Update on the Neonicotinoid Pesticides

16 January 2020

Canada

Introduction

This document provides a progress report on Health Canada's Pest Management Regulatory Agency's (PMRA) ongoing assessments of the neonicotinoid insecticides (see previous update on the Neonicotinoid Pesticides in 2017). The assessment of this group of insecticides is extremely complex and multi-faceted; a status update for each aspect of the assessments follows.

Background

Neonicotinoids are a group of pesticides used in agriculture to protect crops from various insects. They are also used for other purposes, including killing insects in homes, controlling fleas on pets, and protecting trees from invasive insects such as the Emerald Ash borer. There are three main neonicotinoids currently approved for agricultural use in Canada: **imidacloprid, clothianidin, and thiamethoxam**.

Health Canada is considering many components as they relate to the registration of this group of pesticides including:

- Pollinators (risk assessments and incident reports)
- Squash bee special review
- Aquatic invertebrate special review (clothianidin and thiamethoxam)
- Imidacloprid cyclical re-evaluation (birds and mammals, aquatic organisms, human health and value)
- Thiamethoxam and clothianidin cyclical re-evaluation (birds and mammals, aquatic organisms other than invertebrates, human health, and value)

The following sections provide an update on the status of each of these components.

Pollinator Incident Reports

Declines in honeybee and other pollinator populations have generated considerable scientific and public interest both in Canada and internationally. A number of factors are seen as potential contributors to these declines and no single factor has been identified as the cause. The available science suggests that multiple factors acting in combination may be at play, including loss of habitat and food sources, diseases, viruses and pests, and pesticide exposure.

In 2012, Health Canada's PMRA began receiving large numbers of bee incident reports. The subsequent investigation and analysis of pesticide residues suggested that exposure to neonicotinoids in dust generated during the planting of treated corn or soybean seed with vacuum planters contributed to the mortalities observed. Before the 2014 planting season began, the PMRA, in collaboration with many stakeholders, worked to help ensure risk mitigation measures were communicated to growers across Canada and that a dust-reducing lubricant was readily available. With these risk mitigation measures in place, the number of bee incidents in 2014, 2015 and 2016 were 70-80% lower than in 2013. In 2017–2019, Health Canada saw a further decrease in the number of incidents reported.

Pollinator Assessments: Thiamethoxam, Clothianidin, and Imidacloprid

A. Completed work to date:

In 2012, in response to new research and the establishment of a new North American pollinator risk assessment framework, in cooperation with the United States Environmental Protection Agency (USEPA) and the California Department of Pesticide Regulation, Health Canada initiated pollinator focused re-evaluations of the three neonicotinoids (thiamethoxam, clothianidin, and imidacloprid). Health Canada completed the three pollinator re-evaluations and published its decisions on 11 April 2019.

In order to protect pollinators, Health Canada is cancelling many uses of neonicotinoids on crops that bees find attractive, such as orchard trees, and is not allowing spraying of some crops, such as berries and fruiting vegetables, before or during bloom. Seed treatment uses were found to be acceptable; however, Health Canada requires the addition of label statements for all cereal and legume crops to minimize exposure of pollinators to dust during planting of treated seeds. The implementation of these decisions is currently underway and the required mitigation measures must be implemented on all product labels sold by registrants no later than 11 April 2021.

B. Work to be completed:

Health Canada is conducting special reviews of clothianidin, imidacloprid and thiamethoxam products that are registered for use on cucurbits such as pumpkin, squash and watermelon on the basis of potential risks of concern to a specific species of ground-dwelling bee, the squash bee (*Peponapis pruinosa*). These special reviews are pending the submission of relevant data specific to the biology of squash bees. These studies are currently being undertaken by academia. The pollinator re-evaluation decisions considered the risks to honey bees as well as native pollinators such as the squash bees that are under special review.

C. Timeline for completion:

Once the new squash bee data have been submitted, Health Canada will evaluate this information to confirm whether the risk mitigation already put in place as part of the pollinator assessments remains adequate to protect squash bees, or if additional mitigation measures are required.

Cyclical Re-evaluation: Imidacloprid
Aquatic Special Reviews: Clothianidin and Thiamethoxam

A. Completed work to date:

On 23 November 2016, Health Canada published for consultation a proposed re-evaluation decision for imidacloprid. On 15 August 2018, Health Canada published two proposed special review decisions, for clothianidin and thiamethoxam, examining the risks to aquatic invertebrates. All three proposals indicated that these substances have been measured at levels that are expected to be harmful to aquatic insects. Therefore, Health Canada proposed to phase

out all the agricultural and a majority of other outdoor uses of imidacloprid, as well as all outdoor uses of clothianidin and thiamethoxam to protect the environment.

B. Current status:

Health Canada is reviewing a substantial amount of new information that has since been received. This included comments from the public, pesticide registrants, provinces, and an unprecedented amount of new water monitoring data from various stakeholders such as Agriculture and Agri-Food Canada's water monitoring working group and from the provinces. These new data are of high quality and provide a much clearer picture of the levels of neonicotinoid pesticides being detected across Canada. The information and data provided by the various working groups of the Multi-Stakeholder Forum on Neonicotinoids has proven to be crucial in Health Canada's assessments. In addition, Health Canada is also considering new information that is being published in scientific papers on neonicotinoids. This new information will be incorporated in the risk assessment to ensure that the upcoming decisions reflect the current scientific knowledge.

C. Revised timeline for completion:

The analysis of the information received is ongoing. While Health Canada had initially committed to reporting its findings on the potential risks to aquatic insects by the end of 2019, due to the vast amount of new information received, this decision has been delayed so that Health Canada can review the new scientific papers, data, and comments received. Therefore, final decisions related to the cyclical re-evalution of imidacloprid and the aquatic special reviews of clothianidin and thiamethoxam are expected to be published in the Fall of 2020.

Cyclical Re-evaluations: Clothianidin and Thiamethoxam

A. Current status:

Finally, full cyclical re-evaluations of clothianidin and thiamethoxam were initiated in 2016 to assess their value, as well as human health and environmental risks other than impacts on pollinators and aquatic invertebrates. As mentioned above, the assessment of the impacts on pollinators was recently completed in 2019 and the assessment of the impacts on aquatic invertebrates is being considered in the special reviews.

B. Timeline for completion:

These cyclical reviews are currently under way, and proposed decisions will follow the final decisions for the special reviews of thiamethoxam and clothianidin on the risks to aquatic insects.