

## Global Round-up on Pollinator Health (last updated November 2016)

For the past decade, there have been reports of declining honey bee populations around the world, including Colony Collapse Disorder. Scientists have not attributed honey bee decline to any one cause with numerous factors affecting honey bee health, including pests and diseases, management practices, weather, environmental conditions, agricultural practices, and availability and quality of food sources. There has also been an association of pollinator decline with a class of insecticides used in seed treatments called neonicotinoids. As a result, regulators in affected regions have called into question the use of these insecticides. This has prompted various studies on honey bees and some legislative action. It has also inspired all stakeholders involved to develop and promote best practices regarding the responsible use of seed treatments and bee management.

While honey bee populations have declined in some regions, they have flourished in others where neonicotinoids are widely used. Nonetheless, the crop protection industry recognizes the vital role that pollinators play in global food production and has committed significant resources to investigating the causes of honey bee decline and helping farmers reduce their potential impact on all pollinators through good stewardship practices. Bans on such products are not practical as like pollinators, seed treatments are important to agricultural production.

### Europe

The European Union (EU) identified a need to protect pollinators from crop protection products in the 1980s and put specific protective measures regarding product approval in its 1991 directive, which was last updated with [new data requirements](#) in 2013. In recent years, repeated reports of a regional decline in the honey bee population have put the spotlight back on insecticides, with growing pressure on regulators to update the risk assessment procedures for these bees.

In 2008, Germany became the first European nation to suspend certain uses of a neonicotinoid after a high mortality of honey bees was linked to neonicotinoid-coated seeds. The same year, Italy and Slovenia also suspended the use of neonicotinoid seed treatments. Encouraged by these suspensions, NGOs stepped up their long-running campaigns criticizing the risk assessment process in Europe.

The issue hit the headlines again in April 2012 as a result of scientific journal publications<sup>1,2</sup> which, on the basis of studies conducted under artificial exposure scenarios, postulated sub-lethal effects of neonicotinoids on honey bees. At the time, the European Food Safety Authority (EFSA), which is the EU's independent scientific advisory arm, asserted that these studies were largely based on unrealistic scenarios. Nevertheless, these publications raised the political temperature, fueled further activities by activists and drove extensive media interest in the issue.

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<sup>1</sup> Whitehorn, P. R., S. O'Connor, F. L. Wackers, and D. Goulson. 2012. Neonicotinoid pesticide reduces bumble bee colony growth and queen production. *Science* 336(6079): 351–352. doi: 10.1126/science.1215025.

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<sup>2</sup> Henry, M., M. Béguin, F. Requier, O. Rollin, J.-F. Odoux, P. Aupinel, J. Aptel et al. 2012. A common pesticide decreases foraging success and survival in honey bees. *Science* 20:336 no. 6079. pp 348–350. doi: 10.1126/science.1215039.

By this stage, honey bee health had become a political issue and despite extensive outreach, work by the European Crop Protection Association with policymakers and subsequent field trials which contradicted the studies' results, the political tide towards increased regulation could not be turned. In the supposed absence of a scientific consensus, many policymakers, especially those in the European Parliament, used the "precautionary principle" to justify their stance as the pressure increased on the European Commission to act.

In 2012, the commission asked EFSA to study the safety of three neonicotinoids – clothianidin, imidacloprid and thiamethoxam – and in January 2013, having used non-standardized and unpublished assessment methodology, EFSA identified a number of risks as well as numerous data gaps in those substances. Six months later, it issued a [guidance document](#) on the risk assessment of plant protection products on bees, which was updated in July 2014.

Despite the EFSA study's shortcomings, the commission proposed a two-year suspension on most uses of the three neonicotinoid insecticides as well as restricted use of the insecticide fipronil. The neonicotinoid suspension later turned into a prohibition without time limitation. The restrictions entered into force in December 2013 for the [three neonicotinoids](#) and in February 2014 for [fipronil](#). Existing [legislation on plant protection products](#) says that active substances used in these products can only be approved if they are safe for bees.

The [European Commission](#) also initiated a [process to assess the status of bees](#), publishing in 2015 the [European Red List of Bees](#) that are endangered. It is supporting various research projects to understand reasons for pollinator population decline.

## United States

Specific rules to ensure protection of pollinators in cropped areas, such as the code of federal requirements, has been included in U.S. regulations since the 1980s. But the push for new regulation has grown in recent years.

In 2006, there was a decline in managed honey bee colony health, which some termed as Colony Collapse Disorder, though the population levels resembled historical trends in cyclical bee population declines. Nevertheless, the declines brought the issue of pollinator health firmly into the headlines and created growing pressure on U.S. authorities to update the risk assessment procedures for honey bees.

In response, the United States Environmental Protection Agency (EPA) convened a Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel in September 2012 to review a proposed tiered process for quantitatively evaluating the potential risks that crop protection products pose to honey bees.

This meeting was followed in 2012 by a joint EPA-U.S. Department of Agriculture (USDA) "Pollinator Summit" attended by all major stakeholders. A subsequent report in 2013 concluded that parasitic *Varroa* mites are chief among the many factors that may affect pollinator health. The report recognized that "the *Varroa* mite is the single most detrimental pest of the honey bee." Additional adverse bee health factors include various viral and bacterial diseases, nutritional challenges, lack of genetic diversity, misuse of crop protection products and cultural practices.

In general, crop protection companies have supported a variety of steps to maintain and improve pollinator health. The industry also supports agricultural policies to ensure adequate pollinator habitat through legislative means, such the farm bill.

In August 2013, the EPA implemented sweeping label changes for insecticides containing the neonicotinoid active ingredients clothianidin, thiamethoxam, imidacloprid and dinotefuran. The changes only affect foliar uses and focus on avoiding treatment during crop bloom, but numerous questions of interpretation have arisen from both farmers and the crop protection industry. The EPA characterized these label changes as interim, subject to further refinement based on risk assessments.

There has also been a focus on research into the broader factors impacting pollinator health. The EPA and USDA jointly hosted a *Varroa* mite summit in February 2014 at the request of beekeepers, with support from growers and the crop protection industry.

Outreach remains a key element for the crop protection industry in dealing with the pollinator issue in the United States, and CropLife America strives to maintain good relationships with the beekeeping industry, growers who utilize managed colonies or are impacted by colony loss, and relevant state and federal regulatory agencies. In addition, CropLife America initiated a social media campaign to increase awareness of the many factors that impact pollinators and to promote understanding of this complex issue. CropLife America continues this campaign through its Twitter feed and encourages engagement from its members, regulators, legislators, beekeepers, media and others.

Building on this collaboration, the Keystone Center announced the formation of a [Honey Bee Health Coalition](#) in June 2014. It represents almost 40 organizations and agencies from across food, agriculture, government, and conservation working to reverse declines in honey bee populations and ensure the long-term health of pollinators.

Also in June 2014, President Barack Obama initiated a [federal strategy](#) to promote the health of honey bees and other pollinators. This strategy included setting up a Pollinator Health Task Force, Pollinator Research Action Plan, public education plan, public-private partnerships and ways to increasing and improve pollinator habitats. The task force is co-chaired by the Secretary of Agriculture and the Administrator of the United States Environmental Protection Agency (EPA). The strategy includes federal efforts to understand, prevent and recover from pollinator losses; plans for expanding and coordinating public education programs outlining steps individuals and businesses can take to help address the loss of pollinators; recommendations for developing public-private partnerships to build on federal efforts; and increase the quality and amount of habitat and forage for pollinators.

The [EPA's actions](#) up to 2016 include:

- Proposing a plan to prohibit the use of crop protection products that are toxic to bees when crops are in bloom and bees are under contract for pollination services. The plan also recommends that states and tribes develop pollinator protection plans and best management practices.
- Prohibiting the use of certain neonicotinoids when bees are present.
- Expediting the re-evaluation of the neonicotinoid family and other crop protection products, using a harmonized [risk assessment process](#).
- Temporarily halting the approval of new outdoor neonicotinoid uses until new bee data is submitted and pollinator risk assessments are completed.
- Developing new bee exposure and effect testing priorities for the registration of new crop protection products, their uses and registration review of existing products. The EPA expects to issue its implementation plan for new pollinator data in 2016.
- Issuing data requirements and risk assessment approaches for pollinators while registrations of all neonicotinoids are being reviewed.
- Expediting the review of new *Varroa* mite control products.

- Providing farmers and beekeepers with EPA's residue toxicity time data as a means of gauging the lengths of time that specific products may remain toxic to bees pollinators following their application.
- Working with crop protection product manufacturers to develop new seed planting technologies that will reduce dust potentially toxic to pollinators.

## Canada

In spring 2012, during the corn planting season, there were a number of reports of increased honey bee deaths in Southern Ontario and Quebec. An evaluation of these incidents by Health Canada's Pest Management Regulatory Agency (PMRA) concluded that the planting of corn seeds treated with neonicotinoids “contributed to the majority of the bee mortalities” with the “likely route of exposure being insecticide contaminated dust generated during the planting of treated corn seed.” It added that the “unusual weather conditions” in the spring of 2012 were also thought to be a contributing factor.

In response to the 2012 incidents, CropLife Canada's Pollinator Working Group (PWG) intensified stewardship activities in relation to insecticides and bees and developed a comprehensive set of best management practices (BMPs) for growers of insecticide-treated corn seed. The BMPs were reviewed by a range of stakeholders, including growers, beekeepers and PMRA.

During the winter of 2012-13, there was an intensification of anti-neonicotinoid activities in Ontario, with the Ontario Beekeepers' Association releasing a public position in April 2013, calling for an immediate ban on all conditionally registered neonicotinoid products. This association partnered with prominent activist groups, including the Sierra Club of Canada. The messaging from these groups evolved away from a focus on acute incidents related to the planting of treated seed towards broader impacts, including environmental loading and persistence.

The 2013 corn planting season in Ontario led to more reported bee kills and a report from the PMRA stated that detectable residues of neonicotinoids were found in approximately 70 percent of the dead bees sampled. Investigations by the PMRA and the Ontario provincial government concluded that the mortality incidents were due to direct exposure by bees to dust released during the planting of treated seed and that control of this dust would address the issues experienced in 2012 and 2013.

The Canadian Honey Council, the national body representing beekeepers in Canada, is on record supporting joint efforts of the PMRA and U.S. EPA to re-evaluate neonicotinoids and endorsing decisions based on science, not on public opinion or perception. Beekeepers in Alberta, the largest bee-keeping province, are aligned with the council.

In the report about the 2013 incidents, the PMRA concluded that “current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable.” It subsequently published a notice of intent outlining additional pollinator protection measures for the 2014 growing season. The deadline for comments on this notice was in December 2013 and CropLife Canada prepared a detailed industry response. The industry was generally supportive of the mitigation measures proposed, excluding bans on neonicotinoids.

An environmental activist group used social media to generate over 10,000 “click and submit” letters to the PMRA, asking for a total ban on neonicotinoids across Canada. Grower groups in Canada also became engaged and provided submissions, imploring a science-based approach. Hundreds of individual growers also weighed in to express their views.

A [National Honey Bee Health Survey](#) was launched in July 2014 to document the health of honeybees throughout the country. The Alberta Beekeepers Commission, representing 60 percent of the honey crop in Canada, submitted a grant proposal which was approved by Agriculture and Agri-Food Canada. Samples are being collected from all 10 provinces by staff from the [National Bee Diagnostic Centre](#) and Agriculture and Agri-Food Canada. The survey will be completed in 2016-17. Funding for the study is coming from the Alberta government, CropLife Canada, Alberta Beekeepers Commission and Manitoba Beekeepers Association.

A [July 2016 report](#) from the Canadian Association of Professional Apiculturists says that honey bee loss shows a declining trend since 2010. Winter losses were highest in 2007 to 2009, averaging nearly 33 percent, while from 2010 to 2015, losses averaged about 24 percent. Reported winter loss in 2014-15 was within the acceptable long-term targeted winter loss by beekeepers in most provinces. These numbers indicate that bee health issues are being successfully addressed in Canada.

## Australia

In Australia, where neonicotinoids have been used for about 20 years, there have been no significant reports of honey bee losses or Colony Collapse Disorder. The country is also free of *Varroa* mites. Much of its efforts are therefore spent on preventing these mites from entering the bee population.

The National Sentinel Hive Program was established in 2000 to enhance surveillance for honey bee parasites (most notably *Varroa* mites) and exotic bees at seaports. The purpose of the program is to detect such parasites and exotic bees early if at all. The program operates at 27 ports which are checked regularly for the potential arrival of a disease threat. Another measure is the placement of empty “bait” hives to attract bees that come off ships. Australia maintains strict quarantine barriers, along with thorough research and funding before the introduction of new pollinator species.

In addition, the Australian Pesticides and Veterinary Medicines Authority (APVMA) reacted to the honey bee health debate growing in the EU and United States. In August 2012, it initiated a review to identify whether neonicotinoid insecticides present more of a risk to honey bee health than other crop protection products. As part of the review, the APVMA asked the Australian Environment Agency to advise whether current data requirements for testing insecticides were adequate.

In February 2014, the APVMA published an [“Overview Report: Neonicotinoids and the Health of Honey Bees in Australia.”](#) It found that the introduction of neonicotinoids “led to an overall reduction in the risks to the agricultural environment from the application of insecticides.” It also said that “Australian honeybee populations are not in decline, despite the increased use of this group of insecticides in agriculture and horticulture since the mid-1990s.”

The report noted that pollinator decline in other parts of the world was likely caused by “multiple interacting pressures, including habitat loss and disappearance of floral resources, honeybee

nutrition, climate change, bee pests and pathogens, agricultural/horticultural pesticides, miticides and other chemicals intentionally used in hives, and bee husbandry practices.”

CropLife Australia has continued to promote BMPs to its members, who ensure that good stewardship measures are in place at each stage of the lifecycle of crop protection products. In 2014, it launched a [Pollinator Protection Initiative](#) to “provide resources to ensure that modern, innovative crop protection products are used responsibly and in a manner that minimizes risk to pollinators.”

Under this initiative, CropLife Australia established a [Seed Treatment Stewardship Strategy](#), which includes four best practice guides on how to reduce risks from dust generated during the handling and planting of treated seed and minimize off-target movement of insecticides. Also, CropLife Australia – in partnership with the Australian Honey Bee Industry Council and with the support of national farming organizations – created [BeeConnected](#), a world-first phone app that enables collaboration between farmers and beekeepers. BeeConnected is a Google Maps-based, user-driven communication and coordination tool to help protect Australia’s honey bee population during normal farming practices. Other CropLife International affiliates, such as CropLife Canada and CropLife Asia, have licensed the app for local use.

## **New Zealand**

The New Zealand media has increased its focus on honey bees in recent years along with other countries. Much of the media has been generated by private research projects and official government reports. Local beekeepers – mostly through two industry associations – have also hit the headlines, such as with their annual “Bee Awareness Week.”

In general, the New Zealand bee industry is doing well. The country’s number of managed beehives has grown from 300,000 in 2005 to about 550,000 in 2015. The number of beekeepers and honey production are also increasing. However, the feral bee population has been decimated since the arrival of *Varroa* mite in 2000. This mite is “mighty” – the single biggest culprit behind bee health issues and it’s showing resistance to miticides.

The bee lobby has two main advocacy groups – the National Beekeepers Association, which is run by a public relations company that’s effective at getting headlines, and the Federated Farmers Bees, which is part of the national farmers’ union and takes a more pragmatic, scientifically sound approach. The bee lobby is supported by the organic movement and green lobby, which uses bee health as an opportunity to attack crop protection products and neonicotinoids. The Green Party is a powerful block in the government’s opposition, with 14 out of 120 MPs in the New Zealand Parliament.

The bee groups identify three core issues with crop protection products – off-target application, surfactants and neonicotinoids. Agcarm – which represents, supports and advocates for the plant and animal science industries in New Zealand – and its members are working with farmers and regulatory authorities on the first two issues to promote good spray practices and tweak regulation on labeling. But on the third issue, there remains no evidence that neonicotinoids have caused a domestic problem. Agcarm met with the New Zealand Environmental Protection Authority about it. The agency is watching the action of regulators elsewhere – particularly in the EU, U.S., Canada and Australia – and will likely wait for their decisions before taking action at home.

Meanwhile, the National Beekeepers Association is now focusing its activity on registrations and registration renewal. It is putting in submissions on new products to slow down the registration

process. As a result, Agcarm is engaging with bee spokespeople and regulators to discuss all issues surrounding honey bees and to try to work collaboratively.

In March 2016, the [Ministry for Primary Industries](#) and beekeeping industry released findings of an inaugural New Zealand Colony Loss and Survival Survey, which demonstrated that domestic honey bee loss is low on an international scale. Queen bee problems were the main cause of losses followed by hive thefts, changes in land access, nectar, pollination sources, overcrowding of apiary sites and wasps.

## Japan

Colony Collapse Disorder has not been observed in Japan. Despite some sporadic reported incidences of bee decline, the overall number of bee hives in Japan has remained at the same level over the past decade even though neonicotinoid use in Japan has increased rapidly. However, when looking at the number of managed bees, honey production in Japan is low compared to China, Europe and America.

Nevertheless, with the issue gaining political traction in the EU and U.S., the Japanese ministry of agriculture has requested regional offices to investigate the use and effectiveness of neonicotinoids, specifically their use to control stink bugs in rice paddies. The crop protection industry has made it clear that neonicotinoids are essential for protecting rice from bugs and there are no substitutions.

In a separate move, the agriculture ministry has required eight neonicotinoid manufacturers to develop a list of honey bee safety tests. Based on the list, it may revise its risk mitigation or evaluation methods.

Also, the Japanese environment ministry announced plans to conduct a survey on the concentration of neonicotinoid insecticides in ponds and lakes.

Overall, the pressure against neonicotinoids is increasing in Japan, inspired by developments in the EU and United States. However, the Japanese government currently has no plan to restrict the use of seed treatments.

## South Africa

Most discussions on the pollinator issue in Africa have been limited to South Africa, but even there, reports of unusual bee colony losses have been rare. The debate has instead focused on events elsewhere.

Given South Africa's strong trade links with the EU, there were some initial fears that the EU's ban on neonicotinoids could impact trade, with a potential revision of Maximum Residue Limits (MRLs). CropLife South Africa met with the Department of Trade and Industry to discuss the issue where it was clarified that MRLs would remain unaffected. The only circumstance under which trade would be affected would be if neonicotinoids were banned due to human health concerns, the government said.

As the issue has gained traction in the EU and U.S., South Africa has convened several high level conferences. In February 2012, the Association of Veterinary and Crop Associations of South Africa, which represents CropLife South Africa and the South African Animal Health Association, hosted a workshop to discuss mitigation measures to protect honey bee colonies. The delegates came up with several actions, including compiling an instruction manual to

manage problem colonies, create awareness among farmers about the correct usage of neonicotinoids, and carry out education campaigns on honey bees and their issues.

A further workshop took place in May 2013 where the bee industry, regulators, grower associations, crop protection industry and seed industry shared their thoughts. The South African bee industry has so far been pragmatic.

CropLife South Africa has been active in presenting its position on neonicotinoids to policymakers, stakeholders and members of the South African Congress to prevent NGOs from leading the debate. So far, the South African government has not proposed any new restrictions on the use of neonicotinoids. These insecticides have not been implicated in honey bee losses there, unlike [American Foulbrood disease](#), which the government said in November 2015 poses a serious threat to Western Cape bees.

Globally, continued efforts are underway to step up and coordinate efforts to protect pollinators. The Food and Agriculture Organization of the United Nations has initiated a [Global Action on Pollination Services for Sustainable Agriculture](#), which seeks to enhance stakeholder and public understanding, management and capacity building related to pollinators. [CropLife International](#) is promoting among its network pollinator protection and insecticide stewardship. Stakeholders have come together around the world to look after these beneficial insects. Global agricultur