

November 24, 2014

Secretary Tom Vilsack  
U.S. Department of Agriculture  
1400 Independence Ave., SW, Room 200-A  
Washington, DC 20250

Administrator Gina McCarthy  
U.S. Environmental Protection Agency, 1101A  
1200 Pennsylvania Avenue, NS  
Washington, DC 20460

**Re: White House Task Force to Protect Pollinators**

Dear Secretary Vilsack and Administrator McCarthy,

On June 20, 2014, President Obama issued the White House Memorandum "[Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators](#)." As scientists and researchers in the fields of agroecology, agronomy, biology, chemistry, ecology, ecotoxicology, entomology, and sustainability sciences, among others, we applaud this initiative.

Since 2006, honey bees have suffered serious declines in the U.S. Wild bees such as bumble bees have also undergone long-term declines. These losses are not sustainable given the vital role bees play in our agricultural system and economies.

*The 108 signers of this letter therefore urge you to take immediate action to protect bees and other pollinators, particularly from pesticides known to be harmful.*

Beekeepers across the country are facing unsustainable annual losses. The average loss rate reported by U.S. beekeepers over the past 8 years has been 29.6% — well over the self-reported acceptable mortality rate. According to the Bee-informed Partnership, the entire 12-month period between April 2012 and April 2013 yielded an average loss of 49.4%.<sup>1</sup> Beekeepers who managed bees from the April 2013 to April 2014 survey period reported an annual loss rate of 34.2%.<sup>2</sup> And these losses directly impact the agricultural economy: the annual value of pollination services from honey bees and other pollinators has been estimated at more than \$19 billion.<sup>3</sup>

A growing body of scientific evidence is showing connections between pollinator declines and pesticide exposure.<sup>4</sup> A recent set of scientific reviews, known as the Worldwide Integrated Assessment of the Impact of Systemic Pesticides on Biodiversity and Ecosystems (WIA), involved 29 scientists reviewing over 800 studies, mostly on neonicotinoid insecticides. The WIA described these pesticides as impacting "individual navigation, learning, food collection, longevity, resistance to disease, and fecundity."<sup>5</sup>

**Neonicotinoid insecticides: widespread usage, environmental contamination**

Multiple routes of exposure to pesticides during the growing season have been identified for honey bees near agricultural fields.<sup>6</sup> Neonicotinoids are systemic pesticides that are

used mainly in seed treatments, but are also applied as foliar sprays and directly to soil. These insecticides are absorbed by the plant and can be transported into stems, leaves, flowers and fruit. Neonicotinoid residues have been found in pollen, nectar and droplets of water exuded by the plant.<sup>7-9</sup> This feature makes the plant effectively toxic to insects that could potentially cause crop damage, resulting in protection for the plant.<sup>10</sup> However, this also results in increasing their exposure potential to pollinators. Neonicotinoid-laced dust released into the environment during the planting of coated seeds (for example, corn seeds) has been documented as an additional route of exposure.<sup>11</sup>

Because usage for seed coatings is exempt under FIFRA's "treated article exemption" and is not publicly tracked with the exception of California, it is not possible to accurately determine the amounts of neonicotinoids used annually in the United States.

Neonicotinoids are also relatively persistent and have been documented as persistent contaminants of surface water and soil.<sup>12-15</sup>

### **Neonicotinoids have an adverse effect on honey bees**

Neonicotinoid-coated corn seeds have been identified as a direct cause of honey bee mortality, in the form of exposure to dust from the planting of coated seeds and droplets of water of corn plants germinated from coated seeds.<sup>8,11</sup>

Sub-lethal effects of neonicotinoids on homing ability, learning and foraging ability — all of which are skills contributing to the survival of bees — have been well documented or reviewed by multiple investigators— a few are cited here.<sup>9,16-18</sup> A plausible molecular mechanism by which neonicotinoids impair neural signaling has been proposed.<sup>19,20</sup>

### **Honey bees may be indicators of impacts on non-target organisms**

Another consequence of neonicotinoid use is the potential chronic exposure for non-target organisms, including wild pollinators and a wide range of aquatic invertebrates. The WIA recently concluded, "Despite large knowledge gaps and uncertainties, enough knowledge exists to conclude that existing levels of pollution with neonicotinoids ... are thus likely to have large-scale and wide ranging negative biological and ecological impacts on a wide range of non-target invertebrates..."<sup>18</sup>

Honey bee declines may be indicative of the larger problem of adverse impacts on populations of wild bees and other pollinators such as butterflies. While growers frequently rely on managed honey bees, studies indicate that wild pollinators provide valuable ecosystem services, in some cases fully pollinating crops.<sup>21</sup> A recent study examining 41 crop systems worldwide found that the contribution by wild pollinators to fruit set — which can be taken as a reliable predictor of crop yield — was independent of that made by managed honey bees, and that the contribution by wild pollinators was universally positive in all crop systems examined.<sup>22</sup> Concerns regarding potential impacts on other non-target organisms have been raised recently by the WIA and in a *Nature* article examining associations between high surface-water concentrations of a neonicotinoid and declines of insectivorous birds in the Netherlands.<sup>23</sup>

The European Food Safety Authority recently recommended further evaluation of the health risks of the developmental neurotoxicity potential of the neonicotinoids acetamiprid and imidacloprid.<sup>24</sup>

### **Questions around efficacy & impact**

In addition to impacts on pollinators, questions remain regarding the efficacy and additional risks associated with widespread use of neonicotinoids on non-target arthropods, including beneficial insects. Nearly all of the corn seeds in the U.S. are sold pre-treated with a combination of insecticide and fungicide, leaving farmers of this major commodity crop with little choice of seeds in many regions of the U.S.<sup>25</sup> However, studies reviewing efficacy of neonicotinoids on common corn or soy pests have indicated mixed results with regards to yield, calling into question the efficacy of such prophylactic usage.<sup>26,27</sup> Most recently, U.S. EPA concluded that neonicotinoid treatments of soybeans provide little to no benefit to production.<sup>28</sup>

A 2014 review of the literature by the Center for Food Safety (CFS) examined 19 articles on seed treatment and yields of major U.S. crops, finding either no yield benefit or inconsistent yield benefit from such treatments. In cases where reduced pest damage or other benefits were determined, these benefits did not translate into increased yield in the studies reviewed by CFS. Prophylactic use occurs regardless of whether or not pest populations reach economic thresholds, contrary to the principles of Integrated Pest Management, and thus the costs of seed treatment “tends to exceed that of other control options...”<sup>29</sup>

### **Recommendations**

We recommend that the Task Force prioritize the following three actions in order to better protect bees and other valuable pollinators:

1. Establish a *moratorium* on the use of neonicotinoids
2. *Suspend the registrations* of neonicotinoids for agricultural and cosmetic uses pending the completion of EPA’s review. (The European Union is currently in the first year of such a moratorium on certain neonicotinoids.)
3. *Increase investment in research and funding for implementation of alternatives, and especially non-pesticidal alternatives, to neonicotinoids.*

Short of a suspension of all neonicotinoid registrations, we recommend a suspension of neonicotinoid seed treatments and cosmetic uses of neonicotinoids.

Meanwhile, and until neonicotinoids are suspended for use, we recommend the the Task Force move swiftly to:

- Require all neonicotinoid seed treatments to be labeled as pesticides under FIFRA;
- Require a bee hazard statement to be included on the label of all products containing systemic insecticides toxic to pollinators, including soil drenches and foliar use products;
- Prioritize systemic insecticides for Registration Review starting in 2015, and ensure inclusion of independent, peer-reviewed research on the acute and chronic effects of systemic insecticides on bees and other essential pollinators;

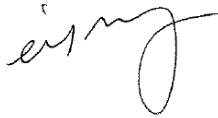
- Expedite the development and implementation of valid test guidelines for sub-lethal effects of pesticides on pollinators and require data from these studies for all currently registered and any new systemic pesticides; and
- Require registrants to submit toxicity endpoint data for acute and sub-lethal effects for both adult and larval bees, and other bee species to account for potential differences in sensitivity.

Finally, the White House Task Force should recommend incentives for farmers to create healthy pollinator habitats in the form of diversified, pesticide-free landscapes as an alternative to our current system of intensive monoculture. Such landscapes support natural enemies also, and thus provide an alternative to pesticides. Maintaining high-quality habitats around farms aids in promoting pollinator richness and diversity. Thriving populations of beneficial insects result in a healthier and more resilient crop as well as benefiting the larger ecosystem.<sup>30</sup> Practices that encourage wild pollinator diversity are therefore likely to increase crop yields and support the agricultural economy.

While gaps do exist in knowledge around neonicotinoids, regulation with an eye to prevention of harm, precaution with regards to neonicotinoids, and commitment to safe and sustainable alternatives may well help to stem the tide of pollinator losses. We ask the White House Task Force to deliver recommendations to our regulatory agencies urging swift and decisive action as outlined above, to protect bees and other pollinators.

Cc: White House

Signed, \*

A handwritten signature in black ink, appearing to read 'Emily Marquez', with a large, stylized flourish at the end.

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