Update on the Neonicotinoid Pesticides

19 December 2017

Canada

Introduction

This document provides a progress report on Health Canada's Pest Management Regulatory Agency's (PMRA) ongoing assessments of the neonicotinoid insecticides; last updated 29 June 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

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.

One group of pesticides, the neonicotinoids, is often linked to potential effects on pollinators. Neonicotinoids are a group of pesticides that are widely 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 important neonicotinoids currently approved for agricultural use in Canada, **imidacloprid, clothianidin, and thiamethoxam**.

Beginning in 2012 the 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. The numbers of incidents reported between 2014 and 2017 during the planting period were between 70 and 92% lower, compared to 2013.

The PMRA continues to track and investigate bee mortality incidents with the support of the appropriate provincial ministry and plans to complete in 2018 a comprehensive analysis of the incidents that occurred between 2012 and 2016. Further information on the reported incidents between 2012 and 2016 can be found in the Health Canada document entitled Update on Bee Incident Reports 2012-2016.

Pollinator Assessments

The assessments of clothianidin, imidacloprid and thiamethoxam were announced in 2012 (Re-evaluation Note REV2012-02, Re-evaluation of Neonicotinoid Insecticides). These assessments were initiated to assess the potential risk to pollinators in light of international updates to the pollinator risk assessment framework, including information requirements. A Re-evaluation Note (REV2017-03, Re-evaluation of Neonicotinoid Insecticides: Update on Pollinator Risk Assessments) was published in January 2017 which provided an update on these assessments. The PMRA's pollinator risk assessments have largely been conducted in collaboration with the

United States Environmental Protection Agency and California Department of Pesticide Regulation and are nearing completion.

Current status of pollinator assessments

The PMRA has recently published proposed re-evaluation decisions for clothianidin and thiamethoxam and two proposed registration decisions. The validity period of these two pesticides was extended to allow time to complete the necessary public consultations. As a result of comprehensive scientific assessments of the effects of clothianidin and thiamethoxam on bees and other pollinators, we are proposing to phase out some uses of these pesticides. We are also proposing to further restrict other uses in cases where the acceptable risk to bees and other pollinators could not be demonstrated. The PMRA is currently consulting Canadians on these proposed regulatory decisions for 90 days.

The PMRA is updating the pollinator risk assessment for imidacloprid based on additional data from the registrant, additional literature that has recently been published, and the comments that were received during the public consultation period for the preliminary assessment (REV2016-05, Re-evaluation of Imidacloprid - Preliminary Pollinator Assessment). PMRA expects to publish a proposed decision regarding imidacloprid pollinator safety in March 2018.

The PMRA will consider the information submitted during the consultation periods for these proposed decisions prior to making final decisions, which are expected to be published in late 2018.

Imidacloprid - Health and Environment Assessments

A human health risk assessment for imidacloprid was included in PRVD2016-20, Imidacloprid, published 23 November 2016. The health assessment did not identify human health concerns from any exposure route when used according to current label standards. An extensive body of information was considered for any potential toxicity and exposure, including sensitive populations such as children. To date, our assessments of the available data and published literature do not point to unacceptable risks to human health. The PMRA is also looking at the potential for neonicotinoids to affect other parts of the environment including aquatic life such as fish, insects, and other organisms. An environmental risk assessment for imidacloprid was included in PRVD2016-20. This assessment showed that, in aquatic environments in Canada, imidacloprid is being measured at levels that are harmful to aquatic insects. These insects are an important part of the ecosystem, including as a food source for fish, birds and other animals. For the protection of the environment, PMRA proposed to phase-out all the agricultural and a majority of other outdoor uses of imidacloprid over three to five years.

The assessment and proposed risk management was open to public consultation for 120 days, which was completed in March 2017. During the public consultation for imidacloprid, approximately 46,000 comments were received. These comments are currently being reviewed by PMRA. In addition, a Multi-Stakeholder Forum was facilitated by Agriculture and Agri-Food Canada to examine the use of neonicotinoids in agriculture. Federal and provincial government agencies, grower groups, independent researchers, non-government organizations (NGOs) and manufacturers have undertaken several initiatives including; examination of alternative risk

management strategies, the generation of supplemental water monitoring data, and identification of potential alternative pest control products to replace imidacloprid. This information was formally submitted to the PMRA on 31 October 2017 and will be considered along with the information submitted during the consultation period before making a final decision on the acceptability of the continued use of imidacloprid in Canada in late 2018.

Clothianidin and Thiamethoxam – Assessment of Aquatic Risks

During the re-evaluation of imidacloprid, it was identified that clothianidin and thiamethoxam also occurred frequently and at comparable levels to imidacloprid in certain Canadian waterbodies in areas of intensive agriculture. Given the similarities in toxicity to imidacloprid, the PMRA prioritized the review of the potential risks to aquatic invertebrates (such as insects) for clothianidin and thiamethoxam in November of 2016 (REV2016-17, Initiation of Special Reviews: Potential Environmental Risk to Aquatic Invertebrates Related to the Use of Clothianidin and Thiamethoxam). Since then, environmental data relevant to the review of the neonicotinoids have been submitted by the registrants and some provincial government agencies. The PMRA received a large amount of additional neonicotinoid water monitoring data from agricultural use areas across Canada in October 2017. Discussion papers on possible ways to mitigate neonicotinoid exposure in the environment developed by a multi-stakeholder working group were also provided to the PMRA at that time. These data, along with available information from the open scientific literature will be considered prior to publishing proposed decisions for thiamethoxam and clothianidin in mid-2018. These documents will be open for public consultation.

Publication Schedule for the Neonicotinoid Assessments

	Imidacloprid	Clothianidin	Thiamethoxam
Consultation on outcome of science reviews and proposed measures to protect pollinators	March 2018	December 2017	December 2017
Final science reviews and decision on measures to protect pollinators	December 2018	December 2018	December 2018
Consultation on outcome of science reviews and proposed measures to protect aquatic life	_____	July 2018	July 2018
Final Decision on measures to protect aquatic life	December 2018	January 2020	January 2020