



# BEYOND PESTICIDES

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## Statement of Beyond Pesticides in Support of HB 6916 with Amendments Connecticut Joint Environment Committee February 19, 2024

Honorable Co-Chairs Lopes and Parker and members of the Environment Committee. We appreciate the opportunity to testify on HB 6916, and the importance of adopting legislation to protect pollinators and public health. Beyond Pesticides is a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to improve protections from pesticides and promote alternative pest management strategies that reduce or eliminate a reliance on toxic pesticides. Our membership spans the 50 states, the District of Columbia, and groups around the world. We are providing this testimony on behalf of our members and supporters in the state of Connecticut.

We urge the Environment Committee to vote in favor of HB 6916 with amendments. While the proposed legislation recognizes a critical problem, we urge the Committee to take a broader approach in response to the pollinator and public health threat than is contained in HB 6916 and ensure a more robust response to an ecological crisis that is defined by a large body of peer-reviewed scientific findings.<sup>1</sup>

There are several provisions of the bill that undermine the protections needed and additional issues that must be addressed to affect a meaningful response to pollinator decline and adverse ecosystem effects associated with the use of neonicotinoid insecticides and related compounds.

The following should be stricken because all pesticides in commerce are regulated by the U.S. Environmental Protection Agency (EPA) as not causing “unreasonable adverse effects” under federal and state of Connecticut law. Therefore, under this language in the bill, all neonicotinoids have already met this standard. The purpose and intent of this legislation, as we understand it, however, is to create a higher standard of environmental protection. The need for improved protection is supported by this testimony, the scientific literature, and findings of EPA and state of Connecticut deficiencies cited herein.

1. To this end the following provision in italics (below) in the bill should be stricken:

Section (c) (1) The Commissioner of Energy and Environmental Protection may issue a written order to suspend the provisions of subsection (b) of 1 of this section if the commissioner determines that: . . . *(C) the use of a neonicotinoid will not cause unreasonable adverse effects on*

*the environment, including on nontarget organisms, surface water quality 20 and groundwater quality.”*

2. Similarly, the following text in italics in the same section should be stricken: *“(D) no other less harmful pesticide or pest management practice will be effective to address such environmental emergency.”*
3. Provision (D) should be replaced with the following language:  
  
(D): “no other pest management practice, including organic management practice with delineated allowable substances, will be effective to address such environmental emergency.”
4. The following new section should be added to define “delineated allowable substances:”
  - a. **Natural, organic or "non-synthetic."** A substance that is derived from mineral, plant, or animal matter and does not undergo a “synthetic” process as defined in the Organic Foods Production Act, 7 U.S.C. § 6502(21), as the same may be amended from time to time.
  - b. **Pesticides determined to be “minimum risk pesticides”** pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and listed in 40 C.F.R. § 152.25(f)(1) or (2), as may be amended from time to time.

It is important that the proposed legislation prioritize ecological pest management practices, best defined in federal law as “organic,” as the alternative that must be assessed as an alternative to the use of neonicotinoids and related compounds because of the numerous deficiencies in the evaluation of pesticides by EPA on which the State of Connecticut relies for determinations of safety. With a proper assessment of the need for these highly toxic chemicals to be dispersed in an already vulnerable environment, the state can find that management strategies are available that utilize mechanical, biological, and cultural (operational) practices that prevent the need for toxic pesticides that escalate the destruction of biodiversity and ecosystem services. Legislation that protects ecosystem services preserves the important role that soil organisms and birds play in preventing pest populations that exceed damage thresholds. Continued dependence on pesticides, as the current bill language allows, fails to respond to the pesticide treadmill effect that elevates pest populations by depressing ecological balance while increasing pest resistance to pesticide applications and reducing plant resiliency to pest populations.

### **Hazard Background**

A landmark report, *Neonicotinoids in Connecticut Waters: Surface Water, Groundwater, and Threats to Aquatic Ecosystems*,<sup>2</sup> published by researchers at the University of Connecticut in late 2024 “finds that 46% of Connecticut waterway samples are contaminated with levels of the neonicotinoid insecticide, imidacloprid—one of the most widely used insecticides in the United States on lawn and golf courses.” It is important to note that the authors acknowledged early in

the report the “abandonment” of Integrated Pest Management in “the use of neonicotinoids has coincided with and been implicated in the decline of many non-target species of insects, in particular pollinators such as bees . . . and monarch butterflies.”

As you consider the importance of legislation to protect pollinators and biodiversity, supported by the scientific findings and citations in this statement, we urge you to recognize the dire need to improve state safeguards concerning neonicotinoids, hazardous insecticides that harm pollinators, birds, wildlife, soil and aquatic organisms, and human health, as well as contaminate surface and drinking water. HB 6916 with amendments could be a critically needed step in addressing gaps in U.S. Environmental Protection Agency (EPA) regulatory action that threaten ecological stability in the state of Connecticut.

The science on the dangers that neonicotinoids pose to pollinators and other wildlife is clear, yet federal agencies have not acted substantively. With the new administration in Washington, DC and the defunding of agency work, this situation now approaches catastrophic, given the short time frame required to take action. As the science has emerged, the only changes made by EPA have been limited to neonicotinoid product label changes to the timing and rates of application. Because neonicotinoids are systemic pesticides, the chemical moves through the vascular system of plants and is expressed through pollen, nectar, and guttation droplets, causing indiscriminate poisoning to foraging pollinators. The chemical effectively turns the plant into a delivery vehicle for poisons.

We note that the European Union (EU) has adopted a more expansive approach to these systemic poisons. After suspending use of neonicotinoids on outdoor flowering plants for several years, the EU eliminated all outdoor neonicotinoid uses except those in contained greenhouses.<sup>3</sup> The EU’s decision is an acknowledgement that there is no safe level of neonicotinoid exposure for foraging bees, butterflies, and other pollinators.

### **Pollinator Decline**

Pollinators are faring poorly in Connecticut, throughout the United States, and around the world. Similar to DDT as the primary factor behind declines in birds of prey, neonicotinoid insecticides are the key component to address in the ongoing decline of bee and other pollinator populations, especially in light of habitat loss. Reports consistently show managed pollinator losses over an unsustainable 30% (an astounding 49% for 2022-2023 total annual loss in CT),<sup>4</sup> and the die off of wild pollinators impacting agricultural production.<sup>5</sup> The peer-reviewed research shows that neonics are taken up by flowering plants at levels that can harm pollinators on both an acute and chronic, long-term basis.<sup>6</sup> These chemicals have been shown, even at low levels, to impair foraging, navigation, and learning behavior in bees, as well as suppress their immune system. In addition to these direct threats to the survivability of pollinators, these adverse effects also increase pollinators susceptibility to pathogens and disease.<sup>7</sup> Research finds neonics can alter feeding behaviors and reduce egg development in bumblebee queens,<sup>8</sup> inhibit pollination skills among bumblebee workers,<sup>9</sup> and reduce overall colony size.<sup>10</sup>

### **Effects to Soil and Aquatic Organisms**

The crisis is not limited to pollinators. Beneficial soil dwelling insects, benthic aquatic insects, grain-eating vertebrates, like songbirds and even mammals such as deer, are also at risk from neonicotinoids. Because neonicotinoids persist in soil and easily become airborne, the chemicals spread far beyond target crops and can contaminate nearby plants, soil, and water, thus posing far-reaching threats to wildlife. In its 2017 risk assessment for the most widely used neonicotinoid, imidacloprid, that, “[C]oncentrations of imidacloprid detected in streams, rivers, lakes and drainage canals routinely exceed acute and chronic toxicity endpoints derived for freshwater invertebrates.”<sup>11</sup> Independent scientific research finds that neonicotinoid concentrations detected in aquatic environments pose risks to aquatic invertebrates and the ecosystems they support.<sup>12</sup> Two studies published in 2020 together find that neonicotinoids adversely affect shrimp and oyster health, decreasing their nutritional value. “These two studies indicate both crustaceans and mollusks are vulnerable to insecticides, weakening their immune system and leaving them susceptible to disease,” said coauthor Kirsten Benkendorff, PhD.<sup>13,14</sup>

### **Effects to Birds**

There is evidence of adverse effects moving up the food chain. One study demonstrates that a single corn kernel coated with a neonicotinoid is toxic enough to kill a songbird.<sup>15</sup> Research published in the esteemed journal *Science* found songbirds that feed on neonicotinoid-contaminated seeds during their migration route display reduced weight, delayed travel, and low rates of survival. The author of that study, ecotoxicologist Chrissy Morrissey, PhD, said, “Our study shows that this is bigger than the bees — birds can also be harmed by modern neonicotinoid pesticides which should worry us all.”<sup>16</sup> Data from the Netherlands shows that the most severe bird population declines occur in those areas where neonicotinoid pollution is highest,<sup>17</sup> alarming in the context of the findings in *Science* that three billion birds (30% total) perished since 1970, in part due to pesticide use.

### **Effects to Mammal Health**

Neonicotinoids have been shown to harm mammals like deer. A two-year study published in *Nature Scientific Reports* finds that field-relevant contamination with the neonicotinoid insecticide imidacloprid causes reduced body weight and metabolism in white-tailed deer, and in fawns, birth defects and mortality. Remarkably, researchers uncovered imidacloprid levels in free-ranging deer a full 3.5 times higher, on average, than the levels in the animals treated in their experiment.<sup>18</sup> Ubiquitous contamination of deer was confirmed through a follow-up study by the Minnesota Department of Natural Resources, which found that out of 800 deer spleens analyzed, 61% of samples contained neonicotinoids.<sup>19</sup>

### **Effects to Human Health**

Emerging evidence shows that, contrary to pesticide industry claims, neonicotinoids present both direct and indirect harm to human health. Recent research finds that neonicotinoids can act as endocrine (hormone) disruptors at very low doses, resulting in damage that can lead to hormone-dependent breast cancer.<sup>20</sup> Neonicotinoids have been found to readily transfer from mother to fetus through the placenta, presenting higher risks of birth defects.<sup>21</sup> A major review of the risks that neonicotinoids pose to humans highlights the potential for neurological impacts, such as memory loss and finger tremor.<sup>22</sup> Additionally, independent research recently

highlights a human health hazard that EPA had the potential to explore yet ignored: liver damage. A study in the *Journal of Hazardous Materials* found that the widely used neonicotinoid dinotefuran barely metabolizes at all in the body, yet is absorbed by the liver and shows up in liver bile, posing a risk to liver health.<sup>23</sup> EPA registration documents for dinotefuran explain that tests found neonicotinoids to be absorbed in the liver. The document notes, “The test material was essentially not metabolized, the parent compound accounting for >97% of the radiolabel in the excreta, plasma, kidneys, and stomach, and nearly 61-83% in intestines (and contents), and liver.”<sup>24</sup> EPA did nothing with this data. No further testing was conducted to understand or characterize the hepatotoxic (injurious to liver) nature of the insecticide, and these findings did not lead to any changes in the agency’s determination on use patterns. Additionally, a study published in *Frontiers in Toxicology* finds that all five neonicotinoids evaluated—acetamiprid, clothianidin, imidacloprid, thiacloprid, and thiamethoxam—are associated with significant shrinkage of brain tissue at the highest dosage, according to EPA data reports.<sup>25</sup> In other words, EPA has enough data to investigate this issue and make even minor protective changes. Instead, after decades of this chemical being on the market, it has taken an independent, peer-reviewed study to extrapolate and further investigate the critical details of how a near complete lack of dinotefuran adsorption in the body affects the liver.

Beyond direct damage, the loss of pollinators from neonicotinoid pesticides is resulting in significant indirect damage to vulnerable, economically distressed individuals in our society. A recent study published in *Environmental Health Perspectives* on the connection between the loss of pollinators and human health finds that pollinator losses are responsible for reducing the global production of nuts, fruits, and vegetables by 3-5%, and that this loss of healthy, nutrient-dense food is resulting in over 425,000 excess deaths each year. As lawmakers, you will undoubtedly find this quote alarming: “Pollinator deficits were estimated to be responsible for 1% of total annual mortality in both upper– middle– and high–income countries.”<sup>26</sup>

### **Alternatives to Neonicotinoids**

Eliminating neonicotinoids will not cause major disruptions to the pest management or pest service industry. Pest problems in landscaped areas can be prevented through practices that improve soil health and promote biodiversity and habitat for pest predators. If pest problems do become an issue, a wide range of insecticidal soaps and essential oils, classified either as certified organic, or minimum risk, are available and represent a least-toxic option. These chemicals still pose some level of risk to pollinators, and should not be sprayed while they are foraging, but are not chronic, systemic chemicals that continuously poison pollinators and the surrounding landscape.

In most cases, the outdoor use of any toxic pesticide is unnecessary. A study published in *Environmental Entomology* finds that spraying of urban trees disrupts the ability of beneficial species in the landscape to naturally manage pest populations. The authors determined that moderate pest levels both attract and maintain predators that provide critical biological control services in a landscape. “Treating a tree with pesticides could kill off natural enemies that would otherwise help manage nearby pests. In other words, treating a tree with pesticides could

alleviate pest problems within the tree but could result in pest outbreaks in shrubs beneath the tree as natural enemies are killed off,” said Caleb Wilson, PhD, of Michigan State University.<sup>27</sup>

### **Actions in Other States**

The State of Connecticut has been at the forefront of leadership on pesticide regulation, public safety, and the environment. For example, Connecticut was the first state in the nation to prohibit the use of lawn care pesticides on school athletic fields serving K-6 schools and daycare centers. The original law expanded in 2009 to include Grades 7 and 8. In 2015, Connecticut went further by banning toxic law pesticides on public playgrounds.<sup>2829</sup>

Over the past several years, numerous state legislatures in the region have led the charge on public safety and neonicotinoid regulations. The State of New York adopted the *Birds and Bees Protection Act* in January 2024 to ban the use of neonicotinoid insecticides by 2029; Vermont followed suit in July 2024 with a near identical bill. New Jersey and Maine are additional East Coast states that have the strongest laws on the books to eliminate all outdoor (nonagricultural) uses of bee-toxic neonicotinoid insecticides.<sup>30</sup> Connecticut has the opportunity to take strong leadership to go above and beyond its neighboring states in terms of neonicotinoid exposure and subsequent health effects on humans, wildlife, and ecosystems.

### **Conclusion**

While we support the elimination of all outdoor uses of neonicotinoids, it must be noted that these chemicals are merely the “poster children” for broader problems associated with EPA’s evaluation and registration of pesticides. At a time of cascading and intersecting public health, biodiversity, and climate crises, we must stop the use of chemical classes causing immense harm; yet, we must also move toward an approach that incentivizes sustainable practices that do not necessitate these chemicals in the first place.

We would be happy to work with the committee to achieve these broader health and sustainability goals going forward. Connecticut has the opportunity to reverse pollinator declines caused by neonicotinoid insecticides, while concurrently increasing protections for public health and the wider environment.

We urge passage of HB 6916 with considerations proposed in our statement. With the adoption of these changes to HB 6916, we urge the Committee to take action in the context of eliminating damaging pesticides that can be replaced by practices and materials compatible with the environment and public safety.

Thank you for your consideration of our comments.

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Beyond Pesticides

## Endnotes

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