Seeking A Moratorium on Neonicotinoids to Curtail Bee Losses

The Pollinator Stewardship Council, Inc. Board of Directors considered the preponderance of research concerning neonicotinoids (neonics), and is announcing their decision to call for a moratorium on the use and registration of the neonic class of pesticides. We agree with The Task Force on Systemic Pesticides 2017 “Worldwide Integrated Assessment of the Effects of Systemic Pesticides on Biodiversity and Ecosystems,”

“The [ecosystemic] consequences of losing the invertebrate fauna due to continuous exposure to ubiquitous residues of neonicotinoids ... are thus far reaching and cannot be ignored any longer.”

Beekeepers generally acknowledge scientific knowledge almost always follows, not leads, what we observe in our hives. Beekeepers have been reluctant to point to any single factor as the cause of our fourteen years of heavy colony losses. If hives died, beekeepers generally blamed themselves. We are convinced the class of pesticides known as neonicotinoids along with their companion pesticides, either cause or exacerbate most of the issues beekeepers are experiencing in their colonies. With the exception of Imidicloprid (which has been almost exclusively used on non-bee attractive plants from 1998 through 2003) other Neonics were registered for wide agricultural use late in the fall of 2003. By the spring of 2006 the whole world knew something was drastically amiss in the US bee population.
**Reduced Thermal Regulation and Reproduction of Bees**

A study released in October 2016 determined Thiamethoxam “...elicited a decrease in temperature . . . alterations in thermal regulation caused by Thiamethoxam may affect foraging activity and a variety of in-hive tasks, likely leading to negative consequences at the colony level...”¹ When a honey bee is unable to regulate the temperature of the hive beekeepers have experienced reduced honey crops and dead hives after cold snaps.

Another study implicates clothianidin and thiamethoxam as a culprit in bee losses. “... here we show that two neonicotinoids (4.5 ppb thiamethoxam and 1.5 ppb clothianidin) significantly reduce the reproductive capacity of male honey bees (drones)....Our results demonstrate for the first time that neonicotinoid insecticides can negatively affect male insect reproductive capacity, and provide a possible mechanistic explanation for managed honey bee queen failure and wild insect pollinator decline.”²

**Reduced Foraging and Flight Distance of Bees**

A study published April of 2017 found bees that consumed “a single sublethal dose of Thiamethoxam ... foragers showed excitation and significantly increased flight duration and distance... Chronic exposure significantly decreased flight duration... distance... and average velocity... These results provide the first demonstration that acute or chronic exposure to a neonicotinoid alone can significantly alter bee flight. Such exposure may impair foraging and homing, which are vital to normal colony function and ecosystem services.”³ For beekeepers this results in: bees lost and dead in the field, and poor honey production from ones that come home “drunk” and disoriented.

This class of pesticide called neonicotinoids, also impacts native pollinators. A 2018 study found a low dose of neonicotinoid insecticide reduces foraging motivation of bumble bees. Neonicotinoid concentrations of 1 ppb, often reported in plant nectar near agricultural lands, can thus affect the foraging behaviour of bumble bees. Even without a notable impact on flight performance and learning, a reduction in foraging motivation could explain the poor performance of colonies of bumble bees exposed to neonicotinoids.⁴
Neonics Make Bees Picky Eaters
A University of California- San Diego study determined bees exposed to Imidacloprid would not forage on low sugar content flowers: they became “picky eaters.” “James Nieh, a professor of biology at UC San Diego, said: “In 2006, it (Imidacloprid) was the sixth most commonly used pesticide in California and is sold for agricultural and home garden use. It is known to affect bee learning and memory . . . we discovered that the treated bees also danced less ... between fourfold and tenfold … The picky honey bees brought back dramatically reduced resources to the colony, which led to an overall smaller food store.”

There is a preponderance of literature showing harmful effects to bees and other organisms from neonics. EPA has this science-based literature available to them, conducted by independent researchers at land-grant universities across the U.S., as well as USDA researchers, USGS researchers, and international researchers. EPA is fully aware of the damage being caused to honey bees, native pollinators, soil sustainability, water quality, and beekeeping by the use of these neonic pesticides. The Pollinator Stewardship Council will work during 2019 to defeat the re-registration of Neonicotinoids for the health of our managed and native pollinators.

End of summer and over-winter losses of bee colonies range from 30-70%. If another agricultural stakeholder (cattle, chickens, hogs, sheep) suffered similar losses the USDA/EPA would have examined all factors and worked to protect livestock. Honey bees are a beekeepers livestock, and therefore their livelihood. If the livestock is not producing a crop, honey, and the livestock suffers a 10-20% loss due to pesticides simply while pollinating fruits, nuts, vegetables, and seed crops, plus the end of summer and over winter losses from the cumulative impact of pesticides, there will be less honey produced in the U.S. and less crops pollinated, and less bees year after year. These systemic pesticides, toxic to bees, which remain toxic in the soil, water, and plants long after application, are creating unsustainable agriculture, and threatening the very existence of honey bees and native pollinators.
States, Cities, and Corporations Remove Neonics

We join with states, cities, and corporations to reduce, ban, and place a moratorium on neonics. Eugene, Oregon, and Portland, Oregon have banned neonics. In 2016, Connecticut and Maryland restricted the use of neonics to protect bees and the fishing grounds of the Chesapeake Bay. The State of Minnesota is also reviewing how neonics are used. The State of Vermont has placed a moratorium on soil drenches with imidacloprid. New York State has restricted uses of dinotefuran, imidacloprid, clothianidin, and thiamethoxam. BJ’s Wholesale Club, Lowes, and Home Depot are requiring their vendors to stop using neonics or to clearly label products containing or treated with neonics. In partnership with Pollinator Stewardship Council, Ortho, associated with Scotts Miracle-Gro, announced its decision to stop using neonics. They are two years ahead of schedule to completely remove all neonics from their Ortho brand by 2019. These entities are responding to the scientific research concerning neonics, and to the public outcry to protect pollinators vital to an affordable and sustainable food supply from the adverse impact of this class of pesticide. EPA needs to follow the lead of the consumer industry and beekeepers, and place a moratorium on neonics now.

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2 Lars Straub, Laura Villamar-Bouza, Selina Bruckner, Panwan Chantawannakul, Laurent Gauthier, Kitiphong Khongphinitbunjong, Gina Retschnig, Aline Troxler, Beatriz Vidondo, Peter Neumann, and Geoffrey R. Williams, Neonicotinoid insecticides can serve as inadvertent insect contraceptives, The Royal Society B: Biological Sciences, Published:27 July 2016 https://doi.org/10.1098/rspb.2016.0506


Five Reasons We Support Restrictions on Neonics, https://foecanada.org/en/2015/03/5-reasons-we-support-restrictions-on-neonics/