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PRESS RELEASE

NEW FOUR-YEAR SCIENTIFIC ANALYSIS: SYSTEMIC PESTICIDES POSE GLOBAL THREAT TO BIODIVERSITY AND ECOSYSTEM SERVICES

A new meta-analysis of the systemic pesticides neonicotinoids and fipronil (neonics), to be published this Summer, will confirm that they are causing significant damage to a wide range of beneficial invertebrate species and are a key factor in the decline of bees.

Concern about the impact of systemic pesticides on a variety of beneficial species has been growing for the last 20 years but the science has not been considered conclusive until now.

Undertaking a full analysis of all the available literature (800 peer reviewed reports) the *Task Force on Systemic Pesticides* – a group of global, independent scientists - has found that there is clear evidence of harm sufficient to trigger regulatory action.

The analysis, known as the *Worldwide Integrated Assessment (WIA)*, to be published in the peer reviewed Journal *Environment Science and Pollution Research*, finds that neonics pose a serious risk of harm to honeybees and other pollinators such as butterflies and to a wide range of other invertebrates such as earthworms and vertebrates such as birds.

Neonics are a nerve poison and the effects of exposure range from instant and lethal to chronic. Even long term exposure at low (non-lethal) levels can be harmful. Chronic damage can include: impaired sense of smell or memory; reduced fecundity; altered feeding behaviour and reduced food intake including reduced foraging in bees; altered tunneling behaviour in earthworms; difficulty in flight and increased susceptibility to disease.

One of the lead authors of the WIA, Dr Jean-Marc Bonmatin of The National Centre for Scientific Research in France said: "The evidence is very clear. We are witnessing a threat to the productivity of our natural and farmed environment equivalent to that posed by organophosphates or DDT. Far from protecting food production the use of neonics is threatening the very infrastructure which enables it, imperilling the pollinators, habitat engineers and natural pest controllers at the heart of a functioning ecosystem."

The analysis found that the most affected groups of species were terrestrial invertebrates such as earthworms which are exposed at high levels via soil and plants, medium levels via surface water and leaching from plants and low levels via air (dusts). Both individuals and

populations can be adversely affected at even low levels and by acute (ongoing) exposure. This makes them highly vulnerable to the levels of neonics associated with agricultural use.

The next most affected group is insect pollinators such as bees and butterflies which are exposed to high contamination through air and plants and medium exposure levels through water. Both individuals and populations can be adversely affected by low or acute exposure making them highly vulnerable.

Then aquatic invertebrates such as freshwater snails and water fleas which are vulnerable to low and acute exposure and can be affected at the individual, population and community levels and vertebrates such as birds which are vulnerable at low and medium exposure levels via soil, air, water and plants and affected at the individual and population level.

Fish, amphibians and microbes were all found to be affected after high levels of or prolonged exposure. Samples taken in water from around the world have been found to exceed ecotoxicological limits on a regular basis.

There is insufficient data to assess whether or not there is an impact on mammals or reptiles but in the case of the latter, the researchers concluded that it was probable.

In addition to contaminating non-target species through direct exposure (e.g. insects consuming nectar from treated plants), the chemicals are also found in varying concentrations outside intentionally treated areas. The water solubility of neonics mean that they leach and run-off easily and have been found to contaminate much wider areas leading to both chronic and acute exposure of organisms, including in riparian zones, estuarine and coastal marine systems.

They have become the most widely used group of insecticides globally, with a global market share now estimated at around 40% and sales of over US \$2.63 billion in 2011. They are also commonly used in domestic treatments to prevent fleas in cats and dogs and termites in wood structures..

Chair of the Task Force, Maarten Bijleveld van Lexmond said: “The findings of the WIA are gravely worrying. We can now clearly see that neonics and fipronil pose a risk to ecosystem functioning and services which go far beyond concerns around one species and which really must warrant government and regulatory attention.”

Honey bees have been at the forefront of concern about neonics and fipronil to date and limited actions have been taken, for example by the EU Commission, but manufacturers of these neurotoxicants have refuted any claims of harm. In reviewing all the available literature rather than simply comparing one report with another, the WIA has found that field-realistic concentrations of neonics adversely affect individual navigation, learning, food collection, longevity, resistance to disease and fecundity of bees. For bumblebees, irrefutable colony-level effects have been found, with exposed colonies growing more slowly and producing significantly fewer queens.

The authors strongly suggest that regulatory agencies apply more precautionary principles and further tighten regulations on neonicotinoids and fipronil and start planning for a global phase-out or at least start formulating plans for a strong reduction of the global scale of use.

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Unlike other pesticides, which remain on the surface of the treated foliage, systemic pesticides are taken up by the plant and transported to all the tissues (leaves, flowers, roots and stems, as well as pollen and nectar). They are increasingly used as a prophylactic to prevent pests rather than to treat a problem once it has occurred.

The metabolites of neonics and fipronil (the compounds which they break down into) are often as or more toxic than the active ingredients to non-target organisms. Both parent compound and some of their metabolites are able to persist and accumulate, particularly in soil, over months or years. This increases their toxicity effects and makes them more damaging to non-target species.

Task Force On Systemic Pesticides

The Task Force on Systemic Pesticides is the response of the scientific community to concern around the impact of systemic pesticides on biodiversity and ecosystems. Its intention is to provide the definitive view of science to inform more rapid and improved decision-making.

It advises two IUCN Commissions, the *Commission on Ecosystem Management* and the *Species Survival Commission*. Its work has been noted by the *Subsidiary Body on Scientific, Technical and Technological Advice* under the Convention on Biodiversity (CBD) and was brought to the attention of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) – on which four members of the Task Force serve - in the context of the fast-track thematic assessment of pollinators, pollination and food production.

Press Conferences releasing the findings will be held in Manila and Brussels on the 24th June, Ottawa on the 25th and Tokyo on the 26th.

Media Briefing notes available on request.

www.tfsp.info (live on 24th June 2014)

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