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Main diseases of honey bees

Summary

Honeybees are susceptible to various diseases, some of which are very contagious and diffusive. It is very important that the beekeeper is able to recognize the first signs of disease or infestation in hives and knows how to proceed. This practice outlines the factors that play an important role in the outbreak of a disease and describes the classification of bee diseases.

Description

The occurrence of diseases in honeybees depends on three factors:

1. **Bees** (genetic): the hygienic behavior and resistance to various diseases varied from colony to colony and it is based on the genetic heritage of the queen bees.
2. **Pathogens** (presence, infectious load and virulence): the disease needs the presence of the responsible agent to manifest itself (virus, bacteria, fungus, protozoa), but the quantity and ability to spread of the pathogen is also very important.
3. **Environment** (temperature, relative humidity, presence of nectar plants): environmental conditions and seasonal factors strongly influence the onset of diseases, in many cases they are real key triggers.

[Classification of bee diseases](#)

The diseases of honeybees can be classified depending on:

- the nature of the agent responsible for the disease: parasitic, fungal, bacterial or viral infection (Table 1). This type of classification is more accurate.
- the function of the individuals who are affected in the hive: brood diseases (Table 2) and diseases of adult bees (Table 3).

Disease	Causative agent	Type
Acarapiosis	<i>Acarapis woodi</i>	Parasitic
Varroatosis	<i>Varroa destructor</i>	Parasitic
Aethinosis	<i>Aethina Tumida</i> (Small hive beetle)	Parasitic
Tropilaelaposis	<i>Tropilaelaps spp.</i>	Parasitic
American foulbrood	<i>Paenibacillus larvae</i>	Bacterial
European foulbrood	<i>Melissococcus pluton</i>	Bacterial
Chalkbrood	<i>Ascosphaera apis</i>	Fungal
Stonebrood	<i>Aspergillus flavus</i>	Fungal
Nosemosis	<i>Nosema apis</i> – <i>Nosema ceranae</i>	Fungal
Amebiasis	<i>Malpighamoeba mellifica</i>	Protozoal
Sacbrood Virus (SBV)	<i>Virus Picorna-like</i>	Viral
Chronic Bee Paralysis Virus (CBPV)	<i>Cripaviridae</i>	Viral
Acute Bee Paralysis Virus (ABPV)	<i>Dicistroviridae</i>	Viral

Deformed Wing Virus (DWW)	<i>Iflaviridae</i>	Viral
Black Queen Cell Virus (BQCV)	<i>Dicistroviridae</i>	Viral
Israeli Acute Paralysis Virus (IAPV)	<i>Dicistroviridae</i>	Viral
Kashmir Bee Virus (KBV)	<i>Dicistroviridae</i>	Viral
Kakugo Virus	<i>Iflaviridae</i>	Viral
Invertebrate Iridescent Virus type 6	<i>Iridoviridae</i>	
Tobacco ringspot virus	<i>Secoviridae</i>	Viral

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Table 2: Main brood diseases

Varroatosis

Small hive beetle

Tropilaelapsosis

American foulbrood

European foulbrood

Chalkbrood

Stonebrood

Black queen cell virus (BQCV)

Sacbrood virus (SBV)

Other Virosis

Table 3: Main adult bee diseases

Varroatosis

Nosemosis

Virosis

See related technologies published on TECA by Apimondia and IZSLT on bee diseases:

1. [Good beekeeping practices](#)
2. [Main diseases of honey bees](#)
3. [Nosemosis](#)
4. [Varroa mites \(Varroatosis or Varroosis\)](#)
5. [AFB \(American Foulbrood\)](#)
6. [EFB \(European foulbrood\)](#)
7. [Bee viruses](#)

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See also

[Beekeeping in Africa: Responding to common bee diseases](#)

Further reading

Food and Agriculture Organization of the United Nations (FAO), Honey bee diseases and pests: a practical guide, November 2006, <http://teca.fao.org/sites/default/files/resources/Honey%20bee%20diseases...>

Fries I., Camazine S., Implications of horizontal and vertical pathogen transmission for honey bee epidemiology, INRA/DIB-A/GIB/EDP Sciences, 2001, http://www.apidologie.org/index.php?option=com_article&access=standard&I...

Formato G., Vari G., Le buone prassi di allevamento in apiario. In "Aspetti igienico-sanitari in apicoltura" published by the Istituto Zooprofilattico Sperimentale del Lazio e della Toscana "M. Aleandri", Italy, August 2007, 8-10

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Apimondia

Apimondia, the **International Federation of Beekeepers' Associations**, is the world organisation representing the interests of apiculture and aims to facilitate links between beekeepers, scientists and all involved with apiculture. Apimondia stems from the International Committee of Apicultural Congresses created in 1893 holding the first congress in 1897 in Belgium. Apimondia in its current institutional form was founded in the Netherlands in 1949 and its core business is the organisation of international apicultural congresses and symposia. Today Apimondia work remains truly international: Apimondia is run on a basis of cooperation between beekeepers and scientists from many countries as well as international organisations. A special feature of Apimondia is the wide range of working languages used in publications and at meetings.



You can also visit **Apimondia** linked websites to find out more:

www.apimondia.org

www.apimondia2013.com

www.apimondia2015.com

www.beethecampaign.org

Apimondia, la **Federación Internacional de las Asociaciones de Apicultores**, es la organización mundial que representa los intereses de la apicultura y su objetivo es facilitar los vínculos entre los apicultores, los científicos y todos los involucrados con la apicultura. Apimondia deriva del Comité Internacional de los Congresos Apícolas creado en 1893 y con la celebración del primer congreso en 1897 en Bélgica. Apimondia, en su forma institucional actual, fue fundada en los Países Bajos en 1949 y su actividad principal es la organización de congresos y simposios apícolas internacionales. Hoy el trabajo de Apimondia permanece verdaderamente internacional: Apimondia realiza su programa sobre la base de la cooperación entre los apicultores y los científicos de muchos países, así como organizaciones internacionales. Una característica especial de Apimondia es la amplia gama de idiomas utilizados en las publicaciones y en las reuniones de trabajo.

Para más informes puede visitar los sitios web de Apimondia:

www.apimondia.org

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IZSLT - Istituto Zooprofilattico Sperimentale del Lazio e della Toscana "Mariano Aleandri"

The Istituto Zooprofilattico Sperimentale del Lazio e della Toscana "Mariano Aleandri" (IZSLT) is a public body operating in the frame of the National Health Service with duties related to animal health and welfare and food safety. In such areas it provides services in the diagnosis of animal diseases and zoonoses, microbiological, chemical and physical controls over safety of foods, food production chains and animal feed. In the same areas it performs research, epidemiological surveillance, continuous training and international cooperation activities.

IZSLT's mission is to ensure that animal health and welfare, hygiene of farms, primary productions, safety of foods and animal feed comply with the relevant legislation.



To effectively fulfill its mission, the Institute carries out:

- diagnostic service over animal diseases and zoonoses;
- scientific and technical support to veterinary and public health services for controls on animals, food and feed;
- laboratory tests to verify the health status of animals;
- technical and scientific support to monitor veterinary medicines;
- research on animal health and welfare, food safety and hygiene of farming and livestock products;
- studies on animal welfare and development of alternatives to the use of animals in experiments;
- studies to monitor the safety of food of animal origin and feed;
- scientific and technological cooperation with other research institutes;
- epidemiological surveillance on animal health and food safety, on livestock products and on environmental factors affecting the above;
- studies on the health risks for humans linked to animals and animal products;
- support, technical assistance and hygiene information to manufacturers of food of animal origin;
- production of vaccines and laboratory diagnostics for the improvement of animal health.

In the frame of IZSLT activities, the Apiculture Unit's mission (<http://www.izslt.it/apicoltura/>) is to certify and guarantee the health and welfare of bees, and the hygiene and safety of the hive products, through: diagnosis of bee diseases and analyses on hive products, support to Governmental Institutions in drawing up legislation, research activity, collaboration with other laboratories or institutions, technical support and training for operators, pollution environmental monitoring using honey bees and protection of honey bee biodiversity.

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