April 21, 2025

Chair Aric Putnam, Chair
Agriculture, Veterans, Broadband, and Rural Development Committee
Minnesota Senate
95 University Avenue W.
Minnesota Senate Bldg., Room 3215
St. Paul, MN 55155

Testimony of Louis Robert, Former Agronomist at the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ), and
Dr. Geneviève Labrie, PhD, Research Associate, Université du Québec à Montréal (UQAM)

Dear Chair Putnam and Members of the Committee:

The undersigned individuals provide the following testimony regarding our experience with neonicotinoid-treated corn and soybean seeds in Québec, the science regarding their lack of benefit to farmers, and our personal experience with industry interference in exposing the truth of that science.

Louis Robert is an agronomist and grain crops specialist, who worked with the Department of Agriculture[1] in the Province of Québec, Canada, for 33 years. Dr. Geneviève Labrie, PhD, is a researcher affiliate with Université du Québec à Montréal in Québec, Canada. Dr. Labrie has published extensively on the subject of crop pests and pest control methods.

The Experience in Québec and the Science Regarding Neonicotinoid-Treated Seeds

As of April, 2019, the Department of Environment of the Province of Québec made it mandatory for anyone wishing to use neonicotinoids to produce a written recommendation from one of the Province's 3,300 registered agronomists. In its pre-bylaw consultations, the Department had made it clear that the use of those chemicals would be restricted, based on their proven acute toxicity to the environment and public health concerns. Before these restrictions, the vast majority (80-90 %) of the corn, soybean, and canola acreage (approximately 2 million acres) in Québec were planted with seed coated with the neonicotinoids clothianidin, imidacloprid, or thiamethoxam. Residues of any one or combinations of those molecules were detected in significant concentrations in over 90% of samples collected in rivers and streams being monitored by the Department.

This "verification of need" requirement resulted in substantial reduction in use of neonic-treated seeds. The seed suppliers reacted very swiftly to this regulatory change, having seen it coming. As soon as 2019, most corn and soybean seeds used in Québec were no longer carrying any neonicotinoids. (All corn seed and a major part of the soybean seed sold in Québec is grown in Ontario or the U.S. Midwest). Surveys from the Department of Environment report Québec

[1] Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec- MAPAQ.

farmers used neonicotinoids on about .2% of their fields in 2020, and as little as 0.003 % in 2023[2,3]. As a result, neonicotinoid contamination of surface waters decreased significantly.

Prior to those regulatory initiatives, word had already spread around that insecticide-treated seeds may not bring any advantages to Québec farmers, at least among crop advisers and top cash croppers. Dr. Labrie led a large research project carried out from 2012 through 2016 (5 cropping seasons) in 7 different regions, which found no significant difference in yield between plots with treated and untreated seeds. This result held for both corn and soybean (see attached study). Thanks to continued public funding, the network was expanded to just short of 1000 sites, with no difference in the results or conclusions whatsoever.

Dr. Labrie's findings are consistent with other studies conducted in the U.S. and Canada. For example, Pacenka et al. (2021) found in another four-year Purdue University study that "the absence of a neonicotinoid [corn] seed treatment had no impact on yields." Smith et al. (2020) concluded after a 4-year study of 160 corn and soybean fields in Ontario "that widespread use of seed-applied insecticides in corn and soybean is unlikely to provide benefit to producers." Mourtzinis et al. (2019) found that "despite widespread use," neonic seed treatments in soybean "appear[] to have little benefit for most of soybean producers." Krupke et al. (2017) found that three years of field studies in Indiana "failed to demonstrate a significant benefit of planting treated maize seeds." The U.S. Environmental Protection Agency found as long ago as 2014 that "these seed treatments provide negligible overall benefits to soybean production in most situations. Published data indicate that in most cases there is no difference in soybean yield when soybean seed was treated with neonicotinoids versus not receiving any insect control treatment." Each supports the conclusion that neonic seed treatments in corn and soybean often provide no benefit to farmers, but instead serve as unnecessary (but paid) insurance that contaminates whole ecosystems with harmful pesticides.

Substitution of Diamides for Neonics

After Québec imposed "verification of need" requirements for neonicotinoids in 2019, many farmers switched to seeds treated with another class of insecticides, the diamides (cyantraniliprole, chlorantraniliprole). Seed company officials stated that in 2021, at least 60% of the corn fields were planted with diamide-coated seed. However, this still marks a considerable decrease in the total use of insecticide-treated seeds from the period before the neonicotinoid restrictions took effect. While diamides are not as dangerous as neonics in some ways, they pose some of the same risks as neonics. They are equally persistent and water soluble, and are extremely toxic to butterflies. Their occurrence in rivers and streams shows an exponential increase since they were first introduced on the market. They now reach toxicity thresholds for benthic arthropods [3,4].

But Dr. Labrie's research suggests that diamides are no more useful to farmers than neonicotinoid-treated seeds. Neonicotinoids were the active ingredients in all trials, but the fact that the non-treated plots did not yield less than the treated ones (despite the presence of significantly more targeted insects) made it clear that the conclusions would hold true for any class of insecticides. Higher pest presence did not decrease yield, so insecticide use was not necessary at all. The Dept

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[2] Ministère de L'Environnemnet et de la Lutte Contre Les Changements Climatiques, *Bilan des Ventes de Pesticides Au Québec* (2020), https://bit.ly/3ZnhNUd.

3 Ministère de L'Environnemnet et de la Lutte Contre Les Changements Climatiques, *Bilan des Ventes de Pesticides Au Québec* (2023). https://cdn-contenu.quebec.ca/cdn-contenu/environnement/pesticides/bilan-ventes-pesticides-quebec.pdf

of Environment keeps pace: in November 2024 they announced that the verification of need requirement will be extended to all seed insecticides by August 2025[5].

Since the neonicotinoid regulations were implemented in the Province and other research has emerged, farmers, agronomists, as well as the general public are much more aware of the risks of insecticide-treated seeds from an environmental and public health standpoint as well as their uselessness. An in-house survey of suppliers, farmers, and agronomists last February (after most seed had been purchased) lead us to believe that more than 60 % of the corn will not carry any insecticide in 2025. As such, we believe the use of all seed applied pesticides (insecticides and fungicides) will be further reduced in the coming seasons. Last year Quebec corn growers harvested a bumper crop, adding yet further support for the shift towards less pesticides. Of course, farmers themselves are the ones benefiting the most from a reduction of risks associated with direct exposure to toxic compounds. In addition to paying 5 to 10 $ less for a bag of seed.

Personal Experience with Industry Interference with Research

On January 24th, 2019, Mr. Robert was fired for having leaked (in March 2018) an internal memo to the press. In that memo, Mr. Robert warned the deputy minister of the interference that the industry exerted its influence to prevent the publication of public funded research that showed no advantages from the use of neonicotinoids. His firing sparked a cascade of news reports in various medias and the installment of an official inquiry by the inspector general of Quebec. The report issued June 2019 publicly cleared him: in the months and years prior to going to the media, he had gone through (unsuccessfully) all the appropriate procedures detailed in the Whistleblowers Act[6][3] of May, 2017, and was fully in his right in going to the press.

Official apologies from the Minister (Secretary) André Lamontagne and Prime Minister François Legault shortly followed, along with full compensation and his re-installment at his position, on August 6th, 2019.

He carried on his duties at MAPAQ until his retirement in 2023. Since the time that he initially leaked the memo, the science has only grown stronger that seeds treated with neonicotinoids provide no benefits to Québec farmers.

Dr. Labrie faced significant pressure from the industry as well as from the research center's board of directors where she worked. She was forced to leave her position in 2017 due to relentless pressure, along with five out of the seven researchers on her team. They had just been banned from publishing any scientific research. Upon leaving the research center, Dr. Labrie was also required to leave behind all of her data. In 2019, she requested copyright over the data from the Quebec government, and in 2020, she published the results of her research in the journal *PLOS One*, with the support of her colleagues who had also left the research center. An investigation by the Québec Ombudsman concluded that the research center, while obstructing Dr. Labrie's research: (1) seriously breached ethical and professional standards, (2) misused public funds, and (3) was guilty of mismanagement within a public institution. Following this report, corrective measures were

[4] GIROUX, I. (2022). *Présence de pesticides dans l'eau au Québec : Portrait et tendances dans les zones de maïs et de soya – 2018 à 2020*, Québec, ministère de l'Environnement et de la Lutte contre les changements climatiques, Direction de la qualité des milieux aquatiques, 71 p. + 15 ann.<

[5] Gazette officielle du Québec.
https://www.publicationsduquebec.gouv.qc.ca/fileadmin/gazette/pdf_encrypte/lois_reglements/2023F/80044.pdf

[6] Loi facilitant la divulgation d'actes répréhensibles à l'égard des organismes publics.

[7] https://console.vpaper.ca/protecteur-du-citoyen/rapport_annuel_2023/page/102/#102/

implemented to improve governance and research ethics standards across all semi-public agricultural research centers in Quebec.[7]

Sincerely,

/s/ Louis Robert
Louis Robert, agronomist

/s/ Genevieve Labrie
Dr. Genevieve Labrie, PhD