

# EU Reference Laboratory for Honey Bee Health

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By law, the EU reference laboratory has to coordinate, in consultation with the Commission, the methods employed in the Member States for diagnosing the relevant honey bee diseases. The experiments run by the laboratory aim at the harmonisation of the protocols used to study honey bee pathogens within the European Union.

The European honey bee population (*Apis mellifera*) plays an important role in both pollination and the production of honey and other apiculture products. Honey bees, together with a multitude of other insects, birds and even bats, are part of the pollinator cohort. By mixing genes from different origins, the pollination is crucial to maintain sustainable biodiversity in wild ecosystems or agricultural parcels (Pham-Delègue *et al.*, 1987). Various studies have estimated the economic value of pollination and the specific role of managed bees. The production of 80% of the 264 crop species

cultivated in the European Union depends directly on insect pollinators, and the global annual monetary value of pollination was estimated to be €153 billion (Gallai *et al.*, 2008). The cost of pollination service in wild ecosystems is even more difficult to estimate.

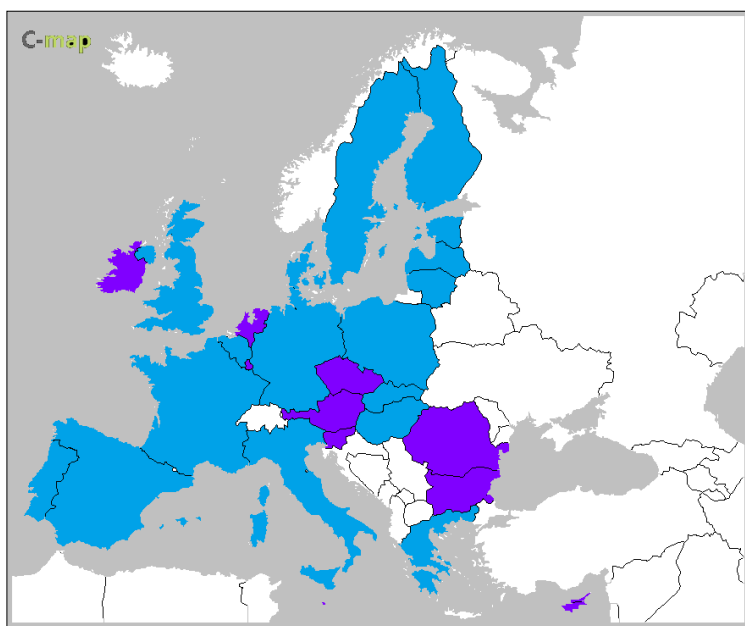
European Union Reference Laboratories (EU RLs) are essential tools in the framework of risk management in the field of animal health. Their role has been recognized by relevant EU legislation on official controls, and by vertical Directives for the control of certain animal diseases.



Scientifically sound and uniform testing is a fundamental element for reliable disease diagnosis and for the application of the necessary control and eradication measures. Analyses are also part of prophylactic actions in honey bee health. EU RLs play an important role to support the activities of the Commission and the Member States in relation to animal disease surveillance, control and eradication. The European Commission has designated the EU RL for honey bee health in the Commission Regulation (EU) No 87/2011 (Commission implementing decision, 2011). This decision was taken consequently to the release of the report on “Bee Mortality and Bee Surveillance in Europe” (Hendriks *et al.*, 2010).

By law, the EU reference laboratory has to coordinate, in consultation with the Commission, the methods employed in the Member States for diagnosing the relevant honey bee diseases, in particular by:

- typing, storing and, where appropriate, supplying strains of the pathogenic agents to facilitate the diagnostic service in the Union
- supplying standard material to the national reference laboratories in order to standardise the test used in each Member State
- organising periodic comparative tests of diagnostic procedures at Union level with the national reference laboratories



The 17 Member States participating in the epidemiological study are shown in light blue (Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Slovakia, Spain, Sweden and the UK). The other countries of the European Community are in dark blue.

## Exotic pests under mandatory surveillance within the European Union

*Aethina tumida* larvae*Aethina tumida* adult

Tropilaelaps mite

- retaining expertise on the *Tropilaelaps* mites and the small hive beetle (*Aethina tumida*)
- propose standardised tests and test procedures or reference reagents for internal quality control
- advising the Commission on scientific aspects related to honey bee health.

Over the last years, increases in honey bee mortality have been reported in several countries within and outside the EU. Therefore, the first task of the EU Reference Laboratory on honey bee health was to provide technical support to a surveillance program on honey bee colony mortality. In 2011, the European Commission started to set up and co-finance a standardised and Europe wide voluntary surveillance program to obtain reliable and accurate measure of honey bee colony losses and information on honey bee health. This programme was based on the technical document 'Basis for a pilot surveillance project on honey bee colony losses' elaborated by the EU RL for honey bee health. The kick off meeting was held in Brussels in June 2012. The surveillance procedure foresees to study in each country a representative number of the total population of honey bee colonies, with randomly selected apiaries in order to quantify colony losses and to investigate the prevalence of the major diseases. Epidemiological protocols are consistently implemented in each of the 17 selected Member States in order to provide comparable data (Commission implementing decision, 2012). Subsequent to the training of the bee inspectors for this project in May 2012, the field work has started during the summer 2012 and visits to apiaries and

sampling were in process in September 2012.

During this study, apart from the active surveillance of colony loss (overwintering colony mortality rate, season colony mortality rate), the major honey bee diseases should be surveyed. The clinical prevalence of varroosis, American Foulbrood (AFB), European Foulbrood (EFB) and Nosemosis should be estimated. The prevalence of the Chronic Paralysis (CBPV) should possibly be considered with the number of cases of typical symptoms of trembling bees observed. The *Varroa destructor* infestation rate before winter should be assessed. For ABPV and DWV (viruses related to *V. destructor*), MSs can choose between two protocols: infection rate assessment or a case control study to verify if these viruses can be risk factors inducing winter mortality or winter disorder. Finally, this project should ensure an early alert in case of the detection of the two exotic arthropods *Aethina tumida* and *Tropilaelaps* spp. mites.

In November 2012, a workshop was organised by the EU RL for honey bee health in Maisons-Alfort close to Paris (France) to present a web based database to the Member States involved in the surveillance programme. This database will allow collecting and saving all the data participants will log from their countries. Collected data will be stored in the data base for EU RL use. However, a Member State will have access to its own data.

### Conclusion

The EU should established certain harmonised rules to protect and maintain the health of honey bees, while Member States may regulate other aspects of

beekeeping and related activities. Beekeepers and their associations are themselves active in other, non-regulated areas such as implementing good beekeeping practices and guidelines.

The Anses laboratory with the EU Reference Laboratory will provide the national and European stakeholders with scientific assistance on issues related to honey bee health. For this purpose, the EU Reference Laboratory is involved in the development of techniques for the detection and the quantification of honey bee diseases (pathogens and pesticides).

### References

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