

OIE Collaborating Centres Reports Activities

Activities in 2018

This report has been submitted : 2019-01-21 16:30:10

Title of collaborating centre:	Food-Borne Zoonotic Parasites
Address of Collaborating Centre:	Canadian Food Inspection Agency 116 Veterinary Road Saskatoon Saskatchewan S7N 2R3 CANADA
Tel.:	+1-306 385.78.18
Fax:	+1 306 385.78. 66
E-mail address:	brad.scandrett@canada.ca
Website:	
Name of Director of Institute (Responsible Official):	Marc Sabourin, Director, CFIA Saskatoon Laboratory
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Dr. Brad Scandrett, Acting Section Head, Centre for Food- borne and Animal Parasitology
Name of writer:	Brad Scandrett

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

Disease control	
Title of activity	Scope
Provision of diagnostic services and scientific advice to CFIA Science, Policies and Programs, and Operations Branches	Domestic or import investigations pertaining to food-borne zoonotic parasites, including Cyclospora (non-zoonotic), Cryptosporidium, Toxoplasma, Giardia, Taenia saginata/Cysticercus bovis and Trichinella spp.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Monitoring and surveillance for food-borne parasites in animals, animal products and fresh produce for domestic disease control, and import/export purposes	National microbiological monitoring program for detection of Trichinella in domestic swine via digestion assay; Research survey for detection of Trichinella spp. in wildlife in proximity to domestic swine production in Canada via digestion assay; National microbiological monitoring program for detection of Cyclospora, Cryptosporidium, Toxoplasma and Giardia contamination of imported fresh produce via qPCR-MCA and nPCR
Provision of scientific advice pertaining to risk analyses for food-borne parasites	Inspection modernization initiatives and outbreak investigations related to risk management of bovine cysticercosis (Taenia saginata) and Trichinella
Training, capacity building	
Title of activity	Scope
Ongoing scientific support, proficiency assessment, and capacity building of industry and academic institute analysts to perform artificial digestion assay for Trichinella in pork, horse meat or walrus meat (a food safety concern in northern Canada)	Trichinella spp. from domestic and wildlife sources
Ad Hoc training of graduate students (University of Saskatchewan, Canada) performing research studies involving food-borne parasites	Trichinella spp., Echinococcus spp., Toxoplasma, Cryptosporidium and other coccidia
Internal capacity building to develop expertise in next generation sequencing	Toxoplasma, Cyclospora
Internal training and proficiency assessment of CFIA analysts for the detection of food-borne parasites	Cyclospora, zoonotic coccidia, Giardia, Taenia saginata, and Trichinella spp.
Diagnosis, biotechnology and laboratory	
Title of activity	Scope

Routine diagnosis and monitoring/surveillance of food-borne parasites for domestic disease control, food safety, and import/export purposes	Detection and diagnosis of various food-borne parasites by direct (microscopic examination, digestion assay, PCR) and indirect (serological) methods, including zoonotic coccidia, Cyclospora, Giardia, zoonotic taeniids, and Trichinella
Development, optimization, standardization, and/or validation of methods to detect and identify food-borne zoonotic parasites	Validation of an in-house and commercial indirect ELISA for detection of Trichinella in domestic swine; Validation of an in-house c-ELISA to detect Trichinella in wildlife (including polar bear); Validation of in-house and/or commercial assays for the indirect (i.e. serological) and direct (i.e. magnetic capture) detection of Toxoplasma in domestic livestock and wildlife; Validation of a LAMP assay for the detection of Giardia contamination of fresh produce; Validation of a PCR method to identify bovine cysticerci; Development of methods for the detection and molecular identification of zoonotic taeniid egg contamination of fresh produce; in-house validation/verification of a U.S.FDA method for the detection of Cyclospora in food

ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area
Validation and implementation of a LAMP assay for detection of Giardia in produce (in progress)	Molecular detection and identification of food-borne protozoan parasites	<input type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
Validation of optimized in-house indirect ELISA using E/S antigen (with comparison to a commercial kit) for the detection of Trichinella in pigs (in progress)	Trichinella spiralis (and other Trichinella spp.) in domestic swine	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
Validation of a cELISA for the detection of Trichinella in wildlife (ongoing)	Trichinella spp. in non-swine host species, including wildlife (e.g. polar bear)	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
Validation of indirect (serological) and direct (magnetic capture) methods for the detection of Toxoplasma in pigs	Detection of Toxoplasma in serum or meat from domestic pigs	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
Development and validation of methods for the detection and molecular identification of zoonotic taeniid eggs in fresh produce	Detection of Echinococcus spp. and zoonotic Taenia spp. eggs contaminating fresh produce and other matrices	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare

Validation of a PCR assay to identify bovine cysticerco (in progress)	Confirmatory identification of <i>Cysticercus bovis</i> -suspect lesions	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
In-house verification of FDA BAM Chapter 19B method for detection of <i>Cyclospora cayetanensis</i> in produce (in progress)	Adaptation, enhancement and validation/verification of molecular tools for the detection and identification of protozoan parasites in fresh fruits and vegetables	<input type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
Development of an international (ISO) standard for the detection of <i>Cyclospora cayetanensis</i> in food	Participation as member of food-borne parasites working group (ISO/TC34/SC9/WG6) to develop international standard for the detection of <i>Cyclospora cayetanensis</i> in foods	<input type="checkbox"/> Surveillance and control of animal diseases <input checked="" type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare

ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
OIE Collaborating Centre for Food-borne Zoonotic Parasites from the European Region	Maisons-Alfort, France	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Exchange of scientific advice and proficiency samples (<i>Trichinella</i>); Collaboration on scientific publication (<i>Trichinella</i>); Information exchange via membership in International Commission on Trichinellosis
OIE Reference Laboratory for Trichinellosis	Rome, Italy	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Exchange of scientific advice via shared roles as OIE Reference Labs for Trichinellosis (including proficiency/verification testing of reference sera from Rome Laboratory in accordance with guidelines for OIE-approved international reference standards) and via membership in the International Commission on Trichinellosis

4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
OIE Collaborating Centre for Research, Diagnosis and Surveillance of Wildlife Pathogens (Canadian Wildlife Health Cooperative/CWHC)	Canada	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Exchange of scientific information and collection of wildlife samples for Trichinella surveillance

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

No

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?

Yes

- a) Technical visits: 0
 b) Seminars: 1
 c) Hands-on training courses: 5
 d) Internships (>1 month): 0

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c	Training of PhD student (University of Saskatchewan, Canada) in detection methods for Trichinella and Toxoplasma	India	1
c	Training of PhD student (University of Saskatchewan, Canada) in detection methods for Toxoplasma	Mexico	1
c	Training of PhD student (University of Saskatchewan, Canada) in detection methods for Echinococcus spp.	Nigeria	1
c	Training of PhD student (University of Saskatchewan, Canada) in detection methods for Toxoplasma, Cryptosporidium, and other coccidia	Canada	1

b, c	Training and orientation of CFIA Veterinary Inspectors to provide enhanced oversight of Trichinella testing (using digestion assay) by industry to meet export requirements for fresh pork and horse meat	Canada	4
------	---	--------	---

ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

No

ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 3

Scandrett, B., Konecsni, K., Lalonde, L., Boireau, P., Vallee, I. 2018. Detection of natural *Trichinella murrelli* and *Trichinella spiralis* infection in horses by routine post-slaughter food safety testing. *Food and Waterborne Parasitology*. 11:1-5.

Gajadhar, A., Konecsni, K., Scandrett, B., Bulholzer, P. 2018. Validation of a new commercial serine protease artificial digestion assay for the detection of *Trichinella* larvae in pork. *Food and Waterborne Parasitology*. 10:6-13.

Bachand, N., Ravel, A., Leighton, P., Stephen, C., Iqbal, A., Ndao, M., Konecsni, K., Fernando, C., Jenkins, E. 2018. Foxes (*Vulpes vulpes*) as sentinels for parasitic zoonoses, *Toxoplasma gondii* and *Trichinella* native, in the northeastern Canadian Arctic. *International Journal for Parasitology: Parasites and Wildlife*. 7:391-397.

b) International conferences: 2

Scandrett, B., Konecsni, K., Scheller, C. Building Capacity in *Trichinella* Testing of Country Foods in Canada's North. 5th International One Health Congress poster presentation, Saskatoon, Saskatchewan, Canada, June 22-25, 2018.

Scandrett, B., Konecsni, K. *Trichinella* spp. in wildlife from swine-producing regions of Canada. 62nd Annual Meeting of the American Association of Veterinary Parasitologists (AAVP) poster presentation, Denver, Colorado, USA, July 14-17, 2018.

c) National conferences: 2

Scandrett, B., Konecsni, K., Scheller, C. Building Capacity in *Trichinella* Testing of Country Foods in Canada's North. 14th Annual ArcticNet scientific meeting poster presentation, Ottawa, ON, December 10-14, 2018.

Oakley, J., Lalonde, L., Lobanov, V., Bouchard, E., Scandrett, B., Frey, C. Development of a molecular method to detect and identify taeniid eggs in fresh produce. 14th Annual ArcticNet scientific meeting oral presentation, Ottawa, ON, December 10-14, 2018.

d) Other

(Provide website address or link to appropriate information): 2

Integrated Training Program in Infectious Diseases, Food Safety and Public Policy (ITraP). Panel Discussion on Food Insecurity in Indigenous Communities. Chair: Emily Jenkins. Expert Panelists: Lise Kouri, Priscilla Settee,

Jasmine Dhillon, Adrian Werner, Caroline Frey, Hassan Vatanparast. Saskatoon, SK, Canada, June 20-21, 2018.

Caroline Frey et al. Participation in 2nd face-to-face meeting of the Food and Environmental Parasitology Network (FEPN). Montreal, QC, Canada, October 25, 2018.