



Québec Pesticide Strategy 2015-2018

Vision: Acting together to protect health, pollinators and the environment

In order to achieve its vision, Québec will implement a framework for encouraging best practices when using pesticides. This will involve tightening pesticide use conditions and the implementation of action aimed at increasing user accountability. Both are part and parcel of the Québec Pesticide Strategy 2015-2018, which seeks to protect:

- **Public health**, by increasing restrictions on the use of pesticides on lawns, trees and shrubs in urban environments such as public parks, and **the health of farmers**, by tightening the supervision of highest-risk pesticides used in agriculture
- **Pollinators**, by reducing their exposure to neonicotinoids
- **The environment**, by limiting the risk of contamination

Did you know?

- Each year, the Centre antipoison du Québec receives more than 1800 calls about probable pesticide intoxication.
- While only 1% of sampled fruits and vegetables grown in Québec exceed legal standards for pesticide residues, such residues have been detected on 41% of fruits and vegetables analyzed between 2007 and 2011 by the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ).
- Among individual wells in proximity to crop areas that were sampled by the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC), 69% were found to have traces of pesticides.
- Various concentrations of pesticides have been detected during summer in all watercourses sampled in Québec agricultural environments (MDDELCC), with between 20 and 33 different pesticides found in 48% of them.

Salient points of the Québec Pesticide Strategy 2015-2018

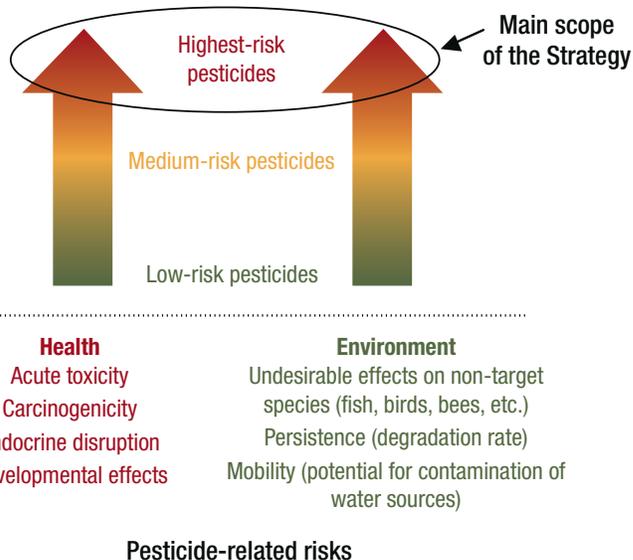
- Objectives aimed at protecting public health, pollinators and the environment.
- An approach centred on highest-risk pesticides
- Client-based action that includes support for farmers
- Implementation of concrete measures inspired by best practices

An approach centred on highest-risk pesticides

The chemical composition of pesticides varies and has considerable influence on their toxicity level and risk to health and the environment. It is important to understand that pesticide risk does not only depend on quantity used.

Atrazine and chlorpyrifos are good examples of this. These pesticides account for less than 5% of sales but 14% of health risk indicators and 20% of environmental risk indicators.

The MDDELCC has therefore chosen to concentrate its efforts on the highest-risk pesticides in order to achieve major gains in protecting public health, pollinators and the environment. Working closely with the MAPAQ and the Institut national de santé publique du Québec (INSPQ), the MDDELCC has devised a pesticide risk indicator that is based on chemical properties. The more toxic the pesticide, the higher the relative risk weight ascribed by the indicator.



Pollinators: indispensable for humankind and biodiversity



Pollinators, and especially bees, are an indispensable link in the reproductive chain of plant species. Their pollinating work helps maintain biodiversity and crop yield. In fact, pollinators render irreplaceable services to agriculture. To take but one example, the annual commercial value of bees in crop pollination is estimated at more than 166 million dollars for Québec and at more than 2 billion dollars for Canada.

Bee population decline has been observed in the majority of industrialized countries. Protecting these pollinators has now become a worldwide challenge that requires consideration of several factors, such as:

- Exposure to pesticides, including neonicotinoids
- Parasites and pests, pathogens and genetic diversity
- Loss of habitat, availability of food and hive management
- Climate change and weather conditions

Neonicotinoids are a family of insecticides that are widely used to coat corn and soya seed to protect them from seedling insect pest. They have adverse effects on pollinator health, are highly toxic to bees and are a contributing factor in bee population decline.

Neonicotinoids: A known danger to pollinators

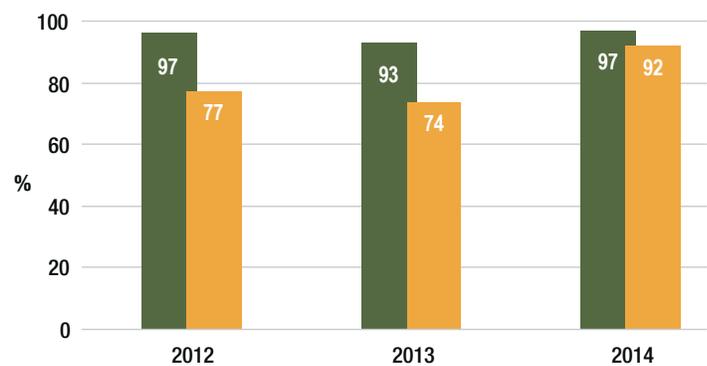
In 2012 and 2013, the Health Canada's Pest Management Regulatory Agency revealed that close to 70% of dead bees collected in Ontario and Québec were found to contain neonicotinoid residues.

Bees and other pollinators can become exposed to neonicotinoids through pesticide spraying, dust from planting treated seeds, and contaminated pollen, nectar and water. It is now acknowledged that dust is responsible for the high rate of bee mortality. Neonicotinoids are also found in rivers, as is shown in the opposite illustration.

A recent review of 800 scientific research studies also showed that the use of neonicotinoids has negative consequences for pollinators and other living organism such as birds, earthworms and aquatic invertebrates.

The following findings emerged from the review:

- These insecticides have long term negative effects on the health of bees and their capacity for collecting pollen, navigating and reproducing. In addition, exposed bee populations become more vulnerable to disease.
- Neonicotinoids can alter immune functions, stunt growth and lower reproductive capacity in birds and fish.
- Effects on land-based invertebrates like earthworms include behavioural changes such as cessation of eating that eventually lead to death.



Monitoring of the clothianidin neonicotinoid in four Québec rivers

- % Frequency of detection
- Frequency of values exceeding the Biological Criteria for the Protection of Aquatic Life ceiling

CHALLENGE 1: Protect health and the environment

Pesticide presence in the environment and even low-level exposure to these products can affect human health. Epidemiological studies have demonstrated that pesticide exposure may cause diseases such as cancer and immune or neurological disorders. Pesticides are also suspected of causing disturbances in the endocrine system that may cause hormonal system imbalance.

Québec sales of pesticides in 2012 represented 4.4 million kilograms of active ingredients. These products are used by a variety of industries in agricultural, urban and other sectors.

Urban environments

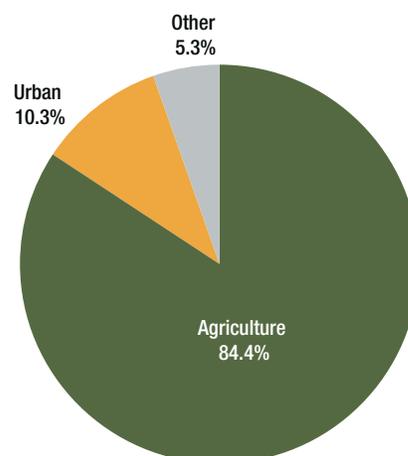
In Québec, 10% of pesticides sold are used in urban environments, especially for lawn and green space maintenance. Some 20 pesticides for lawn maintenance were banned in 2003, which led to an overall drop in herbicides used in that environment. Herbicide use declined, with residents turning more to biopesticides, which are less dangerous to health and the environment. Golf course owners were also required to produce pesticide reduction plans, which reduced per-hectare quantities of pesticides used on golf courses by 15% between 2003 and 2011.

However, sales of some other lawn maintenance herbicides rose markedly. Moreover, there remains a significant potential for pesticide reduction among the 12% of owners that account for nearly 50% of all quantities sprayed on golf courses.

Agricultural environments

Agriculture accounts for 85% of pesticides sold in Québec. This sector is a major user of these products that enable farmers to control insect infestation, weeds and disease and maintain high crop yield. Pesticides have been found in watercourses for many years, and no trend towards a reduction of health and environmental risk indicators has been noted.

In 2011, the Government of Québec launched its Stratégie phytosanitaire québécoise en agriculture, which has a goal of reducing risks related to pesticide use by 25% by 2021. In its Québec Pesticide Strategy 2015-2018, the government is going even further, as the strategy will make it possible to strengthen the legislative framework for using pesticides in agricultural environments and strengthen efforts on pesticides that represent the highest risk to health and the environment.



Total 2012 pesticide sales by user environments

Guidelines	Objectives
Reduce the use of pesticides that represent the highest risk to health and the environment	<ul style="list-style-type: none"> Require that the agricultural application of highest-risk pesticides be justified by an agronomist in advance in 100% of cases. Triple the number of pesticides that are banned in urban environments for both lawns and green spaces. Authorize the unrestricted sale of all biopesticides by all retailers. Oblige the owners of golf courses who use the greatest amounts of pesticides to reduce their use of highest-risk pesticides by 25%. Encourage the application of lowest-risk pesticides through economic incentives (levies, permits and compensation fees).
Lower the exposure of the population to pesticides by providing the citizenry with a healthier environment	<ul style="list-style-type: none"> Ensure adequate qualification levels for employees that apply pesticides for pest control. Increase mandatory minimum distance when pesticides are used near inhabited areas. Strengthen compliance with the Pesticides Act and its regulations.

CHALLENGE 2: Protect pollinators from neonicotinoids

It is estimated that seeds coated with neonicotinoids are used on nearly 100% of Québec corn croplands, while that number is over 50% for soya crops. The combined total area is approximately 500,000 hectares.

The Centre de recherche sur les grains (CEROM) du Québec (seed research) has shown that the systematic use of seeds treated with neonicotinoids is unjustified, because their use is often preventive even when no infestation by seedling insect pests has been observed.

United States Environmental Protection Agency (USEPA) studies have found that coating seeds with neonicotinoids does not lead to significant increases in soya crop yield as compared to uncoated seeds. This is similar to the findings of CEROM studies that show that neonicotinoid-coated corn seeds do not lead to significantly higher yield, even when there is evidence of low levels of seedling insect pests.

Guidelines	Objectives
Reduce the use of neonicotinoids	<ul style="list-style-type: none"> • Ban the use of all neonicotinoids for lawn and flower bed maintenance. • Require that the application of neonicotinoids for agricultural purposes be justified by an agronomist in advance in 100% of cases. • Encourage the use of seeds uncoated with neonicotinoids through economic incentives (levies, permits and compensation fees).
Develop knowledge on the use of treated seeds in Québec	<ul style="list-style-type: none"> • Prepare a report on Québec sales of neonicotinoid-coated seeds.

Québec and Ontario: Two common approaches for protecting pollinators

The use of all neonicotinoids on lawns and flower beds for esthetic purposes will be banned. This proposal will allow Québec to join Ontario's approach, which since 2009 has banned the use of pesticides (including neonicotinoids) for esthetic purposes on lawns and in individual gardens.

Québec will make it mandatory for neonicotinoid-coated seed use to be justified in advance by a professional agronomist, as is the case in Ontario. But Québec will go even farther in this direction, because in addition to covering seeds coated with neonicotinoids, its approach will also add the requirement of justification by an agronomist before highest-risk pesticides (such as those that include neonicotinoids, atrazine and chlorpyrifos) are used. As well, the application of these pesticides will be subject to more stringent regulations, in particular in regard to mandatory minimum distance near inhabited areas. Québec's approach also differs from Ontario's in that Ontario seeks to reduce the area planted with coated soya and corn seed, while Québec looks to reducing the risk to public health, pollinators and the environment by reducing the use of the most dangerous pesticides on all crops.

The role of municipalities

Municipalities can regulate the use of pesticides in their jurisdictions. Municipal regulations in this area need no authorization from the MDDELCC prior to their adoption. However, municipalities are required to ensure that their regulations are compatible with the Pesticides Management Code.

The Government of Québec recognizes the importance of letting municipalities regulate pesticides in their jurisdictions to meet the concerns of their residents, and the MDDELCC has no intention of revisiting the role played by municipalities in this field.

Concrete action for optimal pesticide management*

- 1. Modernize the Pesticides Act** by incorporating coated seeds and strengthening compliance through a system of administrative penalties.
Target: Table a draft bill winter 2016
- 2. Amend the Pesticides Management Code** by tightening the conditions under which pesticides may be used.
Target: Table a draft regulatory amendment fall 2016
- 3. Hold pesticide users accountable** by having users of highest-risk pesticides assume a greater share of associated environmental and public health costs.
Target: Publish economic incentives guidelines summer 2016

*According to the parliamentary agenda

