National Office
2717 Wentz Ave.
Saskatoon, SK S7K 4B6

Tel: (306) 652-9465
Fax: (306) 664-6226
nfu@nfu.ca www.nfu.ca

national farmers union
In Union is Strength

December 10, 2013

Pesticide Management Regulatory Agency
Health Canada
2720 Riverside Drive
A.L. 6604-E2
Ottawa, Ontario
K1A 0K9

Email: pmra.publications@hc-sc.gc.ca

Regarding Notice of Intent NOI2013-01: Action to Protect Bees from Exposure to Neonicotinoid Pesticides

The National Farmers Union (NFU) welcomes the opportunity to comment on Health Canada's Pest Management Regulatory Agency (PMRA) proposed *Action to Protect Bees from Exposure to Neonicotinoid Pesticides.*

According to the *Action to Protect Bees from Exposure to Neonicotinoid Pesticides* consultation document, PMRA has "concluded that current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable". The document outlines additional protective measures PMRA proposes to implement for corn and soybean production for the 2014 planting season.

The NFU believes these measures will not be adequate to protect bees or other organisms, including wild pollinators, from lethal or harmful sub-lethal exposure to neonicotinoids. Our analysis of PMRA's consultation document and other current information indicates that pollinator protection requires additional measures, including a five-year moratorium on the use of neonicotinoid seed treatments in field crops while more independent research on the impacts of neonicotinoids on agricultural and natural ecosystems is completed and alternatives to neonicotinoids, including non-chemical alternatives, are fully explored.

As farmers, the members of the NFU are deeply committed to working with nature to produce healthy food and to protect and enhance biodiversity within and around our farms. We advocate for agricultural practices that are economically, socially and environmentally sustainable and built on the principles of food sovereignty. By working with nature and building our own knowledge and skills of agro-ecology we 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.

At the NFU 44th Annual Convention, November 28 – 30, 2013, the following resolution was passed:

> *Therefore be it resolved that the NFU will lobby the federal Health Canada for an immediate fiver year moratorium on the use of the neonicotinoid class of pesticides in seed treatments for field crops;*
>
> *Be it further resolved that the NFU call 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 fully results made public and available for review and comment prior to the lifting of any moratorium on the use of neonicotinoid seed treatments.*

The NFU recommends that Health Canada Pest Management Regulatory Agency take the precautionary approach, rather than a risk management stance, and immediately implement a five-year moratorium on the use of the neonicotinoid class of pesticides in seed treatments for field crops.

A five-year moratorium would provide time:

- to continue research on the role of neonicotinoid seed treatments in deaths of honey bees in Canada;
- to evaluate alternatives to neonicotinoid seed treatments in the production of field crops in Canada;
- to observe wild and domesticated bee population levels and health in the absence of neonicotinoids, their metabolites and residues in the environment;
- to observe the population levels and health of other terrestrial and aquatic organisms, including wild pollinators, in the absence of neonicotinoids, their metabolites and residues in the environment;
- to assess and implement integrated pest management strategies that would reduce insect pressure on field crops, including non-chemical strategies.

The NFU further recommends that the above research be completed by independent researchers with public funding and that their full results be made publicly available for review and comment prior to lifting the moratorium on the use of neonicotinoid insecticide seed treatments in field crops.

The NFU further recommends that Health Canada, in conjunction with Agriculture and Agri-Food Canada, promote and research farm practices which would allow farmers to move away from the use of neonicotinoid seed treatments (e.g. crop rotations).

How neonicotinoids work:

Neonicotinoids are systemic insecticides that translocate throughout the plant from the seed, and are then present in the plant's cells, sap, pollen, nectar and the droplets exuded from leaves and stems. The insecticide works by causing the insect's nerves to malfunction continuously and irreversibly after the

insect eats or touches the affected plant. Neonicotinoids affect nearly all types of insects – they are not specific to pest species.

In fact, neonicotinoids affect vertebrates like birds as well as insects. In a report released in March, 2013, 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".[1] The American Bird Conservancy's report finds that "unlimited quantities of these treated seeds are readily available to birds while regulators mistakenly assume that exposure can be minimized by label statements or adherence to good agricultural practices".[2]

Sub-lethal impacts 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 lethal 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".[3]

Neonicotinoids are relatively persistent in the environment, and will remain in soil or water for varying lengths of time depending on specific conditions. Some metabolites (break-down products) of neonicotinoids are also toxic to insects, birds and mammals. Leaching of contaminated water into surface-water bodies would have harmful effects on aquatic insects that are a vital part of ecosystems, even at sub lethal concentrations, reducing biodiversity and productivity within the food chain.

Because seed treatment is so widely used as a prophylactic, regardless of insect pressure, it 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 AAFC researchers found a shift towards a more resistant strain.[4] As a pest-management strategy, use of neonicotinoid seed treatment on vast acreages of field crops is doomed to fail.

Need for Precaution:

The NFU agrees that bee health and the health of other native pollinators 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/climate change and management of bee hives contribute to the health problems in Canada's bee population. However, after looking into the high number of bee mortality reports from corn-growing regions of Ontario and Quebec in 2012, PMRA "concluded that the majority of pollinator mortalities were a result of exposure to neonicotinoid insecticides, likely through exposure to the contaminated dust generated during the planting of treated

---

1 The Impact of the Nation's Most Widely Used Insecticides on Birds", by Dr. Pierre Mineau and Cynthia Palmer. American Bird Conservancy, March 2013. p. 66

2 Ibid. p. 66

3 Dave Goulson, Sussex University, U.K. In 2nd International Conference on Pollinator Biology, Health and Policy, August 14-17, 2013 Center for Pollinator Research, Pennsylvania State University. p. 15

4 *Earlier seeding dates may lower neonicotinoid effectiveness in flea beetle*s, Western Producer, May. 9th, 2013 http://www.producer.com/daily/earlier-seeding-dates-may-lower-neonicotinoid-effectiveness-in-flea-beetles/

corn seed". Then in 2013 with more normal weather conditions, high bee mortality rates continued in soybean and corn-growing areas of Ontario, Quebec and Manitoba. The PMRA concluded that "current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable."

Honey bees are 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, PMRA and other agencies have concluded that exposure to neonicotinoid seed treatments has led to bee mortalities, much less is known about the effects of these seed treatments on other organisms which are also important to the long-term health of agricultural ecosystems. As an example, the bumble bee is an important wild pollinator that nests in the soil.

Since the use of neonicotinoid seed treatments has been identified by PMRA as a major contributor to bee mortality, the NFU recommends that the PMRA use the precautionary principle to support implementing strong additional measures to protect bees and other pollinators from chronic, acute, lethal and sub-lethal exposure to these pesticides. In addition, the NFU recommends that PMRA recognize honey bees as an indicator species that point to the probability of harm to other non-target organisms by neonicotinoid-treated seed. The precautionary principle calls on public authorities such as the PMRA to act to prevent irreversible harm when it is within their power to do so, even when there is not complete scientific certainty. This is the approach the European Union has taken by suspending certain uses of neonicotinoids on treated seed and some flowering crops.

Inadequacy of Proposed Measures:
The proposed measures outlined in the PMRA consultation document are not precautionary, but rather embody a risk management approach that seeks to accommodate the users and sellers of these insecticides ensuring neither adequate protection of bees and native pollinators nor our natural and agricultural ecosystems. The proposed measures have serious shortcomings; additional measures may be equally ineffective as long as the environmental load of neonicotinoids continues to increase.

The PMRA's suggested mitigation measures are:

1. Requiring the use of safer dust-reducing seed flow lubricants;
2. Requiring adherence to safer seed planting practices;
3. Requiring new pesticide and seed package labels with enhanced warnings; and,
4. Requiring updated value information be provided to support the continued need for neonicotinoid treatment on up to 100% of the corn seed and 50% of the soybean seed.

1. Safer dust-reducing seed flow lubricants may help decrease bee exposure to neonicotinoid seed treatments but there has not been sufficient time to fully research new lubricants or to consider how the various combinations of lubricants and seed treatments may affect bees and the rest of the environment. Neonicotinoids are systemic, persistent in soils and water soluble, so even if safer lubricants decrease the exposure via dusts during seeding operations, bees and other non-target organisms will still be exposed via any spilled or poorly covered seed and via treated plants, soil and water throughout the growing season.

2. Presumably, "safer seed-planting practices" refers to the best management practices (BMPs) put forward by PMRA prior to the 2013 planting season[5]. In spite of more typical weather patterns and the promotion of BMPs, PMRA "continued to receive a significant number of pollinator mortality reports from both corn and soybean growing regions of Ontario and Quebec, as well as Manitoba" in the spring of 2013. This suggests that recommended seeding practices did not adequately protect bees, while business continued largely as usual for both sellers and users of neonicotinoid seed treatments.

One of the BMPs outlined by PMRA states that "communication and cooperation among growers, seeders and beekeepers on the timing of seeding and the location of hives can help reduce the risk of bee incidents". This recommended practice requires open communication between farmers using neonicotinoid seed treatments and beekeepers – something that may not be possible at a time when distrust exists among these groups of farmers. It would also require seeders to refrain from planting under certain circumstances, likely windy conditions. If delayed by weather conditions, mechanical breakdown or other unforeseen circumstances, it is unlikely seeders would be willing to further delay seeding for the sake of bee health if they feel they will lose production as a result.

Furthermore, not only beekeepers benefit from bees and wild pollinators. Neighbouring farmers who grow crops that rely on insect pollination to get a harvest and farmers who have gone to the expense of protecting or enhancing the natural ecosystems, including providing habitat for pollinators on their farms, may suffer losses when neonicotinoid-treated seed is planted on neighbouring farms.

The promotion of safer seeding practices 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

---

5 *Pollinator Protection and Responsible Use of Treated Seed*, April 8, 2013. Health Canada. Best Management Practices include:

- Avoid planting treated seed in windy and/or very dry conditions.
- Consider wind direction and avoid planting treated seed if bees are foraging downwind or nearby.
- Control flowering weeds in the field before planting so that foraging bees are not attracted to the planting site.
- Check that treated seed and coating are of high quality: seeds should be clean and the coating should be well-adhered to the seeds.
- Handle bags with care during transport, loading and unloading in order to reduce abrasion, dust generation and spillage.
- Do not load or clean planting equipment near bee colonies, flowering crops or weeds, or hedges.
- Pour seeds carefully into the planter in such a way as to avoid the transfer of dust from the seed bag.
- Do not shake any loose material or dust from the seed bag into the planting equipment.
- Follow the directions provided from planting equipment manufacturers and keep up-to-date on new use practices.
- Clean and maintain planting equipment regularly.
- Consider using deflector equipment, where appropriate, to reduce emission of dust into the air and off-field deposit of dust.
- Seed flow lubricants may affect the generation of dust during planting; carefully follow use directions.
- Spilled or exposed seeds and dust must be incorporated into the soil or cleaned-up from the soil surface.
- Keep treated seed and dust away from surface water.
- Properly dispose of any dust or treated seed remaining in planting equipment (for example, empty into a container and vacuum any dust remaining in the hopper).
- Do not leave empty bags or left-over treated seed in fields or the environment.
- Participate in collection programs for seed bags where available.

promote and profit from farmers' purchase and use of neonicotinoids. The onus is being placed on farmers despite the challenges they face in purchasing untreated seed when they may prefer to protect bees and pollinators by planting untreated seed.

3. Changing the pesticide and seed package labels does not change how and when neonicotinoids are used, nor does it affect their toxicity. A recommendation to enhance the warnings on pesticide and seed package labels appears to be a measure designed to limit the liability of agro-chemical and seed companies and the PMRA as the regulator. New labels do little to protect the livelihoods of beekeepers or farmers who produce food that requires pollination by bees and other insects.

4. Updated information on the value of neonicotinoid treatment on corn and soybean seed could be helpful; however, the PMRA recommendation should not use such leading language. The focus should not be on updating information regarding the value of neonicotinoid seed treatments. Since PMRA has already concluded that the "current practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable", the updated information should focus on alternatives to the use neonicotinoid seed treatments and information on non-chemical alternatives for insect pest management.

The regulator should not conclude prior to any studies being completed that that almost all corn seed and half of soybean seed should be treated. It is increasingly difficult for farmers to obtain seed that is not pre-treated. Without any choice in the matter, the cost of seed treatment is forced upon farmers and thus they have no opportunity to assess whether the insecticide delivers any benefit. Farmers who are concerned about pollinators and wish to avoid using neonicotinoids should not be denied access to untreated corn seed, nor should they have to pay extra for it.

Moratorium should include all field crops:
Neonicotinoids are not only used on corn and soybeans, but are sold as seed treatments for canola, wheat, oats, rye, barley, sugar beets, and potatoes. While the proportion of treated seed used in each type of crop varies, the potential area of the land that could be protected from neonicotinoids through a moratorium on field crop seed treatment is vast, and would provide significant protection for pollinators. Without a moratorium neonicotinoids will become increasingly pervasive in the environment, potentially present on most of the farmland used for crop production in Canada.

Neonicotinoids as a seed treatment are seldom used to address a known pest problem but rather to address potential problems. Agro-chemical companies promote fear of such problems in their advertising. The perception thus created is rarely offset by legitimate independent third-party studies that could assess both the risk of economically significant pest problems and the impacts of neonicotinoid use. One article in the Western Producer, reported on United States Department of Agriculture research that found neonicotinoid soybean seed treatments caused more harm to beneficial insects than to target pests, making the problem worse, while increasing farmers' seeding costs by $10/acre or more.[6]

Widespread use of treated seed based on fear of potential problems leads to overuse of the insecticide

[6] *Seed treatment not worth cost: study,* Western Producer, Feb. 17th, 201.1 http://www.producer.com/2011/02/seed-treatment-not-worth-cost-study/

but also to more money in the pockets of agro-chemical and seed companies. According to their annual reports, in 2012, gross profits for Bayer and Syngenta, the two corporations that sell most of the neonicotinoids in Canada, were approximately $28 billion USD and $7 billion USD respectively. Of that, Bayer's insecticide sales were just over $ 2 billion, Syngenta's were $1.8 billion in 2012.

Rules needed for foliar application:
The NFU is calling for a moratorium on neonicotinoid seed treatments. We are aware that other uses of neonicotinoids may also have serious consequences for pollinators and other wildlife. We do not discount these hazards, and call for proper regulation and enforcement of foliar spray and granular application to minimize impacts on pollinators. It should be possible for insecticide users to focus on specific problems that exceed an economic threshold and use the chemicals in ways that limit pollinator contact. We promote the use of other non-toxic methods as a first resort, including preventive measures

Additional research is required:
At the outset of the recommended five-year moratorium on neonicotinoid seed treatment there should be studies done to measure biodiversity, food web integrity, residue loads in surface water, soils, groundwater, etc. This baseline should be used for annual comparisons as the moratorium continues. Similarly, insect pest pressure in various field conditions should be assessed annually in the absence of neonicotinoid seed treatment and under various management systems such as certified organic production and Integrated Pest Management.

Research presented at the 2nd International Conference on Pollinator Biology, Heath and Policy in August, 2013 showed that "maintaining wild crop pollination services ... requires minimizing wild bee exposure to pesticides and promoting landscape complexity within agro-ecosystems".[7] During the moratorium bee colony studies on complex health issues should also be undertaken as the level of neonicotinoids in the environment is progressively reduced.

The role and duty of PMRA:
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 are turned into cash crops, the move away from mixed farms to more specialized operations, larger fields of one 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 as well as upon farmers.

Heath Canada's first responsibility is to act in the public interest. The protective measures outlined by PMRA in *Action to Protect Bees from Exposure to Neonicotinoid Pesticides* appear to be designed to allow agro-chemical and seed companies to continue selling neonicotinoid-treated seed to farmers while laying out ineffective measures that are little more than window dressing.

It is imperative for the integrity of the Agency and the well-being of all Canadians, that PMRA put effective measures in place that will truly protect bees and other pollinators. A five-year moratorium on the use of neonicotinoid seed treatments would require farmers, researchers, regulators and extension

[7] Mia G. Park et al., Cornell University and Michigan State University in 2nd International Conference on Pollinator Biology, Health and Policy. August 14-17, 2013. Center for Pollinator Research, Pennsylvania State University. p.35

agents to look seriously at the need for neonicotinoids and to explore alternative farm practices, such as more complex crop rotations, integrated pest management and methods to replace the use of neonicotinoid seed treatments. Publicly funded, independent third-party research during the five-year moratorium will allow Canadians and the PMRA to make sound, science-based decisions on the impacts of neonicotinoid seed treatment on pollinators and the ecosystem, and would form a solid foundation for future policy-making.

Respectfully submitted by
The National Farmers Union
December 10, 2013