



Global research uncovers new, threatening ecological impacts from neonicotinoid pesticides

The Task Force on Systemic Pesticides' 2017 assessment of neonics reveals new risks to biodiversity and ecosystems

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OTTAWA, CANADA — Neonicotinoid pesticides pose severe threats to ecosystems worldwide, according to new information contained in an update to the world's most comprehensive scientific review of the ecological impacts of systemic pesticides.

The Task Force on Systemic Pesticides (TFSP) released the second edition of its *Worldwide Integrated Assessment of the Effects of Systemic Pesticides on Biodiversity and Ecosystems* today in Ottawa, Canada. It synthesizes more than 500 studies since 2014, including some industry-sponsored studies. The review also considered fipronil, a closely related systemic pesticide used in Europe.

Neonics are toxic even at very low doses. They are water soluble and very persistent (i.e., do not readily degrade) in soil, resulting in sustained and chronic exposure in terrestrial and aquatic environments. Extensive and routine application of neonics in agriculture is causing large-scale environmental contamination and a significant threat to biodiversity.

Neonics, which are linked to the steep decline of bees also have the potential to contaminate our food systems. A closely related systemic pesticide, fipronil, is currently at the center of a growing food safety scandal in Europe after high levels of the toxic insecticide were detected in egg products sold in 15 EU states, plus Switzerland and Hong Kong. Millions of eggs have been recalled from shops and warehouses across Europe out of concerns that contaminated eggs pose a serious safety risk to consumers.

The updated assessment confirms that neonics have major impacts and represent a worldwide threat to biodiversity, ecosystems and ecosystem services. First introduced in the 1990s, neonics are now the most widely used insecticides in the world. Agricultural applications include seed treatments, soil treatments, foliar sprays and turf products. Neonics are also used in forestry, flea treatments for pets and domestic and commercial lawn-care products.

"Today's findings reiterate the need to stop massive uses of systemic pesticides, including most urgently their prophylactic use in seed treatment," said Jean-Marc Bonmatin, research scientist at France's Centre National de la Recherche Scientifique and TFSP vice-chair. "The use of these pesticides runs contrary to

environmentally sustainable agricultural practices. It provides no real benefit to farmers, decreases soil quality, hurts biodiversity and contaminates water, air and food. There is no longer any reason to continue down this path of destruction.”

The report is composed of three papers reviewing new data on the mode of action, metabolism, toxicity and environmental contamination of neonicotinoids and fipronil; the lethal and sublethal effects of neonicotinoids and fipronil on organisms and their impacts on ecosystems; and the efficacy of neonicotinoids and fipronil in agriculture and alternative approaches to pest control.

“Only a tiny fraction of pesticide use serves its purpose to fight pests. Most simply contaminates the environment with extensive damage to non-target organisms,” said Faisal Moola, an adjunct professor of ecology at the University of Toronto.

In 2013, the European Union imposed a moratorium on certain uses of imidacloprid, clothianidin and thiamethoxam on bee-attractive crops, and is now considering a proposal to extend this moratorium. France’s new biodiversity law includes a provision to ban all neonics starting in September 2018.

“Overall, the global experiment with neonics is emerging as a clear example of pest-control failure,” Bonmatin said. “Governments around the world must follow the lead of countries like France to ban neonics and move toward sustainable, integrated pest management models, without delay.”

“Considering the threat that neonicotinoids pose to the environment and our health and the existing alternatives, we all need to work with farmers so the transition towards a less polluting food production happens as soon as possible” said Noa Simon Delso, veterinarian and eco-toxicologist at CARI.

The TFSP’s 2017 update will be published in a forthcoming edition of the scientific journal *Environmental Science and Pollution Research*.

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The **Task Force on Systemic Pesticides (tfsp.info)**, an international group of independent scientists convened by the International Union for Conservation of Nature, is the response of the scientific community to global concern about the impact of neonicotinoid insecticides on biodiversity and ecosystems.

In 2015, the TFSP produced the world’s first comprehensive scientific assessment of the ecological effects of neonicotinoids: The ***Worldwide Integrated Assessment of the Effects of Systemic Pesticides on Biodiversity and Ecosystems (WIA)***. This landmark review considered more than 1,100 peer-reviewed studies as well as data from manufacturers. It identified clear evidence of harm to honeybees as well as to a large number of other beneficial species, including aquatic insects at the basis of the food chain, soil arthropods such as earthworms and common birds (by cascade effects).

Neonicotinoid pesticides (“neonics”) are nicotine-based insecticides that target the central nervous system of insect pests. They are systemic pesticides, meaning they are absorbed by the plant and integrated into all plant tissues — roots, stems, leaves, flowers — as well as pollen and nectar. Neonics

are toxic even at very low doses. They are water soluble and very persistent (i.e., do not readily degrade) in soil, resulting in sustained and chronic exposure in terrestrial and aquatic environments. Extensive and routine application of neonics in agriculture is causing large-scale environmental contamination and significant impacts to biodiversity, representing a major threat to ecosystems.

The **Beekeeping Center for Research and Information (CARI)** is a non-profit organization primarily funded by the Walloon Region and whose objective is to promote and develop apiculture. It is a platform in direct contact with the beekeeping and the scientific world which develops concrete answers to the problems encountered by bees and beekeepers. Besides its research centre, it organizes courses, publishes technical and informative reviews like *Abeilles & Cie* and *Actu Api*, offers a service of beekeeping product analyses, etc. It occupies 14 people including 6 scientists. It is part of the Agro-Louvain Service platform of the Université Catholique de Louvain.