World Organisation for Animal Health

Charles Nfon - - CANADA

WOAH Reference Laboratory Reports Activities 2025

This report has been submitted: 31 janvier 2026 02:18

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Foot and mouth disease
***Address of laboratory:**	1015 Arlington Street
***Tel:**	+1-204 789.20.23
***E-mail address:**	Charles.nfon@inspection.gc.ca
Website:	
***Name (including Title) of Head of Laboratory (Responsible Official):**	Dr. Charles Nfon, Laboratory Network Director
***Name (including Title and Position) of WOAH Reference Expert:**	Dr. Charles Nfon
***Which of the following defines your laboratory? Check all that apply:**	Governmental

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
FMD-NS 3ABC bELISA	Yes	281	0
Direct diagnostic tests		Nationally	Internationally
FMD real-time RT-PCR	Yes	724	0

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOAH Member Countries	Country of recipients
Recombinant FMDV 3ABC antigen	FMD NS cELISA	produced/provided	0	30mL	1	NIGERIA,
anti-FMD 3B monoclonal antibody	FMD NS cELISA	produced/provided	0	24mL	1	NIGERIA,
Positive control bovine sera for 3ABC ELISA strong POS (Q1), weak POS (Q2) and	FMD NS cELISA	produced/provided	7.2 mL Q1 and Q3, 7.8 mL Q2 control (24 sets of controls plus extra	0	1	CANADA,

NEGATIVE (Q3)			Q2)			
HRP conjugated commercially produced polyclonal goat anti-mouse IgG	FMD NS cELISA	produced/provided	1.82mL	0	1	CANADA,
ELISA panels	FMD NS cELISA	Produced/ provided	25 panels 20 samples per panel, 0.3 mL per sample	0	1	CANADA,
PCR panels	FMDV RRT-PCR	Produced/ provided	67 panels 10 samples panels with 0.350 mL per sample	0	1	CANADA,
PCR controls	FMDV RRT-PCR & beta-actin	Produced/ provided	64 control vials (both FMD & beta-actin), 0.1mL/vial	0	1	CANADA,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
Rapid sequence identification of foot-and-mouth disease virus utilizing FMDV-ONTAPS: The Oxford Nanopore Technologies P1 Amplicon Sequencing protocol	A publication of this work has been submitted to Viruses.
A Simplified mAb-Based Antigen Detection Assay for Rapid Serotyping of Foot-and-Mouth Disease Virus	Kashem MA, Ambagala T, Hole K, Yang M, Nfon C, Babiuk S. A Simplified mAb-Based Antigen Detection Assay for Rapid Serotyping of Foot-and-Mouth Disease Virus. Viruses. 2025 May 27;17(6):761. doi: 10.3390/v17060761. PMID: 40573352; PMCID: PMC12197753.

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

No

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

No

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

1

Kashem MA, Ambagala T, Hole K, Yang M, Nfon C, Babiuk S. A Simplified mAb-Based Antigen Detection Assay for Rapid Serotyping of Foot-and-Mouth Disease Virus. Viruses. 2025 May 27;17(6):761. doi: 10.3390/v17060761. PMID: 40573352; PMCID: PMC12197753.

b) International conferences:

2

Hole, K., Nguyen, H.H.T., Lee, W.L, Richards, J.S., Nfon, C., Babiuk, S. Evaluation of a point-of-care molecular test to detect the presence of foot-and-mouth disease virus in milk. GFRA 2025. (Oral presentation).
Babiuk, S. Update from NCFAD/CFIA for the Foot and mouth disease virus Reference Laboratory Network, Istanbul, 2025. (Oral presentation).

c) National conferences:

1

Babiuk, S. Foot and Mouth Disease, Swine Vesicular Disease, Vesicular Stomatitis and Senecavirus A: What Swine Veterinarians Need to Know. Ontario Association of Swine Veterinarians (OASV) fall conference 2025. (Oral presentation).

d) Other (Provide website address or link to appropriate information):

2

FMD. Foreign animal disease course. National Centre for Foreign Animal Disease.
EUFMD trainers for FMD course for Canada in 2025

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 1

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
C	CANADA	15

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025	ISO 17025 certificate_ASB_CTF_15579-CFIA-Certificate_v1_2021-04-27.pdf	ASB_CTF_15579-CFIA-Certificate_v1_2021-04-27.pdf

19. Is your quality management system accredited?

Yes

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Test for which your laboratory is accredited	Accreditation body
FMDV isolation	Standards Council of Canada (SCC)
FMD real-time RT-PCR	SCC
FMD DAS ELISA	SCC
FMD NS 3ABC b&cELISA	SCC
FMD-VNT	SCC
FMD-serotype cELISA	SCC

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

· The Government of Canada's Canadian Biosafety Standard (CBS) requires that a biosecurity plan be in place for facilities that handle infectious agents. This plan details the aspects the facility has in place for the prevention of theft, misuse or intentional release of pathogens. The National Centre for Foreign Animal Disease (NCFAD) Biosecurity Plan addresses the requirements that are outlined in Section 4.1.8 of the CBS 3rd Edition, and security requirements detailed in Public Health Agency Canada (PHAC)'s Physical Security Standard for the NCFAD at the Canadian Science Centre for Human and Animal Health (CSCHAH) · The NCFAD Biosecurity Plan deals with all biological pathogens, including Risk Group 2, but its focus is on those in Risk Groups 3 and 4, which pose the greatest biosecurity risk. This plan includes details on the risk assessment of biological agents, physical protection of the facility, personnel suitability/reliability, information management, pathogen accountability and inventory, and incident and emergency response measures. · Work areas covered include diagnostic and research laboratory spaces in Containment Level 3 (CL3), a large animal CL3-Ag zone including post mortem suite, and higher containment laboratories, namely restricted zoonotic CL3 and CL4 labs. CL4 space includes a CL4 large animal zone. · The NCFAD Biosecurity Plan will be reviewed biennially by the Director and/or Laboratory Network Director (LED). Ad hoc review will take place in response to incident review outcomes and related document updates such as the Biosecurity Risk Assessment or Threat Risk Assessment.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
WOAH/FAO Foot-and-Mouth Disease Reference Laboratory meeting	2025-10-21	Istanbul	Speaker	WOAH/FAO FMD Reference Laboratory, updates for National Centre for Foreign Animal Disease, Canadian Food Inspection Agency, Canada

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

Yes

24. Are you a member of a network of WOAH Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
WOAH/FAO Foot-and-Mouth Disease Reference Laboratory Network	Participant	2	CFIA/NCFAD

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAH Ref. Labs/ organising WOAH Ref Lab
Confirm test procedures are functioning within parameters (isolation, real-time RT-PCR, DAS ELISA, NS 3ABC cELISA,	Participant	51	WRLFMD, Pirbright, UK

serotyping cELISA, VNT, sequencing)			
Confirm test procedures are functioning within parameters (isolation, real-time RT-PCR, DAS ELISA, NS 3ABC cELISA, serotyping cELISA, VNT, sequencing)	Participant	14	PANAFTOSA, Brazil

26. Did your laboratory collaborate with other WOAH Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Yes

Title of the project or contract	Scope	Name(s) of relevant WOAH Reference Laboratories
Zip Diagnostics, penside test project	To evaluate the FMD penside test from ZiP Diagnostics (Australia)	WRLFMD Pirbright, UK

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen during the past 2 years?

No

NA

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

Yes

Kind of consultancy	Location	Subject (facultative)
Document review and contribution	Virtual	Review of document on novel FMD vaccine and updating of FMD section of WOAH terrestrial manual

29. Additional comments regarding your report:

No

NA