

January 23, 2015

**EBR Submission # 012-3068 by Farm & Food Care Ontario**

***Pollinator Health: A Proposal for Enhancing Pollinator Health and Reducing the Use of Neonicotinoid Pesticides in Ontario***

The pollinator health issue is complex as pollinators have been shown to be sensitive to a variety of factors in their environment, and more importantly to the cumulative impact of these factors. While the impacts of pesticides are one factor, there are many others factors, particularly in Ontario. These include losses of pollinator habitat and food sources due to factors such as increased land used by urbanization, climate change, changes in beekeeping practices (custom pollination for example), and diseases and pests like the *Varroa destructor*. Changes in the mix of agricultural crops have had a tremendous influence on the habitat available for pollinators. In 1978, hay and pasture lands represented 35 per cent of Ontario’s farmland. By 2011, hay and pasture represented just three per cent of Ontario’s farmlands and more intensive management of hay and pasture lands (such as cutting clover before it flowers) has removed a once-abundant seasonal food supply for pollinators. If we hope to truly improve pollinator health in the province, we must look at the big picture and take into account the relative impacts of each factor that could contribute negatively or positively to improving pollinator health. Farmers are committed to finding workable, practical solutions to limit exposure of bees and other non-targeted insects to pesticides and encouraging a healthy pollinator population.

1. **The Pollinator Health Action Plan** refers repeatedly to declining pollinator numbers, but presents no supporting statistics or references to credible data sources. In fact, Statistics Canada ([here](http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=0010007&paSer=&pattern=&tByVal=1&p1=1&p2=31&tabMode=dataTable&csid=)) shows that honey bee colony numbers have increased steadily in recent years in Ontario and Canada – up by 41 per cent in Ontario from 2009 to 2014, and by 17 per cent for Canada, and that overall Ontario honey production is up by 29 per cent in 2014 (Table 1).

Table 1: From Statistics Canada

Honey Production in Ontario	2013	2014	Increase
Beekeepers	3155	3262	3%
Colonies	97500	112800	16%
Production of honey, total (pounds x 1,000)	6363	8192	29%
Value of honey, total (dollars x 1,000)	\$20,362	\$30,310	49%

The same trend exists globally with world hive numbers increasing from about 71 million in 2000 to more than 81 million hives in 2013 according to [FAO statistics](http://faostat3.fao.org/browse/Q/QA/E).

In addition, a [major recent review](http://onlinelibrary.wiley.com/doi/10.1111/j.1755-263X.2012.00234.x/abstract) <http://onlinelibrary.wiley.com/doi/10.1111/j.1755-263X.2012.00234.x/abstract> by an international research team including researchers at Ottawa and York Universities stated “we show that pesticide use and habitat loss are unlikely to be major causes of decline for any of the *Bombus* [bumble bee] species examined.”

The bee industry in Ontario continues to be robust and affords us time to thoroughly understand the underlying challenges to pollinator health.

2. **The winter of 2013** was a hard winter in Ontario. The harshness of the 2013/2014 winter was undoubtedly a dominant factor in higher than normal overwinter losses. As Table 2 demonstrates, there is a close correlation between average December-to-March temperature and reported colony losses, contrast the warm winter of 2011/12 with only 12 per cent losses and the abnormally long and cold winter of 2013/14 with 58 per cent loss. It is important to note that there would have been no significant difference in the amount of neonicotinoid treated seed used during 2011 vs. 2013, yet there were tremendous differences in over-winter reported losses. The spring of 2013, was also harsh on pollinators as an unseasonable warm March was followed by several frost events in April resulting in severe damage to apple and fruit crop blossoms, depriving bees of an important early spring food source.

**Table 2. Over-winter bee losses and winter temperatures in Ontario**

Winter	2009/10	2010/11	2011/12	2012/13	2013/14
Hive losses *	22%	43%	12%	38%	58%
Ave Dec-Mar temp (C)**	-3.0	-5.7	0.2	-3.2	-8.3

\*

Source of hive loss data is [here](#).

\*\* Kitchener, ON ([Environment Canada](#)), used as a proxy for southern/southwestern Ontario.

### 3. Steps taken by industry to address the issues surrounding the dust created by seed treatments

General:

- Grain farmers and bee keepers working to reduce opportunities for pesticide exposure;
- Voluntary reduction of amount of neonicotinoids used in seed treatment formulation (31% in Corn, 18% in soy);
- Polymer coated seed to reduce dust;
- Better seed plant packaging practice to reduce dust in the bags;
- Improved lifecycle stewardship of seed bags and packaging materials (safe disposal).

Vacuum Planters:

- New fluency (seed lubricant) agent introduced, less dust from vacuum planters;
- Equipment manufactures working on air emissions standards for particles released from planters;
- Retrofit equipment available for existing vacuum planters (many have been modified but there is still work to modify the discharge on all existing equipment).

The November 2014 report by Pest Management Regulatory Agency (PMRA) shows although most reported bee deaths in Ontario in 2012 occurred during the spring corn planting season, that pattern was not observed in 2013. In 2014, about 75 per cent of reported deaths (72 per cent of these from only three beekeepers) occurred after the end of the spring planting season. Although the PMRA concludes that neonic-tainted dust escaping from certain types of corn/soybean planters was a significant factor with acute bee deaths at spring time, the agency also says available data show no demonstrable linkage between neonicotinoid usage/exposure and bee deaths thereafter. Further, PMRA noted that reports of seeding-time bee mortality were down 70 per cent in 2014, a fact that the agency says may be related, at least in part, to measures taken by farmers and the seed industry to reduce seeding-time emissions.

#### **4. Applied research projects underway to capture Ontario agronomic data**

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and the Ontario Soil and Crop Improvement Association (OSCIA) have committed to test and monitor 100 in-field test plots across Ontario (2015) comparing neonics treated vs. untreated seed usage in side by side comparison trials, measuring not only yield but intense in-season monitoring of actual pest levels, plant stands and quality.

OMAFRA and OSCIA have committed to two more years of these plots but will include a 100 corn and a 100 soybean, in-field, side by side, for the next two years (corn only in 2014).

These plots will generate a huge amount of valuable information not only on potential economic value opportunities of using or not using neonicotinoids, but even more importantly for the agronomic information required to assist in evaluating fields for pest risk level. This kind of agronomic data will allow agronomists and farmers to develop a criteria framework from which informed decisions about what sorts of conditions the use of neonicotinoid seed treatments are warranted.

#### **Key Findings:**

- Farmers are committed to finding workable, practical solutions to limit exposure of bees to pesticides including minimizing the exposure risk of bees to the dust from treated seeds.
- Farmers support a healthy environment for pollinators in both rural and urban landscapes. Suggestions from the *Pollinator Health Action Plan* such as “planting more flowers, trees, shrubs and pollinator-friendly gardens” would have a positive impact on pollinator habitat and improving available food supply.
- Neonicotinoids are an important part of crop production, integrated pest management and environmentally sustainable farming practices and ways should be found to continue to use them in a safe manner.
- The adoption of the “precautionary principle” proposed by the provincial government as it applies to pesticide products, moves away from a traditional regulatory approach in environmental law that relies on proof of efficacy, harm or proof of safety for approval as demonstrated to a federal regulatory body (PMRA). This creates an uncertain, politically-influenced regulatory framework and discourages innovation in new product developments.

- Since 2012, when information about the risks of seed treatment dust began to surface, farmers, seed companies and equipment manufacturers have been developing constructive strategies to limit the potential sources of exposure to pollinators to seed treatment dust.
- Many new practices have been introduced to decrease the risks to pollinators. These measures include a voluntary plan by seed companies to reduce the amount of neonicotinoids used in the seed treatment formulation, using polymer coatings to reduce dust at application, replacing talc with a new fluency agent used in planters to reduce dust, installation of air deflectors on existing planter equipment and an air emission standard for new equipment to minimize airborne partial release. All of these are in combination with greater overall awareness by farmers of the issues surrounding planting dust and bee health.
- These industry-led measures phased in over the 2013 and 2014 planting seasons have not been given enough time to be properly evaluated to determine if they will reduce negative impacts to bee health.
- Seed companies, pesticide manufacturers, equipment suppliers, agronomists and bee and grain farmers will continue to collectively strive to reduce any potential modes of exposure to non-targeted insects from all pesticides and particularly those associated with seed protection products.
- More time is required to fully implement and evaluate industry led initiatives that are having a positive impact to pollinator health before regulation is implemented.

**Submitted by:**

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Farm & Food Care represents tens of thousands of farmers, agricultural professionals and related businesses with a mandate to provide credible information about food and farming in Ontario.

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