



Slow Food®



Slow Food Foundation  
for Biodiversity

# A World Without Bees?





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As they fly from flower to flower in search of food—namely nectar—pollinating insects carry pollen with them, enabling the majority of wild and cultivated plant species to reproduce and, involuntarily, to cross-pollinate. It is them we have to thank for the majority of plant biodiversity.

Pollinating insects comprise coleoptera, butterflies and syrphids, members of the hoverfly family, but it is above all bees that have an inextricable rapport with flowers.

In Europe alone, 4,000 different wild species and more than 80 percent of the 264 cultivated species survive thanks to bees. They play a decisive role in the production of fruit and vegetables, in the life of the fields and the woods, and in the diets of human beings and wild and domestic animals.





There isn't just one type of bee but, rather, a complex, variegated universe of families, subfamilies, and thousands of species and breeds. Some are more docile and productive—such as the western honey bee, the most common in the world—others are more aggressive and unmanageable—such as the African honey bee—bound to given territories and capable of adapting to tough conditions and arid climates. Nor is it true that all bees are yellow and black. These are the colors that we commonly associate with the western honey bee, the most common in Europe, but there are also dark-colored bees, ranging from gray to jet black.

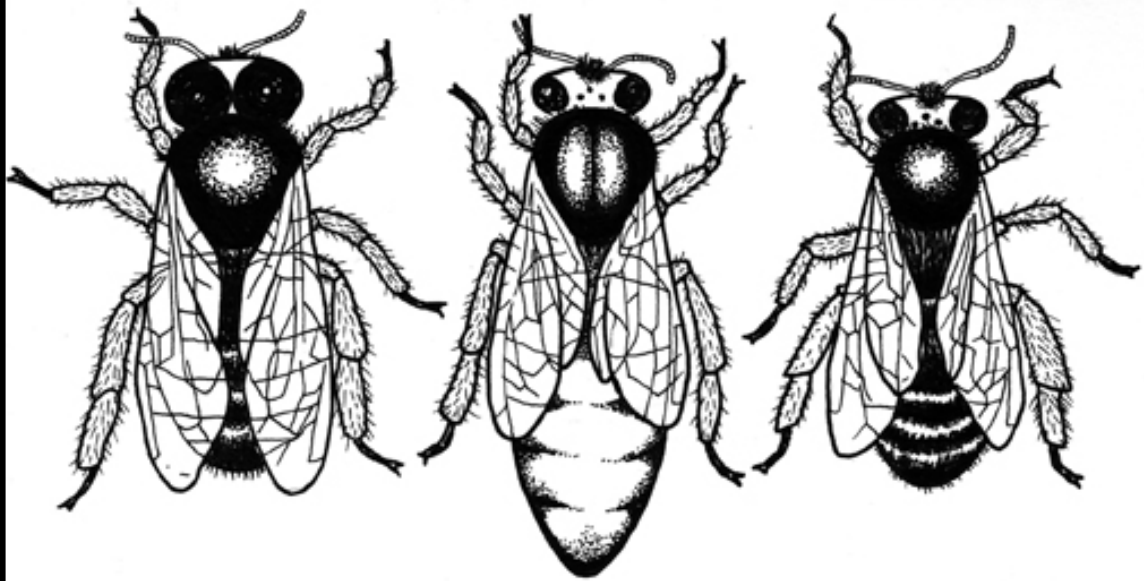


## The four most important species of the *Apis* genus are:

- ***Apis mellifera*** or *apis mellifica*: the western or European honey bee, which besides being the most common worldwide and the only one known in Europe, is also the most industrious and productive of all.
- ***Apis cerana***: the eastern or Asiatic honey bee, widespread especially in Asia.
- ***Apis dorsata***: the giant honey bee, widespread in Southern and Southeast Asia, very aggressive and never domesticated.
- ***Apis florea***: the dwarf or red dwarf honey bee, widespread in Southern and Southeast Asia.

Only the first two (*mellifera* and *cerana*) can be domesticated, hence used for apiculture.

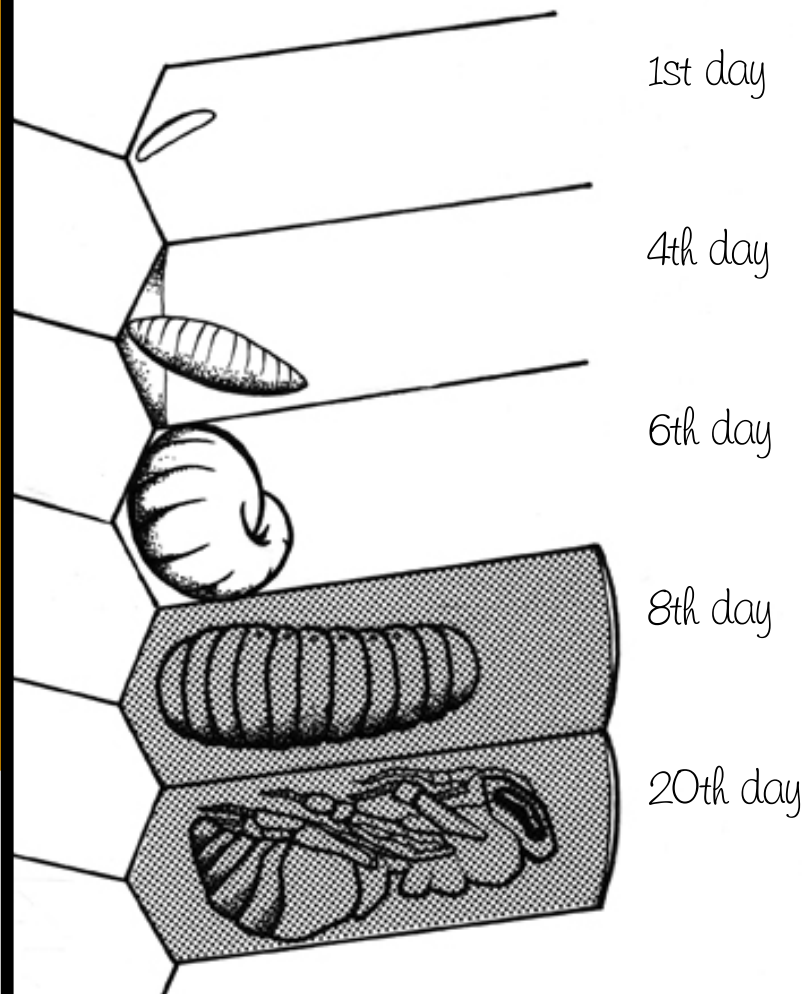




Drone

Queen

Worker



1st day

4th day

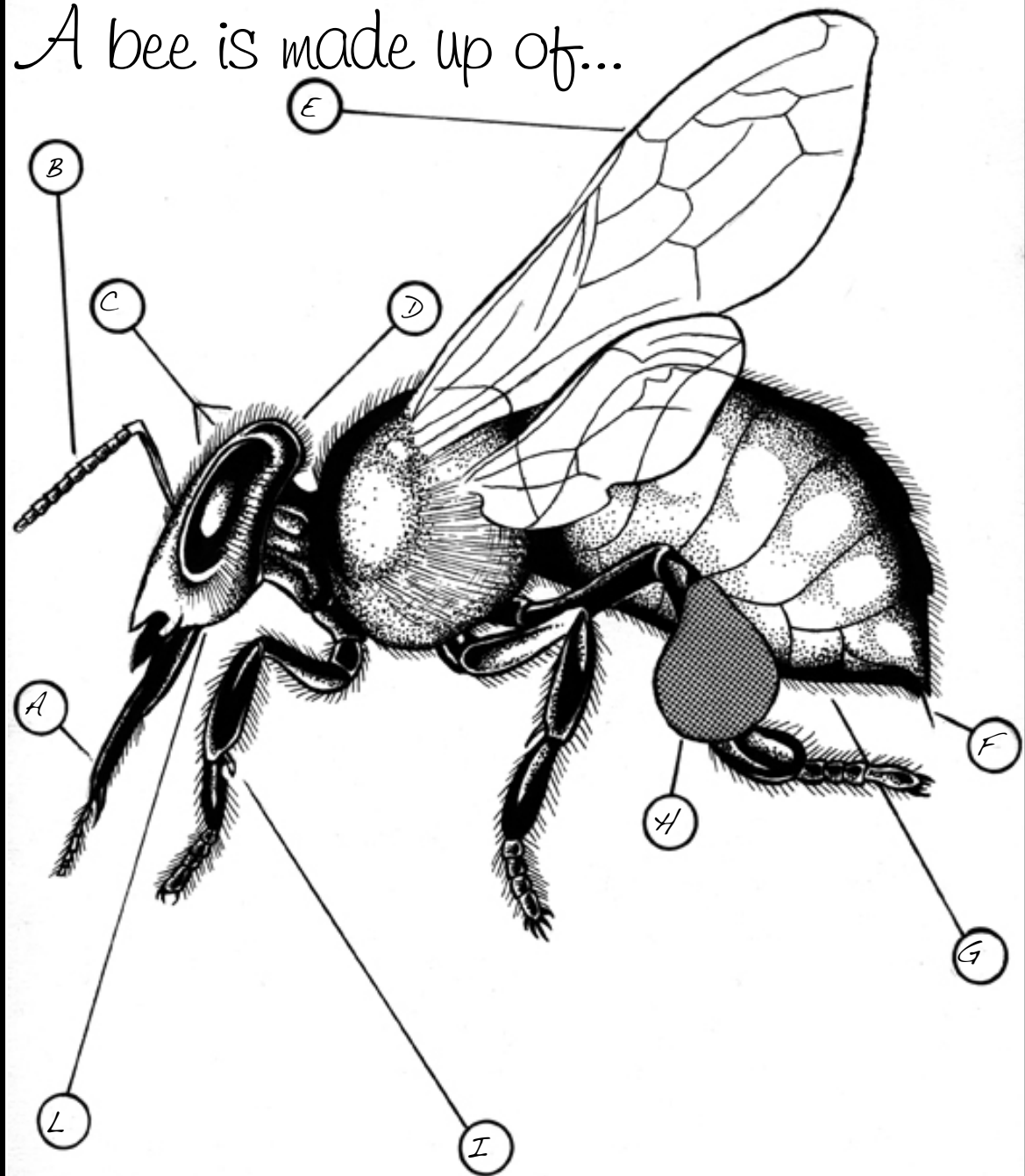
6th day

8th day

20th day



A bee is made up of...



A - Proboscis

B - Antennae

C - Three simple eyes

D - Royal jelly gland

E - Wings

F - Sting

G - Beeswax gland

H - Brushes to collect pollene

I - Hook to clean antennae

L - Buccal apparatus (mandibles)



The *Apis mellifera* species comprises numerous breeds, the main ones being:

**Italian bee** (*Apis mellifera ligustica*), a native of Italy, is the world's most common honey bee.

**Carnolian honey bee** (*Apis mellifera carnica*), a native of Western Europe, is very popular with farmers and a competitor of the Italian bee.

**European dark bee** (*Apis mellifera mellifera*), common in Northern Europe and very unmanageable.

**Caucasian honey bee** (*Apis mellifera caucasia*), a native of the Caucasus, similar to the Carnolian.

**African bee** (*Apis mellifera adansonii*), a native of Central and Southern Africa, black, relatively unmanageable and markedly aggressive.

**Sicilian black bee** (*Apis mellifera siciliana*), hard to manage, like all black bees, and suited to arid climates and high temperatures. Unlike other black bees, it is reasonably docile. It lives in Sicily and is protected by a Slow Food Presidium.

Then there is the Meliponidae, common especially in South America, a very small stingless bee that does not belong to the *Apis* genus. It produces tiny quantities of very aromatic liquid honey, which is known above all for its medicinal properties.

A number of Slow Food Presidia have been set up to protect bee breeds in danger of extinction



### Sicilian Black Bee - Italy

The Sicilian black bee (*Apis mellifera siciliana*) has a very dark abdomen, yellowish down and small wings. It lived in Sicily for thousands of years until the 1970s, when Sicilian beekeepers replaced their traditional rectangular boxes-cum-hives, made with dried fennel stalks, and began to import Italian bees from the north of the country. In that period the Sicilian bee was at serious risk of extinction, which it avoided thanks to the research of the Sicilian entomologist Pietro Genduso, who studied it for years (it was first classified by Montagano in 1911). Today it is kept by a small group of Sicilian apiculturists.





### **Swiss Black Bee – Switzerland**

The Swiss Black Bee (*Apis mellifera mellifera*) is an ancient breed that has lived in the area that corresponds to present-day Switzerland since the last glacial period, adapting perfectly to the climate and flora of the Alps and their foothills. Until a few generations ago, it was the only species to be found in Central Europe, but it began to decline in the 19th century, when other bees—such as the Carnelian from Austria and the Balkans, and the Italian from the Mediterranean—were introduced to Switzerland. The move proved a mistake from the outset as the new breeds and their subsequent hybrids proved unusually aggressive and adapted poorly. Since then the introduction of other breeds has progressively tailed off. The distinctive feature of the Swiss Black Bee is its dark back, which helps it keep warm even when the sun's rays are weak. Unlike other breeds, it is active in the coolest periods, even at the onset of winter, and survives at low temperatures, and is also a stronger flier. From early in the morning until late in the evening it visits a great variety of flowers. Purebred Swiss Black Bees stand out for their placid behavior.



### **Sateré Mawé Native Bee Honey – Brazil**

When Anumaré Hit turned into the sun and rose to heaven, he asked his sister to follow him. She was reluctant and decided to stay on earth in the form of a bee and, with the Sateré-Mawé tribe, look after the sacred forests where guaraná, a creeper of the maple family, grew. This legend hands down to us what the ancient Mawés already knew: namely that wild stingless bees, Meliponidae, pollinate at least 80 percent of plant species in the Amazon jungle, which would disappear without them.

# The Bee Plague

In 2007 honey bees began to die en masse in the United States, Europe, Japan, Taiwan, Brazil and Africa. In Europe, the plague killed about 20 percent of bees; in the United States, in the winter of 2013-2014, over 40 percent.





# What are the causes?

- 1 Industrial monocultures**, which are grown with the wide use of **insecticides**, **herbicides** and **fungicides**, are killing biodiversity. More specifically, **neonicotinoids**, the insecticides most commonly used today throughout the world on almost all crops, and also used for the treatment of seeds, are harmful, sometimes lethal. In 2013, the European Union officially recognized the harmful effects of these products and partly banned them from the market for two years, from December 2013 to December 2015. When this period has elapsed, it will evaluate the situation and decide whether to adopt further measures.
- 2 A number of diseases and parasites**, which weaken and often kill bees.
- 3 Climate change**, which may, for example, alter the flowering season of plants, thus disorienting bee colonies.

# The consequences of pesticide use

Human beings, whose agronomic practices have a high impact on the environment, and the wide use of pesticides constitute the main threat to the survival of pollinators and the equilibrium of ecosystems.

The introduction of pesticides has jeopardized the balance between agriculture and the survival of bees in various ways:

- **harm to non-target species:** multipurpose pesticides do not act only on harmful parasites, but also hit numerous useful insects and other non-target species, such as butterflies, birds, amphibians and so on;
- **bioaccumulation in ecosystems:** pesticides may be accumulated in water, in the air, in the soil or through the food chain;
- **persistence:** pesticide residues are recorded in the environment and in the food chain even years after they were used;
- **high toxicity:** even minimal amounts of pesticides have negative effects on organisms and, even when they do not kill bees directly, exposure to these substances may have equally lethal effects on the insects' behavior (incapability of detecting smells, orienting themselves and returning to the hive, for instance);
- **systemicity:** pesticides are absorbed by leaves and roots and spread to a plant's other vital organs. In this way they are also transferred to the living beings that feed on the plant. Pesticide residues may also be found in pollen, in nectar, in honeydew, and in vegetable secretions, on all of which bees feed.



Slow Food—together with UNAAPI (the Union of Italian Apiculturists' Associations) and the European Beekeeping Coordination—is carrying forward a campaign to protect bees, promote high quality honey and ban killer pesticides.

**Discover how to join in and what you can do!**  
[www.slowfood.com/sloweurope](http://www.slowfood.com/sloweurope)

Illustrations Diego Pagani  
Printed on recycled paper - Handbound