenced by the vast body of work that has been shared here. Going forward CAHSS requires a collaborative strategic plan to manage and support the growing networks, and further integrate the existing networks within and between sectors. Further network connections will ensure that information is shared through all components of the surveillance system. Support is required to fund network surveillance projects, and it is hoped that the collaborative nature of the projects being developed will be recognized by

potential funding bodies. Lastly, this work cannot be completed without active engagement of all partners, in shared leadership and accountability for integrated, effective, responsive animal health surveillance in Canada.

ANNEX A – Linked Networks and Organizations including Acronyms

NB. This list is not exhaustive and an organization may be represented by a single individual

Sector	Organization	Acronym
Academic		
	Atlantic Veterinary College	AVC
	Ontario Veterinary College (OVC)	OVC
	University of Calgary Veterinary Medicine	UCVM
	Faculté de médecine vétérinaire – Université de Montréal	FVM
	Western College of Veterinary Medicine	WCVM
Bovine		
	Alberta Milk	
	Canadian Cattlemen's Association	CCA
	Dairy Farmers of Canada	DFC
	Dairy Farmers of New Brunswick	DFNB
	Dairy Farmers of Ontario	DFO
	National Cattle Feeders Association	NCFA
	Saskatchewan Milk	
	Valacta Inc.	
Consultants		
	TDV Global	
Equine		
	Alberta Equestrian Federation	
	Alcohol and Gaming Commission of Ontario	AGCO
	Canadian Quarter Horse Association	CQHA
	Canadian Thoroughbred Horse Society	CTHS
	Cheval Quebec	
	Equestrian Canada	
	Horse Racing Alberta	
	Island Horse Council	IHC
	Maritime Provinces Harness Racing Commission	MPHRC
	Ontario Equestrian Federation	OEF
	Saskatchewan Horse Federation	
	Sport Manitoba	
	Standard Bred Canada	
Federal		
	Agriculture and Agrico Canada	AAFC
	Canadian Food Inspection Agency	CFIA
	Canadian Notifiable Avian Influenza Surveillance System	CanNAISS
	Health Canada	HC
	Public Health Agency of Canada	PHAC
Federal Provincial Territorial Academia Collaborations		

	Canadian Animal Health Surveillance Network	CAHSN
	Canadian Association of Laboratorians Network	CAHLN
	Canadian Wildlife Health Co-operative	CWHC
Federal Provincial Territorial Industry Collaborations		
	Community for Emerging and Zoonotic Diseases	CEZD
	National Farmed Animal Health and Welfare Council	NFAHWC
Industry Service Associations		
	Animal Nutrition Association of Canada	ANAC
	Canadian Animal Health Coalition	CAHC
	Canadian Animal Health Institute	CAHI
	Canadian Federation of Agriculture	CFA
	Canadian Livestock Genetics Association	CLGA
	Canadian Meat Council	CMC
Laboratory		
	Animal Health Laboratory - Guelph	AHL
	Prairie Diagnostic Services	PDS
Poultry		
	Canadian Hatching Egg Producers	CHEP
	Canadian Poultry and Egg Processors Council	CPEPC
	Chicken Farmers of Canada	CFC
	Egg Farmers of Canada	EFC
	Turkey Farmers of Canada	TFC
Provincial		
	Alberta Agriculture and Forestry	
	Alberta Veterinary Surveillance Network	
	Government of British Columbia, Farming, Natural Resources and Industry	
	Government of New Brunswick Agriculture, Aquaculture and Fisheries	
	Government of Prince Edward Island	
	Government of Saskatchewan, Ministry of Agriculture	
	Manitoba Agriculture, Food and Rural Initiatives	MAFRI
	Manitoba Health Seniors and Active Living	
	Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec	MAPAQ
	Ontario Animal Health Network	OAHN
	Ontario Ministry of Agriculture, Food and Rural Affairs	OMAFRA
	Réseau d'alerte et d'information zoosanitaire	RAIZO
Public Health		
	Canadian Integrated Program for Antimicrobial Resistance Surveillance	CIPARS
	Canadian Council of Chief Medical Officers of Health	CCMOH
Small Ruminant		
	Canadian Sheep Federation	CSF
Swine		
	Canada West Swine Health Intelligence Network	CWSHIN

	Supported by: • Manitoba Pork • Alberta Pork • BC Hog Marketing Commission • Sask Pork • 4 Western Provincial Governments • Western Canadian Association of Swine Veterinarians • Western Canadian Swine Health Alliance	
	Canadian Pork Council	CPC

	Canadian Swine Health Intelligence Network
	    Supported by:
	 • Canadian Pork Council
	 • Canadian Association of Swine Veterinarians
	    Network components:
	 • Canada West Swine Health Intelligence Network
	 • Ontario Animal Health Network
	 • Réseau d'alerte et d'information zoosanitaire
		CSHIN

	L'équipe québécoise de santé porcine	EQSP
	Les éleveurs de porcs du Québec	
	Ontario Pork	
	Swine Health Ontario	SHO
	Swine Innovation porc	
	The Centre de développement du porc du Québec	CDPQ
Veterinary		
	Alberta Veterinary Medical Association	AVMA
	Canadian Association of Aquaculture Veterinarians	CAAV
	Canadian Association of Bovine Veterinarians	CABV
	Canadian Association of Poultry Veterinarians	CAPV
	Canadian Association of Swine Veterinarians	CASV
	Canadian Veterinary Medical Association	CVMA
	Council of Chief Veterinary Officers	CCVO
	Western Canadian Association of Swine Veterinarian	WCASV

CAHSS Purpose Statement

A shared national vision leading to effective, responsive, integrated animal health surveillance in Canada

Core Principles of Practice
- Work to ensure the quality of life for Canadians by protecting animal health and public health, and supporting economic prosperity.
- Work to ensure scientific rigour and professional and technical competence, acknowledging that other factors must be taken into account in decision making.
- Encourage practices, behaviours and uses of technology that are consistent with the Purpose and Principles. In particular, encourage openness, collaboration and innovation.
- Resolve conflict compassionately, productively, cooperatively and respectfully.
- Freely and fully exchange information relevant to the Purpose while respecting confidentiality.
- Work to ensure clarity in animal health surveillance communications by providing relevant background and contextual information.

Core Principles of the Organization
- An Individual or Institution subscribing to the Purpose and Principles of the organization is deemed eligible for Owning Membership and participation.
- Have the right to self-organize around any event or activity consistent with the Purpose and Principles, encouraging innovation and flexibility.
- Conduct deliberations and make decisions by methods that reasonably represent all relevant and affected parties.
- Network members retain full authority to independently manage and implement their own roles, resources and priorities but agree to consult with other network members to find efficiencies and avoid unintended impacts that might affect the operations of other members or the network as a whole.

By signing this declaration, I agree to be a member of the CAHSS in accordance with the purpose statement and principles noted above.

Name: _____

Signing on behalf of:
□ Individual □ Group (please specify) □ Organization/Company (please specify)

Address: _____

Phone: _____

E-mail: _____

Based on your understanding of CAHSS, please provide a summary of activities and efforts that you, your group/company/organization/network are or will be undertaking to strengthen animal health surveillance in Canada (please specify any relevant affiliations)._____

Signature: _____

Date: _____