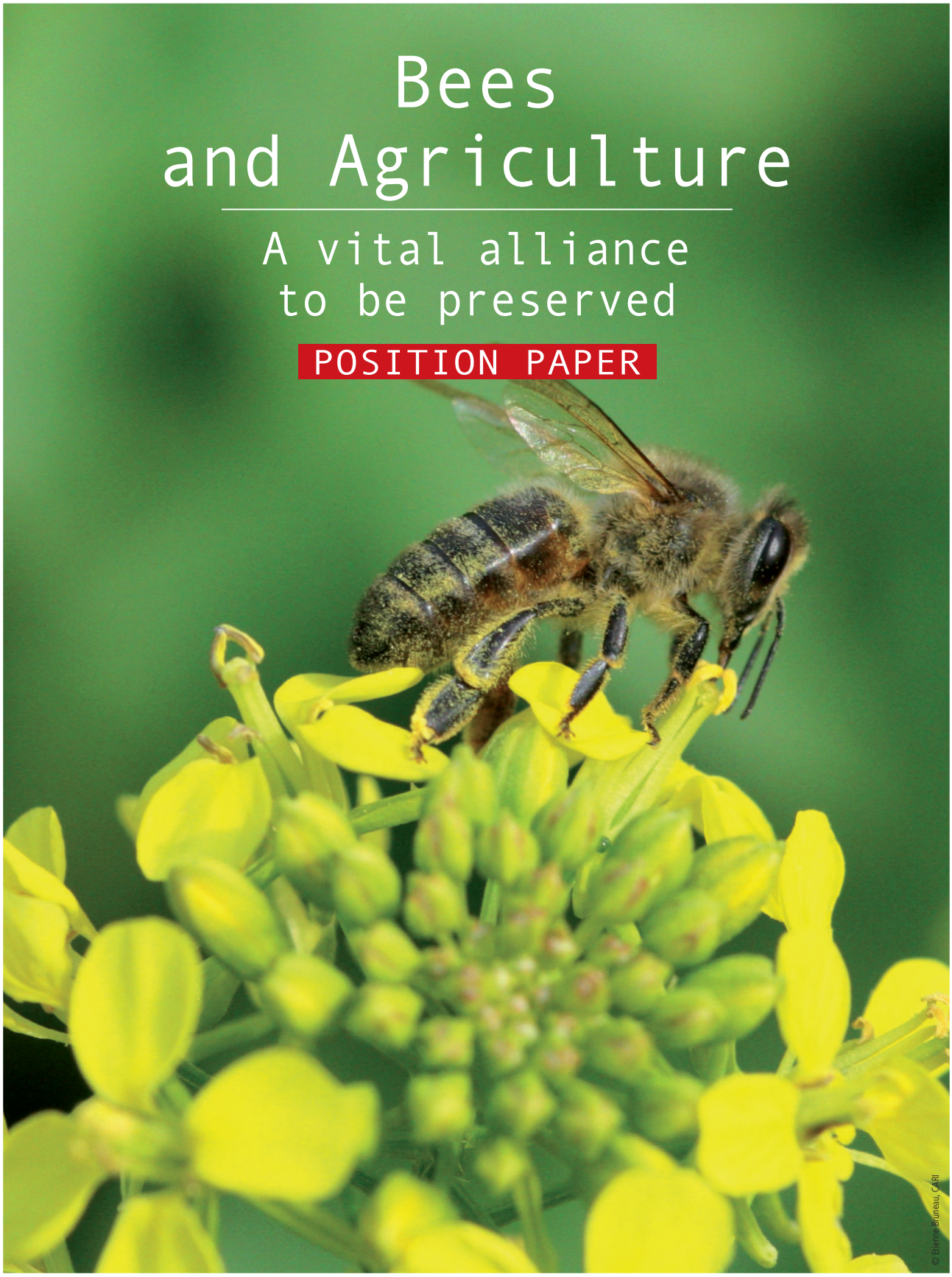
Slow Food®

European Beekeeping Coordination

Bees and Agriculture

A vital alliance to be preserved

POSITION PAPER



WHAT IS THE CONNECTION BETWEEN BEES AND THE AGRICULTURE WE WANT?

An **ecosystem** is a network of interactions between living organisms (plants, animals, humans, microorganisms) and their environment (water, soil, air). Wild and domesticated bees are an integral part of countless ecosystems around the world. But high-input farming systems (based on intensive agriculture) have hugely changed the dynamics of ecosystems. The use of pesticides, fertilizers, GMOs and non-renewable energy have upset the natural balances within ecosystems, causing a rapid decline in bee populations. Honeybee mortality rates, linked to contaminant residues found in dead bees and beehives, are a clear indicator of the high pressure affecting ecosystems.

To re-establish healthy bee populations, it is essential to understand how all living organisms and environmental elements are connected within a single ecosystem. This leads to a question: What relationship do bees have with the food that we eat, and so with agriculture?

Animals pollinate over 80% of flowering plants. Among these animals, bees are by far the most important, with around 25,000 different species worldwide. As they search for food, bees carry pollen from flower to flower, making reproduction possible for the majority of plant species, both wild and cultivated. This makes bees essential to the production of many fruits and vegetables, the life of pastures and forests and the diet of humans and domesticated and wild animals.

The relationship between humans and bees predates agriculture. Even before beekeeping as we know it today existed, people were gathering honey from wild bees. Apiculture and agriculture developed in synergy over the millennia. Honey today is a valuable product, used in many culinary traditions and food cultures. Thanks to their ancestral relationship with honeybees, beekeepers are the best spokespeople for bees. They are able to keep us informed about the health and well-being of these pollinators.

Why should we be worried about the use of pesticides?

Pesticides (insecticides, fungicides, herbicides, etc.) are used to control weeds in agriculture, horticulture, forestry and gardening. The introduction of pesticides, especially systemic pesticides, has sent the synergy and equilibrium between agriculture and the bees into crisis, as the result of a complex system of actions that includes:

- **Harm to non-target species:** broad-spectrum pesticides do not act only on parasites and other organisms that are harmful to a specific crop, but also affect many beneficial insects and non-target species (butterflies, birds, amphibians, bees, etc.).
- **Bioaccumulation in ecosystems:** the pesticides can accumulate in the water, air and soil and along the food chain.

- **Persistence**: residues from pesticides can still be found in the environment and the food chain even many years after their use.
- **Elevated toxicity**: even tiny doses of some pesticides can have negative effects on living organisms. Exposure to these substances, even when it does not directly cause bees to die, can still have potentially lethal effects. They can cause behavioural or physiological changes in single bees, which can lead to death not only for the individuals but also the whole colony. The high toxicity of the substances can sometimes make it impossible to quantify the threshold of effectiveness or to even detect traces in organisms. Even infinitesimal doses, which cannot be measured with current instruments, can be harmful.
- **Systemicity**: the pesticide is absorbed by the leaves or roots, and spreads to the rest of the plant. This means it also transfers to the living beings that feed on that plant. Pesticide residues can be found in pollen, nectar, honeydew and plant excretions, such as guttation fluid[1], all sources of food for bees. The same thing happens during **seed treatment**, a system for administering pesticides: Seeds are completely coated with a very thin layer of pesticide, which protects the seeds from parasite attacks but also spreads to the whole plant as it grows. Seed treatments are generally used as a preventive measure, with no regard for the actual possibility of specific parasites developing. The **preventive** use of pesticides violates the spirit and provisions of the European directive[2] that establishes a framework for EU action in order to ensure the sustainable use of pesticides.

Among the most common systemic products are the **neonicotinoids** and **fipronil**. These chemical products have most of the characteristics described above. They are the most-used insecticides around the world in recent years. In 2013, thanks to new scientific data and evidence, the European Union authorities officially acknowledged that these products have harmful effects on bees. The products were partially banned[3] from the European Union market for a two-year period, from December 2013 to December 2015. At the end of this period, the EU authorities will evaluate the situation and decide what further measures to take.

How is pesticide use regulated in the EU?

Pesticides are chemical products composed of one or more active ingredient and other substances. The active ingredients are authorized by the European Union authorities in agreement with the member states. Subsequently the plant-protection products containing the active ingredients and other substances are authorized by the individual member states.

European Union legislation[4] ensures "a high level of protection of human and animal health and the environment" and states that pesticides shall not have "any harmful effect on animal health." The legal framework regulates the authorization procedure for active ingredients, which requires a preliminary **risk assessment** of the impact that the pesticide may have. This evaluation is made on the basis of data that the manufacturer must provide and is carried out using specific analysis methods.

The **European Food Safety Agency (EFSA)**, a scientific advisory body for the European Union, develops the **risk assessment guidelines** together with agencies in member states. Then the European Commission and member states decide on whether a substance can be released on the market, based on the results of the risk assessment.

The legal framework governing the use of pesticides also includes the possibility of revoking a pesticide's authorization, if it is shown to no longer meet the authorization criteria. This was the case for neonicotinoids and fipronil-based insecticides. Scientific evidence showed that these substances can have harmful effects on fauna and bees in particular.

1 Guttation is the process by which some plants exude sap in droplets that resemble dew. The guttation fluid forms beads on leaves when the plants cannot absorb or transpire more liquid because of elevated atmospheric humidity. This is one way bees and other pollinators can come into contact with systemic pesticides.
2 Directive 2009/128/EC
3 A partial ban means that when the two-year suspension comes into force, all treatments on crops considered not attractive to bees, like winter cereals, are excluded, while crops attractive to bees can be treated in greenhouses or in the fields only after the end of the flowering period.
4 Regulation (EC) No 1107/2009

How can we protect bees and stop harmful pesticides being marketed?

AT A LOCAL, NATIONAL AND EUROPEAN LEVEL, POLICY-MAKERS MUST:

1 Improve the **relevant policies** and ensure they are being **properly implemented** in order to protect bees and pollinators:

- Guaranteeing that risk assessments and the data needed for pesticide authorization are being **regularly updated**
  - Review the need for a full ban on the use of fipronil and neonicotinoids, including thiacloprid and acetamiprid, in fields.
  - Implement the EFSA guidance document on bees[5], as the tests proposed enable the identification of whether or not a systemic molecule poses a risk to bees.
  - Integrate pesticide-exposure measurements into the EU surveillance programme on bees[6].
  - Evaluate the risks of emerging technologies used for pest control. Currently no regulation exists for these emerging technologies, which are new sources of risks to bees.
- Supporting the **transparency and independence** of the regulation procedures
  - Ensure that pesticide authorization is always based on unbiased and independent research data and opinions. Conflicts of interest should be avoided between on the one hand the researchers studying bee health and the officials and scientific authorities managing the authorization procedure, and the pesticide manufacturers on the other.
  - Make the documentation provided by pesticide producers accessible, to promote public participation and allow the tests carried out to be checked.

2 Promote the transition to a **bee-friendly agricultural model**, able to preserve the biodiversity of agricultural landscapes and guarantee future sustainability:

- Limiting the use of pesticides as much as possible, starting with the abolition of their preventive use, in farming but also in gardening and forestry.
- Encouraging farm management systems that aim to re-establish the symbiosis between bees and agriculture, using systems based on crop rotation, diversification and the protection of beneficial insects.

5 *Guidance on the risk assessment of plant protection products on bees* (Apis mellifera, Bombus spp. and solitary bees)
6 *Surveillance studies on honeybee colony losses* – (*http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32012D0362:EN:NOT*)

CITIZENS, ASSOCIATIONS AND NGOs CAN ALSO HELP BY:

1 **Opposing** the use of products that harm bees by buying organic food or food produced using sustainable practices.

2 **Spread information** about the role of bees and pollinators, who play an essential role in food production and guarantee biodiversity.

3 **Demand** that the relevant authorities act to protect the bees and biodiversity and promote sustainable farming practices.

FARMERS ARE ESSENTIAL FOR:

1 **Adopting and promoting farming methods** that respect bees, as they are fully aware of the symbiosis between bees and agriculture. Such farming methods must be efficient, sustainable over the long term and based on both research data and the knowledge of farmers (it is essential to understand the interactions between plants, the soil and animals).

2 **Minimizing the use of pesticides and ban their preventive use** (as in the case of seed treatments) thanks to farming practices based on natural interactions: crop rotation, protection of beneficial insects, restoration of "bee-friendly" habitats.

Who we are?

The **European Beekeeping Coordination (Bee Life)** is an association composed of beekeeping and agricultural organisations in the EU. Bee Life's main objective is to identify and solve problems related to the environmental threats affecting pollinators, especially honeybees. Addressing the dramatic decline in bee populations, Bee Life gives special attention to threats linked to intensive agriculture.

Bee Life aims to facilitate a close relationship and collaboration between beekeepers, scientists and policy-makers. Its activities are strongly based on the practical experience of beekeepers and their technical expertise. Bee Life is also dedicated to tracking scientific progress in investigations regarding the environmental threats to bees.

On the one hand, Bee Life informs European Union authorities about developments in technical and scientific knowledge, and on the other keeps beekeepers and scientists informed about the evolution and direction of the debate within the EU. In addition, the association raises public awareness about the risks facing bees.

Bee Life has proposed that the European Commission include certain requirements and effective tests in the protocol for evaluating the risk of pesticides to bees (see: *http://bee-life.eu/en/doc/112/*). They have also alerted the EU authorities about the current lack of transparency in the pesticide risk assessment process, and the strong involvement of the industry (see: *http://bee-life.eu/en/doc/151/*).

Bee Life contributes to public EU consultations on pesticides authorization, and participates in discussions on EU programmes to monitor bee health. It also contributes to the political debate on pesticide risk assessments within the EU, and the need to introduce pollinator-friendly agricultural models. To this end, Bee Life organizes conferences and public communication campaigns to raise awareness among a wide audience: beekeepers, the general public and policy-makers.

The main objective is to identify the environmental threats that are putting the beekeeping world and bees at risk, and to propose constructive solutions and alternatives to minimize these threats, in particular by encouraging pollinator-friendly agricultural models and the willing to rebuild synergies between agriculture and the beekeeping world.

For more information: *www.beelife.eu*

Slow Food is an international, grassroots, membership-driven organization with a network of over 100,000 members in more than 150 countries. Slow Food envisions a world in which all people can access and enjoy food that is good for them, good for those who grow it and good for the planet. In order to reach this goal, Slow Food fights to limit the impact of the current food production and consumption system on the environment and to change the paradigm of food policies.

Slow Food supports small-scale agriculture, based on crop rotation and sustainable pest- and weed-control methods, and works directly with beekeeping communities worldwide, creating international networks of quality honey producers. Within these networks, Slow Food has launched eight projects (Slow Food Presidia), which protect and promote the native bees of the Sateré-Mawé (Brazil), Tigray white honey and Wenchi Volcano honey (Ethiopia), the native bees of the Puebla Sierra Norte (Mexico), Swiss black bees (Switzerland), honey mead (Poland) and high-mountain honeys and Sicilian black bees (Italy).

Additionally, Slow Food has included 22 honeys in the Ark of Taste, an online catalogue of over 1,200 small-scale, traditional, quality food products, created to save them from extinction by raising their profile.

As well as supplying technical assistance trough training seminars and visits, technical manuals and experience exchanges, Slow Food also provides promotional support and communication tools to producers, helping them to find new markets and diversify their sources of income, strengthening the links between beekeeping, honey and other bee products and agriculture.

Slow Food also works to increase the public's awareness of the importance of the bees and the harmful effects of pesticides on the ecosystem.

For more information: *www.slowfood.com*

Bee Life and Slow Food believe that the bees are indissolubly linked to their ecosystem, and that their role as pollinators is essential to the food we eat and the type of agriculture we want.

Together with many other European civil society associations, Bee Life and Slow Food are alerting EU institutions about the toxic effects of pesticides on pollinating insects, and on ecosystems in general, and demanding the adoption of policies that encourage sustainable agricultural practices.

For more information, see also

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Bonmatin J.M., 2009, *Conclusions Round Table on intoxication of bees due to pesticides: results from scientists*, 41° Congresso Apimondia, (Montpellier, 15-20 settembre 2009) – *www.bijensterfte.nl/images/Bonmatin-conclusions-sentinelle-gb-2009.pdf*

FAQ on neonicotinoids, harmful insecticides for bees Discussion TECA teca.fao.org/discussion/faq-neonicotinoids-harmful-insecticides-bees

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