

# WOAH Reference Laboratory Reports Activities 2023

## Activities in 2023

This report has been submitted : 11 juin 2024 06:43

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:</b>	Lumpy skin disease
<b>Address of laboratory:</b>	Agricultural Research Council - Onderstepoort Veterinary Institute, 100 Old Soutpan Road, Onderstepoort
<b>Tel.:</b>	+27125299108
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<b>Website:</b>	www.arc.agric.za
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr. Arshad Mather, Acting Senior Manager: Animal Health And Protection
<b>Name (including Title and Position) of WOAHO Reference Expert:</b>	Dr. Antoinette van Schalkwyk, Senior Researcher
<b>Which of the following defines your laboratory? Check all that apply:</b>	Research agency

### 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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
VNT		89	0
Direct diagnostic tests			
PCR		92	0

### TOR2: REFERENCE MATERIAL

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

No

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

No

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHO Members?

No

### TOR3: NEW PROCEDURES

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

Yes

	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
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NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	
Differentiation of novel recombinant LSDV isolates using PCR and sequencing of ORF134	Krotova, A., Mazloun, A., van Schalkwyk, A., Prokhvatilova, L., Gubenko, O.; Byadovskaya, O., Chvala, I., Sprygin, A. 2023. The Characterization and Differentiation of Recombinant Lumpy Skin Disease Isolates Using a Region within ORF134. Appl. Microbiol. 3, 35–44. <a href="https://doi.org/10.3390/applmicrobiol3010003">https://doi.org/10.3390/applmicrobiol3010003</a>
Detection of LSDV isolates belonging to the Kenyan Sheep and Goatpox virus group	Sprygin, A., Mazloun, A., Van Schalkwyk, A., Krotova, A., Byadovskaya, O., Prokhvatilova, L., & Chvala, I. (2023). Development and application of a real-time polymerase chain reaction assay to detect lumpy skin disease virus belonging to the Kenyan sheep and goat pox group. BMC research notes, 16(1), 247. <a href="https://doi.org/10.1186/s13104-023-06502-z">https://doi.org/10.1186/s13104-023-06502-z</a>

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

No

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

No

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

Yes

NAME OF THE NEW VACCINE DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Vaccine batch testing for Onderstepoort Biological Product SOC Ltd. Batches: 482, 483 and 484	Onderstepoort Biological Products SOC Ltd Private Bag X07 Onderstepoort 0110 South Africa <a href="http://www.obpvaccines.co.za">www.obpvaccines.co.za</a>
Vaccine seed strain identification: Complete genome sequencing of their Neethling vaccine	Federal Centre for Animal Health (FGBI, ARRIAH), Vladimir, Russia

## TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

No

## TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHS MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Sequencing of recombinant LSDV strains in Russia	Since 2018	To characterize the novel recombinant LSD strains circulating in Russia	Federal Centre for Animal Health (FGBI, ARRIAH), Vladimir, Russia	RUSSIA

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

Yes

### Research need : 1

**Please type the Research need:** Updates were made to Chapter 3.4.12 Lumpy skin disease for the twelfth edition of the WOAHS Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, to include the relevant information on the novel recombinant strains in the northern hemisphere (Reference Letter: GT/SL/GP 35.580, 26 June 2023).

**Relevance for WOAHS Disease Control,**

**Relevance for the Codes or Manual Manual,**

**Field Epidemiology and Surveillance, Diagnostics,**

**Animal Category Terrestrial,**

**Disease:**

Lumpy skin disease

**Kind of disease (Zoonosis, Transboundary diseases)** Transboundary diseases,

**If any, please specify relevance for Codes or Manual, chapter and title**

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Chapter 3.4.12 Lumpy skin disease

**Notes:**

Answer:

**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:

We continued to collect, isolate and characterize new field isolates through complete genome sequencing and phylogenetically comparing them with sequences from GenBank. This is of importance for the stability determination of the viral genome in light of the concerns associated with the recombinants detected in the field in the northern hemisphere. Characterization of historic isolate are also continuing, for the same reasons. Besides cattle, isolates were also characterised from wildlife, such as springbok antelope.

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:

Review of the genetically different LSDV strains identified since 1954.

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:

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Krotova, A., Mazloum, A., van Schalkwyk, A., Prokhvatilova, L., Gubenko, O.; Byadovskaya, O., Chvala, I., Sprygin, A. 2023. *The Characterization and Differentiation of Recombinant Lumpy Skin Disease Isolates Using a Region within ORF134*. *Appl. Microbiol.* 3, 35–44. <https://doi.org/10.3390/applmicrobiol3010003>

Sprygin, A., Mazloum, A., Van Schalkwyk, A., Krotova, A., Bydovskaya, O., Prokhvatilova, L., & Chvala, I. (2023). *Development and application of a real-time polymerase chain reaction assay to detect lumpy skin disease virus belonging to the Kenyan sheep and goat pox group*. *BMC research notes*, 16(1), 247. <https://doi.org/10.1186/s13104-023-06502-z>

Mazloum, A., Van Schalkwyk, A., Babiuk, S., Venter, E., Wallace, D.B. and Sprygin, A. (2023). *Lumpy skin disease: history, current understanding and research gaps in the context of recent geographic expansion*. *Front. Microbiol.* 14:1266759. doi: 10.3389/fmicb.2023.1266759

b) International conferences:

2

Van Schalkwyk, A. 2023. *Estimating evolutionary changes between lumpy skin disease virus strains from South Africa*. *LSD Symposium, FAO, Rome. Organized by EU-FMD. 14th to 16th March 2023. Presented Online.*

Van Schalkwyk, A. 2023. *East Asia CVO/Contact Persons meeting on PPR & LSD. Organized by the World Organization for Animal Health (WOAH). Qingdao, China. 24th to 26th July 2023.*

Van Schalkwyk, A., Kara, P., Fehrsen, J., Mather, A. *Identification of novel epitopes capable of differentiating between vaccine and field lumpy skin disease virus. 13th International Veterinary Immunology Symposium. Kruger National Park, South Africa. 17-21 November 2023*

c) National conferences:

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

2

van Schalkwyk. A. 2023. Knopvelsiekte wat onder vee voorkom. 7 February 2023. RSG radio station. <https://clyp.it/g0sehnhz>

van Schalkwyk. A. 2023. Impact of lumpy skin disease. 15 February 2023. PlaasTV. [https://www.youtube.com/watch?v=47V\\_KooyN5s](https://www.youtube.com/watch?v=47V_KooyN5s)

## TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 2

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	RUSSIA	2

## 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	Certificate of accreditation issued by the South African National Accreditation System (SANAS) on 31 May 2022 (Expires: 30 May 2027)	V0001-11-2023.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Various diseases listed in the attached document, but currently not for LSD. The LSD test are performed in the same laboratories under the same accreditation system	South African National Accreditation System (SANAS)

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

Yes

We have been following the recommendations as set out in the Terrestrial Manual.

## TOR9: SCIENTIFIC MEETINGS

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

No

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
East Asia CVO/Contact Persons meeting on PPR & LSD	2023-07-25	Qingdao, China	Van Schalkwyk presented three talks	1. Updates to WOAHA Manual Chapter 3.4.12. 2. Diagnostics of LSD 3. Vaccines of LSD

## TOR10: NETWORK WITH WOAHA REFERENCE LABORATORIES

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

No

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

No

25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen?

No

26. Did your laboratory collaborate with other WOA 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 WOA Reference Laboratories for the same pathogen?

No

### **TOR12: EXPERT CONSULTANTS**

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Advisory	Online	Contributing to updating Chapter 3.4.12 Lumpy skin disease for the twelfth edition of the WOA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals.

29. Additional comments regarding your report:

No