World Organisation for Animal Health

Joseph Hyera - -

WOAH Reference Laboratory Reports Activities 2024

This report has been submitted: 30 janvier 2025 10:06

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Foot and mouth disease
***Address of laboratory:**	Plot 6385/90 Lejara Road, Broadhurst Industrial, Gaborone Botswana
***Tel:**	+2673912711
***E-mail address:**	jhyera@bvi.co.bw
Website:	www.bvi-bw.com
***Name (including Title) of Head of Laboratory (Responsible Official):**	Dr Joseph Hyera
***Name (including Title and Position) of WOAH Reference Expert:**	Dr Joseph Hyera, Laboratory Manager
***Which of the following defines your laboratory? Check all that apply:**	Parastatal 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)

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?

No

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

No

TOR3: NEW PROCEDURES

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

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
Immortalisation of Primary Lamb Kidney Cells	The project is ongoing (MSc Student) started in 2024 and it is expected to be complete in September 2025.
Development of Multiplex Real Time PCR for Early Detection of FMD	An ongoing project (MSc student) expected to be completed by September 2025.

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

No

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

Yes

Name of the new vaccine developed	Description and References (Publication, website, etc)
Engineering epitope-based Vaccine for FMD SAT viruses	PhD Project completed in 2025 (university of Botswanan Department of Biological Services: Elliot Fana). It has been tested in laboratory animals with successful results. further evaluation of efficacy of the vaccine in target animals (cattle) is ongoing.

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOAH Member Country seeking assistance	Date	Which diagnostic test used	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
BOTSWANA	2024-01-30	NSP ELISA ,VNT, RT-PCR and Sequencing	971	16
BOTSWANA	2024-02-28	NSP ELISA, VNT	1757	0
BOTSWANA	2024-03-30	NSP ELISA, VNT	543	0
UGANDA	2024-03-30	NSP ELISA , RT-PCR and Sequencing	32	18
NAMIBIA	2024-06-29	LPBE	69	0
BOTSWANA	2024-06-29	NSP ELISA , RT-PCR and Sequencing	48	1
BOTSWANA	2024-07-30	LPBE	300	0
BOTSWANA	2024-09-29	NSP ELISA	1	0
BOTSWANA	2024-10-30	NSP ELISA, VNT	131	0

MOZAMBIQUE	2024-12-30	NSP ELISA , VNT, RT-PCR and Sequencing	20	5

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

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
LESOTHO	FMD Epidemiology, Diagnostics, and Surveillance for Strengthening FMD Control in Southern Africa	Workshop Presentation for SADC member states on; Clinical and Laboratory Diagnostics of FMD

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?

Yes

If the answer is yes, please provide details of the data collected:
Bovine epithelial tissue samples collected and received from Uganda, and Mozambique were tested and FMD virus genome was detected in these samples and characterised. The circulating FMDv serotypes in these areas were identified and include serotype O from Uganda, and Southern African Territory 1(SAT 1) from Mozambique. There was no FMD virus genome detected in bovine tissue and probang samples collected in Botswana.

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

Yes

If the answer is yes, please provide details of the data collected:
The data was collected from analysed test results and disseminated in the form of test reports. Circulating FMD virus serotypes from Uganda and Mozambique were detected and characterised by our laboratory in collaboration with the WRLFMD.

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

A Review of the Utility of Established Cell Lines for Isolation and Propagation of the Southern African Territory Serotypes of Foot and Mouth Disease Virus

https://doi.org/10.3390/v17010039

b) International conferences:

4

Livestock Development Programme-transboundary animal disease status update in SADC: Johannesburg, South Africa.

Kaza animal health subworking group- Animal Health status in the Kaza region: Livingstone, Zambia

Joint Eastern and Southern africa FMD roadway: Dar es Salaam, Tanzania

19th WOAH-FAO FMD Reference laboratory Network Meeting: Rome, Italy.

c) National conferences:

0

None

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

0

None

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 : 1

b) Seminars : 1

c) Hands-on training courses: 0

d) Internships (>1 month) 3

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
B	LESOTHO	32
D	BOTSWANA	3
A	UGANDA	4

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	PDF Attached	SADCAS Certificate of Accreditation.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
FMD virus isolation in primary lamb kidney cell culture	SANAS & SADCAS
FMD virus serotype identification by antigen ELISA	SANAS & SADCAS
FMD virus genome detection and sequencing	SANAS & SADCAS

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

Yes

We have several Standard operating procedures (SOPs) which guide on the biorisk management. The documents are: (i) SHEB 0001 Virus Leak/spill Containment and clean-up: It clearly outlines the steps to be taken should the FMD virus leak or spill, posing a potential breach of containment. (ii) SHEB 0013 Autoclaving SOP: The document spells out the removal of utensils and autoclavable equipment out of a Biosafety level 3 laboratory, where the virus pathogen is inactivated through heat. (iii) SHEB0014Wastedisposal SOP: All laboratory waste undergoes decontamination before being removed from the BSL 3 facility to prevent any potential environmental risks. Once removed from the contaminated area, the waste is further incinerated within the compound. (iv) SHEB 0015 Procedure for entry and exit of visitors at BVI: Entry and exit of personnel into the BSL3 laboratory are controlled to minimize the risk of spreading the virus to the environment personnel interact with. (v) SHEB 0028 Organisation of Movement: A movement grid has been implemented to further minimize contamination of virus-free areas by personnel and equipment exiting the BSL3 laboratories. (vi) SHEB 0029 Decontamination Procedure: Utilizing the Safety Airlock System, the procedure further decontaminates materials that cannot be autoclaved.

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?

No

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. Do you network (collaborate or share information) with other WOAH Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
Foot and mouth disease	Participant	52	All labs designated for Foot and Mouth

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
Assurance of Test results	Organiser	1	Pirbright Institute

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?

No

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

Participated with the Pirbright Institute only.

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No