



Activities of OIE Reference Laboratories on bee diseases

American foulbrood of honey bees

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American foulbrood (AFB) is considered one of the most contagious and destructive infectious diseases affecting the larval and pupal stages of honey bees.



Research in this OIE Reference Laboratory

is chiefly directed towards: investigating the degree of diversity of *Paenibacillus larvae* populations from different geographical areas through microbiological and molecular markers; characterising antagonistic compounds produced by different spore-forming bacteria isolated from honey and other apiarian sources that are biologically active against *P. larvae*; evaluating alternative non-contaminant natural biocides to prevent and control AFB in infected colonies; and investigating the tetracycline and oxytetracycline resistance determinants in populations of *P. larvae* and other spore-forming bacteria isolated from honey and honey bees.

The laboratory has a collection of specimens of *P. larvae* and other spore-forming bacteria isolated from honey and other apiarian sources, characterised by microbiological and molecular techniques. The laboratory also provides diagnostic testing facilities for AFB to OIE Member Countries on an individual basis (research institutes, universities, government agencies, etc.) and scientific and technical support to researchers and veterinarians.

Bee diseases

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Designated expert: **Dr Wolfgang Ritter**

As an OIE expert and head of the OIE Reference Laboratory, Dr Wolfgang Ritter has been advising politicians, veterinarians, bee experts and beekeepers from all over the world, on all kinds of questions about bee diseases, for more than 20 years. The



OIE Reference Laboratory has developed new methods for the diagnosis and control of bee diseases. Up to now, varroosis and connected viruses, as well as the *Tropilaelaps* mite, American foulbrood, and the small hive beetle, have been focal issues. Ring tests are currently being prepared to improve the quality of examination in individual countries.

Moreover, worldwide symposiums and congresses about bee health have been organised and implemented for many years.



Dr Ritter is the editor of *Bee health and veterinarians*, a new OIE publication providing a comprehensive overview of bee health challenges (see p. 18).



Bee diseases

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The ANSES Sophia Antipolis laboratory is an OIE Reference Laboratory for bee diseases. Since 2011, it has also been the European Reference Laboratory for honey bee health.

The laboratory develops, publishes and proposes to the OIE methods for diagnosing relevant bee diseases. The laboratory also types, stores and, where appropriate, supplies strains of the pathogenic agents to facilitate diagnostic services. For example, these services can be used for epidemiological follow-ups or for verifying diagnoses. The OIE Reference Laboratory can also supply standard material and other reference reagents to other laboratories to standardise the tests used in each country worldwide. The laboratory is particularly interested in providing expertise on the detection and identification of two exotic arthropods to Europe, *Tropilaelaps* mites and the small

hive beetle (*Aethina tumida*), to enable rapid differential diagnosis.

The OIE laboratory for honey bee health covers the main parasitic, bacterial and viral bee diseases, as well as the invasive species (insects and mites) threatening the honey bee

population in Europe. The laboratory addresses the issue of colony poisoning through research on the most dangerous pesticide residues for honey bees. The laboratory liaises with the European Food Safety Authority, other laboratories, scientist and networks, as appropriate, to ensure that the best possible science is available in this area.



Equine Influenza Vaccine Composition

Conclusions and recommendations of the OIE

Expert Surveillance Panel meeting held at OIE Headquarters, Paris, on 4 March 2014

Equine influenza activity in 2013

During 2013, individual animal cases and outbreaks of equine influenza were reported by Belgium, the People's Republic of China, Germany, Sweden, Turkey, the United Kingdom (UK) and the United States of America (USA).

Sources of equine influenza viruses characterised in 2013

Equine influenza A (H3N8) viruses were isolated and/or characterised from outbreaks in the People's Republic of China, Germany, Sweden, Turkey, the UK and USA.

Field data

Equine influenza virus infections were confirmed in both vaccinated and unvaccinated horses.

Several outbreaks in Germany, Sweden, the UK and USA were associated with the recent transportation of horses and/or the introduction of horses from sales or other countries.

Equine influenza was diagnosed in 24 states in the USA but, in the majority of cases, the vaccination history of the horses was unknown.

Seventy-six horses in a population of 1,143 housed at a racetrack in Turkey were clinically ill. The majority of the clinically affected horses were unvaccinated as they had not yet raced.

Characterisation of viruses isolated in 2013

Viruses isolated/identified from outbreaks in China, Germany, Sweden, Turkey, the UK and USA were genetically characterised by sequencing the haemagglutinin (HA) gene, in many cases the HA1-encoding region.

Whole genome sequences were determined for three Swedish isolates and for the sequences of the neuraminidase (NA) genes for several virus isolates from the UK and the USA.

Viruses isolated in Turkey, the UK and USA were also characterised antigenically by the haemagglutination inhibition (HI) assay, using post-infection ferret antisera and chicken red blood cells.