



A7639/S5816 Protects New York's Birds, Bees, Water, and People from Neonics

Neonicotinoids or “neonics” are neurotoxic insecticides 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. **The Birds and Bees Protection Act’s** (A7639-Englebright/S5816-Hoylman) five-year moratorium on outdoor uses of these pesticides protects the state—and New Yorkers—while further study is conducted.

Neonics Are Toxic, Persistent, and Everywhere – As the world’s most widely used insecticides, neonics have made U.S. agriculture more than forty times more harmful to insects since their introduction in the mid-1990s.¹ 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 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.²



Neonics Kill Bees – Neonics are extremely toxic to insects, including bees. An outpouring of scientific evidence now 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.³ In New York, beekeepers have lost more than 40% of their bee colonies nearly every year for the last decade⁴—suggesting possible similar catastrophic losses for the state’s 400+ native bee species. These losses threaten both the state’s ecosystems and the estimated \$1.2 billion that pollination-dependent crops—including apples, squash, blueberries, and cherries—contribute to the state’s agricultural economy annually.⁵

Neonics Kill Birds – Scientific research increasingly identifies neonics as a leading cause of mass bird losses—such as the 30% decline in North American birds in the last 50 years.⁶ Eating just one neonic-treated seed is enough to kill some songbirds, and even low doses, neonics can harm birds’ immune systems, fertility, and navigation and cause rapid weight loss—reducing birds’ chances of surviving in the wild.⁷ 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.⁸

Neonics Contaminate New York Water and Debilitate Ecosystems, Harming Fish, Deer, and Other Wildlife – Neonics frequently show up in state surface-water testing as well as roughly 30 percent of Long Island groundwater samples—indicating a “very high probability” that the pesticides are causing “ecosystem-wide damage” in New York.⁹ Neonics hollow out ecosystems by eradicating aquatic insect populations that birds, fish, amphibians, and other animals depend upon for food. For instance, recent research shows a Japanese fishery collapsed within a year of the introduction of neonics in nearby agriculture—and neonic levels later measured at the site match those commonly seen in New York water.¹⁰ Diminishing trout, salmon, and wild bird populations, in turn, threaten New York’s billion-dollar tourism and recreation industries.¹¹ Neonic water contamination has also been linked to harm to bats and birth and developmental defects in white-tailed deer.¹²

Neonics May Harm New Yorker’s Health – According to the Centers for Disease Control, half the U.S. population is exposed to neonics on a regular basis¹³—a concerning statistic given that studies suggest that neonics may increase risk of developmental or neurological damage in humans, including malformations of the developing

heart and brain, memory loss, and finger tremors.¹⁴ Conventional drinking water treatments generally do not remove neonics from neonic-contaminated water,¹⁵ and neonic residues commonly contaminate produce and baby food.¹⁶ Because neonics permeate foods, they cannot be washed off.

Alternatives to Neonics – For nearly all uses, neonics are replaceable¹⁷—with the best and most cost-effective alternative often being nothing. For example, neonic corn and soybean seed treatments account for an estimated 73% of the neonics used in New York agriculture, yet provide little to no benefits to farmers.¹⁸ New research also shows that neonics may often actually *decrease* yields by killing pollinators or pest predators (i.e., “good bugs”).¹⁹ For growers and homeowners, non-synthetic or less-harmful synthetic substitutes exist, including organic and minimum-risk pesticides.²⁰

New York Must Act – Europe has banned outdoor use of several neonic chemicals, and Canada is moving to do the same. The Trump administration, however, has done nothing, and no state has yet addressed the heart of the neonic crisis. With more damage done every day and no federal help in sight, state legislators must act to pass the Birds and Bees Protection Act—which would make New York a national leader in protecting its pollinators, water, and people, while providing state regulators time for further study required by the act.

¹ 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/2Yr4XcZ>.

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

³ See 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 Cressey, *Largest-ever Study of Controversial Pesticides Finds Harm to Bees*, *Nature* (Jun. 29, 2017), <https://go.nature.com/2sgJjDk>.

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

⁵ DEC & NYS Dep’t of Ag. and Markets, *New York State Pollinator Protection Plan Update*, 8 (Jun. 2018), <https://on.ny.gov/2nBYgPW>.

⁶ 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>.

⁷ 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>.

⁸ 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>.

⁹ Mineau 2019.

¹⁰ Masumi Yamamuro et al., *Neonicotinoids Disrupt Aquatic Food Webs and Decrease Fishery Yields*, *Science* (Nov. 1, 2019), <https://bit.ly/34rKCSG>.

¹¹ 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>.

¹² 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>.

¹³ M. Ospina et al., *Exposure to Neonicotinoid Insecticides in the U.S. General Population*, *Envtl. Res.* (Jun. 24, 2019) <https://bit.ly/2q11yRf>.

¹⁴ 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>.

¹⁵ 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>.

¹⁶ 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/2lIE26V> (visited Oct. 9, 2019).

¹⁷ Hervé Jactel et al., *Alternatives to Neonicotinoids*, *Env. Int’l* (Aug. 2019), <https://bit.ly/2p64ews>.

¹⁸ See 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>.

¹⁹ 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/2lRr4MF>; 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>.

²⁰ See 7 C.F.R. § 205.601 et seq. (listing pesticides allowed for use in organic crop production); 40 C.F.R. § 152.25(f) (minimum risk pesticides); Strategist Editors, *The Best (Nontoxic) Pesticides and Insecticides, According to Gardeners*, *Slate.com* (May 28, 2019), <https://bit.ly/2Z9GIAX>.