CONTRIBUTORS

CONTRIBUTORS AND PROFESSIONAL ADDRESS AT TIME OF WRITING

The chapters in the Terrestrial Manual *are prepared by invited contributors* (*WOAH Reference Experts, where possible*). *In accordance with WOAH standard procedure, all chapters are circulated to WOAH Members for comment. The WOAH Biological Standards Commission and the Consultant Editor then modify the text to take account of comments received, and the text is circulated a second time as the final version that will be presented for adoption by the World Assembly of Delegates to WOAH at the General Session in May of each year. The* Terrestrial Manual *is thus deemed to be a WOAH Standard that has come into being by international agreement. For this reason, the names of the contributors are not shown on individual chapters but are listed below. The Biological Standards Commission greatly appreciates the work of the following contributors* (*address at the time of writing*):

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1.1.2. Collection, submission and storage of diagnostic specimens	**WOAH *ad hoc* Group on Biosafety and Biosecurity in Veterinary Laboratories**
1.1.3. Transport of biological materials	**WOAH *ad hoc* Group on Transport of Biological Materials**
1.1.4. Biosafety and biosecurity: standard for managing biological risk in the veterinary laboratory and animal facilities	**WOAH *ad hoc* Group on Biosafety and Biosecurity in Veterinary Laboratories**
1.1.5. Quality management in veterinary testing laboratories	**Dr A. Colling** Australian Centre for Disease Preparedness, CSIRO, Geelong, Victoria, Australia.
1.1.6. Validation of diagnostic assays for infectious diseases of terrestrial animals	**Dr A. Colling** Australian Centre for Disease Preparedness, CSIRO, Geelong, Victoria, Australia. **Dr I. Gardner (retired)** Canada
1.1.7. Standards for high throughput sequencing, bioinformatics and computational genomics[1]	**Dr S. Belak (retired) & Dr F. Granberg** Swedish University of Agricultural Sciences, Department of Biomedical Sciences and Veterinary Public Health, Uppsala, Sweden.
1.1.8. Principles of veterinary vaccine production	**WOAH Collaborating Centre for Veterinary Medicinal Products, Anses Fougères, France**

1 This chapter was updated by consensus of the WOAH *ad hoc* Group on High Throughput Sequencing, Bioinformatics and Computational Genomics.

1.1.9. Tests for sterility and freedom from contamination of biological materials intended for veterinary use	**Dr A. Colling & Dr K. Newberry** Australian Centre for Disease Preparedness, CSIRO, Geelong, Victoria, Australia.
1.1.10. Vaccine banks	**Dr A.-E. Füssel (retired)** Belgium. **Dr D. Mackay (retired)** UK. **Dr P.V. Barnett (retired)** UK.
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2.1.2. Biotechnology advances in the diagnosis of infectious diseases	**Dr S. Belak (retired)**[2] Sweden.
2.1.3. Managing biorisk: examples of aligning risk management strategies with assessed biorisks	**WOAH *ad hoc* Group on Biosafety and Biosecurity in Veterinary Laboratories**
2.2.1. Development and optimisation of antibody detection assays *2.2.2. Development and optimisation of antigen detection assays* *2.2.3.Development and optimisation of nucleic acid detection assays* *2.2.4. Measurement uncertainty* *2.2.5. Statistical approaches to validation* *2.2.6. Selection and use of reference samples and panels* *2.2.7*. Validation of diagnostic tests for infectious diseases applicable to wildlife* *2.2.8. Comparability of assays after changes in a validated test method*	**WOAH *ad hoc* Group on Validation of Diagnostic Assays** ***WOAH *ad hoc* Group on Validation of Diagnostic Tests for Wildlife**
2.3.1. The application of biotechnology to the development of veterinary vaccines	**Dr A.A. Potter, Dr V. Gerdts, Dr G. Mutwiri, Dr S. Tikoo & De S. van Drunen Littel-van den Hurk** Vaccine and Infectious Disease Organization, Saskatoon, Canada.
2.3.2. The role of official bodies in the international regulation of veterinary biologicals	**Dr J.-P. Orand (retired) and Dr C. Lambert** Agence Nationale du Médicament Vétérinaire, Anses Fougères, France. **Dr B. Rippke (retired)** USA. **Dr T. Tsutsui** National Institute of Animal Health, Division of Viral Disease and Epidemiology, National Institute of Animal Health, Ibaraki, Japan.

2 This chapter was updated by consensus of an Expert Consultation

2.3.3. Minimum requirements for the organisation and management of a vaccine manufacturing facility	
2.3.4. Minimum requirements for the production and quality control of vaccines	**WOAH Collaborating Centre for Veterinary Medicinal Products, Anses Fougères, France**
2.3.5. Minimum requirements for aseptic production in vaccine manufacture	
3.1.1. Anthrax	**Dr K. Amoako** Canadian Food Inspection Agency, National Centre for Animal Disease (NCAD), Lethbridge Laboratory, Alberta, Canada. **Dr G. Harvey** USDA, APHIS, National Veterinary Services Laboratories, Ames, Iowa, USA.
3.1.2. Aujeszky's disease (*infection with Aujeszky's disease virus*)	**Dr A. Jestin & Dr M.F. Le Potier** Anses-Ploufragan, Laboratoire d'études et de recherches avicoles et porcines, Ploufragan, France. **Dr W. Loeffen** Wageningen Bioveterinary Research, Lelystad, The Netherlands. **Dr S.L. Swenson (formerly)** USDA, APHIS, National Veterinary Services Laboratories, Ames, Iowa, USA.
3.1.3. Bluetongue (*infection with bluetongue virus*)[3]	**Dr Debbie Eagles** Australian Centre for Disease Preparedness, CSIRO, Geelong, Victoria, Australia.
3.1.4. Brucellosis (*infection with* Brucella abortus, B. melitensis *and* B. suis)[4]	**Dr A. Whatmore** APHA Weybridge, New Haw, Addlestone, Surrey, Weybridge, UK.
3.1.5. Crimean–Congo haemorrhagic fever	**Dr J.C. Manuguerra** Institut Pasteur, Paris, France.
3.1.6. Echinococcosis (*infection with* Echinococcus granulosus and *with* E. multilocularis *virus*)	**Dr G. Masala** Istituto Zooprofilattico Sperimentale (IZS) of Sardinia, Sassari, Italy. **Dr M. Donadeu & Dr M. Lightowlers** Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Werribee, Australia.
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3.1.8. Foot and mouth disease (*infection with foot and mouth disease virus*)[5]	**Dr D.J. King** The Pirbright Institute, Ash Road, Woking, Surrey, UK.

3 This chapter was updated by consensus of all WOAH Reference Laboratories for bluetongue.
4 This chapter was updated by consensus of all WOAH Reference Laboratories for brucellosis.
5 This chapter was updated by consensus of all WOAH Reference Laboratories for foot and mouth disease.

3.1.9. Heartwater	**Dr N. Vachiéry & Dr I. Marcelino** UMR CIRAD-INRA 117 ASTRE, Campus International de Baillarguet, Montpellier, France.
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3.1.11. Leishmaniosis	**Dr F. Vitale** Istituto Zooprofilattico Sperimentale della Sicilia, National Reference Centre for Leishmaniasis, Palermo, Italy.
3.1.12. Leptospirosis[6]	**Dr J. Petrakovsky** Laboratorio de Leptospirosis, Dirección General de Laboratorios y Control Técnico, Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA), Martínez, Pcia de Buenos Aires, Argentina.
3.1.13. Mammalian tuberculosis (*infection with* Mycobacterium tuberculosis *complex*)	**WOAH *Ad hoc* Group on Replacement of the International Standard Bovine Tuberculin**
3.1.14. New World screwworm (Cochliomyia hominivorax) *and* Old World *screwworm* (Chrysomya bezziana)	**Dr J. Welch** COPEG (Panama–US Commission for the Eradication and Prevention of NWS), Panama, Panama. **Dr M.J.R. Hall** Department of Entomology, The Natural History Museum, Cromwell Road, London, UK.
3.1.15. Nipah and Hendra virus diseases	**Dr K. Halpin** Australian Centre for Disease Preparedness, CSIRO, Geelong, Victoria, Australia.
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3.1.17. Q fever	**Dr E. Rousset & Dr K. Sidi-Boumedine** Anses Sophia Antipolis, Laboratoire d'Études et de Recherches sur les Petits Ruminants et les Abeilles, Sophia Antipolis Cedex, France. **Dr B. Kadra & Dr B. Kupcsulik** Ceva-Phylaxia Co. Ltd, Budapest, Hungary.
3.1.18. Rabies (*infection with rabies virus and other lyssaviruses*)[8]	**Dr T. Müller** Institute of Molecular Virology and Cell Biology, Friedrich-Loeffler Institut, Federal Research Institute for Animal Health, Insel Riems, Germany.

6 This chapter was updated by consensus of all WOAH Reference Laboratories for leptospirosis.
7 This chapter was updated by consensus of all WOAH Reference Laboratories for paratuberculosis.
8 This chapter was updated by consensus of all WOAH Reference Laboratories for rabies.

3.1.19. Rift Valley fever (*infection with Rift Valley fever virus*)[9]	**Dr C. Cetre-Sossah** Campus international de Baillarguet, Montpellier, France. **Dr B.A. Lubisi** Onderstepoort Veterinary Institute, Agricultural Research Council, Onderstepoort, South Africa.
3.1.20. Rinderpest (*infection with rinderpest virus*)	**Dr G. Libeau (retired)** France. **Dr M. Baron (retired)** UK. **Dr K. Yoshida** National Institute of Animal Health (NIAH), National Agriculture and Food Research Organization, Tokyo, Japan.
3.1.21. Surra in all species (Trypanosoma evansi *infection*)[10]	**Dr M. Desquesnes** UMR177-Intertryp (CIRAD-IRD), CIRAD-bios, Campus international de Baillarguet, Montpellier, France.
3.1.22. Trichinellosis (*infection with* Trichinella *spp.*)	**Dr B. Scandrett** Canadian Food Inspection Agency, Centre for Foodborne & Animal Parasitology, Saskatoon, Saskatchewan, Canada. **Dr M.A. Gomez Morales** Istituto Superiore di Sanita, Laboratorio di Parasitoligia, Roma, Italy
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3.1.24. Vesicular stomatitis	**Dr E.M. Pituco** PANAFTOSA, Rio de Janeiro, Brazil. **Dr M.K. Torchetti** USDA, APHIS, National Veterinary Services Laboratories, Ames, Iowa, USA.
3.1.25. West Nile fever	**Dr F. Monaco** Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale", Teramo, Italy. **Dr T. Sturgill** USDA, APHIS, National Veterinary Services Laboratories, Ames, Iowa, USA.

9 This chapter was updated by consensus of the WOAH *ad hoc* Group on Rift Valley fever.
10 This chapter was updated by consensus of the WOAH *ad hoc* Group on Diagnostic Tests for Trypanosomoses.

Introductory note on bee diseases	**Dr M.-P. Chauzat** Anses Sophia Antipolis, Bee Pathology Unit, Sophia Antipolis, France.
3.2.1. Acarapisosis of honey bees (*infestation of honey bees with* Acarapis woodi)	**Dr R. Hall** Diagnostic and Surveillance Services, Biosecurity New Zealand, Ministry for Primary Industries, Upper Hutt, New Zealand.
3.2.2. American foulbrood of honey bees (*infection of honey bees with* Paenibacillus larvae) *3.2.3. European foulbrood of honey bees* (*infection of honey bees with* Melissococcus plutonius)	**Dr K. Sidi-Boumedine** Anses Sophia Antipolis, Bee Pathology Unit, Sophia Antipolis, France.
3.2.4. Nosemosis of honey bees	**Dr I. Fries** Honey Bee Research Group, Department of Ecology, Swedish University of Agricultural Sciences, Uppsala, Sweden.
3.2.5. Infestation with Aethina tumida (*small hive beetle*) *3.2.6. Infestation with* Tropilaelaps *spp.*	**Dr M.-P. Chauzat, Dr S. Franco, Dr V. Duquesne & Dr M.-P. Rivière** Anses Sophia Antipolis, Bee Pathology Unit, Sophia Antipolis, France.
3.2.7. Varroosis of honey bees (*infestation of honey bees with* Varroa *spp.*)	**Dr M.O. Schäfer** National Reference Laboratory for Bee Diseases, Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Insel Riems, Germany.
3.3.1. Avian chlamydiosis	**Dr C. Schnee** Institute of Molecular Pathogenesis, Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Jena, Germany. **Prof. D. Vanrompay** Laboratory for Immunology and Animal Biotechnology, Department of Animal Production, Faculty of Bioscience Engineering, Ghent University, Coupure Links, Ghent, Belgium. **Dr K. Laroucau** Anses Maisons-Alfort, Animal Health Laboratory Bacterial Zoonoses Unit, Maisons-Alfort, France.
3.3.2. Avian infectious bronchitis	**Dr J.J. (Sjaak) de Wit** Department R&D, GD Animal Health, Deventer, The Netherlands. **Dr P. Britton** The Pirbright Institute, Compton Laboratory, Newbury, Berkshire, UK.
3.3.3. Avian infectious laryngotracheitis	**Dr A.H. Noormohammadi & Dr J. Devlin** Faculty of Veterinary Science, The University of Melbourne, Werribee, Victoria, Australia.

3.3.4. Avian influenza (*including infection with high pathogenicity avian influenza viruses*)[11]

Dr D. Swayne(retired)
Southeast Poultry Research Laboratory, Athens, Georgia, USA.

Prof. I. Brown
APHA Weybridge, New Haw, Addlestone, Surrey, Weybridge, UK.

3.3.5. Avian mycoplasmosis (Mycoplasma gallisepticum, M. synoviae)

Dr S. Catania
Mycoplasma Unit, Istituto Zooprofilattico Sperimentale delle Venezie, Verona, Italy

Dr Evelin Lobo Riveroi (formerly)
MYCOLAB Laboratorio para diagnóstico de micoplasmas, Centro Nacional de Sanidad Agropecuaria, San José de las Lajas, Provincia Mayabeque, Cuba.

3.6. Avian tuberculosis

Dr I. Pavlik (formerly) & Dr I. Slaná (formerly)
Veterinary Research Institute, Brno, Czech Republic.

3.3.7. Duck virus enteritis

3.3.8. Duck virus hepatitis

Dr S. Stoute
California Animal Health and Food Safety Laboratory System, University of California, Davis, California, USA.

3.3.9. Fowl cholera

Dr P. Blackall
Poultry Hub Australia, Queensland Alliance for Agriculture and Food Innovation, University of Queensland, EcoSciences Precinct, Brisbane, Queensland, Australia.

3.3.10. Fowlpox

Dr H.S. Sellers
Poultry Diagnostic and Research Center, Department of Population Health, College of Veterinary Medicine, University of Georgia, Athens, Georgia, USA.

3.3.11. Fowl typhoid and Pullorum disease

Dr R. Davies
APHA Weybridge, New Haw, Addlestone, Surrey, UK.

3.3.12. Infectious bursal disease (*Gumboro disease*)

Dr N. Eterradossi
Anses, Laboratoire de Ploufragan-Plouzané, Laboratoire d'études et de recherches avicoles, porcines et piscicoles, Ploufragan-Plouzané, France.

Dr Y. Saif
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11 This chapter was updated by consensus of all WOAH Reference Laboratories for avian influenza.

3.3.13. Marek's disease

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3.3.14. Newcastle disease (infection with Newcastle disease virus)[12]

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Prof. I. Brown
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3.3.15. Turkey rhinotracheitis (avian metapneumovirus)

Dr N. Eterradossi & Dr P. Brown
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3.4.1. Bovine anaplasmosis

Dr F. Parrodi (formerly) & Dr J.J. Mosqueda Gualito
Centro Nacional de Servicios de Constatación en Salud Animal (CENAPA), Morelos, Mexico.

3.4.2. Bovine babesiosis

Prof. N. Yokoyama
National Research Center for Protozoan Disease Obihiro University of Agriculture and Veterinary Medicine, Hokkaido, Japan.

Dr J.J. Mosqueda Gualito
Centro Nacional de Servicios de Constatación en Salud Animal (CENAPA), Morelos, Mexico.

3.4.3. Bovine cysticercosis

See chapter 3.10.3.

3.4.4. Bovine genital campylobacteriosis

Prof. J.A. Wagenaar & Dr L. van der Graaf-van Bloois
Department of Infectious Diseases and Immunology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands.

3.4.5. Bovine spongiform encephalopathy[13]

Prof. T. Seuberlich
NeuroCentre, Department of Clinical Research and Veterinary Public Health, Division of Experimental Clinical Research, University of Bern, Bern, Switzerland.

3.4.6. Bovine tuberculosis

Dr D.V. Cousins (retired)
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3.4.7. Bovine viral diarrhoea[14]

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12 This chapter was updated by consensus of all WOAH Reference Laboratories for Newcastle disease.
13 This chapter was updated by consensus of all WOAH Reference Laboratories for bovine spongiform encephalopathy.
14 This chapter was updated by consensus of all WOAH Reference Laboratories for bovine viral diarrhoea.

3.4.8. Contagious bovine pleuropneumonia (*infection with* Mycoplasma mycoides *subsp.* mycoides)[15]	**Dr F. Thiaucourt (retired)** France.
3.4.9. Enzootic bovine leukosis	**Prof. T.W. Vahlenkamp** Institute of Virology, Centre for Infectious Diseases, Faculty of Veterinary Medicine, Leipzig University, Leipzig, Germany. **Dr B. Choudhury** APHA Weybridge, New Haw, Addlestone, Surrey, UK. **Dr J. Kuzmak** National Veterinary Research Institute, Pulawy, Poland.
3.4.10. Haemorrhagic septicaemia (Pasteurella multocida *serotypes 6:b and 6:e*)	**Dr S.B. Shivachandra** ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), Karnataka, India.
3.4.11. Infectious bovine rhinotracheitis/ infectious pustular vulvovaginitis	**Dr M. Beer** Institute of Diagnostic Virology, Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Insel Riems, Germany. **Dr A. Dastjerdi** APHA Weybridge, New Haw, Addlestone, Surrey, UK.
3.4.12. Lumpy skin disease	**Dr P. Beard (formerly)** The Pirbright Institute, Ash Road, Woking, Surrey, UK. **Dr D. Wallace** Onderstepoort Veterinary Institute, Agricultural Research Council, Onderstepoort, South Africa.
3.4.13. Malignant catarrhal fever	**Dr G. Russell** Moredun Research Institute, International Research Centre, Pentlands Science Park, Penicuik, Scotland, UK.
3.4.14. Nagana: infections with salivarian trypanosomoses (*excluding* Trypanosoma evansi *and* T. equiperdum)[16]	**Dr M. Desquesnes** UMR177-Intertryp (CIRAD-IRD), CIRAD-bios, Campus international de Baillarguet, Montpellier, France.
3.4.15. Theileriosis in cattle (*infection with* Theileria annulata, T. orientalis *and* T. parva)	**Dr P. Toye** Animal Health and Genetics, International Livestock Research Institute, Nairobi, Kenya. **Dr D. Geysen** Institute of Tropical Medicine, Department of Animal Health, Antwerp, Belgium.

15 This chapter was updated by consensus of all WOAH Reference Laboratories for contagious bovine pleuropneumonia.

16 This chapter was updated by consensus of the following WOAH experts on trypanosomes: Dr L. Touratier (deceased), Prof. N. Inoue, Prof. Ph. Büscher, Dr K. Suganuma, Dr M. Gonzatti.

3.4.16. Trichomonosis	**Dr E. Authie (formerly)** Laboratoire National de Contrôle des Reproducteurs, Maisons-Alfort, France. **Prof. A. Lew-Tabor** The University of Queensland, St. Lucia, Brisbane Queensland, Australia. **Prof. I. Diallo** Biosecurity Sciences Laboratory, Health and Food Sciences Precinct, Brisbane, Queensland, Australia.
3.5.1. Camelpox	**Dr U. Wernery, Dr K. Kamal-Aldin, Mrs S. Joseph & Mrs A. Riya Thomas** Central Veterinary Research Laboratory, Dubai, United Arab Emirates.
2.5.2. Middle East respiratory syndrome (*infection of dromedary camels with MERS-CoV*)	**WOAH *ad hoc* Group on Middle East Respiratory Syndrome Coronavirus (MERS-Cov)**
3.6.1. African horse sickness (*infection with African horse sickness virus*)	**Prof. J.M. Sánchez-Vizcaíno** Centro de Vigilancia Sanitaria Veterinaria, Facultad de Veterinaria, Universidad Complutense de Madrid, Madrid, Spain. **Dr M. Agüero Garcia** Laboratorio Central de Veterinaria, Algete (Madrid), Spain. **Dr J. Baron Castillo-Olivares** The Pirbright Institute, Ash Road, Woking, Surrey, UK.
3.6.2. Contagious equine metritis	**Dr I. Mawhinney** APHA Bury St Edmunds, Suffolk, UK **Dr M.M. Erdman** USDA, APHIS, National Veterinary Services Laboratories, Ames, Iowa, USA.
3.6.3. Dourine in horses (Trypanosoma equiperdum *infection*)[17]	**Prof. Ph. Büscher (retired)** Belgium.
3.6.4. Epizootic lymphangitis	**Dr C. Scantlebury** Department of Functional and Comparative Genomics, Institute of Integrative Biology, Biosciences Building, University of Liverpool, UK.
3.6.5. Equine encephalomyelitis (*Eastern, Western and Venezuelan*)	**Dr T. Sturgill** USDA, APHIS, National Veterinary Services Laboratories, Ames, Iowa, USA.

17 This chapter was updated by consensus of the following WOAH experts on trypanosomes: Dr M.I. Gonzatti, Dr I. Pascucci, Dr L. Touratier (deceased), Dr M. Desquesnes, Dr A. Schnaufer, Dr K. Suganuma, Dr N. Inoue, Dr N. Van Reet, Dr N. Ledesma, Dr L. Hébert.

3.6.6. Equine infectious anaemia	**Dr E.N. Ostlund (retired)** USA. **Dr J. Zhou** Laboratory of Equine Infectious Anemia Harbin Veterinary Research Institute of Chinese Academy of Agricultural Sciences Harbin, China (People's Rep. of). **Dr K. Murakami** National Institute of Animal Health, Viral Disease Section, Ibaraki, Japan.
3.6.7. Equine influenza (*infection with equine influenza virus*)[18]	**Prof. A. Cullinane** Irish Equine Centre, Johnstown, Naas, Co. Kildare, Ireland.
3.6.8. Equine piroplasmosis	**Prof. N. Yokoyama** National Research Center for Protozoan Disease Obihiro University of Agriculture and Veterinary Medicine, Hokkaido Japan.
3.6.9. Equine rhinopneumonitis (*equine herpesvirus-1 and -4*)[19]	**Dr D. Elton & Dr N. Bryant** Animal Health Trust, Centre for Preventive Medicine, Kentford, Suffolk, UK.
3.6.10. Equine viral arteritis (*infection with equine arteritis virus*)	**Dr P.J. Timoney (retired)** USA. **Dr T. Drew & Prof. F. Steinbach** APHA Weybridge, New Haw, Addlestone, Surrey, UK.
3.611. Glanders and melioidosis	**Dr H. Neubauer** Institute of Bacterial Infections and Zoonoses, Friedrich-Loeffler Institut, Federal Research Institute for Animal Health, Jena, Germany. **Prof. U. Wernery** Central Veterinary Research Laboratory, Dubai, United Arab Emirates.
3.7.1. Myxomatosis *3.7.2. Rabbit haemorrhagic disease*	**Dr A. Lavazza, Dr L. Capucci & Dr P. Cavadini** Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna, Brescia, Italy.
3.8.1. Border disease	**Dr P. Kirkland** Elizabeth Macarthur Agriculture Institute (EMAI), Virology Laboratory, Camden, New South Wales, Australia.
3.8.2. Caprine arthritis/encephalitis & Maedi-visna	**Dr D. Knowles (retired) & Dr L.M. Herrmann** USDA-ARS, Animal Disease Research Unit, Washington State University, Pullman, Washington, USA.

18 This chapter was updated by consensus of all WOAH Reference Laboratories for equine influenza.
19 This chapter was updated by consensus of all WOAH Reference Laboratories for equine rhinopneumonitis.

3.8.3. Contagious agalactia	**Dr R. Ayling** APHA Weybridge, New Haw, Addlestone, Surrey, UK. **Dr G. Loria** Istituto Zooprofilattico Sperimentale della Sicilia (IZSSi), Palermo, Italy.
3.8.4. Contagious caprine pleuropneumonia	**Dr F. Thiaucourt (retired)** France.
3.8.5. Enzootic abortion of ewes (*ovine chlamydiosis*) (*infection with* Chlamydophila abortus)	**Dr C. Schnee** Institute of Molecular Pathogenesis, Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Jena, Germany. **Dr N. Borel** Institute for Veterinary Pathology, Vetsuisse Faculty, University of Zurich, Zurich, Switzerland. **Dr K. Laroucau** Anses Maisons-Alfort, Animal Health Laboratory Bacterial Zoonoses Unit, Maisons-Alfort, France.
3.8.6. Nairobi sheep disease	*See chapter 3.10.1.*
3.8.7. Ovine epididymitis (Brucella ovis)[20]	**Dr B. Garin-Bastuji (retired)** France. **Dr J.M. Blasco** Centro de Investigación y Tecnología Agroalimentaria de Aragón, Zaragoza, Spain.
3.8.8. Ovine pulmonary adenocarcinoma (*adenomatosis*)	**Dr M.J. Sharp (formerly)** APHA, Lasswade Laboratory, Pentlands Science Park, Bush Loan, Penicuik, Scotland, UK.
3.8.9. Peste des petits ruminants (*infection with small ruminant morbillivirus*)[21]	**Dr M. Baron (retired)** UK.
3.8.10. Salmonellosis (*S. abortusovis*)	*See chapter 3.10.7*
3.8.11. Scrapie[22]	**Dr J. Spiropoulos** APHA Weybridge, New Haw, Addlestone, Surrey, UK.
3.8.12. Sheep pox and goat pox	**Dr P. Beard (formerly)** The Pirbright Institute, Ash Road, Woking, Surrey, UK. **Dr B.A. Lubisi** Onderstepoort Veterinary Institute, Agricultural Research Council, Onderstepoort, South Africa. **Dr H. Reza Varshovi (retired)** Iran.

20 This chapter was updated by consensus of all WOAH Reference Laboratories for brucellosis and other experts.
21 This chapter was updated by consensus of all WOAH Reference Laboratories for peste des petits ruminants.
22 This chapter was updated by consensus of all WOAH Reference Laboratories for scrapie.

3.8.13 Theileriosis in sheep and goats (*infection with* Theileria lestoquardi, T. luwenshuni *and* T. uilenbergi)	**Dr A. Torina** Istituto Zooprofilattico Sperimentale della Sicilia (IZSSi), Palermo, Italy.
3.9.1. African swine fever	**Dr C.A.L. Oura (formerly)** The Pirbright Institute, Ash Road, Woking, Surrey, UK. **Dr M. Arias** Centro de Investigación en Sanidad Animal (CISA-INIA), Madrid, Spain.
3.9.2. Atrophic rhinitis of swine	**Dr K.B. Register** USDA, ARS, National Animal Disease Center, Ames, Iowa, USA.
3.9.3. Classical swine fever (*infection with classical swine fever virus*)[23]	**Prof. P. Becher** Department of Infectious Diseases, Institute of Virology, University of Veterinary Medicine of Hannover, Hannover, Germany.
3.9.4. Nipah virus encephalitis	*See chapter 3.1.14.*
3.9.5. Porcine cysticercosis (*infection with* Taenia solium)	*See chapter 3.10.3.*
3.9.6. Porcine reproductive and respiratory syndrome[24]	**Prof. Z. Pejsak & Dr K. Podgórska** National Veterinary Research Institute, Pulawy, Poland. **Dr K. Tian** Veterinary Diagnostic Laboratory, China Animal Disease Control Center, Beijing, China (People's Rep. of).
3.9.7. Influenza A viruses of swine[25]	**Prof. I. Brown** APHA Weybridge, New Haw, Addlestone, Surrey, Weybridge, UK.
3.9.8. Swine vesicular disease	**Dr D. King** The Pirbright Institute, Ash Road, Woking, Surrey, UK. **Dr E. Brocchi,** Istituto Zooprofilattico Sperimentale della e dell'Emilia Romagna (IZSLER), Brescia, Italy.
3.9.9. Teschovirus encephalomyelitis	**Mr N. Knowles** The Pirbright Institute, Ash Road, Woking, Surrey, UK.

23 This chapter was updated by consensus of the WOAH *ad hoc* Group on Classical Swine Fever (vaccine section) and of all WOAH Reference Laboratories for classical swine fever (diagnostic section).

24 This chapter was updated with help from: Nicolas Ruggli (The Institute of Virology and Immunology, Mittelhäusern, Switzerland); Tomasz Stadejek (Warsaw University of Life Sciences, Warsaw, Poland).

25 This chapter was updated by consensus of all WOAH Reference Laboratories for swine influenza.

3.9.10. Transmissible gastroenteritis	**Dr L.J. Saif** The Ohio State Universtiy, Ohio Agricultural Research and Development Center, Food Animal Health Research Program, Wooster, Ohio, USA.
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3.10.2. Cryptosporidiosis	**Dr R. Chalmers** Cryptosporidium Reference Unit, Public Health Wales Microbiology, Singleton Hospital, Swansea, UK.
3.10.3. Cysticercosis	**Prof. P. Dorny & Prof. S. Gabriël** Department of Veterinary Public Health and Food Safety, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium
3.10.4. Infection with Campylobacter jejuni *and* C. coli	**Prof. J.A. Wagenaar & Dr L. van der Graaf-van Bloois** Department of Infectious Diseases and Immunology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands.
3.10.5. Listeria monocytogenes[26]	**Dr A. Leclercq** Institut Pasteur, CNR & CCOMS Listeria, Unité de Biologie des Infections, Paris, France.
3.10.6. Mange	**Dr J.L. Schlater & Dr J.W. Mertins** Parasitology and Clinical Pathology Section, Pathobiology Laboratory, National Veterinary Services Laboratories, USDA, APHIS, VS, Ames, Iowa, USA.
3.10.7. Salmonellosis[27]	**Dr R. Davies (retired)** UK.
3.10.8. Toxoplasmosis	**Dr J.P. Dubey** Animal Parasitic Diseases Laboratory, USDA, Agricultural Research Service, Beltsville, Maryland, USA.

26 This chapter was updated with help from: Dr R. Rathbone (AOAC, USA); Dr G. Riegler (AOAC, USA); Dr K. Jinneman (FDA, USA); Dr Y. Chen (FDA, USA); Dr T. Hammack (FDA, USA); Dr S. Granier (Anses Maisons-Alfort, France); Dr R. Danguy-des-Deserts (Laboratoire départementale de développement et d'analyses, France); Dr A. Oevermann (University of Bern, Switzerland).

27 This chapter was updated by consensus of all WOAH Reference Laboratories for salmonellosis.

3.10.9. Verocytotoxigenic Escherichia coli

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3.10.10. Zoonoses transmissible from non-human primates

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