

# OIE Collaborating Centres Reports Activities

## *Activities in 2015*

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<b>Title of collaborating centre:</b>	Surveillance and Control of Animal Diseases in Africa
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<b>Name of Director of Institute (Responsible Official):</b>	Dr M Mulumba
<b>Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):</b>	Dr M Mulumba Senior Manager Research: Animal Health and Protection
<b>Name of writer:</b>	Ms Delille Wessels

**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**

<b>Epidemiology, surveillance, risk assessment, modelling</b>	
<b>Title of activity</b>	<b>Scope</b>
FMD (VI, LPBE, NSP ELISA, RT-PCR, sequencing, Ag ELISA typing)	45 111 national and 6194 international
<b>Training, capacity building</b>	
<b>Title of activity</b>	<b>Scope</b>
Biorisk management for Veterinary laboratories	Hosting the training on behalf of Sandia National Laboratories, USA. 4 staff members and 17 international participants
<b>Diagnosis, biotechnology and laboratory</b>	
<b>Title of activity</b>	<b>Scope</b>
AHS (AG, AGID, CFT, ELISA, VI) and hemi-nested RT-PCR	1018 and 349 national; 199 and 80 international respective tested
<b>Other (Name the category)</b>	
<b>Title of activity</b>	<b>Scope</b>
Recombinant RVFV nucleoprotein antigens produced for use as coating antigens in ELISA assays	Numerous

**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

AHSV RT-PCR international Ring Trail Workshop	Discussion with regards to results and performance	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare
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**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
University of Alberta VIDO NCFAD	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	Development of a LSD-RVF-PPR vaccine construct

**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?**

No

**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?**

Yes

Name of expert	Kind of consultancy	Subject

Dr C Sabeta	Electronic communication	<p>Nigeria: provide information on the relevant tests for assuring neutralising antibodies in bat sera;</p> <p>Namibia: Request for information on primers needed for the amplification of rabies viruses;</p> <p>Mozambique: Available tests for rabies antibodies in lion sera</p>
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**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: 0  
 c) Hands-on training courses: 1  
 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	During Biorisk management training, practical training on 3 subjects. Lab scenario setup to evaluate if training objectives are met	USA	21

**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?**

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
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International	Global conference for the elimination of dogmediated human rabies.	No, participate	10-11 Dec 2015	Geneva	299
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**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: 32

HEATH L.E., FASINA F.O. & BASTOS A.D., 2013. Phytochemical analysis and in-vitro anti-African swine fever virus activity of extracts and fractions of *Ancistrocladus uncinatus*, Hutch and Dalziel (*Ancistrocladaceae*). . BMC Veterinary Research 9: 120.

(FASINA F.O., BASTOS A.D., University of Pretoria).

MANS B.J., DE KLERK D.G., PIENAAR R., DE CASTRO M.H. & IBRAHIM A.A., 2015.

Next-generation sequencing as means to retrieve tick systematic markers, with the focus on *Nuttalliella namaqua* (*Ixodoidea: Nuttalliellidae*).

Ticks and Tick-borne Diseases 6: 450-462.

HORAK I.G., JORDAAN A.I., NEL P.J., VAN HEERDEN J., HEYNE I.H. & VAN DALEN

E.M., 2015. Distribution of endemic and introduced tick species in Free State Province, South Africa. . Journal of the South African Veterinary Association 86(1): 9 pages.

(HORAK I.G., University of Pretoria, JORDAAN A.I., University of the Free State, NEL P.J., tourism and Environmental Affairs, Free State Province,

VAN HEERDEN J., Kimberley Veterinary Clinic, VAN DALEN E.M., University of the Free State).

MICHEL A.L., GEOGHEGAN C., HLOKWE M.T., RASELEKA K.C., GETS W.M. &

MARCOTTY T., 2015. Longevity of *Mycobacterium bovis* in raw and traditional souring milk as a function of storage temperature and dose. PLOS One DOI:10: 1-12.

(MICHEL A.L., GEOGHEGAN C., University of Pretoria, GETS W.M., University of California, MARCOTTY T., Institute of Tropical Medicine, Antwerp, Belgium).

JUNKER K., MARIAUX J., MEASEY G.J. & MUTAFCHIEV Y., 2015. *Meteterakis saotomensis* n. sp. (Nematoda:

*Heterakidae*) from *Schistometopum thomense* (Bocage) (*Gymnophiona: Dermophiidae*) on São Tomé Island. . Systematic Parasitology 92: 131-139; 9.

(MARIAUX J., Natural History Museum of Geneva, Switzerland, MEASEY G.J., University of Stellenbosch, South Africa, MUTAFCHIEV Y., Bulgarian Academy of Sciences, Bulgaria).

BOSHRA H., WALLACE D.B., KARA P.D., MATHER A.S., TRUONG T., N FON C.,

BABIUK S., BOWDEN T.R., GERDTS V., TIKOO S. & BABIUK L., 2015. A lumpy skin disease virus deficient of an IL-10 gene homologue provides protective immunity against virulent capripoxvirus challenge in sheep and goats. Antiviral research 123: 39-49.

(BOSHRA H., TRUONG T., N FON C., BABIUK S., NCFAD, BOWDEN T.R., CSIRO Australia, GERDTS V., TIKOO S., VIDO, BABIUK L., University of Alberta).

- PURSE B.V., CARPENTER S., VENTER G.J., BELLIS G. & MULLENS B.A., 2015. Bionomics of temperate and tropical Culicoides midges: Knowledge gaps and consequences for transmission of Culicoides-borne viruses. *Annual Review of Entomology* 60: 373-392.  
(PURSE B.V., NERC Centre for Ecology and Hydrology, Oxfordshire, UK, CARPENTER S., The Pirbright Institute, Surrey, UK, BELLIS G., Department of Agriculture, Fisheries, and Forestry, Marrara, Australia, MULLENS B.A., Department of Entomology, University of California, USA).
- COMBRINK M.P., TROSKIE P.C., DE KLERK D.G., PIENAAR R., A.A. LATIF A.A. & MANS B.J., 2015. Co-transmission of the non-transmissible South African Babesia bovis S24 vaccine strain during mixed infection with a field isolate. *Ticks and Tick-borne Diseases* 6: 158-163.
- LABUSCHAGNE K., MEISWINKEL R. & SCHOLTZ C.H., 2015. Afrotropical Culicoides (Diptera: Ceratopogonidae): description of the hitherto unknown male of C. walkeri Boorman, 1979 from South Africa. *African Entomology* 23: 132-138.  
(MEISWINKEL R., Private, SCHOLTZ C.H., University of Pretoria).
- GORDON S.J.G., BOLWELL C., ROGERS C., MUSUKA G., KELLY P., LABUSCHAGNE K., GUTHRIE A.J., DENISON E., MELLOR P.S. & HAMBLIN C., 2015. The occurrence of Culicoides species, the vectors of arboviruses, at selected trap sites in Zimbabwe. *Onderstepoort Journal of Veterinary Research* 82: 8.  
(GORDON S.J.G., BOLWELL C., ROGERS C., Massey University, New Zealand, MUSUKA G., UNICEF Nigeria, KELLY P., Ross University, St. Kitts West Indies, GUTHRIE A.J., University of Pretoria, DENISON E., MELLOR P.S., HAMBLIN C., Pirbright Institute, UK).
- BAIN O., MUTAFCHIEV Y., JUNKER K., GUERRERO R., MARTIN C., LEFOULON E. & UNI S., 2015. Review of the genus Mansonella Faust, 1929 sensu lato (Nematoda: Onchocercidae), with descriptions of a new subgenus and a new subspecies. *Zootaxa* 3918: 151-193.  
(BAIN O., Muséum National d'Histoire Naturelle, MUTAFCHIEV Y., Bulgarian Academy of Sciences, GUERRERO R., Universidad Central de Venezuela, MARTIN C., LEFOULON E., Muséum National d'Histoire Naturelle, UNI S., Osaka City University).
- MAREE F.F., SCOTT K...A., CHITRAY M., VOSLOO W., NSAMBA P. & DE BEER T.A.P., 2015. Determination of common genetic variants within the non-structural proteins of foot-and-mouth disease viruses. *Veterinary Microbiology* 177: 106-122.  
(VOSLOO W., CSIRO, NSAMBA P., Makerere University, DE BEER T.A.P., European Bioinformatics Institute).
- LEFOULON E., BAIN O., BOURRET J., JUNKER K., GUERRERO R., CANIZALES I. KUZMIN Y., CARDENAS-CALLIRGOS J.M., DE SOUZA LIMA S., RACCURT C., MUTAFCHIEV Y., GAVOTTE L. & MARTIN C., 2015. Shaking the Tree: Multi-locus Sequence Typing Usurps Current Onchocercid (Filarial Nematode) Phylogeny. *Plos Neglected Tropical Diseases* 9: 1-19.  
(LEFOULON E., BAIN O., BOURRET J., Natural History Museum, Paris, France, GUERRERO R., CANIZALES I., University of Venezuela, KUZMIN Y., National Academy of Sciences, Kiev, Ukraine, University Gadjah Mada, Indonesia, CARDENAS-CALLIRGOS J.M., APHIA, Peru, DE SOUZA LIMA S., Federal University of Juiz Fora, Brasil, RACCURT C., Public Health Laboratory, Haiti, MUTAFCHIEV Y., Bulgarian Academy of Sciences, GAVOTTE L., University of Montpellier, France, MARTIN C., Natural History Museum, Paris, France).
- ARO A.O., DZOYEM J.P., HLOKWE M.T., MADOROBA E., ELOFF J.N. & MCGAW L.J., 2015. Some South African Rubiaceae tree leaf extracts have antimycobacterial activity against pathogenic and no pathogenic Mycobacterium species. *Phytotherapy Research* DOI: 1: DOI: 10.1002/.  
(ARO A.O., DZOYEM J.P., ELOFF J.N., MCGAW L.J., University of Pretoria).
- WEYER C.T., JOONE C., LOURENS C.E., MONYAI M.S., KOEKEMOER J.J.O., VAN SCHALKWYK A., MAJIWA F.A.O., GREWAR J.D., MACLACHLAN N.J. & GUTHRIE A.J., 2015. Development of three triplex real-time reverse transcription PCR assays for the qualitative molecular typing of the nine serotypes of African horse sickness virus. *Journal of Virological Methods* 223: 69-74.

WEYER C.T., JOONE C., LOURENS C.E., MONYAI M.S., Equine Research Centre, Faculty of Veterinary Science, University of Pretoria, GREWAR J.D., Epidemiology, Veterinary Services (Animal Health) Western Cape Department of Agriculture, MACLACHLAN N.J., Equine Viral Disease Laboratory, Department of Pathology, Microbiology and Immunology, School of Vet, GUTHRIE A.J., Equine Research Centre, Faculty of Veterinary Science, University of Pretoria).

MUSOKE J., HLOKWE M.T., MARCOTTY T. & MICHEL A.L., 2015. Spillback transmission of *M. bovis* from wildlife in the Greater Kruger National Park Complex. *Emerging Infectious Diseases* 21(3): 448-451. (MUSOKE J., MARCOTTY T., MICHEL A.L., University of Pretoria).

JUNKER K., HORAK I.G. & PENZHORN B., 2015. History and development of research on wildlife parasites in southern Africa, with emphasis on terrestrial mammals, especially ungulates. . *International Journal for Parasitology: Parasites and Wildlife* 4: 50-70. (HORAK I.G., PENZHORN B., University of Pretoria).

GELAW A.K., LEGESSE W.B. & MADOROBA E., 2015. Complete Genome Sequence of *Mannheimia haemolytica* Strain. *Genome* 3(2):e 3(2):e00129-1.

MAREE F.F., MUTOWEMBWA P.B., SCOTT K.A., ROTHERHAM L.S., ESTERHUYSEN J.J. & NSAMBA P., 2015. Intra-serotype SAT2 chimeric foot-and-mouth disease vaccine protects cattle against FMDV challenge. *Vaccine* 33: 2909-2916. (NSAMBA P., Makerere University).

MANS B.J., PIENAAR R. & IBRAHIM A.A., 2015. A review of *Theileria* diagnostics and epidemiology. *International Journal for Parasitology: Parasites and Wildlife* 4: 104-118.

KUZMIN Y., DU PREEZ L.H. & JUNKER K., 2015. Some nematodes of the genus *Rhabdias* Stiles et Hassall, 1905 (Nematoda: Rhabdiasidae) parasitising amphibians in French Guiana. . *Folia Parasitologica* 62: 11. (KUZMIN Y., Institute of Zoology, Kyiv, Ukraine, DU PREEZ L.H., Northwest University, Potchefstroom, Ukraine).

Carpenter, S., Veronesi, E. Mullens, B. & Venter, G. 2015. Vector competence of *Culicoides* for arboviruses: three major periods of research, their influence on current studies and future directions. *Revue scientifique et technique, Office International des Epizooties*, 34, 97-112.

Gordon, S.J.G., Bolwell, C., Rogers, C., Musuka, G., Kelly, P., Labuschagne K., Guthrie, A.J., Denison, E., Mellor, P.S. & Hamblin, C. 2015 The occurrence of *Culicoides* species, the vectors of arboviruses, at selected trap sites in Zimbabwe', *Onderstepoort Journal of Veterinary Research* 82(1), Art. #900, 8 pages. <http://dx.doi.org/10.4102/ojvr.v82i1.900>.

Jacquet, S., Garros, C., Lombaert, E., Walton, C., Restrepo J., Allene, X., Baldet, T., Cetre-Sossah, C., Chaskopoulou, A., Delecolle, J.-C., Desvars, A., Djerbal, M., Fall, M., Gardes, L., De Garine-Wichatitsky, M., Goffredo, M., Gottlieb, Y., Gueye Fall, A., Kasina, M., Labuschagne, K., Lhor, Y., Lucientes, T., Martin, Mathieu, B., Miranda, M., Pages, N., Pereira Da Fonseca, I., Ramilo, D.W., Segard, A., Setier-Rio, M.-L., Stachurski, F., Tabbabi, A., Talla Seck, M., Venter, G., Zimba, M., Balenghien, T., Guis, H., Chevillon, C., Bouyer, J. & Huber, K. 2015. Colonization of the Mediterranean basin by the vector biting midge species *Culicoides imicola*: an old story. *Molecular Ecology*, 24, 5707-5725. DOI: 10.1111/mec.13422.

Labuschagne, K., Meiswinkel, R. & Scholtz, C.H. 2015. Afrotropical *Culicoides* (Diptera: Ceratopogonidae): Description of the hitherto unknown male of *C. walkeri* Boorman, 1979 from South Africa. *African Entomology*, 23(1):132-138. DOI: <http://dx.doi.org/10.4001/003.023.0118>. URL: <http://www.bioone.org/doi/full/10.4001/003.023.0118>

Onyango, M.G., Michuki, G.N., Ogugo, M., Venter, G.J., Miranda, M.A., Elissa, N., Djikeng, A., Kemp, S., Walker, P.J. & Duchemin, J-B. 2015. Delineation of the population genetic structure of *Culicoides imicola* in East and South Africa. *Parasites and Vectors*, 8:660, DOI 10.1186/s13071-015-1277-4.

Page, P.C., Labuschagne, K., Venter, G.J., Schoeman, J.P. & Guthrie, A.J. 2015. Efficacy of alphacypermethrin-treated high density polyethylene mesh applied to jet stalls housing horses against *Culicoides* biting midges in South Africa. *Veterinary Parasitology*, 210, 84-90.

Purse, B.V., Carpenter, S., Venter, G.J., Bellis, G. & Mullens, B.A. 2015. Bionomics of temperate and tropical *Culicoides* midges: Knowledge gaps and consequences for transmission of *Culicoides*-borne viruses. *Annual Review of Entomology*, 60, 373-392.

Steyn, J., Venter, G.J., Coetzee, P. & Venter, E.H. 2015. The epidemiology of bluetongue virus in Minisi, South Africa. *American Journal of Epidemiology and Infectious Disease*, 3(5), 95-102.

Venail, R., Lhoir, J., Fall, M., Del Rio, R., Talavera, S., Labuschagne, K., Miranda, M., Pages, N., Venter, G., Rakotoarivony, I., Allène, X., Scheid, B., Gardès, L., Gimonneau, G., Lancelot, R., Garros, C., Cêtre-Sossah, C., Balenghien, T., Carpenter, S. & Baldet, T. 2015. How do species, population and active ingredient influence insecticide susceptibility in *Culicoides* biting midges (Diptera: Ceratopogonidae) of veterinary importance? *Parasites and Vectors*, 8:439 DOI 10.1186/s13071-015-1042-8.

Sabeta, C., Phahladira, B., Marston, D.M., Wise, E.L., Ellis, R. J. & Fooks, A.R. 2015. Complete genome sequences of six southern African lyssaviruses. *Genome Announcement*, September/October 2015 Volume 3 Issue 5 e01085-15.

Sabeta, C. 2015. Role of the glycoprotein in lyssavirus pathogenicity. *Future Virology*, 10.2217/fvl.15.84.

Boshra, H., Truong, T, Nfon, C., Embury-Hyatt, C., Bowden, T.R., Gerds, V., Tikoo, S., Babiuk, L.A., Kara, P., Mather, A., Wallace, D.B. and Babiuk, S. A lumpy skin disease virus deficient of an IL-10 gene homologue provides protective immunity against virulent capripoxvirus challenge in sheep and goats". *Antiviral Research*, 123, 39-49.

Carin I. Boshoff, Armanda D.S. Bastos, Mzwandi M. Dube, Livio Heath. First molecular assessment of the African swine fever virus status of *Ornithodoros* ticks from Swaziland. *Onderstepoort J Vet Res*; Vol 81, No 1 (2014), 5 pages. doi: 10.4102/ojvr.v81i1.846

b) International conferences: 3

i). Maluleke M.R and Majiwa P., 2015. Recent outbreaks of Rift Valley Fever in Southern Africa. RIFT VALLEY FEVER: New Options for Trade, Prevention and Control, Djibouti City, Djibouti, 21-23 April 2015 (Oral presentation).

ii). Lubisi B.A, 2015. Diagnostic Tests for RVF and the Role of the OIE Reference Laboratory. RIFT VALLEY FEVER: New Options for Trade, Prevention and Control, Djibouti City, Djibouti, 21-23 April 2015 (Oral presentation).

iii). Lubisi BA and Yehia G, 2015. OIE Twinning on Rift Valley Fever: South Africa and Yemen. RIFT VALLEY FEVER: New Options for Trade, Prevention and Control, Djibouti City, Djibouti, 21-23 April 2015 (Oral presentation).

iv) Maluleke M.R, Phosiwa M, Lubisi B.A, Michuki G, Kegakilwe PS, Kemp SJ and Majiwa P.A.O, 2015. Comparative genome sequence analysis of RVF virus isolates from 2008 to 2010 outbreaks in South Africa. RIFT VALLEY FEVER: New Options for Trade, Prevention and Control, Djibouti City, Djibouti, 21-23 April 2015 (Poster presentation).

v). Lubisi B.A, Ndouvhada P, Mareledwane T.V, Tshabalala T, Mangwale V, Penrith M-L and Bastos A.D.S, 2015. Seroprevalence of Rift Valley Fever antibodies in South African Suids. RIFT VALLEY FEVER: New Options for Trade, Prevention and Control, Djibouti City, Djibouti, 21-23 April 2015 (Poster presentation).

vi). Lubisi BA and Romito M, 2015. ANIMALS AS SENTINELS OF BIOTERRORISM AGENTS: A RETROSPECTIVE ANALYSIS OF THE RIFT VALLEY FEVER OUTBREAKS AND WEST NILE FEVER OCCURENCES OF 2009 TO 2011 IN SOUTH AFRICA. Global Conference on Biological Threat Reduction, Paris, France, 30 June – 2 July 2015 (Poster presentation).

vii). Mdlulwa Z., Kirsten. J. and Klein K.K. (2015) Is there any correlation between demographic variables and animal losses? A qualitative analysis of the 2009/10 Rift Valley fever outbreaks in South Africa. International Business and Social Science Research Conference, Melbourne, Australia, 2-4 October 2015 (Oral presentation).

viii). Wallace, D.B. and Mather, M, 2015. Novel Livestock Vaccines for viral diseases in Africa towards improved food security. Stakeholder workshop for new rLSD-RVF-PPR and rLSD-RVF vaccines (under development) in Nairobi, Kenya, 3rd December 2015 (Oral presentation).

."Rabies in African wild-dogs (*Lycaon pictus*) in North-West South Africa linked to a dog (canid) rabies cycle" during the 17th Annual International Symposium of the World Association of Veterinary Laboratory Diagnosticians (WAVLD), that will take place in Saskatoon (Canada) from June 15-18, 2015.(Oral presentation)



Novel Livestock Vaccines for viral diseases in Africa towards improved food security. Wallace, D.B. and Mather, M. Stakeholder workshop for new rLSD-RVF-PPR and rLSD-RVF vaccines (under development) in Nairobi, Kenya, 3rd December 2015.

c) National conferences: 2

Serosurveillance studies of rabies neutralizing antibodies in Nigerian fruit bat *Eidolon helvum* during the 17th Annual International Symposium of the World Association of Veterinary Laboratory Diagnosticians (WAVLD), that will take place in Saskatoon (Canada) from June 15-18, 2015.

The serological surveillance of rabies virus neutralising antibodies in dogs following vaccination in Limpopo province during the 13th annual congress of the Southern African Society for Veterinary Epidemiology and Preventive Medicine (SASVEPM) during [19-21 August 2015] in Bloemfontein.

d) Other

(Provide website address or link to appropriate information): 5

Wallace, D.B. and Mather, M, 2015. Novel Livestock Vaccines for viral diseases in Africa towards improved food security. Policy Dialogue titled Primary Animal Health Care in the Context of Disease prevention and scaling- up for small-scale farmer communities: Research, Policy and Delivery, HSRC offices, Pretoria, South Africa, 11 May 2015. Approximately 70 people attended the event in person or via videoconferencing.

Wallace, D.B. and Mather A, 2015. "Multivalent livestock vaccine development towards more effective control of RVF" by. UP-USDA-ARS BEP workshop on Rift Valley fever. Veterinary Faculty, Department Veterinary Tropical Diseases, University of Pretoria, South Africa, 3rd of August 2015 (Oral).

Mather, A. and Wallace, D.B, 2015. Novel Livestock Vaccines for viral diseases in Africa towards improved food security. Policy Dialogue titled New Generation Vaccines and Animal Health in Africa: Research, Policy and Delivery. HSRC offices, Pretoria, South Africa, 1 September 2015 (Oral). Approximately 80 people attended the event in person or via videoconferencing.

Article in Proceedings:

VENTER G.J., 2015. Light traps as a tool to evaluate attractants and repellents against *Culicoides* midge. In: Abstracts of A joint ESSA and ZSSA congress. : electronic.

Book chapter:

Sabeta, C. & Ngoepe, C. (2015) Rabies biologics - Rabies antibodies / fragments" "Production of polyclonal antibodies in goats". Book chapter in: Current Laboratory Techniques in Rabies Diagnosis, Research and Prevention Vol II, Chapter 7, 69-83.