Neonicotinoid pesticide products	
A statewide moratorium on cosmetic ornamental of neonicotinoid products, applied by soil drench, trunk injection, foliar and basal bark sprays	A moratorium on trunk injection of imidacloprid for ornamental plants until such time research can demonstrate rates at which treatment can be safe for pollinators. Research would be exempted
	A moratorium on soil drenches of imidacloprid for ornamental plants until such time research can demonstrate rates at which treatment can be safe for pollinators. Research would be exempted
	A moratorium on foliar applications of imidacloprid and dinotefuran on ornamental plants until such time research can demonstrate rates at which treatment can be safe for pollinators. Research would be exempted
	A moratorium of foliar applications of clothianidin on turf unless mowing can assure no exposure of flowers attractive to pollinators in the turf for one year past treatment OR until such time research can demonstrate rates at which treatment can be safe for pollinators. Research would be exempted
	A moratorium on basal bark sprays of dinotefuran for ornamental plants until such time research can demonstrate rates at which treatment can be safe for pollinators. Research would be exempted
Classify certain products as restricted use products (Vermont Class A)	Classify all pesticide products that contain neonicotinoid active ingredients as restricted use products (Vermont Class A). Exempt veterinary products.
	All pesticide products with active ingredients that are classified in the EPA Toxicity Category I, highly toxic to bees, will be considered Class A pesticides in Vermont
Require state labeling on/ near certain pesticide products	All Class B & C pesticide products that contain any of the active ingredients that are identified as highly toxic to bees sold in Vermont shall be flagged or marked and lead homeowners to the educational pollinator materials. Suggested emblem may be a dead bee.
State specific restrictions on certain products	Prohibit the application of systemic pesticides that are classified as highly toxic to bees to pollinator-attractive plants until after flowering. Exemptions may exist if research demonstrates limited risk.

Neonicotinoid treated seeds	
Moratorium on use of neonicotinoid treated corn seeds	There will be a moratorium on the use of neonicotinoid-treated corn seeds starting in 2018 in Vermont.
	The use of neonicotinoid-treated soybeans should be banned in Vermont.
VAAFM to require management practices related to treated seeds	Farms should not plant neonicotinoid-treated corn seeds unless 30% of their farm is maintained as alternate pollinator foraging with such foraging sites separated by at least fifty (50) feet of treated fields. Farms should not utilize neonicotinoid-treated seeds unless all surface water and tile drainage of the field drainage basin can be collected into a detention basin to avoid such water to run directly into wetlands, creeks, streams, rivers, ponds or lakes. Given the hardships of establishing and maintaining 30% of a farm in alternate pollinator foraging AND a field drainage detention basins, we recommend most farmers will find it more cost-effective to avoid neonicotinoid-treated corn seeds.
	The Agency of Agriculture, Food & Markets should require dust management suppression during planting of treated seeds and specify best management practices to include: seed lubricants, planter deflectors on vacuum planters, alternatives to talc/graphite in planters. If vacuum planters are used, install equipment to direct exhausted air from the planter vacuum fan towards the ground.
	The Agency of Agriculture, Food & Markets should create a program to track planting of neonicotinoid-treated seeds in fields and correlate to pollinator, or other non-target population impacts.
	The Agency of Agriculture, Food & Markets should create strict regulatory standards should be developed that apply to where farmers clean out their planters after planting treated articles and what happens to the pesticide laden wash water that is created during the cleaning process.
	The Secretary of Agriculture, Food & Markets should request a review of neonicotinoid-treated seed, using authority granted under Act 99 and identify research gaps and if additional management practices are requires
Identify a way to demonstrate need before use of treated seeds/research needs	Establish a demonstration of need threshold before planting neonicotinoid-treated seeds, thereby limiting the prophylactic use of treated seeds
	Ban the prophylactic use of neonicotinoid-treated seed and allow the use only after a verified need has been established.
	Recognizing that the Agency of Agriculture Food, & Markets now has authority over treated articles, the Agency should study the use of neonicotinoid pesticides on treated seeds & determine if best management practices are needed.

Non-neonicotinoid specific pesticide recommendations	
Apiculture specific pesticides concerns	Ban on the use of tau-fluvalinate (Apistan) and Coumophos (Checkmite+) for the control of Varroa mites by beekeepers within the state of Vermont.
	The Vermont Agricultural and Environmental Laboratory should expand its analytical testing to all pesticides and breakdown products that research has previously identified in bee hives (over 170 compounds) in honey or native bees, brood, comb, pollen, or honey.
	Ban the use of pesticides approved by the EPA under Section 18 Emergency Exemption until studies are conducted and enough data collected to verify the pesticide's approved use is safe for pollinators when used as directed by the product label.
	The Agency of Agriculture, Food & Markets should track use of miticides by beekeepers during annual apiary registration. Identify areas for reduction or education.

Licensing/Regulations	
VAAFM Should update study materials and exams by appropriate industry	All pesticide applicators that are testing for certification in Vermont should receive specific educational materials related to pollinator health and impacts of pesticides on pollinators. These materials would be included with the CORE manual required for study for all certifications.
	The Agency of Agriculture, Food & Markets should ensure that all CORE and private exams have appropriate questions about pollinator protection.
	For applicators seeking commercial, non-commercial or government applicator certification in categories 1A-Agricultural Plant, 1B-Agricultural Animal, 2-Forest Pest, 3A-Ornamental & Shade Trees, 3B-Turf, 6-Right-of-way, 7A-Structural & Rodent Control, 7B-Mosquito & Biting Fly industry-specific educational materials with pollinator health & pesticides best management practices should be included in study materials.
	The Agency of Agriculture, Food & Markets should ensure that all category-specific exams listed above have appropriate questions about pollinator protection and related best management practices for that industry.
	The Agency of Agriculture, Food & Markets and UVM Extension should increase awareness of the potential synergistic effects of neonicotinoid pesticides and certain demethylating pesticides and promote strategies and practices to reduce potential impacts.
	The Agency of Agriculture, Food & Markets should increase awareness of non-target impacts of the use of Bti products in mosquito control on other pollinating fly species.
	The Agency of Agriculture, Food & Markets should increase awareness of non-target impacts (beneficial moths, butterflies) of the products used to control gypsy moth and agricultural moth/butterfly pests.
	All pesticide dealers that are testing for licensure in Vermont should receive specific educational materials related to pollinator health and impacts of pesticides on pollinators. These materials would be included with the dealer manual required for study. Topics described in word document.
VAAFM should create new pollinator specific applicator categories/educational curricula for pollinators	The Agency of Agriculture, Food & Markets should create a standard educational curriculum for bee keepers in the state. The curriculum would address pesticide use in the hives as well as the other pillars of pollinator health and best management practices. (This could be a certification program
	The Agency of Agriculture, Food & Markets should create a specific category and certification process for applicators that wish to treat in managed honey bee hives that they do not own. (“Commercial application of hives.”)
VAAFM pollinator CEU credits	Incorporate pollinator protection into the Agency of Agriculture, Food & Markets policy for credit approval.
	The Agency of Agriculture, Food & Markets should require specific pollinator-related CEUs for recertification.
	The Agency of Agriculture, Food & Markets, UVM and the ANR should provide more targeted trainings on pollinator protection, making it available for CEUs for recertification.
	Include periodic educational articles about pollinator health research in the pesticide applicator newsletter distributed by the University of Vermont Extension and the Agency of Agriculture, Food & Markets to all certified applicators in the Vermont.
	Vermont Regulations for the Control of Pesticides should specify: Apply pesticides that are highly toxic to bees when there is less chance for exposure to managed or native pollinators: early morning or late evening.

Specific changes to Vermont Control of Pesticide Regulations or other Agency programs	Vermont Regulations for the Control of Pesticides should specify: Applications of pesticides that are highly toxic to bees shall provide buffers to native pollinators. This should be accomplished by either: A fifty (50) foot buffer from pollinator foraging sites, such as natural and semi-natural areas or intentional pollinator plantings OR A twenty (20) foot width non-pollinator-attractive vegetative barrier higher than the spray release height with an established 60% plant density
	Vermont Regulations for the Control of Pesticides should specify: Reduce drift by applying pesticides when winds are less than 9 mph and there is a low risk of inversion.
	Vermont Regulations for the Control of Pesticides should specify: Avoid application of fungicides to plants attractive to pollinators when plants are in bloom.
	Vermont Regulations for the Control of Pesticides should specify: Avoid the use of soil fumigants.
	The Agency of Agriculture, Food & Markets should revise the Regulations for the Control of Pesticides, specifically identifying managed and native pollinators and specifically identify as an environmental concern in the regulations and permit language.
	1. The Agency of Agriculture, Food & Markets should put in place a robust program to track the amount of pesticides being released within the state on a yearly basis (as many types and uses as possible, including treated articles) to assess if the amount released in Vermont's environment is growing, declining or remaining static. 2. Develop a state-wide goal of reducing the amount of toxic pesticides that are released into the environment within the state each year. Success to be evaluated by monitoring of yearly use (see item #1) 3. Vermont should institute a statewide program of Integrated Pest and Pollinator Management (IPPM) through UVM Extension to gather and disseminate information on ways for producers across all agricultural sectors to limit wherever feasible, toxic pesticide use that may harm pollinators: The program should include efficiency (using only the amount needed to get the job done), conservation (not treating unless there is a verified problem), the prioritization of chemicals that have lower toxicity and/or lower persistence when it comes to pollinator health, and consider using non-toxic/non-chemical alternatives to pesticides whenever feasible.
	The Agency of Agriculture Food & Markets should track all pesticide use and set goals for pesticide reduction.
	The Agency of Agriculture Food & Markets should work with the UVM Extension program to set specific IPM thresholds before use of pesticides, identify less toxic options for farmers, and reduce overall use of pesticides.
	Ban the prophylactic use of pesticides, including treated articles, and allow use of pesticides only after a verified need has been established.

Public comment	
Public comment	Risk assessment of neonicotinoid seed treatment use in Vermont by VPAC after the Council is at full membership AS SOON AS POSSIBLE. This should include recommendations on elimination of this use if appropriate or minimization while incorporating Integrated Pest Management (IPM) procedures.
	Immediate ban on the higher neonics treatment levels on treated seeds while VPAC is completing its risk assessment.
	Eliminate soil drench as application method for any neonics use.
	Integrate IPM procedures and education materials for landscape uses of neonics to ensure that use is minimized and only used when truly necessary, not as a prophylactic, preventative measure. This material should be incorporated into commercial applicator re-licensing training ASAP.
	Only allow neonic applications on plants after bloom is finished for the year. No pre-bloom applications should be permitted.
	Neonics should be registered as Restricted Use for all homeowner products.
	Education and outreach materials should be developed for homeowner use of pesticides in general, insecticides and other highly toxic pesticides in particular.

See also PDF documents submitted (Shambaugh, Bellairs)

NEONICOTINOID INSECTICIDES AND THEIR UNINTENDED SECONDARY EFFECTS ON POLLINATORS AND OTHER INVERTEBRATES.

Background:

Neonicotinoid insecticides (neonics) were introduced in the 1990's to replace other insecticides with greater vertebrate toxicity. Being systemic, neonics travel through the plants to which they are applied, making the entire plant toxic. Because of the increased safety to humans compared with previous insecticides, as well as the systemic nature and effectiveness of these insecticides, this class of insecticides has become the most highly used worldwide. Seed corn treated with these systemic insecticides has become the most common use for these products in the US, with >90% of seed corn sold in the US being treated with these products. In addition to use as a seed treatment, these products have widespread use in the landscaping industry to protect ornamental plantings, and are also used by homeowners. Landscape applications can be by spraying onto the foliage of a plant, injecting into the plant, or by applying to the soil around the plant to be taken up by the roots. Homeowners often use these products for insect control as part of their lawn care program, as well as to treat ornamental plants.

Concern has been raised about whether neonics are contributing to the observed honeybee Colony Collapse Disorder (CCD), or to pollinator decline in general. There is evidence in some laboratory and controlled field studies that these compounds can be acutely or chronically toxic to insects at near field realistic doses. Widespread honeybee deaths were observed in Ontario in 2012, linked to planting of neonicotinoid treated seeds. The act of planting the seeds apparently led to sufficient neonics being scraped off the seeds to cause bee mortality from the windblown dust. Also, there were numerous reported bumble bee kills in Oregon in 2013 after ornamental Linden trees were treated with neonics by foliar application, soil drench, and basal bark spray. Many of these trees had significant amounts of neonics a year later. Toxicity of plant tissue can potentially last for more than a year in perennial plants and trees, and there is evidence that leaf litter is broken down more slowly by earthworms near treated trees. In addition, because these products are highly water soluble, they are being found in surface waters in many areas of the US where crops are grown, including Vermont.

Monitoring efforts by the VAAFM have found neonics sporadically in honeybee pollen from areas of corn production. The neonics were found in pollen around the time that corn is being planted in May and June, indicating the source was not corn pollen but most likely related to corn planting. In addition, the VAAFM has found widespread low level concentrations of neonics in the following surface waters of Vermont: tile drain effluent, small streams, and even some of our rivers. Since honeybees and other pollinators use surface waters as a drinking water supply and streambank mud for nutrients, they are likely exposed to sub-toxic levels continuously from these sources. Although these findings in our waters may not be having a direct effect on pollinators, these insecticides are also highly toxic to aquatic insects living in these streams. Concentrations in some streams are approaching the EPA chronic aquatic life criteria level, above which there may be effects on the biota of the stream. EPA has set a chronic aquatic life criteria benchmark for clothianidin at 1.1 µg/L, and it has been found in Vermont in Jewett Brook at 1.4 µg/L and in a tile draining a corn field at up to 4.2 µg/L. The EPA chronic benchmark for imidacloprid is 1.05 µg/L and it has been found in tile drain effluent at 1.1 µg/L in Vermont. Clothianidin is used as seed treatment on corn and highest concentrations were in tiles draining corn fields, while imidacloprid is used to treat soybean seeds and highest concentrations were from tiles draining soy fields. This indicates that both clothianidin and imidacloprid are present in Vermont's waters, most probably from treated seeds, at levels which may be having an effect on aquatic insects. The USGS is finding neonicotinoids in surface waters across the country at similar levels and have voiced concern about the ubiquitous nature of these detections at near levels where effects can be expected. Both Canada and the E.U. have set guidance levels in the 0.2 µg/L range for neonicotinoids. USGS has also mentioned that there is evidence that all neonics bind to the same receptor in insects, and that this binding is IRREVERSABLE, so honeybee and aquatic insect exposure may be cumulative!

SOLUTIONS:

Neonicotinoid insecticides may be an important component of a farmer's arsenal for maintaining adequate crop yields, but that there are unintended consequences of their widespread use. In order to minimize these unintended consequences, I believe a multipronged approach of education, and restrictions is needed to minimize their use to those situations where they can have a demonstrable benefit with minimal secondary harm.

TREATED SEED:

Because treated corn seed is probably the largest neonics use in Vermont, it likely has the largest unintended impacts. Unfortunately, there is very little data in the published literature that this use actually increases crop yields, and some data that indicates there is negligible benefit to the farmer. Current use of neonicotinoid treated seed corn is as a prophylactic measure to prevent problems rather than a direct response to an insect problem. Given that current Vermont state policy is to adhere to accepted IPM practices, using pesticides without evidence of pest stress is contrary to policy and should stop as quickly as possible. The VAAFM has the legislative authority thru ACT 99 (?) to restrict or manage treated articles, which includes treated seed, through a risk assessment process undertaken by the Vermont Pesticide Advisory Council (VPAC). This process should happen as quickly as possible, unfortunately the environmental advocate slot on the Council is currently vacant. The Secretary of the Vermont Agency of Agriculture should IMMEDIATELY propose a candidate for this seat to the governor and IMMEDIATELY start the process of VPAC risk assessment of neonics seed treatment use. This will take time but a deadline should be given to VPAC so recommendations can be implemented **prior to the 2018 planting season**. Most "conventional" (non-ORGANIC) seed corn is purchased already coated with neonicotinoids and availability of non-treated conventional seed is very limited. This will not change without pressure from growers or state regulators. While VPAC is addressing this issue, it is proposed that the VAAFM restrict or eliminate use of seed treated with higher doses of neonicotinoids for the 2017 planting season. For instance, much seed corn is sold treated with clothianidin at 0.25, 0.50, or 1.25 mg per kernel. Restricting sales to only the product with 0.25 mg/kernel without clear evidence of a pest threat would minimize the amount entering the environment, while still affording protection. Other solutions might include a 2-3 year rotation of treated vs. non-treated seed, or diluting treated seeds with non-treated seeds during planting, so that every 2-10 seeds is treated.

LANDSCAPING:

Landscapers and other tree care professionals require insecticides within their tools for tree health management when insect infestations threaten trees. In order to minimize unnecessary use of insecticides in general and neonics in particular, it should be required that an IPM process be used to determine whether insecticides are needed. In addition, several routes of application are possible once a decision is made to apply neonics; foliar spray, soil drench, or tree injection and they all have advantages and disadvantages. Soil drenching requires putting significant amounts of neonics onto the soil around a tree, for the roots to take up. This application method exposes soil insects and other organisms to the insecticide as well as enabling large amounts of the applied product to potentially leach into groundwater or wash into surface water with rain. This indiscriminant application method should be eliminated. In the tree injection method of application, holes are made in the tree trunk and insecticide is injected under the bark. This is a more direct route to treating the tree while allowing less product to enter other environmental compartments. The disadvantage is that the entire tree becomes toxic to ANY insects feeding on it for several years. Foliar applications are the shortest lived applications because neonics on leaves break down rapidly, so long term effects are minimized, but drift during applications may cause harm to nearby insects. As a first step in addressing this issue, it is proposed that education/outreach on the problems with insecticide use on ornamentals in general and neonics in particular be a required component of commercial applicator relicensing starting in 2017, with a goal of minimizing insecticide use by

landscapers. In addition, soil drench applications should be prohibited, foliar applications should be encouraged for small plants, with tree injections recommended for large trees, if required. **All** neonics applications to ornamental plants and trees should be prohibited until after the plant has finished blooming for the year.

HOMEOWNER USE:

Allowed application rates for homeowner uses of pesticides are often much higher than agricultural uses, and this is true for neonics as well. Also, homeowners are not generally properly trained in pesticide use so there is a significant likelihood for misapplication or over application of the pesticides. This is of special concern with insecticides in general and neonics in particular because of the potential for unintended effects on honeybees and other pollinating insects. Because of the significant likelihood of misapplications, over-applications and unnecessary applications amongst homeowners un-educated in proper pesticide use, and the large environmental consequences to pollinators and other insects, neonics should be made "restricted use" immediately, and taken out of homeowners hands. In addition outreach and education should be developed for homeowner education about proper use and potential harm of pesticide use in general and insecticide use in particular.

RECOMMENDATIONS:

1) Risk assessment of neonicotinoid seed treatment use in Vermont by VPAC after the Council is at full membership **AS SOON AS POSSIBLE**. This should include recommendations on elimination of this use if appropriate or minimization while incorporating Integrated Pest Management (IPM) procedures.
2) Immediate ban on the higher neonics treatment levels on treated seeds while VPAC is completing its risk assessment.
3) Eliminate soil drench as application method for any neonics use.
4) Integrate IPM procedures and education materials for landscape uses of neonics to ensure that use is minimized and only used when truly necessary, not as a prophylactic, preventative measure. This material should be incorporated into commercial applicator re-licensing training ASAP.
5) Only allow neonic applications on plants after bloom is finished for the year. **No** pre-bloom applications should be permitted.
6) Neonics should be registered as Restricted Use for all homeowner products.
7) Education and outreach materials should be developed for homeowner use of pesticides in general, insecticides and other highly toxic pesticides in particular.

SIERRA CLUB
VERMONT CHAPTER

November 22, 2016

The Vermont Chapter of the Sierra Club respectfully submits the following comments regarding the use of neonicotinoid pesticides to the Pollinator Protection Committee for its consideration.

In 2015, an independent group of scientists from all over the globe carried out a comprehensive, objective, scientific review and assessment of the impact of systemic pesticides. Thirty scientists reviewed 1,121 published peer-reviewed studies from the past five years, including industry-sponsored ones. The Worldwide Integrated Assessment of the Impacts of Systemic Pesticides on Biodiversity and Ecosystems concluded that:

> Overall, a compelling body of evidence has accumulated that clearly demonstrates that the wide-scale use of these persistent, water-soluble chemicals is having widespread, chronic impacts upon global biodiversity and is likely to be having major negative effects on ecosystem services such as pollination that are vital to food security and sustainable development. There is an urgent need to reduce the use of these chemicals and to switch to sustainable methods of food production and pest control that do not further reduce global biodiversity and that do not undermine the ecosystem services upon which we all depend (van der Sluijs et al. 2014). The systemic insecticides, neonicotinoids and fipronil, represent a new chapter in the apparent shortcomings of the regulatory pesticide review and approval process that do not fully consider the risks posed by large-scale applications of broad-spectrum insecticides to ecosystem functioning and services. Our inability to learn from past mistakes is remarkable.

There is a clear imperative to immediately take action to mitigate the pervasive and dangerous impact of these chemicals on pollinators and on ecosystems as a whole. We agree with the following recommendations, which appear in reports prepared by the Xerces Society for Invertebrate Conservation:

1. The prophylactic use of neonicotinoids on crops should be halted until we understand if neonicotinoids can be used without causing undue harm to beneficial insects. Neonicotinoids should only be used as part of an Integrated Pest Management (IPM) plan with pest scouting or forecasts of pest pressure and after considering alternative pest management strategies. (2)

2. The academic research community should develop IPM protocols that result in recommendations for the lowest effective dose for both specific crops and specific pests, as well as methods for reducing risk to non-target beneficial insects. (1)

3. Prohibit applications of all neonicotinoids on bee-attractive crop plants before and during bloom. Due to the systemic nature of neonicotinoids, soil drenches, trunk injections, basal bark applications and other uses should also be included in the prohibition of application. (1)

4. Prohibit applications of neonicotinoids on non-crop ornamental plants that are bee attractive and/or pollinator host plants. This would eliminate a significant pollinator exposure route. (3)

5. Halt the use and sale of over-the-counter cosmetic pesticides for ornamental and landscape plants. The Xerces Society compared the application rates for agricultural and backyard products containing imidacloprid. It found that backyard application of Bayer Advanced 12 Month Tree & Shrub Insect Control II, when compared with agricultural applications, was 60 times greater for a 30" circumference tree and 120 times greater for a 60" circumference tree. (1)

The Society recommends that "Legislators, regulators and municipal leaders across the country should consider banning the use of neonicotinoid pesticides for cosmetic purposes on ornamental and landscape plants." Six Canadian provinces have restrictions in place for the use of cosmetic pesticides.

Ontario's cosmetic pesticide ban, passed in 2009, lists 120 chemicals and includes acetamiprid, imidacloprid, clothianidin and thiamethoxam. By law, certain pesticides called Class 9 pesticides cannot be used to kill weeds and insects on: lawns, vegetable and ornamental gardens, patios, driveways, parks cemeteries and schoolyards. There are no exemptions for pest infestations (insects, fungi or weeds) in these areas, as lower risk pesticides, biopesticides and alternatives to pesticides exist. (See attached list of banned cosmetic pesticides in Ontario)

6. Suspend the uses of clothianidin dinotefuran, imidacloprid and thiamethoxam until it can be ensured that their use is not causing unacceptable harm. The Xerces Society states that "The weight of scientific evidence demonstrates a significant risk" from these pesticides and, therefore "the Xerces Society stands in support of an immediate suspension of the uses of these neonicotinoids . . . ." (3)

7. The State of Vermont should request that the USDA Risk Management Agency's Federal Crop Insurance Corporation approve reductions in crop insurance premiums for producers who avoid the prophylactic use of neonicotinoids where the pest pressure does not warrant use. This would provide an incentive to encourage farmers to use Integrated Pest Management. (2)

8. Require labeling of plants and plant materials that have been treated with neonicotinoids. (3)

9. Eliminate the use of neonicotinoids in the habitat of imperiled pollinator populations. (3)

In addition, the Sierra Club believes that:

10. The Pollinator Protection Committee should recommend that the State take immediate steps to address the neonicotinoid contamination of water. Neonicotinoids have been found in tile drains and streams in Vermont. A study in PLoS One in December 2014 found that, "All water samples collected from corn fields were contaminated with at least one neonicotinoid compound, although most contained more than one systemic insecticide . . . and concentrations were sufficient to potentially elicit a wide array of sublethal effects in [honey bee] individuals and colony alike. Our results also suggest that risk assessment of honey bee water resources underestimates the foragers' exposure and consequently miscalculates the risk."

The Xerces Society states that "Honey bees may be exposed to neonicotinoids when they gather water to cool their hives on warm days, or to dilute their honey to feed to their offspring. Other bees may also be exposed to contaminated water; some ground-nesting bees will use water to moisten hard packed soil prior to excavating their nest."

11. Since 70% of native bees nest in the ground, and since neonicotinoids are applied annually and can persist for months or years in the soil, the State should begin testing soil in and around farm fields for neonicotinoid residues.

Respectfully submitted,

Judy Bellairs, Forest and Wildlife Committee
Vermont Chapter of the Sierra Club

1. *Are Neonicotinoids Killing Bees?*, Xerces Society for Invertebrate Conservation, 2012, *available at* http://www.xerces.org/wp-content/uploads/2012/03/Are-Neonicotinoids-Killing-Bees_Xerces-Society1.pdf.
2. *Beyond the Birds and the Bees*, Xerces Society for Invertebrate Conservation, 2013, *available at* http://www.xerces.org/wp-content/uploads/2013/09/XercesSociety_CBCneonics_sep2013.pdf.
3. *Recommendations to Protect Pollinators from Neonicotinoids*, Xerces Society for Invertebrate Conservation, *available at* http://www.xerces.org/recommendations-to-protect-pollinators-from-neonicotinoids/
4. Samson-Robert O, Labrie G, Chagnon M, Fournier V, *Neonicotinoid-Contaminated Puddles of Water Represent a Risk of Intoxication for Honey Bees*, PLoS ONE, 2014, *available at* http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0108443

This is the full list of Class 9 pesticides that are banned under the Ontario Pesticides Act. These pesticide ingredients are banned for cosmetic use. Products containing these ingredients may still be used for exceptions to the ban. Refer to the Pesticide Classification Guideline for Ontario for more details.

1 2,4-d present as acid
2 2,4-d present as amine salts (dimethylamine salt, diethanolamine salt, or other amine salts)
3 2,4-d present as low volatile esters
4 4-cpa
5 Abamectin
6 Acephate
7 Acetamiprid
8 Aminocyclopyrachlor
9 Aminopyralid
10 Amitrole
11 Atrazine plus related active triazines
12 Azoxystrobin
13 Bensulide
14 Bentazon (present as the sodium salt)
15 Bispyribac-sodium
16 Boscalid
17 Bromacil present in free form, as dimethylamine salt, or as lithium salt
18 Captan
19 Carbaryl
20 Carbathiin
21 Carfentrazone-ethyl
22 Chlorpyrifos
23 Chlorantraniliprole
24 Chlorothalonil
25 Chlorsulfuron
26 Chlorthal present as acid or as dimethyl ester
27 Clopyralid
28 Clothianidin
29 Cypermethrin
30 Cyantraniliprole
31 Cyprodinil
32 D-cis, trans allethrin
33 Dazomet
34 Deltamethrin
35 Diazinon
36 Dicamba present as acid, as diethanolamine salt, as dimethylamine salt, or as butoxyethyl ester
37 Dichlobenil
38 Dichloran
39 Dicofol
40 Dimethoate
41 Diquat
42 Dithiopyr
43 Dichlorprop
44 Dichlorprop-p isomer (present as 2-ethylhexyl ester)
45 Diuron
46 D-phenothrin
47 D-trans allethrin
48 Endosulfan
49 Etridiazole
50 Fenbutatin oxide
51 Fenoxaprop-p-ethyl (isomer)
52 Ferbam (ferric dimethyldithiocarbamate)
53 Fludioxonil
54 Flumioxazin
55 Fluopicolide
56 Fluoxastrobin
57 Fluroxypyr 1-methylheptyl ester
58 Folpet

59 Fosamine ammonium
60 Fosetyl-al
61 Glufosinate ammonium
62 Glyphosate
63 Glyphosate, present as dimethylamine salt
64 Halosulfuron-methyl
65 Hexazinone
66 Imazypyr
67 Imidacloprid
68 Isofetamid
69 Isopropylamine salt of glyphosate
70 Iprodione
71 Lambda-cyhalothrin
72 Malathion
73 Maleic hydrazide
74 Mcpa present as amine salts (diethanolamine, dimethylamine, or mixed amines)
75 Mcpa (present as esters)
76 Mancozeb
77 Mecoprop (d-isomer) present as potassium salt
78 Mecoprop (d-isomer) present as amine salts
79 Mecoprop (d-isomer)
80 Mesotrione
81 Metalaxyl-m and s-isomer
82 Metaldehyde
83 Metam
84 Metconazole
85 Metiram
86 Metsulfuron methyl
87 Myclobutanil
88 Naled
89 Napropamide
90 Oxine benzoate
91 Oxycarboxin
92 Paraquat
93 Penthiopyrad
94 Permethrin
95 Phosalone
96 Propamocarb hydrocloride
97 Propiconazole
98 Propoxur
99 Propyzamide
100 Pyraclostrobin
101 Pyroxasulfone
102 Pyrethrins
103 Quintozene
104 Resmethrin
105 Rotenone
106 S-metolachlor
107 Simazine plus related active triazines
108 Spinosad
109 Tetramethrin plus related active compounds
110 Thiabendazole
111 Thiamethoxam
112 Thiram
113 Thiophanate-methyl
114 Triclopyr
115 Trifloxystrobin
116 Trifluralin
117 Triforine
118 Trinexapac-ethyl
119 Triticonazole
120 Zineb