Pollinator Stewardship Council

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To: US EPA Office of Pesticide Programs

From: Pollinator Stewardship Council

Re: Docket numbers EPA-HQ-OPP-2012-0329, EPA-HQ-OPP-2011-0865, EPA-HQ-OPP-2011-0920, EPA-HQ-OPP-2008-0844, and EPA-HQ-OPP-2011-0581

The Environmental Protection Agency (EPA) is charged with protecting the health and welfare of both humans and the environment, including pollinators. This letter is written in response to the EPA's Proposed Interim Decision (PID) for acetamiprid, clothianidin/thiamethoxam, dinotefuran and imidacloprid (aka neonicotinoids or neonics). The Proposed Interim Decision maintains the status quo of prophylactic and widespread overuse of these neonicotinoids via foliar, drench and seed treatments within the United States. EPA's statutory regulations must be followed with regard to both the risk assessment process and risk management. Therefore, we assert that EPA has failed to protect both the public and pollinators with the initial conditional registration and has failed to consider new and emerging peer reviewed science which clearly implicates neonics in the decline of pollinators in the U.S. and globally (Potts et al. 2010, Goulson 2019). **We urge EPA to use this review process to impose a total ban on the use of neonics for all outdoor applications, including foliar, drench and seed treatments.** By eliminating the outdoor use of neonics in the U.S., EPA would begin to align the United States with the rest of the world in protecting the public, our ground water, our pollinators and our environment.

As complaints began to mount globally about the harm to pollinators from pesticides, and especially neonics, the first response by EPA and the chemical industry was to convene a Pellston Workshop on testing protocols and risk assessment. This meeting resulted in a book with guidelines that was produced in 2011, but little changed within EPA. In 2012, the EPA called a Science Advisory Panel (SAP) to further evaluate the testing protocols for neonics. In preparation for the SAP panel in 2012, the EPA put together a white paper on pollinators and the issues of concern. EPA stated in section 2.2.1 of the white paper, that the protection goals and associated assessment endpoints for assessing risks to honeybees (*Apis mellifera*) were: "*1) protection of pollination services, 2) protection of honey and hive product production and 3) protection of pollinator biodiversity.*" If these are indeed the accepted protection goals, then EPA needs to stop the overuse of neonics to provide adequate protection for all bees and the pollination services they provide. The latest EPA response has been the establishment of Managed Pollinator Protection Plans (MP3). MP3 guidelines are NOT a substitute for proper label language and enforcement has not and WILL NOT protect pollinators from the resultant harm.

EPA has ignored the best advice from the SAP in that testing of other species beyond *Apis* is needed and that some exposure tests to immature bees should be included. An example of EPA's disregard of that

advice is confirmed by the current statement in the imidacloprid (PID Case 7606) document: "*As the pollinator risk assessment framework used by the EPA indicates, honeybees are intended to be reasonable surrogates for other bee species, and conclusions from the weight of evidence for the honeybee can be used to help inform about potential risks to other non-Apis species."* This statement is in direct conflict with the SAP recommendations that other species of bees need to be tested and that honey bees are not a sufficient surrogate for all bees. This difference in species response is highlighted by studies that provide direct evidence of negative neonic impact on reproduction in both bumble bees (Whitehorn et al. 2015) and *Osmia*, a solitary bee (Sandrock et al. 2015).

Adding to this evidence is a large multi-year, well-replicated study using neonic seed treatment of canola in Sweden that showed major negative impacts on bumble bees and *Osmia* near treated fields (Rundlöf et al. 2015). While this study failed to show negative impacts on honey bees, it was touted as evidence that little harm is done to *Apis*. These studies indicate that additional bee species should be tested, not ignored, and that honey bees are not an adequate surrogate for other bee species. The reason honey bee colonies did not show evidence of harm is due to the number of individual bees in a colony (20,000-40,000) and this high number allows the colony to have a buffer against pesticide impacts and still show little or no damage even if bees are dying (termed superorganism resilience, Straub et al. 2015).

Honey bee colonies are being negatively impacted by neonics. Recent studies with whole honey bee colonies by Tsvetkov *et al.* (2017) showed that when colonies were near corn crops, bees were exposed to neonics in non-target pollen for 3-4 months which decreased survival. Similarly, Woodcock *et al.* (2017) found that neonicotinoid exposure from nontarget sources, when bees were near canola, reduced overwintering and colony reproduction in both wild bees and honey bees and similar results were found in the UK by Budge *et al.* (2017). Field observations by professional beekeepers confirm these study results.

These field trials, with field-realistic exposure across countries with differing habitat, all show that neonics are leaching into the soils and are then being picked up by non-target plants that bees visit near those agricultural fields. This idea was first demonstrated by the work of Krupke *et al.* (2017) and Botías *et al.* (2015) and, coupled with recent ground water contamination data by neonics (Hladik et al. 2014, Main et al. 2014, Raby et al. 2018), paint a picture of contamination and impact that cannot be ignored. Much of the debate had centered on peer reviewed lab experiments that both the chemical industry and EPA have stated used higher doses than bees would encounter in the field (not field-realistic doses). Indeed, some lab studies may have used a range of dosages that in the upper ranges were not field-realistic. However, this argument is no longer valid given that neonic toxicity increases with time due to bioaccumulation as recently reported in large-scale field tests of chronic exposure or "time-cumulative toxicity" scenarios (Sanchez-Bayo & Tennekes 2020). The EPA uses only exposure dose in determining risk but it must consider the accumulation of neonics in water, soil and plants over time as a more accurate measure of the true risks and the observed negative effects we see on pollinators and other non-target organisms.

The persistence of neonics in the soil (Jones et al. 2014, Krupke et al. 2017) and water (Hladik et al. 2014) make this a mounting problem that will continue for decades even if neonic use stopped today. It will take time to for the soil and water to recover. Additionally, the prophylactic use of seed treatments is under-reported (Hitaj 2020). Many invertebrates and vertebrates are being affected by overuse of pesticides as evidenced by the startling studies on the reduction in invertebrate biomass (Hallmann et

al. 2017). We need action now to save bats, birds (Hallmann et al. 2014), butterflies and bees and prevent an "Insect Apocalypse" that threatens the very fabric of our entire ecosystem (Goulson 2019).

Our ground water is also being contaminated with the widespread prophylactic use of neonics on all major crops. The prairie Midwest, where corn and soybean cultivation are dominant, is particularly at risk (Hladik et al. 2014, Main et al. 2014). The Midwest is also the home to over 50% of US honey bee colonies in the summer as they move to this area for honey production. During summer, honey bee colonies take in larger amounts of water to cool the hive and also use water to thin honey and add to food fed to larvae. The bees collect water from the surface of ponds and temporary pools in fields and ditches where the concentrations of pesticides are highest during runoff from fields (Hladik et al. 2014) and where they may not rapidly degrade (Lu et al. 2015). Thus, in addition to the movement of neonics into pollen and nectar via soil contamination; water contamination is also a major source of neonic exposure in honey bee hives.

EPA is bound by the Clean Water and Endangered Species Acts to protect the environment and under FIFRA rules it must take action. We urge EPA to follow its own language in the PIDs which states: "*statutory standard: no unreasonable adverse effects.*" **The scientific evidence is clear: *adverse effects* to pollinators and the environment are being seen and documented with the widespread use of neonics**.

FIFRA defines a pesticide as being "misbranded if its labeling bears any statement, graphic representation, or design which is false or misleading in any particular." Here is a current label for Admire Pro. It is already 67 pages long. This label displays a honey bee in a diamond shape. There is not a red line across the bee that typically accompanies a graphic with a negative message. A user could easily interpret this graphic as meaning it is OK for bees. Further, the current labels on neonics do not contain a caution statement sufficient to protect the health of pollinators and the environment. Under FIFRA rules, if a chemical is misbranded, "the administrator shall remove the registration of the product." These products do indeed pose unreasonable risk which cannot be mitigated. Neonics are "misbranded" and must be removed from use.

EPA has a mandate to protect the environment. Now is the time for EPA to correct the conditional registrations given in the past and to take into account the mounting scientific evidence that shows a consistent pattern of negative effects on all pollinators at field-realistic exposures that they now regularly encounter. EPA has been subject to the same types of tactics the FDA was subjected to by the tobacco lobby: shoot the messengers and or discredit the science. As with lung cancer victims, beekeepers in the U.S. are suffering because of the inaction of EPA. Economic damage due to the exposure to neonic use is growing (Douglas et al. 2020). Colony losses have gone from 5-10% in the past to well over 50% on an annual basis (Kulhanek et al. 2017). This is unsustainable especially as neonic use is growing (Hitaj et al. 2020). Many beekeeping operations are multi-generational. Beekeepers have not forgotten how to keep bees. The excessive use of neonics in U.S. agriculture has changed not beekeepers' excellent management practices.

In Europe, a systematic review of neonics resulted in their use being banned (EFSA 2013). European farmers are finding alternatives. Crops are not failing. People are not starving. EPA has tried to respond to pollinator decline with meetings and committees and plans but is still handcuffed by the belief that needed changes will leave farmers vulnerable. We have less toxic alternatives to neonics. Widespread prophylactic treatment flies in the face of responsible agricultural practices. **A total ban on the use of**

neonics in field crops is a necessary first step in protecting the environment we live in and pollinators and the pollination services they provide that feed us daily.

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