

March 16, 2023

Representative Samantha Vang, Chair
Agriculture Finance and Policy Committee
Minnesota House of Representatives
100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155

Re: In Support of Bills Limiting Exposure of People to Neonicotinoid Insecticides- HF2472/SF1718

Dear Chair Vang and Members of the Agriculture Finance and Policy Committee,

We write to you as scientists and health professionals, to add our strong support for HF2472/SF1718, which will address the problem of neonicotinoid (neonic) pesticides that contaminate Minnesota's waterways, soil, and foods and pose serious risks to human health. The bill would require the Minn. Department of Agriculture (MDA) to regulate crop seeds treated with neonics and other insecticides, assess and mitigate their harms, and ensure they are used only where they will benefit farmers, similar to programs adopted in Quebec and Ontario.¹

Neonics are a significant contributor to the massive die-off of our Nation's honeybees and native bee species that provide essential pollination for our food crops. A collaboration of scientists from around the world, including the University of Minnesota, recently calculated that production of fruits, vegetables, and nuts is already down by about 3-5 % globally due to inadequate pollination. They estimated an extra 470,000 deaths occur annually due to diseases such as diabetes, obesity, heart disease, stroke and cancer that are associated with too little consumption of healthy pollinated foods.² The incidence of associated diseases was highest in middle- and higher-income countries like the U.S., likely as a result of a shift away from fresh fruit and vegetable products to processed foods.

Neonics are nicotine-like poisons designed to interfere with parts of the brain and nervous system that are shared across species, including insects and people. Clinical signs of poisoning with neonic pesticides, similar to nicotine, can include: dizziness, irregular heartbeat, nausea and vomiting, and more rarely, respiratory failure, seizures, or even death.^{3 4} From 2009-2019, U.S. EPA received over 4,500 reports of people being poisoned with neonics, almost 90 percent of which were due to lawn and garden products containing acetamiprid.⁵

Over half the U.S. population is regularly exposed to neonics.⁶ In people the cell receptors that bind neonics are especially prevalent in areas of the brain such as the cortex, thalamus, and cerebellum that play a critical role in early childhood growth and development.⁷ That means kids exposed to these nerve poisons early in life are at particular risk of harm. Neonics readily flow through the placenta along with oxygen and critical nutrients from the maternal circulation to the fetus, and then to all the fetal tissues including the developing brain and nervous system.⁸ So it is worrisome that a multi-state study of 171 pregnant women recently reported that over 95 percent had traces of neonics in their bodies; even more concerning, the frequency and magnitude of detections was shown to be increasing over the course of the four-year study.⁹

Epidemiologic studies have reported women exposed to neonics during pregnancy have an increased risk of having a child with birth defects affecting the heart¹⁰ and brain,¹¹ autism-like symptoms,¹² and other neurological conditions.¹³ Laboratory studies conducted on rodents confirm that prenatal

exposure to neonics increases the risk of offspring born with defects including reduced thyroid function,¹⁴ structural changes in the brain, and impaired reflexes.¹⁵

Decades of study of nerve poisons that damage the developing nervous system, like lead and mercury, has shown conclusively there is no level of exposure during pregnancy and early life development that can be considered safe. The brain and nervous system have very little capacity for repair, so exposures occurring during development can lead to lifelong neurological impairments. For this reason, it is a terrible idea to use pesticides designed to affect the nervous system for any reason.¹⁶

Passage of this bills will reduce exposure to neonics by targeting unnecessary uses that contribute significantly to contamination. HF2472/SF1718 would direct the Department of Agriculture to develop a program for regulation of neonic-treated seeds, the most widespread uses of which have been shown to provide no economic benefit to farmers. This bill not only would help to protect Minnesota's families from neonic exposure, but is consistent with Hippocrates' age-old wisdom that guides caretakers worldwide: "First, do no harm."

Despite the strong evidence that children and others could already be experiencing harm from neonics, they remain the most commonly used class of insecticides nationwide.¹⁷ To protect Minnesota's families from this dangerous class of insecticides, we encourage swift passage of this bill.

Respectfully,

In alphabetical order. Note that *Academic/University affiliation is provided for identification purposes only and does not constitute institutional endorsement*

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¹ CBC News, Quebec places new restrictions on pesticides in bid to protect honeybees (Feb. 19, 2018), <http://bit.ly/3WRqgV7>;
Ontario Ministry of the Environment, *What Farmers Need to Know about Ontario's New Regulatory Requirements to Protect Pollinators*, <https://bit.ly/3D9C9HL>.

² Smith MR, Mueller ND, Springmann M, Sulser TB, Garibaldi LA, Gerber J, Wiebe K, Myers SS. Pollinator Deficits, Food Consumption, and Consequences for Human Health: A Modeling Study. *Environ Health Perspect*. 2022 Dec;130(12):127003. doi: 10.1289/EHP10947. Available online: <https://pubmed.ncbi.nlm.nih.gov/36515549/>.

³ Selvam V, Srinivasan S. Neonicotinoid Poisoning and Management. *Indian J Crit Care Med*. 2019 Dec;23(Suppl 4):S260-S262. doi: 10.5005/jp-journals-10071-23308.

⁴ U.S. EPA, Recognition and Management of Pesticide Poisonings: Sixth Edition: 2013, p. 91. Available here https://www.epa.gov/sites/default/files/documents/rmpp_6thed_ch9_otherinsecticides.pdf.

⁵ Data records obtained via Freedom of Information Act Request, (under "Released Records," select "Specified Incidents for PC 129099 from 1-1-2009 to 4-4-2019"). Available here: <https://foiaonline.gov/foiaonline/action/public/submissionDetails?trackingNumber=EPA-HQ-2019-004044&type=request>.

⁶ Ospina M, Wong LY, Baker SE, Serafim AB, Morales-Agudelo P, Calafat AM. Exposure to neonicotinoid insecticides in the U.S. general population: Data from the 2015-2016 national health and nutrition examination survey. *Environ Res*. 2019 Sep;176:108555. <https://doi.org/10.1016/j.envres.2019.108555>.

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