



## **Protect New York’s Birds, Bees, Water, and Health from Neonics In Support of the Birds and Bees Protection Act (A7429/S699B)**

Neonicotinoids or “neonics” are neurotoxic pesticides linked to massive bee and insect losses around the globe and, increasingly, to vast water and soil contamination, ecosystem-wide harms, and human health concerns in New York. [Cornell University research](#) reveals that the neonic uses that pose the greatest threats to New York’s bees are also those that provide little-to-no benefits to users or are easily replaceable with safer alternatives. **The Birds and Bees Protection Act (A7429-Englebright/S699B-Hoylman)** prohibits these wasteful uses—specifically, neonic-treated corn, soybean, and wheat seeds and non-agricultural, turf and ornamental uses—to provide a targeted, science-based approach to address the heart of New York’s neonic contamination crisis, benefiting New York’s environment, agricultural economy, and health.



**Neonics Are Toxic, Persistent, and Everywhere** – As the world’s most widely used insecticides, neonics have made U.S. agriculture [48-times more harmful to insects](#) since their introduction in the mid-1990s.<sup>1</sup> Neonics permeate plants—turning their nectar, pollen, and fruit toxic. They can be applied to a plant’s roots or as a coating on a crop seed, which the entire plant then absorbs as it grows. Neonics also persist in soil, where they are easily carried long distances by rain or irrigation water. Today, neonics [broadly contaminate New York’s water](#), soil, and plants, concentrating in areas of year-after-year use.<sup>2</sup>

**Neonics Kill Bees** – Neonics are extremely toxic to insects, including bees. A robust body of scientific evidence links neonic use to massive bee population losses, including two comprehensive worldwide academic assessments, [Cornell University research](#), and even a [major pesticide-industry-funded field study](#)—the largest to date.<sup>3</sup> In New York, beekeepers have lost more than 40% of their bee colonies nearly every year for the last decade<sup>4</sup>—suggesting possible similar catastrophic losses for the state’s 400+ native bee species. These losses threaten both the state’s ecosystems and the estimated [\\$439 million worth](#) of pollination services pollinators provide to top state crops like apples, squash, tomatoes, blueberries, strawberries, cherries, and pears.<sup>5</sup>

**Neonics Kill Birds** – Research links neonics to [large declines in U.S. bird species](#)<sup>6</sup>—contributing to [the 30% decline in North American birds](#) seen in the last 50 years.<sup>7</sup> Eating just one neonic-treated seed is enough to kill some songbirds, and even at low doses, neonics can harm birds’ immune systems, fertility, and navigation, and [cause rapid weight loss](#)—reducing birds’ chances of surviving in the wild.<sup>8</sup> As neonics kill insect populations, birds also starve. In Europe, for example, [declining bird populations](#) were linked to very low levels of neonics in water, and neonics are a suspected cause of the [steep decline in French farmland birds](#).<sup>9</sup>

**Neonics Contaminate New York Water and Debilitate Ecosystems, Harming Fish, Deer, and Other Wildlife** – Neonics frequently show up in state water testing—including ~30% of Long Island groundwater samples—indicating a “very high probability” that the pesticides are causing [“ecosystem-wide damage”](#) in New York.<sup>10</sup> Neonics hollow out ecosystems by eradicating aquatic insect populations that birds, fish, amphibians, and other animals depend upon for food. Recent research shows a [Japanese fishery collapsed](#) within a year of the introduction of neonics in nearby agricultural fields—and neonic levels later measured at the site match those commonly seen in New York water.<sup>11</sup> Diminishing trout, salmon, and wild bird populations, in turn, threaten

New York's billion-dollar tourism and recreation industries.<sup>12</sup> Neonic water contamination has also been linked to [harm to bats](#) and [birth defects in white-tailed deer](#).<sup>13</sup>

**Neonics May Harm New Yorker's Health** – Monitoring by the U.S. Centers for Disease Control and Prevention shows that [half the U.S. population is regularly exposed to neonics](#) — with the highest levels found in children.<sup>14</sup> This is particularly concerning given human and animal research linking neonics to [potential neurological, developmental, and reproductive harms](#), including malformations of the developing heart and brain.<sup>15</sup> While modern filtration systems remove neonics, [standard chlorination treatment doesn't](#),<sup>16</sup> meaning homes that get water from groundwater, older treatment systems, or unfiltered supplies (like New York City) are at higher risk of finding neonics in their tap. Neonic residues also commonly contaminate [produce](#) and [baby food](#),<sup>17</sup> and because neonics permeate foods, they cannot be washed off.

**Cornell Research Shows Most Harmful Neonic Uses Not Beneficial or Needed** – In a [June 2020 report](#), Cornell University analyzed every published peer-reviewed study on neonics' harms to pollinators and the relative costs and benefits of neonics compared to likely alternatives — 1,121 studies in total — revealing that the state's largest and most harmful neonic uses provide little to no benefits to users or are easily replaceable with safer alternatives.<sup>18</sup> In particular, the report finds neonic corn and soybean seed treatments — which account for [an estimated 73%](#) of the neonics used in New York agriculture<sup>19</sup> — pose “substantial” risks to bees and other pollinators, yet provide “no overall net income benefits” to farmers.<sup>20</sup> Likewise, non-agricultural lawn and garden uses posed some of the highest risks to pollinators, but were easily replaced with safer alternatives — aside from some key uses against invasive species. Other research shows that neonics can actually *decrease* yields by killing pollinators or pest predators (i.e., “good bugs”).<sup>21</sup>

**A7429/S699B Targets the Heart of the Widespread Neonic Contamination Problem in New York** – While [Europe](#) completely banned outdoor use of the three major neonic chemicals,<sup>22</sup> the Birds and Bees Protection Act (A7429/S699B) would address the heart of New York's ecologically damaging neonic contamination problem by targeting only the high-cost, low-benefit neonic uses identified in the Cornell report. Its prohibitions targeting neonic-treated corn, soybean, and wheat seeds and on non-agricultural, ornamental and turf uses would eliminate the vast majority of neonics entering the state's environment every year — without preventing other agricultural uses or treatment for invasive species. The bill also requires the New York Department of Environmental protection to consider other neonic uses for restricted use designation where appropriate. This commonsense, surgical, and science-based approach would benefit pollinators, the farmers who depend on them, New York's ecosystems, and the countless New Yorkers who value clean soil, clean water, and their own health.

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<sup>1</sup> Michael DiBartolomeis et al., *An Assessment of Acute Insecticide Toxicity Loading (AITL) of Chemical Pesticides Used on Agricultural Land in the United States*, PLoS One (Aug. 6, 2019), <https://bit.ly/2Yr4Xc7>.

<sup>2</sup> See Pierre Mineau, *Impacts of Neonics in New York Water* (2019), <https://on.nrdc.org/2lXs000> [hereinafter “Mineau 2019”].

<sup>3</sup> See Travis A. Grout et al., *Neonicotinoid Insecticides in New York State*, Cornell University (June 23, 2020), <https://bit.ly/2XlB2cA> [hereinafter “Cornell Neonic Report”]; Lennard Pisa et al., *An Update of the Worldwide Integrated Assessment (WIA) on Systemic Insecticides*, *Envtl. Sci. Pollution Research Int'l* (Nov. 9, 2017), <https://bit.ly/2HqgHwB>; Thomas Wood & Dave Goulson, *The Environmental Risks of Neonicotinoid Pesticides*, *Envtl. Sci. Pollution Research Int'l* (Jun. 7, 2017), <https://bit.ly/2Hpn8T5>; McArt et al. 2017, *High Pesticide Risk to Honey Bees Despite Low Focal Crop Pollen Collection During Pollination of a Mass Blooming Crop*, *Scientific Reports* (Apr. 19, 2017), <https://go.nature.com/2lr0o9Y>; Daniel Cressley, *Largest-ever Study of Controversial Pesticides Finds Harm to Bees*, *Nature* (Jun. 29, 2017), <https://go.nature.com/2sgljDk>.

<sup>4</sup> See Bee Informed Partnership, *Colony Loss Map*, <https://bit.ly/2HphoWV>, and select “Annual” under the “Season” menu.

<sup>5</sup> New York State, *New York State Issues Guidelines to Promote Creation of Pollinator Habitats on Commercial Properties* (Jun. 22, 2020), <https://on.ny.gov/35Gm1wL>.

<sup>6</sup> Science News, *Decline in US Bird Diversity Related to Neonicotinoids, Study Shows*, (Aug. 14, 2020), <https://bit.ly/3nHu427>.

<sup>7</sup> See Stephen Leahy, *Huge Decline in Songbirds Linked to Common Insecticide*, *Nat. Geo.* (Sep. 12, 2019), <https://on.natgeo.com/2mpTQy1>; John Fitzpatrick & Peter Marra, *The Crisis for Birds Is a Crisis for Us All*, *New York Times* (Sep. 19, 2019), <https://nyti.ms/2kTTrnc>.

<sup>8</sup> See Pierre Mineau & Cynthia Palmer, *Am. Bird Conservancy, The Impact of the Nation's Most Widely Used Insecticides on Birds*, 3 (2013), <https://bit.ly/1jmQ7u0>; Ana Lopez-Antia et al., *Imidacloprid-Treated Seed Ingestion Has Lethal Effect on Adult Partridges and Reduces Both Breeding Investment and Offspring Immunity*, *Envtl. Research* (Jan. 2015), <https://bit.ly/2kwUdWS>; Margaret Eng et al., *A Neonicotinoid Insecticide Reduces Fueling and Delays Migration in Songbirds*, *Science* (Sep. 13, 2019), <https://bit.ly/2kGS1MA>; Margaret Eng et al., *Imidacloprid and Chlorpyrifos Insecticides Impair Migratory Ability in a Seed-Eating Songbird*, *Scientific Reports* (Nov. 9, 2017), <https://go.nature.com/2my5OW4>.

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- <sup>9</sup> See Caspar A. Hallmann et al., *Declines in Insectivorous Birds Are Associated with High Neonicotinoid Concentrations*, *Nature* (Jul. 17, 2014), <https://go.nature.com/2NUV26w>; Jason Bittel, *Second Silent Spring? Bird Declines Linked to Popular Pesticides*, *Nat. Geo.* (Jul. 9, 2014), <https://bit.ly/2HbC4bE>; Laurianne Geffroy, *Where Have all the Farmland Birds Gone?*, *CNRS News* (Mar. 21, 2018), <https://bit.ly/2GcNCL4>.
- <sup>10</sup> Mineau 2019.
- <sup>11</sup> Masumi Yamamuro et al., *Neonicotinoids Disrupt Aquatic Food Webs and Decrease Fishery Yields*, *Science* (Nov. 1, 2019), <https://bit.ly/34rKCSG>; Mineau 2019.
- <sup>12</sup> See Office of the State Comptroller, Thomas P. DiNapoli, *Fishing, Hunting, and Trapping in New York State*, 1 (Dec. 2015), <https://bit.ly/356n4Dk>; Audubon, *Ecotourism: Bird watching Is Big Business in New York!* (visited Dec. 16, 2019), <https://bit.ly/356zvis>.
- <sup>13</sup> See Pierre Mineau & Carolyn Callaghan, *Neonicotinoid Insecticides and Bats*, *Canadian Wildlife Federation* (2018), <https://bit.ly/2kSfs5K>; Jim Daley, *As Pesticide Turns Up in More Places, Safety Concerns Mount*, *Scientific American* (Apr. 30, 2019), <https://bit.ly/2oft0dv>.
- <sup>14</sup> M. Ospina et al., *Exposure to Neonicotinoid Insecticides in the U.S. General Population*, *Envtl. Res.* (Jun. 24, 2019) <https://bit.ly/2q11vRf>.
- <sup>15</sup> A. Cimino et al., *Effects of Neonicotinoid Pesticide Exposure on Human Health: A Systematic Review*, 125 *Envtl. Health Persp.* 155-62 (2017), <https://bit.ly/2NVA1LR>.
- <sup>16</sup> Kathryn L. Klarich et al., *Occurrence of Neonicotinoid Insecticides in Finished Drinking Water and Fate During Drinking Water Treatment*, *Envtl. Sci. and Tech. Letters* (Apr. 2017), <https://bit.ly/2PMRunk>.
- <sup>17</sup> See, e.g., H. A. Craddock et al., *Trends in Neonicotinoid Pesticide Residues in Food and Water in the United States, 1999-2015*, *Envtl. Health* (Jan. 11, 2019), <https://bit.ly/30GxV5D>; Olga Naidenko, *Neonic Pesticides: Banned in Europe, Common on U.S. Produce, Lethal to Bees*, *Envtl. Working Grp.* (Jul. 26, 2018), <https://bit.ly/2EejbSx>; Friends of the Earth, *Toxic Secret*, <http://bit.ly/2IE26V> (visited Oct. 9, 2019).
- <sup>18</sup> Cornell Neonic Report.
- <sup>19</sup> Pierre Mineau, *An Assessment of Neonicotinoid Insecticides with Emphasis on New York: Use, Contamination, Impacts on Aquatic Systems, and Agronomic Aspects*, 49 (2019), <https://on.nrdc.org/35GRiPY>.
- <sup>20</sup> Cornell Neonic Report; see also Spyridon Mourtzinis et al., *Neonicotinoid Seed Treatments of Soybean Provide Negligible Benefits to US Farmers*, *Sci. Reports* (Sep. 9, 2019), <https://go.nature.com/2p5leCP>; Christian Krupke et al., *Planting of Neonicotinoid-Treated Maize Poses Risks for Honey Bees and Other Non-Target Organisms Over a Wide Area Without Consistent Crop Yield Benefit*, *J. of Applied Ecol.* (May 22, 2017), <https://bit.ly/36aMZtD>.
- <sup>21</sup> See Purdue University, *Don't Just Spray – Survey*, <https://on.nrdc.org/2m0a9Bt>; Margaret Douglas et al., *Neonicotinoid Insecticide Travels Through a Soil Food Chain, Disrupting Biological Control of Non-Target Pests and Decreasing Soya Bean Yield*, *Journal of Applied Ecology* (Dec. 4, 2014), <https://bit.ly/2lRr4ME>; Rui Catarino et al., *Bee Pollination Outperforms Pesticides for Oilseed Crop Production and Profitability*, (Oct. 9, 2019), <https://bit.ly/2OUw0Xu>; Dara A. Stanley et al., *Neonicotinoid Pesticide Exposure Impairs Crop Pollination Services Provided by Bumblebees*, *Nature* (Nov. 18, 2015), <https://bit.ly/2qnhWLW>; Claire LaCanne & Jonathan Lundgren, *Regenerative Agriculture: Merging Farming and Natural Resource Conservation Profitably*, *PeerJ* (Feb. 28, 2018), <https://bit.ly/2YNxiop>.
- <sup>22</sup> Declan Butler, *Scientists Hail European Ban on Bee-Harming Pesticides*, *Nature* (Apr. 27, 2018), <https://go.nature.com/3ibsftg>.