



Environment and Transportation Committee Hearing February 4, 2026, 1 pm

Bill No.: HB91 – An Act Concerning Agriculture – Neonicotinoid Pesticides – Prohibitions

Sponsors: Delegates Healey and Ruth

Position: Favorable

The Maryland Pesticide Education Network (MPEN) works for better protections and data to keep our families, waterways, and wildlife safe from toxic pesticides.

The Smart on Pesticide Coalition works to protect Maryland's 'babies, bees and the Bay' from the toxic impacts of pesticides. The Coalition is over 100 communities, farmers, health care providers, scientists, environmentalists, waterkeepers, interfaith congregants, businesses, as well as environmental justice, public health and wildlife advocates – hundreds of thousands of Marylanders – who support stronger pesticide protections in our state.

We are deeply grateful for this committee's leadership in addressing the issue of neonics in 2014, when the committee successfully championed the Pollinator Protection Act that stopped the sale and use of consumer products containing the neonicotinoid class of pesticides (neonics) and became law in 2015. This bill is the next logical step in protecting people, pollinators, our food supply, waterways, drinking water and our fisheries, as well as Maryland's farmers and farmworkers.

HB91 would prohibit the use, distribution and selling of corn, soy and wheat seeds that have been coated or treated with neonic pesticides. It would also prohibit application of neonics on outdoor ornamental plants and turf.

HB91 is modeled on the successful legislation in New York State, passed in 2023 and already being implemented.

HB91 will further protect pollinators that we depend on for our food supply—one in every three bites of food we eat—while also protecting Marylanders from exposures to neonicotinoid pesticides through contaminated drinking water, the air we breathe, lawn care applications, and close proximity to agriculture, which is common in many Maryland communities. There are decades of scientific research, more than a thousand peer-reviewed studies on the harmful effects of neonics on living things – including plants, bees, birds, other animals, and people.

Human Health Imperiled by Neonics: Neonics interfere with the functioning of parts of the brain and nervous systems. The effect on children is especially concerning, as these chemicals affect parts of the brain vital to early childhood growth and development. These chemicals even flow through the placenta from the mother to the fetus. This can cause babies to be born with endemic defects and lifelong neurological problems. The Centers for Disease Control and Prevention found that more than 95% of pregnant women have neonics in their bodies. Farmworkers are exposed to these chemicals when they are sprayed on crops and when handling neonic-infused seeds.

Research links neonic exposures to developmental or neurological damage particularly in infants and young children¹ including developing heart and brain malformations, autism spectrum disorder, and a cluster of symptoms including memory loss and tremors.²

Declining Pollinators Associated with Neonic Use: For over a decade, Maryland beekeepers have been losing 40-60% of their honeybee colonies every year.

Over 1,000 scientific studies unequivocally have shown that neonics significantly contribute to the catastrophic die-off of the honeybees and native bees that pollinate crops.³ The pollination service these creatures provide is essential to the production of food.

Neonics Contribute to Mass Losses of Birds: In North America, 30% of bird populations have disappeared with research linking neonics to large losses in bird biodiversity. Neonics harm birds directly too. Ingesting just one neonic-treated crop seed can kill a songbird.⁴

At non-lethal doses, neonics can damage birds' immune and reproductive systems, cause rapid weight loss, and impair navigation and migration ability, reducing their ability to survive and reproduce in the wild.⁵ With acres of Maryland farmland sown with neonic-treated seeds, birds are broadly at risk. Additionally, by killing insects, these insecticides eliminate a vital food source for many bird species, in Maryland including migratory birds, further risking their viability.

Chesapeake Bay & Aquatic Life Threatened by Neonics:

- **Neonics cause the death of molting blue crabs.**⁷ In 2020, the dockside value of the Maryland blue crab harvest was \$33 million and contributed nearly \$600 million to Maryland's economy.
- Neonicotinoid insecticides severely degrade aquatic food webs by causing high mortality in aquatic invertebrates (mayflies, midges, zooplankton), which are foundational food sources for fish and birds.
- **High levels of neonics found in wastewater sampling.** A recent study on wastewater treatment plant discharges in the Potomac River basin showed that a common neonicotinoid pesticide, Imidacloprid, "accounted for the largest portion of predicted potential toxicity across sites" The study also found that at 72% of the sites' sampled in the Potomac Basin, aquatic invertebrates were at risk due to the chronic presence of pesticide mixtures, with neonicotinoids being a primary driver.⁹

Neonic-Treated Seeds Show No Benefit to Farmers on Crop Yield

Research has proven that using non-treated seeds results in no difference in crop yield and that the most common uses of neonic-treated seeds – on corn and soybean – often **provide no economic benefit for farmers.** See Grout et al. 2020 (review of over 1000 peer-reviewed studies finding neonics provide "no overall net income benefit" to growers).¹⁰

Studies from Maryland from Dr. Kelly Hamby's Lab (<https://www.hambylab.com/grain-projects.html>), at the University of Maryland, on the lack of utility for farmers:

1. Dubey 2020: The study finds that "Given the lack of economically damaging pests throughout our study, [the researchers] did not observe any yield benefits that could justify the risks associated with [neonic seed treatment] use." The researchers conclude that "[neonic seed treatments] are not warranted in Maryland grain production, outside of specific instances of high pest pressure."¹¹

The researchers simulated a common crop rotation in Maryland with and without neonic seed treatments and found no yield benefit from using neonics on seeds, given overall low pest pressure. At the same time, they noted impacts to beneficial insects in the field.

2. Cramer and Hamby 2025: The study finds that neonic seed treatments “did not increase yields in Mid-Atlantic corn across multiple locations where the study was conducted” and concludes that “corn production in the Mid-Atlantic generally does not experience sufficient seedling pest pressure to justify routine use of preventative treatments [neonics].”¹²

Cornell University has also identified that in many regions, neonic-treated seeds provide **no significant yield benefit** for corn and soybeans, as the pests they target are not always present in high enough numbers to justify the cost or the environmental damage to bees and birds.¹³ In addition, a four-year Purdue University study found “the absence of a neonic seed treatment had no impact on yields.”¹⁴

Treated seed applications are remarkably inefficient while contributing to widespread pollution. In a typical treated seed application on corn or soybean seed, **only 2-5% of the active ingredient is absorbed into the target plant – the other 95% is left in the soil¹⁵ where the chemicals persist for years.**¹⁶ Once in the soil, **neonics are easily carried long distances by rain or irrigation water** to contaminate new soil, the plants in that soil (which absorb the chemicals and become toxic), and water supplies.¹⁷

Farmers are paying a premium for neonic-treated seeds with little to no benefit. There are non-toxic alternative strategies to neonic-treated seeds that support our farmers. In fact, they would save money. Shifting from “preventative poisoning” to a system focused on soil health and targeted biological controls has been shown to be effective.

- **Microbial inoculants including *Bacillus subtilis* or *Trichoderma*** fungi protect the seed from soil-borne pathogens and encourage root growth, making the seedling more resilient to early-season pests.
- **Beneficial nematodes:** These microscopic worms can be applied to the soil at planting. They seek out and kill soil-dwelling larvae like wireworms and grubs, the primary targets of neonic treatments.
- **Botanical slurries:** For smaller scales, seeds can be dusted with **diatomaceous earth** or lightly coated in a **neem oil** solution to deter chewing insects without harming pollinators later in the season.

At this time when significant guardrails for pesticides are being eliminated on the federal level by EPA and USDA, who now prioritize corporate wealth over human health, the environment, pollinators, and farmers, it behooves states like ours to ensure crucial common sense pesticide protections such as HB91.

We urge the Committee give HB91 a favorable report. Thank you.

¹Cimino AM, Boyles AL, Thayer KA, Perry MJ. “Effects of Neonicotinoid Pesticide Exposure on Human Health: A Systematic Review.” *Environ Health Perspect.* 2017 Feb;125(2):155-162. doi: 10.1289/EHP515. Epub 2016 Jul 6. PMID: 27385285; PMCID: PMC5289916. <https://bit.ly/3tCsnYI>.

²Jennifer Sass, “Neonic Pesticide May Become More Toxic in Tap Water,” *NRDC* (Feb. 4, 2019). <https://on.nrdc.org/3z9XE68>.

³Pierre Mineau and Cynthia Palmer, “The Impact of the Nation’s Most Widely Used Insecticides on Birds.” *American Bird Conservancy.* March 2013, p. 3, <https://bit.ly/1jmQ7u0>.

⁴Ana Lopez-Antia et al., “Imidacloprid-Treated Seed Ingestion Has Lethal Effect on Adult Partridges and Reduces Both Breeding Investment and Offspring Immunity.” *Environmental Research* 136 (January 2015): 97-107, <https://bit.ly/2kwUdWS>. Margaret L. Eng et al., “A Neonicotinoid Insecticide Reduces Fueling and Delays Migration in Songbirds.” *Science* 365, no. 6458 (September 2019): 1177-1180. <https://bit.ly/2kGS1MA>. Margaret L. Eng, Bridget J. M. Stutchbury, and Christy A. Morrissey, “Imidacloprid

and Chlorpyrifos Insecticides Impair Migratory Ability in a Seed-Eating Songbird.” *Scientific Reports* 7, (November 2017). <https://go.nature.com/2QEWHA6>.

⁵van Lexmond, M.B., Bonmatin, JM., Goulson, D. *et al.* “Worldwide integrated assessment on systemic pesticides.” *Environ Sci Pollut Res* 22, 1–4 (2015). <https://doi.org/10.1007/s11356-014-3220-1> and Pisa, L., Goulson, D., Yang, EC. *et al.* “An update of the Worldwide Integrated Assessment (WIA) on systemic insecticides. Part 2: impacts on organisms and ecosystems.” *Environ Sci Pollut Res* 28, 11749–11797 (2021). <https://doi.org/10.1007/s11356-017-0341-3>

⁶Travis Grout, Phoebe Koenig, Julie Kapuvari, Scott McArt, “Neonicotinoid Insecticides in New York State: economic benefits and risk to pollinators,” Cornell University, 2020. <https://cornell.app.box.com/v/2020-neonicotinoid-report>

⁷Smart on Pesticides, “Impact of Neonicotinoid Pesticides on Chesapeake Bay Watershed Aquatic Life.” <https://mdpestnet.org/wp-content/uploads/2021/08/fact-sheet-Impact-of-Neonicotinoid-Pesticides-on-Chesapeake-Bay-Watershed-Aquatic-Life.pdf>

⁸Osterberg, JS; Darnell, KM; Blickley, TM; Romano, JA; Rittschof, D. “Acute toxicity and sub-lethal effects of common pesticides in post-larval and juvenile blue crabs, *Callinectes sapidus*.” *Journal of Experimental Marine Biology and Ecology*, 424-425, 5-14. <https://doi.org/10.1016/j.jembe.2012.05.004>

⁹Samuel Adam Miller, Kaycee E. Faunce, Larry B. Barber, Jacob Fleck, Daniel Walter Burns, Jeremy Roland Jasmann, Michelle Hladik, “Factors contributing to pesticide contamination in riverine systems: The role of wastewater and landscape sources” USGS, 2024. <https://www.usgs.gov/publications/factors-contributing-pesticide-contamination-riverine-systems-role-wastewater-and>

¹⁰Bonmatin, JM., Giorio, C., Sánchez-Bayo, F. *et al.*, “An update of the Worldwide Integrated Assessment (WIA) on systemic insecticides.” *Environ Sci Pollut Res* 28, 11709–11715 (2021). <https://doi.org/10.1007/s11356-021-12853-6>

¹¹Dubey A, Lewis MT, Dively GP, Hamby KA. Ecological impacts of pesticide seed treatments on arthropod communities in a grain crop rotation. *J Appl Ecol*. 2020;57:936–951. <https://doi.org/10.1111/1365-2664.13595>

¹²Maria Cramer, Kelly Hamby, “Preventative insecticides reduce seedling injury, but do not increase yield in Bt and non-Bt corn grown in the mid-Atlantic,” *Pest Management Science*, February 2025. <https://scijournals.onlinelibrary.wiley.com/doi/10.1002/ps.8694>

¹³Ibid. Grout, et al.

¹⁴Purdue University et al., “The Effectiveness of Neonicotinoid Seed Treatment in Soybean.” <https://extension.entm.purdue.edu/publications/E-268/E-268-W.pdf>

¹⁵NRDC Action Fund Testimony in support of Minnesota Senate Bill SF3083: “Pesticides from treated seeds addition to the Commissioner of Agriculture's pesticide management plan requirements; appropriating money.” April 21, 2025.

¹⁶Ibid.

¹⁷Ibid.



The Smart on Pesticides Maryland Campaign is a coalition of 110 concerned Maryland citizens, organizations, groups, and businesses working for better protections and data to keep our families, our waterways, and our wildlife safe from toxic pesticides.

- A.I.R. Lawncare & Landscaping Services
- Alliance of Nurses for a Healthy Environment
- American Academy of Pediatrics – Md. Chapter
- American Bird Conservancy
- American Public Health Association – Md. Chapter
- Anacostia Watershed Society
- Anne Arundel Beekeepers Association
- Arundel Rivers Foundation
- Assateague Coastal Trust
- Audubon Mid-Atlantic
- Baltimore Backyard Beekeepers Network
- Baltimore Bird Club
- Bee Friendly Apiary
- Beyond Pesticides
- Big City Farms
- Bowie-Upper Marlboro Beekeepers Association
- CATA, Farmworkers Support Committee
- Carroll County Beekeepers Association
- Cecil Bird Club
- Center for Biological Diversity
- Center for Food Safety
- Central Maryland Beekeepers Association
- Central Maryland Ecumenical Council/Leaders Group
- Centro de los Derechos del Migrante
- Charm City Meadworks
- Charles Smith Apiaries
- Chesapeake Physicians for Social Responsibility
- Children’s Environmental Health Network
- Clean Bread and Cheese Creek
- Clean Water Action
- Common Market Co-Op
- Conservation Community Consulting
- Cottingham Farm
- Crossroads Community Food Network
- Earth Coalition
- Earthjustice
- Eastern Shore Food Hub
- Environment Maryland
- Fair Farms
- F&D Apiaries
- Farmworker Justice
- Food and Water Watch
- Fox Haven Farm and Learning Center
- Frederick County Beekeepers Association
- Friends of Briers Mill Run
- Friends of Lower Beaverdam Creek
- Friends of Quincy Run
- Friends of the Earth
- Greenbelt Forest Preserve Butterfly Brigade
- Heathcote – School of Living Healthy Campaigns
- Hampden Community Council
- Hereford Bed & Biscuit
- HoneyFlower Foods
- Howard County Beekeepers Association
- Howard County Bird Club
- Interfaith Partners of the Chesapeake
- Interfaith Power and Light
- Johns Hopkins Center for a Livable Future
- Karma.Farm
- KW Landscaping
- Latino Farmers & Ranchers Association – Md Chapter
- League of Women Voters of Maryland
- Learning Disabilities Association – Md Chapter
- Lower Susquehanna Riverkeeper
- Maryland Autism Project
- Maryland Bass Nation
- Maryland Children’s Environmental Health Coalition
- Maryland Ethical Cannabis Association
- Maryland League of Conservation Voters
- Maryland Nurses Association
- Maryland Organic Food and Farming Association
- Maryland Ornithological Society
- Maryland Pesticide Education Network
- Maryland Public Interest Research Group
- Maryland United for Peace and Justice
- Maryland Votes for Animals
- McDaniel Honey Farm
- Migrant Clinicians Network
- Moms Clean Air Force
- MOM’s Organic Market
- Montgomery Countryside Alliance
- National Aquarium
- Natural Resources Defense Council
- Nature Forward
- Organic Consumers Association
- Pearlstone Conference Center
- Perfect Earth Project
- Pesticide Action Network – North America
- Potomac Riverkeeper
- Rachel Carson Council
- Really Raw Honey Company
- Red Top Farm
- Rodale Institute
- Rosedale Farm
- Ruscombe Community Health Center
- SafeGrow Montgomery
- Safe Minds
- Safe Skies Maryland
- Severn River Association
- Sierra Club – Maryland Chapter
- Spa Creek Conservancy
- The Flower Factory
- Towson Estates Association
- Trout Unlimited
- Washington County Beekeepers Association
- Waterkeepers Chesapeake
- Westport Farmers Market
- Westport Neighborhood Association
- Wicomico Environmental Trust

A Guide for Legislators

Scientific evidence is the underpinning for policy decisions regarding health. This checklist offers guidance for legislators listening to and assessing scientific testimony and scientific arguments on these often difficult questions, as well as help in questioning witnesses during a hearing.

1. What is the purpose, and what is the source of the research being presented?

The goal of a study may influence the outcomes. For instance, studies that a manufacturer must undertake to submit a chemical or drug for federal registration are different from studies performed by independent scientists seeking to understand impacts of chemicals on humans, animals, or the ecosystem.

What you need to know: Are government findings based on industry-provided research? Are they based on a review of all available sources?

Example: In the debate of e-cigarette / vapor product regulation, research reports by the FDA's Division of Pharmaceutical Research was very credible because it reflected totally independent testing.

2. Have the studies been peer-reviewed?

Independent scientific research is subject to review by a panel of “peers”; these are other scientists with no stake in the findings and no conflicts of interest. Peer review ensures accuracy in methodology and statistical significance, as well as proper interpretation of the results. When a study passes peer review, it is usually published in a scientific journal, such as Environmental Health Perspectives or the Journal of the American Medical Association. This is a transparent process, ensuring that rigorous standards are upheld.

What you need to know: Are the studies being cited peer reviewed? If not, consider the source. Blogs and newspaper articles are not peer-reviewed materials, but may link back to a peer-reviewed source.

Peer Reviewed

A panel of independent experts in the same scientific field, who have no connection to the study and no conflicts of interest, have reviewed it and judged it to be valid and worthy of publication.

3. How certain is “certain enough” to act?

Scientists examine facts and complex information and then look for a preponderance of evidence. While scientists routinely disclose elements of uncertainty in their research, they form their conclusions based on the weight of the evidence.

What you need to know: Is there sufficient evidence regarding possible harms that warrants taking action? Is there sufficient evidence of safety to justify inaction?

Example: Based on the preponderance of evidence of likely harm, we passed seat belt laws and prevented children from drinking alcohol.

4. Are the scientists being too cautious?

Scientists are conservative regarding “certainty.” They use a “95% confidence test” in order to conclude that two observations that happen together are more than accidental and probably causal. When it comes to taking action,

however, public and environmental health experts recommend action based on sufficient scientific evidence to warrant concern and not on a specific percentage.

What you need to know: What are the risks and what could be the harm if we wait for more research to be conducted before taking action?

Example: Laws limiting human exposure to DDT, lead, tobacco and alcohol were all passed long before a 95% confidence test was met. These laws were based on a preponderance of evidence rather than 95% certainty.

5. Are the findings influenced by funding source, trade secrets, or suppression of data?

The design of a scientific study may be influenced by the source of its funding. This has been well documented by independent observers. It is therefore reasonable and prudent for legislators to ask all scientists and those who cite scientific research about their sources of funding.

What you need to know: What are the sources of funding for the work being cited? Were any data omitted due to trade secret protections or similar reasons?

Example: 1) The source of funding for a study can influence important findings or cause contrary results to be omitted from the study's report. 2) Important data that an industry provides to a federal agency before marketing will not be in the public domain and may not have been subjected to peer review.

6. Has anyone addressed the economic harm associated with inaction?

Policy-makers must weigh not only the cost of taking action but also the cost of inaction. Science offers insight into the costs of inaction.

What You Need to Know: What public and private costs may be incurred if we do not take action on this proposed policy?

Example: A 2015 peer reviewed study estimated the costs to the EU of human exposure to endocrine disruptors at \$209 billion annually in medical care and lost productivity. (*Trasande et al J Clin Endocrinol Metab. 2015 Apr; 100(4): 1245–1255.*)

Note: The fiscal note on a bill will not typically assess the costs of inaction. It addresses only the costs of adopting the policy, and usually only the costs to government.

7. Have long term effects been assessed?

Early life exposures can create high risks in later life. An example is the link between lead poisoning and long-term harms to children, or between tobacco and cancer. Over time, human exposures to multiple chemicals will have interactive effects that may be quite different from the effects of a single chemical.

What you need to know: Does the science presented also address the long-term effects of exposure? If not, is that because the research does not exist?

Note: Federal agency review does not establish absolute safety. The US EPA registers chemicals based on “reasonable certainty of no harm” and has yet to address the synergistic effects of chemicals in real life, such as interactions with other chemicals in the environment, medications, and illness.

Weight of the Evidence

This term refers to a judgment in the scientific community that most studies to date confirm a particular conclusion. Scientists are always open to new findings, so they may avoid using terms like “certainty”, “100%” or “we are sure.”