



National Farmers Union
Submission to
Standing Senate Committee on Agriculture and Forestry
on
The Importance of Bees and Bee Health

May 1, 2014

The National Farmers Union (NFU) is a non-partisan, nation-wide democratic organization made up of thousands of farm families across Canada who produce a wide variety of commodities, including grains and oilseeds, livestock, honey, fruits and vegetables. The NFU was founded in 1969. Our mandate is to work for policies designed to:

- ✦ promote a food system that is built on a foundation of financially-viable family farms which produce high quality, healthy, safe food;
- ✦ encourage environmentally-sensitive practices that will protect our precious soil, water, biodiversity and other natural resources; and
- ✦ promote social and economic justice for food producers and all citizens.

As farmers, NFU members are deeply committed to working with nature to protect and enhance biodiversity within and around our farms while producing healthy and safe food for people in Canada and abroad. By working with nature and building knowledge and skills in agro-ecology, our members strive to protect the many organisms, including bees and wild pollinators, which provide economic benefits to our farms and contribute to a more beautiful countryside. The NFU works to ensure that Canadians have a role in and can democratically make decisions that support long-term economic, social and ecological sustainability in regard to our food system.

Since 2012, NFU members have increasingly been raising concerns about the impact of neonicotinoids on the health of bees and other pollinators. In December, 2013, the NFU submitted comments in response to the Pest Management Regulatory Agency's (PMRA) proposed *Action to Protect Bees from Exposure to Neonicotinoid Pesticides*. More recently, the NFU sent a letter to Health Minister, Hon. Rona Ambrose, asking her to work with the Provinces of Ontario and Quebec to immediately undertake a number of steps that would lay the groundwork for a full moratorium on the use of neonicotinoid seed treatments on field crops in Canada.

NFU Policy on Neonicotinoid Seed Treatment in Field Crops

After observing bee mortalities in their own communities, NFU members from Ontario worked through the NFU democratic structure to bring the following resolution to the NFU's 44th Annual Convention, November 28 – 30, 2013, where it passed:

Therefore be it resolved that the NFU will lobby the federal Health Canada for an immediate five-year moratorium on the use of the neonicotinoid class of pesticides in seed treatments for field crops;

Be it further resolved that the NFU calls upon Health Canada to require completion of independent scientific studies, unencumbered by industry influence, on the sub-lethal and synergistic effects of neonicotinoids on honeybees, wild pollinators and other affected species, including the farmers who use them, with full results to be made public and available for review and comment prior to the lifting of any moratorium on the use of neonicotinoid seed treatments.

Faced with challenges in accessing untreated corn seed, NFU members from Lambton County brought the following resolution to the NFU Region 3 (Ontario), March 2, 2013 Annual Convention where it also passed:

Therefore be it resolved that the NFU-Ontario request that OMAFRA institute requirements that 80% of seed corn be available as untreated seed.

The above policy resolutions, along with existing NFU policy developed via the same process, related to increasing support for sustainable agricultural practices and the importance of publicly-funded, public-interest research, have formed the basis of the NFU's position and recommendations regarding the use of neonicotinoids as seed treatments in field crops in Canada.

The NFU recognizes that neonicotinoids are used on many crops as both seed treatments and foliar sprays. However, over the last decade the use of neonicotinoids as prophylactic seed treatments on field crops across Canada has become unprecedented in scale, resulting in detrimental harm to bees, wild pollinators and natural ecosystems. The NFU has, therefore, taken the position that immediate action must be taken to greatly reduce their use as seed treatments in field crops, starting with a five-year moratorium on neonicotinoid seed treatments in all field crops.

The NFU views honey bees as an indicator species. As a part of the formal agricultural system, their populations and health are tracked much more consistently than those of wild and native species of pollinators such as bumblebees, leafcutter bees, butterflies, hoverflies and wasps. Although we will not address the current status of these native pollinators in this submission, NFU members recognize that these native pollinators are critical to the long-term health of agricultural and natural ecosystems. Both their importance and their health status require further exploration and research.

The NFU is also aware that bee health is a complex issue, and that exposure to neonicotinoids is not the only factor contributing to bee mortality. It is likely that a combination of factors related to farming practices, loss of habitat and food sources, introduced diseases and parasites, changing weather patterns and management of bee hives contribute to the health problems in Canada's bee population. However, PMRA itself has identified exposure to neonicotinoid corn and soybean seed treatment as a major contributor to pollinator mortalities and concluded current practices are not sustainable.

Current Status of Neonicotinoid Seed Treatments and Impact on Bee Health in Canada

Several federal and provincial government departments and agencies have looked into the impact of neonicotinoids on bee health since 2012. After investigating bee mortality reports from corn growing regions in Quebec and Ontario in 2012, the Pest Management Regulatory Agency (PMRA) concluded that "planting of corn seeds treated with neonicotinoids contributed to the majority of the bee mortalities that occurred in Spring 2012, with the likely route of exposure being insecticide contaminated dust generated during the planting of treated corn seed."ⁱ In 2013, a year with more typical weather patterns, the PMRA again received a significant number of pollinator mortality reports from corn and soybean growing regions in Quebec, Ontario and Manitoba. Consequently, in September, 2013, PMRA "concluded that current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable."ⁱⁱ

Although the first neonicotinoid seed treatment was only registered in 2001, Tracey Baute, Field Crop Entomologist – Program Lead, Ontario Ministry of Agriculture and Food (OMAF) says that neonicotinoid seed treatments are currently used on almost 100 percent of Ontario's corn and canola acres, 80 percent of Ontario soybean acres and 35 percent of Ontario wheat acres.ⁱⁱⁱ She also says that there is "no doubt the acute poisoning in bee colonies over the past few years is linked to the planting of treated corn and soybean seed."^{iv} Based on the above percentages and the number of hectares of corn, soybean, wheat and canola planted in Ontario in 2011, over 50 percent of Ontario's cropland is being seeded with neonicotinoid treated seed.^v Much of the remaining crop land (23 percent) is in hay production. Neonicotinoids are not registered for use in forage crop seed.

Are neonicotinoid seed treatments needed?

In a presentation to the Ontario Bee Health Working Group Forum in August, 2013, Tracey Baute and Greg Stewart, OMAF Corn Industry – Program Lead, indicated that neonicotinoid seed treatment only benefits ten to thirty percent of Ontario's corn and soybean acres.^{vi} In addition, OMAF specialists have identified the conditions, such as soil type, crop rotation, pest history and weed management, which place a particular field at risk to pests that may be controlled by neonicotinoid seed treatment. Baute recommends that "growers not fitting into the high risk factors ... should consider trying fungicide-only seed."^{vii}

There are a limited number of independent peer-reviewed studies on the benefit of neonicotinoid seed treatments in North America, in particular the relationship between neonicotinoid seed treatments and yield in major field crops, including corn and soybeans. The Center for Food Safety recently released a literature review of independent peer-reviewed studies completed in the U.S. and Canada on the use of neonicotinoid seed treatments. They concluded that "in many cases, the compounds are not providing a yield or economic benefit to farmers."^{viii} The Center for Food Safety acknowledges that several other studies have found yield benefits, however, they say that "these studies are often neither published in a peer-reviewed journal nor independent of pesticide manufacturer funding."^{ix}

The widespread use of neonicotinoid seed treatment as a prophylactic, regardless of insect pressure, also acts as an evolutionary selection mechanism, killing susceptible insects while promoting the growth of resistant populations. This has already been documented with flea beetle populations in canola where Agriculture and Agri-Food Canada researchers found a shift toward a more resistant strain.^x

Are there alternatives to neonicotinoid seed treatment?

Along with not providing a benefit to farmers, the prophylactic use of neonicotinoid seed treatments also discourages farmers from using farm practices that will better protect bees. In Ontario, OMAF has already identified various other means of controlling many of the pests being targeted by neonicotinoid seed treatments and often the proposed alternatives provide better control. For example, Greg Stewart and Tracey Baute said in their presentation to the Ontario Bee Health Working Group Forum that Bt corn hybrids are more effective at controlling corn rootworm and Bt hybrids are available for virtually all cropping scenarios. In addition, corn root worm is principally a problem when corn is grown on corn.^{x1}

Tracey Baute encourages farmers "to go back to following Integrated Pest Management (IPM) and make a choice to use non-insecticide treated seed in fields that don't have a history of pest issues."^{xii} The Center for Food Safety report says, "the widespread adoption of neonicotinoids as seed dressings has led to a move away from integrated pest management (IPM)"^{xiii} and that "there is often no economic justification for using neonicotinoids as a prophylactic control measure because the costs of treatment tends to exceed that of other control options that can be used when pests reach economic levels."^{xiv}

The widespread use of neonicotinoid seed treatments on vast acreages of field crops is not only putting the health of critical pollinators at risk, it is also discouraging farmers from using more pollinator-friendly practices like IPM and contributing to the evolutionary selection of resistant insects.

Impact on bees and biodiversity

Neonicotinoids pose both an acute and a chronic risk to nearly all types of insects – both harmful pests and beneficial insects. Sub-lethal impacts of neonicotinoids on bees include impaired navigation, reduced capacity to gather pollen and reduced egg-laying. Research by Dave Goulson from Sussex University in the U.K. indicates that it has "recently become apparent that exposure of bees to these [neonicotinoid] compounds has subtle but important effects on individual behaviour, effects that are not revealed by the safety tests that are used by regulators to evaluate the impacts of agrochemicals on bees... they may also be having broader impacts on farmland biodiversity that have not yet been adequately investigated."^{xv}

Neonicotinoids affect vertebrates as well as insects. In a March, 2013 report, the American Bird Conservancy stated that "less than one corn seed per day treated with any of the neonicotinoid insecticides is sufficient to cause reproductive abnormalities."^{xvi} Neonicotinoids are relatively persistent in the environment, and will remain in soil and water for varying lengths of time, potentially impacting aquatic and other ecosystems. University of Saskatchewan biologist, Dr. Christy Morrissey says that "over the past few years neonicotinoids have been used increasingly on crops in Western Canada and the chemical is making its way into wetlands, potentially having a devastating 'domino effect' on insects and the birds that rely on them."^{xvii} She says that both bird and insect populations are declining and that her team is attempting to learn how all the pieces, including the unprecedented use of neonicotinoid seed treatments, fit together.^{xviii}

Time for a Precautionary Approach

The Pest Management Regulatory Agency concluded in September, 2013 that neonicotinoid seed treatments were a major contributor to acute bee mortalities in Ontario and Quebec in 2012 and 2013.^{xix} As noted above, there is evidence these pesticides have chronic sub-lethal effects on bees

and detrimental affects on other organisms. Since it is clear that the widespread, prophylactic use of neonicotinoids seed treatments in field crops is now causing irreversible harm to the biodiversity of agricultural and natural ecosystems in Canada, it is time to invoke the precautionary principle in relation to the regulation and use of neonicotinoids.

The precautionary principle calls on public authorities to act to prevent irreversible harm when it is within their power to do so, even when there is not complete scientific certainty. Canada has signed onto this principle through several international treaties, including the 1992 United Nations Conference on Environment and Development (UNCED) in 1992, also known as the Rio Earth Summit^{xx}, but tends to regulate from a risk management/cost-benefit stance instead. By using the risk management approach, Health Canada has basically allowed the status quo to continue by seeking to accommodate the users and sellers of the insecticides, even though PMRA has concluded that their current use is not sustainable. Little has been done by Health Canada to ensure adequate protection of bees and native pollinators or our natural and agricultural ecosystems.

The major change required by PMRA for the 2014 planting season is to mandate the use of a Bayer CropScience product, Fluency Agent, as a lubricant in vacuum seeders. Bayer CropScience also sells neonicotinoid seed treatments, so they will reap benefits through the sale of both the pesticide and the PMRA mandated lubricant. The OMAF Field Crop Entomologist, Tracey Baute, calls Fluency Agent "a useful tool but not a magic bullet" and says that at best it will only lead to a 28 percent overall reduction in the release of neonicotinoids during seeding.^{xxi}

The other major recommendation from PMRA is that farmers follow voluntary safer seeding Best Management Practices (BMP's). The promotion of BMP's as a solution to the harm done by neonicotinoid insecticides places the onus on farmers to protect bees and pollinators, instead of laying the responsibility for the loss of bees on the chemical and seed companies that promote and profit from farmers' purchase and use of neonicotinoids. Not only is PMRA placing the onus on farmers, so are seed companies in their communication with their farmer-clients. A letter to an NFU member/corn grower from a seed company he deals with includes the following comments – "We must also ensure the proper use of technology ... be sure to follow Best Management Practices and label directions."^{xxii} No mention in the letter of seed not treated with neonicotinoids. Other NFU members who want to protect bees, pollinators or birds, have said that they have found it difficult to purchase seed for desired varieties that is not treated with neonicotinoids for the 2014 season.

Need to Act in the Public Interest

The biodiversity of agricultural areas is already under stress due to changes in the agricultural landscape including the loss of habitat as fence rows are removed and pasture fields turned into grain and oilseed crops, the move away from mixed farms to more specialized operations with larger fields of a single crop and the ongoing use of chemical pesticides. Farmers who choose to work more closely with nature often find their efforts are hampered because of the influence agro-chemical and seed companies are willing and able to exert upon regulatory bodies, including the PMRA, as well as on farmers.

The first responsibility of the Canadian government and Canadian regulatory bodies must be to act in the public interest. The response of Health Canada to PMRA's conclusion that the use of neonicotinoid seed treatments was not sustainable, has been to act in the interest of agro-chemical and seed companies. The widespread sale and use of neonicotinoid-treated seed for field crops continues and PMRA's recommendations to reduce harm are so ineffective they amount to little more than window dressing.

It is imperative for the integrity of Canada's regulatory agencies and for the well-being of all Canadians that effective measures be put in place that will truly protect bees, native pollinators and our environment. It is time that regulatory decisions around pesticides be based on independent, third party, publicly-funded research conducted in the public interest rather than on the studies prepared by chemical companies more interested in profit than in the health of bees and pollinators.

Recommendations from the National Farmers Union

Having already determined that neonicotinoid seed treatments in corn and soybeans in Ontario and Quebec were the major contributor to bee mortalities in both 2012 and 2013, and that "current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable"^{xxiii}, the Senate Standing Committee on Agriculture and Forestry must recommend that Health Canada take immediate action to protect bees and pollinators.

The widespread use of neonicotinoid treated seed based on the fear of potential problems cannot continue. The prophylactic use of neonicotinoid treated seed on practically all of Ontario's corn and soybean acres has already led to the overuse of the insecticide even though OMAF recommends other strategies, sometimes better strategies, farmers can use to deal with the target pests and even though there are very few (or no) independent, peer-reviewed studies which show consistent yield benefits from the prophylactic use of seed treatments in field crops.

The NFU believes that in order to protect the bees and pollinators that are essential for the production of a wide variety of foods and for the biodiversity of our agricultural and natural ecosystems, an immediate moratorium must be placed on the use of neonicotinoids as seed treatments in field crops. Our detailed recommendations are as follows:

1. Place a five-year moratorium on the use of neonicotinoid seed treatments in all field crops;
2. If necessary, begin with a five-year moratorium on the use of neonicotinoid seed treatments on corn and soybeans in Ontario and Quebec;
3. Request that Health Canada announce the moratorium as soon as possible so that it can come into effect on January 1, 2015;
4. Allow farmers to apply for one-time use of a neonicotinoid seed treatment only if they can (1) demonstrate through a soil test or monitoring program that their crop will be threatened by pest pressure and (2) demonstrate that there are no alternative control options;
5. Require that a permit be submitted to purchase neonicotinoid seed treatments, that the seed treatments be purchased separately from seed and that the cost of the seed and the treatment be listed separately when one-time use applications are approved;
6. Monitor approved one-time use applications and publish a list of 'hot spots' where a significant number of farmers have applied to use neonicotinoid seed treatments;
7. Assess and implement integrated pest management (IPM) programs which are run in the public interest for the public good and designed to benefit farmers and both natural and agricultural ecosystems;
8. In the public interest, research and widely promote alternative and ecological farming practices which do not depend on the use of chemical pesticides. This would include

- options such as more diverse and longer crop rotations and increased use of cover crops;
9. Undertake publicly funded, independent field trials in the public interest to assess field crop yields, including corn, soybean, canola and wheat yields, produced with and without neonicotinoid seed treatment, with other chemical pest control agents and with non-chemical alternatives;
 10. Publicly fund programs to monitor soil as well as surface and ground water sources for residual neonicotinoid levels before and after the moratorium is implemented;
 11. Publicly fund programs to monitor and release bee and other pollinator population counts before and after a moratorium is implemented;
 12. Initiate and support initiatives to create and maintain natural areas within agricultural areas to increase the biodiversity across the landscape and to provide habitat for bees and native pollinators;
 13. Compensate beekeepers for losses caused by pesticide poisoning beginning in 2012 and continue such compensation until neonicotinoid seed treatments have been removed from the market.

Thank you to the Standing Senate Committee on Agriculture and Forestry for your in-depth examination of the importance of bees and bee health in the production of honey, food and seed in Canada. We trust that your final report will address the need for Canada's regulatory agencies to act in the public interest to protect bees and native pollinators and to assure the well-being of all Canadians and the environment in which we all live.

Respectfully submitted
by the
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- xix Health Canada, Ibid.
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