Friends of the Earth
Issue Brief

Bee Action Campaign

Bees in trouble

Bees are essential in producing one out of every three bites of food we eat.[1, 2] In fact, 71 of the 100 crops that provide 90 percent of the world's food—from almonds to tomatoes and strawberries—are pollinated by bees[3] and honeybees, contribute nearly $20 billion to the U.S. economy[4] and $217 billion to the global economy.[5,6] Unfortunately, evidence is mounting that the health and productivity of these critical pollinators, along with many wild pollinators, is declining rapidly.[7, 8]

In the mid 1990s, beekeepers in France, then in the U.S. and elsewhere experienced high colony losses, both overwintering losses and colony collapse during the spring and summer, when colonies should be thriving. In locations throughout the U.S., beekeepers noticed their colonies mysteriously collapsing, with adult bees disappearing and leaving the queen, honey and developing larvae in the nearly empty hives. This phenomenon has been dubbed "Colony Collapse Disorder" or CCD.[9,10]

Since 2006, beekeepers have lost an average of 30% of their hives (normal rates are 5-10 percent), with some beekeepers losing all of their hives and many leaving this industry entirely.[11] Almond farmers, berry farmers and others in the United States are facing shortages of bees necessary to pollinate their crops, and the cost to farmers of renting bees for pollination services has increased by up to 20 percent.[12]

Factor: The world's most popular insecticide

Pests,[13] diseases, loss of forage and habitat[14] and changing climate[15] have all been identified as possible contributing factors to unsustainable bee losses. However, a strong body of science has implicated a class of systemic insecticides known as neonicotinoids (neonics), manufactured primarily by Bayer Cropscience and Syngenta —used on 140 crops,[16] for cosmetic use in gardens and landscapes and as termite and flea treatments — as a leading driver of bee declines. While most insecticides are toxic to pollinators, the neonicotinoid family of insecticides stands apart from the rest. These pesticides can kill bees outright and low levels of exposure can impair foraging abilities and navigation;[17] disrupt learning, communication and memory;[18] reduce fecundity and queen production;[19] and suppress the immune systems of bees,[20] making them more vulnerable to disease and parasites.[21]

Photo credit: Danny Perez Photography.

New research has also shown they are harming beneficial organisms including wild bees, birds,[22,23] bats, butterflies, dragonflies, lacewings, ladybugs,[24,25] earthworms, small mammals, amphibians, and aquatic insects,[26,27] putting food production and the environment in jeopardy.[28, 29, 30, 31] The International Union for Conservation of Nature (IUCN) Task Force on Systemic Pesticides reviewed over 1,121 peer-reviewed papers published in the last five years, including industry-sponsored studies, and confirmed neonicotinoids are a key factor in bee declines and are harming beneficial organisms essential to functional ecosystems and food production. The IUCN Task Force found neonics are 5,000-10,000 times more acutely toxic to bees than DDT and concluded there is an urgent need to reduce the use of these chemicals and switch to sustainable methods of food production and pest control.[32]

Neonics are the fastest-growing class of synthetic pesticides, and Bayer Crop Science's neonic imidacloprid, introduced in 1994, is among the most widely used insecticides in the world. This class of pesticides is persistent, lasting for months to years in the soil, permeates the entire plant, and is later released in pollen, nectar and dew. Because they can't be washed off food, it is likely we are eating them daily.

Bayer's insecticides are commonly sold to consumers in garden centers but include no warnings to indicate their toxicity to pollinators, however in this case, the pesticide includes free seeds for plants that attract bees.

Bees are key indicator species, and with roughly 80 percent of all flowering plants on Earth reliant on pollinators to reproduce, if we lose bees we will also likely lose a host of other important species.[33] Bees are "canaries in the coalmine," and their rapid decline signals that our current industrial agriculture system, based on monocultures requiring increasingly heavy use of ever more toxic pesticides, is having disastrous consequences.

The bee-killer hiding in our gardens

Neonics aren't just used in commercial agriculture. Many of the plants and seeds sold in nurseries and garden stores across the United States have been pre-treated with the pesticides at doses up to 120 times higher than are used on farms and continue "expressing" these pesticides in home gardens where they can continue to contaminate soil and be taken up by plants for months to years.[34] These nursery plants carry neither a list of pesticides used, nor do they carry a warning that these plants could harm pollinators. As our study, *Gardeners Beware 2014: Bee-Toxic Pesticides Found in "Bee-Friendly" Plants Sold at Garden Centers across the U.S. and Canada* shows, many people may purchase plants with the intent of providing a habitat for bees, but unknowingly end up poisoning them.[35] This report shows that 51 percent of "bee-friendly" garden plants purchased at Home Depot, Lowe's and Walmart in 18 cities across the United States and Canada contain neonicotinoid pesticides at levels that have the potential to harm or even kill bees.

Imidacloprid has been shown to be expressed in nectar and pollen in soil treated plants like garden flowers at a much higher rate than it does for seed treated plants like corn. Imidacloprid in nectar from seed-treated plants is typically expressed at less than 1 part per billion, while soil-treated plants have been shown to express the pesticide in nectar at levels as high as 40 parts per billion.[36] Troublingly, a food dose of just 20 parts per billion has been shown to destroy honeybee colonies.[37] While the large scale use of neonics in agricultural settings makes it the most common way bees are exposed to these pesticides, their use in gardens, lawns and landscapes may be an important contributing factor in declining bee and wild pollinator health.

Good News from the European Union

The evidence that neonicotinoids are a key factor in pollinator decline is compelling, which is why these insecticides have been restricted in several European countries starting as early as 1999, including France, Germany and Italy. Since these

restrictions went into effect, overwinter colony losses have dropped from approximately 30 percent to 13.6 and 14.1 percent in France and Germany, and reached a low of 5.3 percent for Italy during the 2012–2013 winter season.[38]

Based on recommendations by the European Food Safety Administration (EFSA), the European Union (EU) voted for a continent-wide suspension of several widely used neonics in order to protect bees, which went into place on December 1, 2013. Two weeks later the European Food Safety Authority cited evidence that neonicotinoids acetamiprid and imidacloprid "may adversely affect the development of neurons and brain structures associated with learning and memory" and they recommended that the European Commission further restrict their use.[39]

The United States continues to stall

In the U.S., EPA did not fully approve the use of some of the most widely used neonics, allowing them into the market under a "conditional approval,"[40] based on the company's own studies, despite the objections of some of EPA's own scientists.[41] Despite mounting evidence linking these pesticides to bee declines, and more than a million public comments urging swift action on neonics to protect bees, the EPA has delayed action until its review of these pesticides is complete in 2016-2019.[42] Based on EPA's own analysis released in October 2014, it found neonicotinoid seed treatments offer little to no economic benefit to U.S. soybean production.[43] In April 2015, the EPA placed a moratorium on new or expanded uses of neonicotinoids while it evaluates the risks posed to pollinators.[44] This action does not address the more than 500 neonicotinoid products on the market for more than 100 uses. As a result, these chemicals remain on the market in the U.S. In September 2015, the 9th Circuit Court ruled to revoke EPA's approval for sufloxaflor -- a neonicotinoid e -- saying, "Leaving the EPA's registration of sulfoxaflor in place risks more potential environmental harm than vacating it."[45]

In June 2014, President Obama announced a federal strategy to protect pollinators and called on EPA to assess the effect of pesticides, including neonicotinoids, on bees and other pollinators.[46] The Presidential Pollinator Health Task Force released its report in May 2015, with a plan aimed at reversing honeybee and monarch population declines. A central focus of the plan is planting millions of acres of federal land with pollinator-friendly plants and conducting more research into the causes of pollinator declines, including the effects of pesticides on pollinator health.[47] The U.S. Fish and Wildlife Service announced it will phrase out use of neonicotinoids on all National Wildlife Refuges by 2016.[48]

Due to delayed action by EPA and Congress, more than thirty cities, states and universities across the U.S. have taken steps to restrict neonicotinoids and plant pollinator friendly, native and drought tolerant plants that aren't pre-treated with systemic insecticides including neonicotinoids. Some of these entities include: Oregon, Minnesota, Seattle, WA, St. Paul, and Minneapolis, MN, Ogunquit, ME, Eugene and Portland, OR, Boulder, CO, Warren County, NC, San Francisco, Palo Alto and Sacramento, CA as well as Emory University, Southern Oregon University and Vermont Law School.[49]

About Friends of the Earth

Founded by David Brower in 1969, Friends of the Earth is the U.S. voice of the world's largest federation of grassroots environmental groups, with a presence in 76 countries. Friends of the Earth works to defend the environment and champion a more healthy and just world. We're progressive environmental advocates who pull no punches and speak sometimes uncomfortable truths to power. It's an approach that for four decades has yielded victories protecting our planet and its people. Our campaigns focus on promoting clean energy and solutions to climate change, keeping toxic and risky technologies out of the food we eat and products we use, and protecting marine ecosystems and the people who live and work near them. www.foe.org

Marketplace Shift

In response to mounting scientific evidence and public concern, many of the UK's largest home improvement retailers, including Homebase, B&Q and Wickes, made public commitments to no longer sell products containing pesticides linked to declining bee populations. In the U.S. over thirty nurseries, landscaping companies and retailers have taken steps to address the problem, including the two largest home improvement retailers in the world—Lowe's and Home Depot

Home Depot, the world's largest home improvement retailer has eliminated 80 percent of neonicotinoid pesticides in its garden plants to date and will complete its phase-out in plants by 2018.[50] Lowe's, the second largest home improvement retailer in the world, made a public commitment to eliminate neonicotinoid pesticides from its stores including products and plants treated with them, redouble existing integrated pest management practices for suppliers and provide additional material educating customers about pollinator health.[51] BJ's Wholesale Club, a retailer with more than 200 locations in 15 states, has removed neonicotinoid plants and products from its shelves.[52] In October 2014, Whole Foods issued a new product rating system for fruits, vegetables and cut flowers, which identifies pollinator protection as a priority and restricts the use of neonicotinoid pesticides.[53] We will continue to work with these and other companies, institutions, cities and states to move away from the use of bee harming pesticides.

Bee the Change: Take Action

The science is clear: pesticides found in commercial agriculture, local garden stores and our urban parks and landscapes are a key contributor to bee declines. Chemical companies like Bayer and Syngenta, the makers of neonicotinoid pesticides, have been lobbying nonstop to remove restrictions on neonics in the European Union and prevent similar action in the U.S.

But the bees can't wait — and neither can we. Even though EPA is dragging its feet, we can protect bees in our own backyards right now by rejecting neonics and demanding that top retailers stop selling these beekilling pesticides. We need your help to demand that Ace, True Value and other major garden retailers commit not to sell neonicotinoid pesticides, as well as plants and seeds pretreated with these pesticides. We also need your help to ensure the EPA and Congress enacts meaningful and rapid protections for bees, including suspending the use of bee harming pesticides.

Visit www.beeaction.org to learn more and take action.

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