

WOAH Collaborative Centre Reports Activities 2025

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CENTRE INFORMATION

*Title of WOA Collaborating Centre	Surveillance and Control of Animal Diseases in Africa
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*Name of the writer:	Dr. Baratang Alison Lubisi

TOR 1 AND 2: SERVICES PROVIDED

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

Category	Title of activity	Scope
Epidemiology, surveillance, risk assessment, (true)	Epidemiology and surveillance	Surveillance of notifiable and controlled animal diseases; and surveillance of antimicrobial use (AMU) and antimicrobial resistance (AMR).
Training, capacity building (true)	Training and capacity building	Training on performance of diagnostic tests; training on bioinformatics; identification of ticks, helminths, and insects of veterinary importance; and identification of clinical signs in-vivo.
		<ul style="list-style-type: none"> • Anthrax • Brucellosis (in all animal species) • Rabies • Salmonella Enteritidis • Tuberculosis • Rift Valley Fever • African horse sickness (AHS) • African Swine Fever (ASF) • Aujeszky's disease – mostly done as part of a structured surveillance programme • Bovine Contagious Pleuropneumonia (CBPP) • Classical Swine Fever (CSF) - mainly for compartments • Contagious Equine Metritis (CEM) • Corridor or Buffalo disease (Theileriosis) • Dourine •

Zoonoses (true)	Diagnoses of zoonotic diseases	East Coast Fever • Equine Infectious Anaemia (EIA) • Equine Influenza (EI) • Equine Viral Arteritis (EVA) - currently performing only virus isolation • Foot-and-mouth Disease (FMD) • Glanders • Johne's disease (in sheep, cattle and goats) • Nagana (Trypanosomiasis) • Porcine Reproductive and Respiratory Syndrome (PRRS) - mostly done for compartments • Sheep scab • Skin conditions in sheep Swine vesicular disease • Bovine Malignant Catarrhal Fever (Snotsiekte) • Bluetongue • Lumpy Skin Disease • Strangles • Swine Erysipelas
Wildlife (true)	Diagnoses and surveillance of diseases affecting wildlife	• Anthrax • Brucellosis (in all animal species • Rabies • Salmonella Enteritidis • Tuberculosis • Rift Valley Fever • Notifiable Avian Influenza (NAI) • Psittacosis • African horse sickness (AHS) • African Swine Fever (ASF) • Bovine Contagious Pleuropneumonia (CBPP) • Classical Swine Fever (CSF) - mainly for compartments • Corridor or Buffalo disease (Theileriosis) • East Coast Fever • Foot-and-mouth Disease (FMD) • Johne's disease (in sheep, cattle and goats) • Nagana (Trypanosomiasis) • Porcine Reproductive and Respiratory Syndrome (PRRS) - mostly done for compartments • Salmonella Gallinarum (Fowl typhoid) • Salmonella Pullorum (Bacillary white diarrhoea) • Bovine Malignant Catarrhal Fever (Snotsiekte) • Bluetongue
Avian diseases (true)	Diagnoses and surveillance of avian diseases	• Newcastle disease • Notifiable Avian Influenza (NAI) • Psittacosis
Aquatic animal diseases (true)	Diagnoses of aquatic animal diseases	• Bacterial Kidney Disease (in fish) • Contagious Haemopoietic Necrosis (in fish) • Contagious Pancreatic Necrosis (in fish) • Koi Herpes Virus
Diagnosis, biotechnology and laboratory (true)	Diagnostic Services	• African horse sickness (AHS) • African Swine Fever (ASF) • Aujeszky's disease – mostly done as part of a structured surveillance programme • Bovine Contagious Pleuropneumonia (CBPP) • Classical Swine Fever (CSF) - mainly for compartments • Contagious Equine Metritis (CEM) • Corridor or Buffalo disease (Theileriosis) • Dourine • East Coast Fever • Equine Infectious Anaemia (EIA) • Equine Influenza (EI) • Equine Viral Arteritis (EVA) - currently performing only virus isolation • Foot-and-mouth Disease (FMD) • Glanders • Johne's disease (in sheep, cattle and goats) • Nagana (Trypanosomiasis) • Porcine Reproductive and Respiratory Syndrome (PRRS) - mostly done for compartments • Salmonella Gallinarum (Fowl typhoid) • Salmonella Pullorum (Bacillary white diarrhoea) • Sheep scab • Skin conditions in sheep Swine vesicular disease • Bovine Malignant Catarrhal Fever (Snotsiekte) • Bluetongue • Lumpy Skin Disease • Strangles • Swine Erysipelas
Vaccines (true)	Production of blood vaccines	• Anaplasmosis • Asiatic Red Water • Babesiosis • Heart Water

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Feed safety (true)	• Residue Monitoring • Feed and Food Analysis	Laboratory analysis of various chemical compound groups and bacterial contamination in feed
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TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable Area
The development and validation of improved foot-and-mouth disease (FMD) assays for small ruminants in southern Africa.	Seoke, L. The development and validation of improved foot-and-mouth disease (FMD) assays for small ruminants in southern Africa. Doctor of Philosophy, Faculty of Veterinary Science, University of Pretoria. Supervisor: Prof G Fosgate, Co-supervisors: Dr L Heath & Dr P Opperman.	Laboratory Expertise Training and Education

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

No

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

Yes

Name of WOA?H CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WOAH Reference Centre for Bluetongue and African Horse Sickness Laboratorio Central de Sanidad Animal LCV-Algete, Ctra. Algete Km 828110 Algete, Madrid	Madrid, Spain	Europa	Participation in African Horse Sickness and Bluetongue Proficiency Test Scheme.
WOAH Reference Laboratories for Bluetongue: i). CSIRO 5 Portarlington Road, Private Bag 24 (Ryrie Street), Geelong 3220, Victoria ii). Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" Via Campo Boario, 64100 Teramo iii). Pirbright Ash Road, Woking, Surrey GU24 0NF	Geelong, Australia; Teramo, Italy; Surrey, United Kingdom	Asia y el Pacífico Europa	To request the Laboratories' consent to participate in a Bluetongue interlaboratory comparison round organized by the Agricultural Research Council - Onderstepoort Veterinary Research (ARC-OVR) WOA?H Reference Laboratory for Bluetongue.
WOAH Reference Laboratory for Rift Valley Fever: CIRAD Campus international de Baillarguet, TA A15/E, 34398	Montpellier, France	África Europa	To request the Laboratory's consent to participate in a Rift Valley Fever interlaboratory comparison round organized by the Agricultural Research Council - Onderstepoort Veterinary Research (ARC-

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Montpellier Cedex 5			OVR) WOAHO Reference Laboratory for Rift valley fever.
WOAH Reference Laboratories for Lumpy Skin Disease: i). Department of Infectious Diseases in Animals Exotic and vector-borne diseases (EXOVEC), Sciensano, Groeselenberg 99, 1180 Uccle ii). Pirbright, Ash Road, Woking, Surrey GU24 0NF	Groeselenberg, Belgium; Surrey, United Kingdom	Europa	Request for antisera and control viruses for sheep and goatpox to validate tests and strengthen the Agricultural Research Council - Onderstepoort Veterinary Research (ARC-OVR) WOAHO Reference Laboratory for Sheep and Goatpox.
WOAH/FMD network meeting of 23-24 October 2025. The Pirbright Institute, Vesicular Disease Reference Laboratories Ash Road, Pirbright, Woking, Surrey GU24 0NF,	Surrey, United Kingdom	África América Asia y el Pacífico Europa Oriente Medio	Meeting attendance and presentation on the current Foot and mouth disease situation in South Africa, and information on the laboratory activities at ARC-OVR.
Sub-Regional Representation for South-East Asia (SRR-SEA) c/o Department of Livestock Development 69/1 Phaya Thai Road, Ratchathewi Bangkok 10400, Thailand	Bangkok, Thailand	África Asia y el Pacífico	A meeting was held with the South-East Asia WOAHO center members on suggestions for possible laboratories to participate in Proficiency testing (PT) as well as the Twinning project with the China Animal Health and Epidemiology Center (CAHEC).
OFFLU Network	Paris, France and Rome, Italy	África	OFFLU pre-VCM (Vaccine Composition Meeting) teleconference to communicate presentation destined for the September 2025 WHO VCM meeting data submission (avian and swine influenza).

TOR 4 AND 5: NETWORKING AND COLLABORATION

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

Yes

Name of WOAHO CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WOAH Reference Laboratory for African Horse Sickness	Surrey, United Kingdom; Algete, Spain; and Onderstepoort, South Africa.	Europe	Modification and Validation of a Reference Real-Time RT-PCR Method for the Detection of a New African Horse Sickness Virus Variant.

TOR 6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOA?H?

No

TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

The ARC-OVR based WOA?H Reference Laboratory for Rabies assisted the Central Veterinary Laboratory (CVL) in Malawi with troubleshooting to resolve a matter of contamination of a negative control sample used in a quantitative RT-PCR used for detection of lyssaviruses RNA from suspected animal cases.

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOA?H, to personnel from WOA?H 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)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
C	The ARC-OVR WOA?H Rabies Reference Laboratory hosted 5 scientists from Eswatini, Lesotho, Malawi, Mozambique and Zimbabwe from the 10-12 March 2025. The World Organisation for Animal Health (WOA?H) funded the training under the Southern Africa Eastern Nuclei Rabies Laboratory Network. The objective of the training workshop was to improve rabies surveillance, diagnostic capacity and capabilities in the SADC region. The workshop focused on establishment of national rabies databases and continued analysis of data, quality assurance of laboratory diagnosis and improved knowledge of rabies epidemiology in the SADC region. Further, the workshop aimed at harmonization of diagnostic techniques, such as direct Fluorescent Antibody Test (dFAT) across the region to meet the WOA?H diagnostic standards.	Eswatini, Lesotho, Malawi, Mozambique and Zimbabwe	5
C	A Technology Transfer event was offered to 10 veterinary officials from SADC countries on "Risk-based surveillance training" as part of a project deliverable for the WOA?H-funded project. The training was held from 10-14 March 2025. Ten officials were trained.	Eswatini, Lesotho, Malawi, Mozambique and Zimbabwe	10
C	3 people were trained on "Rabies diagnosis" from 30 June 2025 - 04 July 2025 at ARC-OVR.	South Africa	3
C	61 people were trained on "Rabies Sampling Techniques" on 28 August 2025 at Makhado	South Africa	61

	Veterinary Laboratory, Limpopo Province		
C	Provided training at North West University (NWU) on Biorisk Management. The event was hosted at NWU	South Africa	66
C	International Atomic Energy Agency (IAEA) funded delegates who received training on aquaculture in October 2025	Lesotho	2

TOR 8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOA?H?

No

TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOA?H that may be useful to Members of WOA?H

a) Articles published in peer-reviewed journals:

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Mathole, M., Carroll, L., Khabo-Mmekoa, C., Mabogoane, N. & Matle, I. 2024. Annotated genome sequences of *Salmonella* Haifa, *Salmonella* Bangkok and *Salmonella* Reading, isolated from chicken meat in South Africa. *Microbiology Resource Announcements*, Volume 13, Issue 11. 13:e00284-24. <https://doi.org/10.1128/mra.00284-24>

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Gana, J., Pierneef, R.E., Gcebe, N., Moerane, R. & Adesiyun, A.A. 2025. Whole genome characterization of *Listeria welshimeri* isolates recovered from cattle abattoirs and retailers in Gauteng province in South Africa. *Journal of Consumer Protection and Food Safety*. <https://doi.org/10.1007/s00003-025-01546-8>.

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Chitimia-Dobler, L., Barboutis, C., Bounas, A., Kassara, C., Mans, B.J. & Saratsis, A. 2024. Discovery of a novel Mediterranean *Haemaphysalis* (*Ornithophysalis*) *doenitzi* group tick species infesting *Falco eleonora* on Antikythera Island, Greece. *Parasitology* 151, 933-945. <https://doi.org/10.1017/S0031182024000866>

Fukuda, M., Otsuka, Y., Sakai, K., Uni, S., Junker, K., Saeung, A., Srisuka, W. & Takaoka, H. 2025. Metabolomic analysis of larval stages of *Onchocerca japonica* (*Spirurida: Onchocercidae*), raised in black fly (*Diptera: Simuliidae*) vectors, by gas chromatography-tandem mass spectrometry. *Acta Tropica*, 263, 107541. <https://doi.org/10.1016/j.actatropica.2025.107541>

Gharpure, R., Vegvari, C., Abdissa, A., Alimi, Y., Anyamba, A., Auerbach, J., Bett, B., Bird, B.H., Bob, N.S., Breugelmans, J.G., Clark, J., Cleaveland, S., Cramer, J., Dawa, J., Fay, P.C., Formenty, P., Gerds, V., Gerken, K.N., Gitonga, J., Groschup, M., Heighway, J., Johnson, S.A.M., Juma, J., Kading, R.C., Kamau, M., Kerama, S., Lubisi, B.A., Lutwama, J., Luyimbazi, D., Marami, D., Moore, S.M., Muturi, M., Mwangoka, G., Ndiu, A., Njenga, M.K., Njoum, R., Nyakarahuka, L., Nzietchueng, S., Oloo, P., Otiende, M., Oyola, S., Paganini, L.S., Pandit, P.S., Punt, C., Samy, A.M., Situma, S., Sneddon, H., Ten Bosch, Q.A., Tezcan-Ulger, S., Thompson, P.N., Tildesley, M., Tinto, B., Vesga, J.F., Schreier, P.P.W. & Hart, P. 2025. Meeting report: CEPI workshop on Rift Valley fever epidemiology and modeling to inform human vaccine development, Nairobi, 4-5 June 2024. *Vaccine*, 54, 126860. <https://doi.org/10.1016/j.vaccine.2025.126860>

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Mans, B.J., Chitimia-Dobler, L., Pienaar, R., de Castro, M., Khan, M., Almutairi, M.M., Alouffi, A. & Ali, A. 2024. Mitochondrial genome and nuclear ribosomal RNA analysis place *Alveonasus lahorensis* within the *Argasinae* and suggest that the genus *Alveonasus* is paraphyletic. *Parasitology* 151, 908-917.

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Moabelo, K.C., Gcebe, N., Gana, J., Ngashe, Y.B., Moerane, R. & Adesiyun, A.A. 2025. Detection and Molecular Characterization of *Listeria monocytogenes* and *Listeria spp.* Isolates Recovered From Cattle Farms in Mpumalanga Province, South Africa. *Veterinary Medicine International*. 4708466. <https://doi.org/10.1155/vmi/4708466>

b) International conferences:

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- 1). Mans, B. Presentation titled "From phylogenomics to functional evolution - insights into the adaptation of ticks to a blood feeding environment using comparative sialomics" presented at the 16th International Symposium of Ticks and Tick-borne Diseases on 27 March 2025 in Weimar, Germany.
- 2). A Craig. Oral presentation titled "Interrelationships of warthogs, *Ornithodoros* ticks and African swine fever virus in South Africa" presented at the Global African Swine Fever Research Alliance (GARA) Scientific Meeting held 28-30 April 2025 in Rome, Italy.
- 3). J van Emmenes. Oral presentation titled "A recombinant salivary lipocalin protein (rtTSGP1) assay validation as a diagnostic tool" presented at the Global African Swine Fever Research Alliance (GARA) Scientific Meeting held 28-30 April 2025 in Rome, Italy.
- 4). R Malesa. Poster presentation titled "A recombinant salivary lipocalin protein (rtTSGP1) assay validation as a diagnostic tool" presented at the Global African Swine Fever Research Alliance (GARA) Scientific Meeting held 28-30 April 2025 in Rome, Italy.
- 5). T Rametse. Poster presentation titled "African swine fever and smallholder farmers" presented at the Global African Swine Fever Research Alliance (GARA) Scientific Meeting held 28-30 April 2025 in Rome, Italy.
- 6). J van Emmenes. Poster presentation titled "Assessment of risk factors for African swine fever in Gauteng Province" presented at the Global African Swine Fever Research Alliance (GARA) Scientific Meeting held 28-30 April 2025 in Rome, Italy.
- 7). D Mohale. Poster Presentation titled "Central nervous tissues from horses with rabies are generally infected by the dog-rabies variant" presented at the SASVEPM Congress held on 20-22 August 2025 in White River, Mpumalanga.
- 8). E Ngoepe. Oral Presentation titled "Rabies virus outbreak in marine mammal of South Africa" presented at the SASVEPM Congress held on 20-22 August 2025 in White River, Mpumalanga.
- 9). S Nkosi. Poster Presentation titled "Rabies surveillance in the Eastern Nuclei of the SADC: A systematic review" presented at the SASVEPM Congress held on 20-22 August 2025 in White River, Mpumalanga.
- 10). T Hlokwwe. Poster Presentation titled "Paratuberculosis in a hunted Gemsbok: A hidden potential zoonotic threat to meat handlers and consumers" presented at the SASVEPM Congress held on 20-22 August 2025 in White River, Mpumalanga.
- 11). M Chitray. Presented 3 oral presentations at the WOAHP Training Workshop for WOAHP National Focal Points for Animal Disease held on 29-31 July 2025, Johannesburg, South Africa, on "ARC-OVR-TAD WOAHP FMD Reference laboratory"; "ARC-OVR-TAD Research and Development: Foot and mouth disease" and "ARC-OVR-TAD Vaccine Production: Capacity to prepare local FMD vaccine".
- 12). M Chitray. Gave an oral presentation at the 22nd Annual SASVEPM Congress held on 20-22 August 2025 at the ANEW Resort, Whiteriver, Mpumalanga, South Africa, on "A cross-sectional study of FMDV in African Buffalo in the Kruger National Park, South Africa: Diagnostic and Genetic characterisation".
- 13). M Taioe. Presented a poster at the 37th International Scientific Council for Trypanosomiasis Research and Control (ISCTRC) held on 15-19 September 2025, Nairobi,

- Kenya on "A cross-sectional study of FMDV in African Buffalo in the Kruger National Park, South Africa: Diagnostic and Genetic characterisation".
14. K Labuschagne. Gave an oral presentation on 15 September 2025 at the 5th International Congress on Parasites of Wildlife & 53rd Annual PARSAs Conference held on 14-18 September 2025, Skukuza, Kruger National Park, South Africa on "Biting midges (Diptera: Ceratopogonidae: Culicoides) in South Africa: status and research".
15. P Moyaba. Gave an oral presentation on 16 September 2025 at the 5th International Congress on Parasites of Wildlife & 53rd Annual PARSAs Conference held on 14-18 September 2025, Skukuza, Kruger National Park, South Africa on "Molecular detection of trypanosome parasite in Stomoxys flies from the northeastern KwaZulu-Natal Province of South Africa".
16. J van Emmenes. Oral presentation titled "Biobanking for animal health: storing natural treasures" presented at the 2025 Joint Biobanks Conference held 30 September 2025 - 03 October 2025 at the Old Mutual Conference and Exhibition Centre, Kirstenbosch National Botanical Garden, Cape Town.
17. J van Emmenes. Oral presentation titled "Discussion: continental position on ASFV vaccines (policy issues, risks, communication and awareness)" presented at the 5th Standing Group of Experts (SGE) on African Swine Fever (ASF) for Africa meeting held on 14 October 2025 in Lomé, Togo
18. J Fehrsen. Poster presentation titled "Animal-friendly diagnostic reagents: a renewable, universal source based on avian genes" presented at the 10th South African Immunology Society (SAIS) Conference 2025 held on the 30 October - 01 November 2025 at the Garden Court, Marine Parade, Durban, KwaZulu-Natal.
19. A van Schalkwyk. Oral presentation titled "Identification of novel epitopes capable of differentiating between vaccine and field lumpy skin disease virus" presented at the 10th South African Immunology Society (SAIS) Conference 2025 held on the 30 October - 01 November 2025 at the Garden Court, Marine Parade, Durban, KwaZulu-Natal.
20. MT Rametse. Poster presentation titled "African swine fever and smallholder farmers in Ekurhuleni, Gauteng" presented at the 22nd Annual SASVEPM Congress held on 20-22 August 2025 at the ANEW Resort, Whiteriver, Mpumalanga.
21. M Chitray. Oral presentation titled "A cross-sectional study of FMDV in African buffalo in the Kruger National Park, South Africa: Diagnostic and Genetic characterization" presented at the Global Foot-and-mouth disease Research Alliance (GFRA) Scientific Meeting on 21-23 October 2025 at the Sheraton Hotel Istanbul, Türkiye
22. T Tshabalala. Poster presentation titled "African swine fever and smallholder farmers in Ekurhuleni, Gauteng" presented at the 22nd Annual SASVEPM Congress held on 20-22 August 2025 at the ANEW Resort, Whiteriver, Mpumalanga.
23. M Chitray. Oral presentation titled "ARC-OVR Laboratory" presented at the WOA/FAO FMD Network meeting held on 23-24 October 2025 at the Sheraton Hotel Istanbul, Türkiye.
24. F Peta. Oral presentation titled "Evaluation of potency and duration of immunity elicited by a multivalent FMD vaccine for use in South Africa" presented at the Global Foot-and-mouth disease Research Alliance (GFRA) Scientific Meeting on 21-23 October 2025 at the Sheraton Hotel Istanbul, Türkiye

c) National conferences:

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- 1). Kara, P. Presentation titled "Towards the development of a novel serological assay capable of differentiating between vaccine and field Lumpy skin disease virus" presented at the 17th Agricultural Research Symposium held 12 March 2025, Gauteng, South Africa.
- 2). T Hloke. Oral Presentation titled "Case of tuberculosis (TB) in South African livestock and wildlife" presented at the 7th Annual School Seminar Series Program held at the University of Limpopo on 29-30 July 2025
- 3). E Ngoepe. Oral Presentation titled "3 rabies virus variants circulating in Limpopo Province: Implications for rabies control" presented at the Limpopo Veterinary Services Congress held on 28-31 October 2025 in Fumani Game Lodge, Waterberg District, Limpopo.
- 4). A van Schalkwyk. Oral presentation titled "The prevalence of LSD in Gauteng" presented at the Gauteng Association for Animal Health Technicians (GAAHT) annual meeting and mini conference held on 17 October 2025 at ARC-OVR, Onderstepoort, Pretoria.
- 5). L Rotherham. Oral presentation titled "Avian influenza" presented at the Gauteng Association for Animal Health Technicians (GAAHT) annual meeting and mini conference held on 17 October 2025 at ARC-OVR, Onderstepoort, Pretoria.
- 6). R Malesa. Oral presentation titled "Foot and mouth disease sampling and diagnostics" presented at the Gauteng Association for Animal Health Technicians (GAAHT) annual meeting and mini conference held on 17 October 2025 at ARC-OVR, Onderstepoort, Pretoria.
- 7). T Tshabalala. Poster presentation titled "Evaluation of flinders technology associates (FTA) cards for detection and serotyping of African horse sickness virus antibodies" presented at the TUT - Faculty of Science Annual Research, Innovation and Teaching and Learning Symposium 2025 held on 21-23 October 2025. (A090)
- 8). P Kara. Oral presentation titled "Lumpy skin disease: a growing concern" presented at the Limpopo Provincial Veterinary Service Congress on 28 - 31 October 2025 at the Fumani Game Lodge, Naboomspruit, Waterberg District.
- 9). BA Lubisi. Oral presentation titled "Foot and mouth disease diagnostic tests and interpretation" at the KZN Ukubambisana - United against FMD Consultative Indaba, on 30 - 31 October 2025
- 10). F Peta. Oral presentation titled "South Africa's own FMD vaccine- Ready to Roll?" at the KZN Ukubambisana - United against FMD Consultative Indaba, on 30 - 31 October 2025

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

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Chapters in Books:

- Snyman, L.D. 2025. Continuous exposure to an aversive mixture: A means of maintaining aversion in sheep averted to *Geigeria ornativa* O. Hoffm. (Vermeerbos) - An

Assessment. *Poisonous Plant Research*, Volume 8, 9-20. <https://digitalcommons.usu.edu/poisonousplantresearch/vol8/iss1/2>.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 1: A historical overview of tick research in the Middle East. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 2: Classification and external morphology. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 3: Biology and ecology. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 4: Medical and veterinary significance. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 5: Prevention and control. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

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Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 7: Ticks of the Middle East. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 8: Individual species accounts. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 9: Taxonomy. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. Chapter 10: Ticks in the Middle Eastern countries and their distribution. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 11: The presence of ticks in Middle Eastern countries and territories. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Mumcuoglu, K.Y., Keskin, A., Mans, B.J. & Dantas-Torres, F. 2025. Chapter 12: Geoclimatic conditions of the Middle Eastern countries. In: *Ticks of Israel and Neighbouring Countries: Taxonomy, Biology, Ecology, Medical and Veterinary Significance*. Academic Press, Elsevier.

Latif, A.A. 2025. Chapter 1: African animal trypanosomosis with special reference to South Africa: An overview. In: *Tsetse Fly and African animal trypanosomosis (nagana) in South Africa*. AOSIS Books, Cape Town. <https://doi.org/10.4102/aosis.2025.BK553>

Latif, A.A. 2025. Chapter 2: Ecological studies and control of tsetse flies in South Africa. In: *Tsetse Fly and African animal trypanosomosis (nagana) in South Africa*. AOSIS Books, Cape Town. <https://doi.org/10.4102/aosis.2025.BK553>

Latif, A.A. 2025. Chapter 3: African animal trypanosomosis (nagana) in South Africa. In: *Tsetse Fly and African animal trypanosomosis (nagana) in South Africa*. AOSIS Books, Cape Town. <https://doi.org/10.4102/aosis.2025.BK553>

Latif, A.A. 2025. Chapter 4: Study reports by the International Atomic Energy Agency on tsetse and nagana in South Africa. In: *Tsetse Fly and African animal trypanosomosis (nagana) in South Africa*. AOSIS Books, Cape Town. <https://doi.org/10.4102/aosis.2025.BK553>

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

The ARC-OVR researchers continued to perform genome sequencing of disease pathogens (bacteria, viruses and parasites) in order to understand the epidemiology of diseases they are associated with, and identify suitable targets for developing novel diagnostic tests and vaccines, or optimizing them. Parasites and vectors continue to be identified at macroscopic and microscopic levels, including molecular levels. These interventions were instrumental in the identification of new species of vectors, and improvement of diagnostic tests.

They continue to train people and receive training as well, in order to upgrade their skills

12. Additional comments regarding your report:

None.