



Central Maryland Beekeepers Association

Supporting and promoting beekeepers and the viability of honeybees in central Maryland

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

Harsh economic costs are crippling Maryland's beekeeping industry and threaten farmers

Pollinators, including honeybees, wild bees and insects, and birds, are crucial to Maryland's agricultural production of fruits and vegetables. One in 3 bites of food we eat requires pollination. According to USDA National Agriculture Survey & Statistics, agricultural producers spent \$400 million (2024-2025) to beekeepers providing pollination services.

This figure doesn't include the **significant free pollination services we count on that are provided by Maryland's 400 species of wild bees, other insects, and birds**. US Fish & Wildlife Service totals the economic value of insect pollination over \$34 billion.¹ **Pollinators are crucial to Maryland's fruit and vegetable industry, which saw over \$106 million in sales in 2022², all of which are highly dependent on insect pollination**. Insect pollinators are experiencing high mortality from neonic poisoning and that is why Maryland needs to pass HB91.

One study estimates that since neonics were first introduced, **U.S. agriculture has become 48-times more harmful to insect life. 98% of this increase was attributable to neonics, the number one use of which is on treated seeds**.³

Many plants require numerous pollination visits, some by specific pollinators (e.g. tomatoes need bumblebees) for each blossom to produce fruit. When there are fewer visits by pollinators, it causes insufficient pollination resulting in smaller malformed fruit, reduced yields, and less seed for the following year—all of which impact the bottom line for farmers.

For over a decade, U.S. beekeepers have experienced unprecedented honeybee die-offs, averaging 50% mortality annually. No exception, **Maryland beekeepers struggle to keep hives alive with consistent loss numbers from 40% to over 60%**. The U.S. Beekeeping survey estimates honeybee colony losses for Maryland at 43.13% in 2024-2025. Losses above 10-15% are considered unsustainable by the beekeeping industry.⁴ Older beekeepers recall that until neonics became pervasive, beekeeping was easy – bees

¹ US Fish & Wildlife Service <https://www.fws.gov/initiative/pollinators/pollinators-benefit-agriculture>

² Maryland Dept. of Agriculture. 2024 Maryland Food Statistics.

[https://mda.maryland.gov/Documents/2024%20Maryland%20Food%20Statistics%20.docx%20\(1\).pdf](https://mda.maryland.gov/Documents/2024%20Maryland%20Food%20Statistics%20.docx%20(1).pdf)

³ 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/3hDBraV>; Margaret R. Douglas et al., County-Level Analysis Reveals a Rapidly Shifting Landscape of Insecticide Hazard to Honey Bees (*Apis Mellifera*) on U.S. Farmland, Scientific Reports (Jan. 21, 2020), <https://go.nature.com/3nzFYpp>.

⁴ Apiary Inspectors of America. Preliminary Results from the 2024-2025 US Beekeeping Survey: Honey Bee Colony Loss and Management. <https://apiaryinspectors.org/US-beekeeping-survey-24-25>. Scroll to Losses by state for 2024-2025, click the map image, then click on Annual losses for Maryland.

generally thrived, and the beekeeper just harvested honey. Now beekeepers put in much more time nursing a species that is on life support and, despite the beekeepers' best efforts, all too often colonies still die. The toxic effects neonics have on bees, including weakening their immune systems, reducing fertility of queens and drones, damaging navigational ability, cause metabolic abnormalities, and increasing parasitic varroa mite populations in honeybees⁵ make beekeeping a losing proposition for beekeepers.

A 2015 study by Central Maryland Beekeepers Association estimated each lost hive costs the beekeeper \$1500 in replacement costs and lost revenue – not including the beekeeper's labor. Now ten years later, Stephen McDaniel of McDaniel Honey Farm updated these calculations in his HB91 testimony for 2026 at \$2,165 - \$2,465 per hive lost for a single year. New replacement hives often do not produce a honey crop until year two – if they survive at all. Imagine if a farmer lost 43% their dairy cattle herd each year.

Maryland Dept. of Agriculture estimates there are 18,700 managed honeybee colonies in the state and Maryland's managed honeybees pollinate crops in excess of \$40 million.⁶ **A 43% loss rate means Maryland beekeepers lost 8,041 colonies in 2024-2025, with a loss to Maryland beekeepers of almost \$17.5 million (USD).**

High honeybee losses, year after year, have subsequently caused a steady churn of attrition as beekeepers quit beekeeping and has caused commercial beekeepers to be unable to fulfill pollination contracts to farms in the state (see Stephen McDaniel's testimony).

Neonicotinoids are toxic, persistent, highly mobile, and pervasive

Neonics are neurotoxic insecticides that kill insects by permanently binding to, overstimulating, and ultimately destroying their nerve cells.⁷

In 2016, Maryland lawmakers wisely enacted a neonic ban on consumer home garden products, however **applications by lawn care companies continue. At EPA-approved rates, a single square foot of lawn treated with a neonic product can contain enough neonic to kill over one million bees.**⁸

Neonicotinoid-coated corn seeds have been identified as a direct cause of honeybee 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.^{9 10}

⁵ Bartlett L. May 2024. Neonicotinoid exposure increases *Varroa Destructor* mite parasitism severity in honey bee colonies and is not mitigated by increased colony genetic diversity. Oxford Academic. Journal of Insect Science.

<https://academic.oup.com/jinsectscience/article/24/3/20/7683866?login=false>
⁶ Maryland Dept. of Agriculture. Apiary Inspection webpage. https://mda.maryland.gov/plants-pests/pages/apiary_inspection.aspx

⁷ National Pesticide Information Center, "Imidacloprid: Technical Fact Sheet," <https://bit.ly/2QEblaW> (accessed December 2, 2019).

⁸See, e.g., European Food Safety Authority, Conclusion on the Peer Review of the Pesticide Risk Assessment for Bees for the Active Substance *Thiamethoxam*, March 14, 2013, p. 9, <https://bit.ly/2IR7Xfo> (listing the acute oral honeybee "LD50"—the dose of imidacloprid expected to kill half a population of exposed honeybees when ingested—as 0.005 µg per bee). U.S. Environmental Protection Agency (hereinafter EPA), "Amended Label to Increase Soybean Rates + Supplemental Label for Soybean Cruiser® Insecticide," amended and approved February 23, 2009, <https://bit.ly/2kGCgW3> (allowing up to 1.25 mg of thiamethoxam per corn seed). EPA, "Registration for Imidacloprid (NTN 33893)," March 10, 1994, p. 7, <https://bit.ly/2K36Bbl> (listing the honeybee LD50 as 0.0039 µg per bee). EPA, pesticide label for Gaucho 600 Flowable, p. 5, <https://bit.ly/34FL8x2> (allowing up to 1.34 mg of imidacloprid per corn seed).

⁹ Gunderson, D. Feb 10, 2015. Early research links insecticide, monarch butterfly deaths. MPR News. Retrieved from <http://www.mprnews.org/story/2015/02/10/butterfly-deaths-neonicotinoids>.

¹⁰ Mineau P, Whiteside M. 2013. Pesticide Acute Toxicity Is a Better Correlate of U.S. Grassland Bird Declines than Agricultural Intensification. PLoS ONE 8(2): e57457. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0057457>.

While acute toxicity of neonicotinoids (causing death) has been documented, most worrisome are their sublethal effects, invisible to the casual observer but potent in severely altering the behavior of honeybees. Research on bees documented that sublethal doses of neonicotinoids

- disrupt their sleep and circadian rhythm ¹¹
- negatively impacts the cognitive and memory functions ¹²
- hinder bees from flying back to their hives ¹³

These findings, together with growing evidence that long-lasting neonicotinoid residues persist in soils and are taken up by plants far beyond treated agricultural fields, thereby exposing bees¹⁴, demonstrate not only the harmful effects of neonicotinoids on honeybees, but also strongly suggest that these pesticides play a major role in colony collapse disorder.

Honeybees are indicators of devastation to hundreds of beneficial non-target organisms

Neonicotinoid use is the source of chronic exposure for non-target organisms, including wild pollinators and a wide range of aquatic invertebrates. The Worldwide Integrated Assessment of the Impact of Systemic Pesticides on Biodiversity and Ecosystems (2015) published a synthesis of 1,121 published peer-reviewed studies and concluded "...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..." ¹⁵

Over 4,000 native bees play a vital role in functioning ecosystems and provide pollination services. A systematic review of the status of U.S. native bees found:

- Among native bee species with sufficient data to assess declining. (1,437), more than half (749) are declining.
- Nearly 1 in 4 (347 native bee species) is imperiled and at increasing risk of extinction.
- For many of the bee species lacking sufficient population data, it's likely they are also declining or at risk of extinction. Additional research is urgently needed to protect them.
- A primary driver of these declines is agricultural intensification, which includes habitat destruction and pesticide use.

A growing body of research reveals that more than **40 percent of insect pollinators globally are highly threatened, including many of the native bees critical to unprompted crop and wildflower pollination across the United States.** ¹⁶

Given all this strong evidence, Central Maryland Beekeepers Association urges a favorable report from the Committee on HB91.

¹¹ Michael C. Tackenberg, Manuel A. Giannoni-Guzmán, Erik Sanchez-Perez, Caleb A. Doll, José L. Agosto-Rivera, Kendal Broadie, Darrell Moore, Douglas G. McMahon. 2020. Neonicotinoids disrupt circadian rhythms and sleep in honey bees. <https://doi.org/10.1038/s41598-020-72041-3>

¹² Zhu, Ricky, Alexis Carmine, Mehreen Arif, Michael P. Stover, Ryan Gunnison, Kaleabe Abebe, Carly Sherman. Hartmut Doebel. In Prep. Sub-lethal Administrations of Imidacloprid Impact the Cognitive Memory and Associative Learning in *Apis mellifera*.

¹³ Simone Tosi, Giovanni Burgio, James C Nieh. 2017. A common neonicotinoid pesticide, thiamethoxam, impairs honey bee flight ability. <https://doi.org/10.1038/s41598-017-01361-8>.

¹⁴ Wood, T. Environ Sci Pollut Res Int. June 7, 2017. The environmental risks of neonicotinoid pesticides: a review of the evidence post 2013.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC5533829/#:~:text=Neonicotinoids%20are%20water%2Dsoluble%2C%20and%20so,providing%20protection%20against%20herbivorous%20insects.>

¹⁵ See Giorio, "An Update of the Worldwide Integrated Assessment (WIA) on Systemic Insecticides Part 1: New Molecules, Metabolism, Fate, and Transport," Environmental Science and Pollution Research International (July 15, 2017), <https://bit.ly/2qVqciQ>.

¹⁶ Center for Biological Diversity. Pollinators in Peril.

https://www.biologicaldiversity.org/campaigns/native_pollinators/pdfs/Pollinators_in_Peril.pdf