



 Bayer CropScience

 syngenta

MONSANTO



Follow the Honey

7 ways pesticide companies are spinning the bee crisis to protect profits

By Michele Simon





Acknowledgements

This report was written by Michele Simon, JD, MPH with contributions from Lisa Archer and Kari Hamerschlag, Friends of the Earth-U.S., and Stacy Malkan, Communications Consultant, Friends of the Earth-U.S.

We would like to thank the following individuals for their review of this report: Nichelle Harriott, Beyond Pesticides; Larissa Walker, Center for Food Safety; Sara Knight and Paul Towers, Pesticide Action Network.

About Friends of the Earth:

Friends of the Earth - U.S., founded by David Brower in 1969, is the U.S. voice of the world's largest federation of grassroots environmental groups, with a presence in 74 countries. Friends of the Earth works to defend the environment and champion a more healthy and just world. Through our more than 40-year history, we have provided crucial leadership in campaigns resulting in landmark environmental laws, precedent-setting legal victories and groundbreaking reforms of domestic and international regulatory, corporate and financial institution policies. **www.FoE.org**

Any errors or omissions in this report are the responsibility of Friends of the Earth.

©Copyright April 2014 by Friends of the Earth.

Introduction

Bees and other pollinators are essential for two-thirds of our global food crops, from apples to watermelons.¹ Bee pollination of crops has been valued at \$20 billion in the United States² and \$217 billion globally.^{3,4} Unfortunately, bees and other pollinators are in great peril, with populations rapidly declining worldwide. A strong and growing body of evidence points to exposure to a class of neurotoxic pesticides called neonicotinoids—the fastest-growing and most widely used class of synthetic pesticides—as a key contributing factor to bee declines.^{5,6,7}

Neonicotinoids (also called neonics) are used as seed treatments on more than 140 crops. Virtually all corn and a large percentage of soy, wheat and canola seeds planted in the U.S. are pretreated with neonics, despite research finding that this practice usually doesn't increase crop yields or benefit farmers.⁸ Neonics are systemic pesticides that are taken up through roots and leaves and distributed throughout the entire plant, including pollen and nectar. They are persistent and accumulate over time in the environment.

Numerous studies reveal that neonicotinoids can kill bees outright by attacking their nervous systems, while low levels of exposure have been shown to disrupt foraging abilities,⁹ navigation, learning, communication, memory¹⁰ and suppress the immune systems of bees, making them more vulnerable to disease and pests.¹¹

While other factors have been identified as possible contributors to bee declines and hive failure—such as pests,¹² diseases, loss of forage and habitat¹³ and changing climate¹⁴--neonicotinoid pesticides are a core problem that must be addressed. Science shows that exposure to neonics is a compounding factor that increases bee vulnerability and decreases natural resilience to external stressors such as varroa mite pests and pathogens.^{15,16,17,18,19}

Neonicotinoids have also been shown to kill other helpful organisms critical to sustainable food production and healthy ecosystems, such as wild bees, bats, butterflies, dragonflies,

lacewings and ladybugs.^{20,21} The pesticides may severely impact bird, earthworm, mammal, amphibian and aquatic insect populations.^{22,23} Outbreaks of infectious diseases in honey bees, fish, amphibians, bats and birds during the last two decades have coincided with the increased use of systemic insecticides, specifically several neonicotinoids, with research suggesting a cause and effect link.²⁴

As the evidence that neonicotinoids are harming and killing bees is so strong, the insecticides were restricted in France, Germany, Italy and Slovenia, starting in France in 1999.²⁵ In 2013, the European Food Safety Authority (EFSA) published a scientific review²⁶ stating that neonicotinoids pose an unacceptably high risk to bees, and the industry-sponsored science upon which regulatory agencies have historically relied is inadequate for assessing potential impacts on pollinators.²⁷

Neonic pesticides are a core problem that must be addressed. Neonics kill bees outright and increase their vulnerability to pests and pathogens.

The EFSA recommended that the three most-used neonicotinoids—imidacloprid, clothianidin and thiamethoxam—should not be used on crops attractive to bees, and as a result, the European Commission implemented a continent-wide two-year suspension on these insecticides.²⁸ This regulatory action represents the first and only wide-reaching restriction on these pesticides due to science-based concerns of toxicity to honey bees and other pollinator populations.

In the face of overwhelming evidence, and regulators' and scientists' growing concerns, major multinational petrochemical and seed corporations have developed sophisticated, multi-pronged public relation campaigns backed by industry-supported scientists and experts, in order to sow doubt and establish controversy about the role of pesticides in recent bee declines.

As this report documents, Bayer, Syngenta and Monsanto are using a “kitchen sink” approach to divert attention from the problem of neonic pesticides while creating an elaborate appearance of being “out in front” and taking a lead role in “saving bees.” Accompanying these tactics are relentless lobbying and new litigation based on similar messages of diversion and denial. Their goals: manufacture doubt about their products' contribution to the bee crisis and delay action, or defeat bans or limits on neonic pesticides, in order to allow them to continue profiting from these products as long as possible.

Tobacco-Style Tactics

These industry public relations strategies come straight from the tobacco industry's playbook, and were used for years to mislead the public about the danger of their products by manufacturing and magnifying uncertainty about the cancer risk of cigarettes. Coincidentally, neonicotinoids are synthetic derivatives of nicotine, a toxin produced by the tobacco plant.



IRONICALLY THIS BOTTLE OF BAYER'S NEONIC PESTICIDES FOR GARDEN USE COMES WITH “FREE SEEDS FOR BEES”.

This cynical strategy, which worked to delay policy action on smoking for many years, is well documented in the book *Doubt is Their Product*, by David Michaels, former assistant secretary of labor for occupational safety and health. The title is derived from the 1969

These industry public relations strategies come straight from the tobacco industry's playbook, and were used for years to mislead the public about the danger of their products by manufacturing and magnifying uncertainty about the cancer risk of cigarettes.

memo written by a Brown & Williamson tobacco company executive, who described the company's PR strategy: “Doubt is our product, since it is the best means of competing with the ‘body of fact’ that exists in the mind of the general public.”²⁹ This strategy has been used repeatedly by industries responsible for the production of other harmful products, such as asbestos, BPA and DDT, to delay action that would impact their bottom line—at the expense of human health and the environment.³⁰ Most recently, fossil fuel industry-funded groups have successfully applied this strategy to spread the perception that scientists are still undecided about the human causes of climate change.^{31,32}

As concerns around the loss of bees intensifies and the U.S. and European governments face increasing pressure to enact permanent restrictions on neonics, it's important for the media, policymakers and the general public to be alert to these well-honed public relations strategies, which, at their core, are designed to delay policy action and protect the billions of dollars in future sales and profits that these companies stand to lose from restrictions on the use of neonicotinoid pesticides.



BIG MONEY IN NEONICS

**Entire Neonicotinoid Global Market:
\$2.6 billion** (2009 figures⁴¹)

3 top sellers:



Bayer

Imidacloprid Market:
\$1.1 billion



Thiamethoxam Market:
\$627 million



Bayer



Clothianidin Market:
\$439 million

Big Money in Neonics

Bayer, Syngenta and Monsanto all have a great deal at stake in the fight over who and what gets blamed for widespread bee deaths.

With sales of \$14.2 billion in 2012,³³ Switzerland-based Syngenta consistently ranks among the world's top petrochemical and seed corporations. Syngenta stands to lose significant profits from its leading neonic product, thiamethoxam, worth \$627 million in sales, if limits are placed on its use.³⁴

Germany-based Bayer's "Crop Protection" products (including herbicides, fungicides, insecticides and seed growth) topped \$10 billion³⁵ in 2012. With its leading neonic product, imidacloprid worth \$1.1 billion and its shared interest in clothianidin, worth over \$439 million, Bayer stands to lose even more than Syngenta.³⁶

While Monsanto does not manufacture neonics per se, as the world's largest seed corporation and a top agrochemical manufacturer, Monsanto has a lot of business at stake in the bee crisis because it sells seeds pre-treated with

neonics. Sales in the corporation's "Seeds and Genomics" segment netted \$9.8 billion in 2012.³⁷ In the U.S., roughly 90 percent of corn is treated with neonicotinoids.³⁸ Monsanto promotes "Acceleron[®]" as a designer seed treatment for its genetically-modified seeds -- corn, soy and cotton. Several Acceleron[®] seed treatments contain the neonicotinoids imidacloprid and clothianadin.^{39,40}

Divert Attention from Pesticides

In recent years, Bayer, Syngenta and Monsanto have deployed a mix of PR tactics designed to deny and divert attention away from neonicotinoids as a key contributor to bee declines. They have typically promoted a "multiple factors" argument that downplays and manufactures doubt as to pesticides' key role. This argument emphasizes varroa mites, pathogens and bee forage as primary forces threatening bees, blames pesticide users (farmers and consumers) for "misusing" otherwise "safe" neonicotinoid pesticide products and accuses beekeepers of poor bee stewardship.

In the European Union, where criticism and the regulation of pesticides and corporate power tend to be more strenuous than in the U.S., Germany-based Bayer CropScience has waged a sophisticated public relations campaign to divert attention away from its neonicotinoid products.

When the European Commission declared a ban on three widely used neonicotinoid pesticides (clothianidin, imidacloprid and thiamethoxam) in April 2013, Bayer called the restriction "a decision that Bayer CropScience considers disproportionate and one that distracts attention away from the real issues surrounding poor bee health."⁴²

Bayer accused the commission of distracting attention from the "real" causes of bee die-offs. "The European Commission could have taken the bold decision to focus on the real issues surrounding bee health such as the varroa

“Since we do not believe pesticides cause bee losses, banning them will not make any difference to bee health.”

—Syngenta

mite, bee diseases and viruses, and the need to provide more nectar-rich habitats. Bayer CropScience is extremely disappointed that they, instead, took the controversial decision to restrict useful products with a long track record of safe use. European agriculture will be less sustainable as a result.”⁴³

Bayer added: “Bayer CropScience remains convinced that neonicotinoids are safe for bees when used responsibly and properly according to the label instructions.”⁴⁴ As NBC News reported, the European Union ban and possible future U.S. actions, threaten profits for Bayer and other industry leaders like Syngenta: “Similar constraints in the United States could cost manufacturers millions of dollars in sales.”⁴⁵

In May 2013, the U.S. Environmental Protection Agency and U.S. Department of Agriculture issued a joint Report on the National Stakeholders Conference on Honey Bee Health – concluding, among other things, that “Pesticide exposure to pollinators continues to be an area of research and concern, particularly the systemic pesticides such as neonicotinoids.”⁴⁶

Bayer responded immediately, attempting to spin public understanding about the report’s conclusions: “Of particular concern noted in the report is the recognition of the impact of parasites, especially the varroa mite, and associated diseases on bee health and the

need to adopt best management practices to improve bee genetics and enhance nutritional opportunities, while minimizing potential exposure from the use of agricultural pesticides. The need for collaboration and information sharing among all stakeholders is a critical component in promoting these best management practices.”

Using standard industry messaging, Annette Schurmann, one of Bayer’s leading spokespeople on bee health, ignored pesticides when discussing key threats to bees: “the main challenges are disease pathogens such as parasites and varroa mites, and the growing decline in areas where bees can collect pollen and nectar... in addition there is climate change, various factors stemming from bee inbreeding problems, the list of factors is long and varied.”⁴⁷ Helmut Schramm, head of Bayer CropScience Germany, added: “It’s generally known that the varroa mite is the main enemy of the bee.”

To further emphasize the role of mites, Bayer has gone so far as to erect a giant sculpture of the varroa mite at its “Bee Care” Center in Germany.⁴⁸



SOURCE: BAYER/PR WEB

BAYER DISTRIBUTES THESE PLUSH BEES AT THEIR “BEE CARE TOUR” STOPS AND DURING NATIONAL POLLINATOR WEEK.

According to Bayer, its Bee Care Centers “focus on Integrated Pest Management for the multiple causes affecting bee health, such as parasites, like the varroa mite, predators, diseases, seasonal management, and environmental stressors” and “the active promotion of bee-responsible use of Bayer products along

with communication activities worldwide.” In addition, Bayer states “one role for the bee care centers is better education for beekeepers on mite control, through research and education.”⁴⁹

On April 15, 2014, Bayer opened its new \$2.4 million North American Bayer Bee Care Center in Triangle Park, North Carolina. Again, the message was the same—a focus on factors other than pesticides.

In Bayer’s press release announcing the opening of its new North American Bee Care Center, Jim Blome, president and CEO of Bayer CropScience LP, stated, “Honey bees are essential to modern agriculture production, and our North American Bee Care Center will help facilitate the research needed to help honey bees meet the increasing global demand for crop pollination. Healthy honey bees mean a more substantial and nutritious food supply for us all, and we understand the many complex issues affecting honey bees’ ability to thrive, including disease, parasites such as varroa mites, genetics and more.”

The release goes on to say, “Products and technology developed at the Center will control parasitic mites in honey bee hives, help manage a Healthy Bees program, assess the safety of crop protection products to bees, and much more. Other activities conducted on-site include a Sentinel Hive monitoring program, varroagate testing and development, varroa resistance monitoring and varroacide screening.”⁵⁰

This multipronged PR effort has included social media outreach that points to the mite issue as the central threat. Recent tweets by @BayerBeeCare⁵¹ have included the following:

- “Bee researchers have described #varroa mite as the greatest threat to #beehealth. Learn more: [#BayerBeeTour](http://beecaretour.bayer.com)⁵²”
- “Additional restrictions will not improve #beehealth in Europe. Read full comment here t.co/LSKSFYAY9k”⁵³

- “Did the European Commission ignore survey results that found #varroa key threat to #beehealth in Europe? t.co/AJioiahuqs via @plosone”⁵⁴

On the day of the EU’s vote on its neonicotinoid moratorium, Syngenta attempted to spin the story its way. The company called the vote a failure, painting a picture of member nations being divided due to poor science and an absence of evidence, and suggested that the moratorium is an appropriate time to look further into the “real causes” of bee declines.⁵⁵

Bayer, Syngenta and Monsanto are using a “kitchen sink” approach to divert attention from the problem of neonic pesticides.

In July 2013, Syngenta said it was boosting its public relations budget in the wake of the European Union’s action to ban neonics. As Bloomberg Business reported, “The largest maker of crop chemicals will announce plans this year to improve its ‘outreach’ to persuade the public that farmers need advanced technologies to meet rising demand for food over the next decades.”⁵⁶

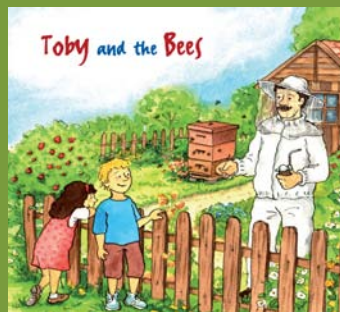
Syngenta has also been working to de-emphasize the role of pesticides in bee declines. In a “Plight of the Bees” page on its website, for instance, Syngenta enumerates 11 causes of the bee crisis and colony collapse disorder, with only passing mention of pesticides in the context of farmers “misusing them.”^{57,58} The company’s talking points include:

- “...such disappearances have occurred throughout the history of apiculture...”
- “Multiple possible causes of CCD have been identified. In 2007, some authorities attributed the problem to biotic factors such as varroa mites and insect diseases (pathogens including *Nosema apis* and Israel acute paralysis virus). Other proposed causes include environmental change-related stresses, malnutrition, and migratory beekeeping.”
- “Since we do not believe pesticides cause bee losses, banning them will not make any difference to bee health.”

Syngenta goes so far as to blame human fear as one of the “causes” of bee declines. Syngenta explains, “Many people are afraid of bees, wasps, hornets, and many other flying insects. This fear converts, unfortunately, into a major health threat to bees, as too many people simply kill them if they fly into a home or too near to people as they eat, sleep, talk or drink. The number of bees killed by humans each year dwarfs the numbers of bees killed by any of its other predators.”

Efforts to blame “anything but pesticides” on the bee crisis date back to at least 2009, when the University of Warwick announced a major research initiative on the bee crisis, with substantial funding from the UK’s Biotechnology and Biological Sciences Research Council. As was soon revealed in *The Guardian*, the study would examine just about every culprit other than pesticides. (*The Guardian* quoted a researcher as admitting there would be “no pesticide component in it at all.”)⁵⁹ One likely reason: the research council was supporting the study “in partnership with Syngenta,” which provided 10 percent of the project funds, according to reporter George Monbiot. As *The Guardian* detailed, the University press release describes Syngenta as helping to “protect the environment and improve health and quality of life.”⁶⁰

Targeting Children: From Joe Camel to “Toby and the Bees”



Taking another page from Big Tobacco’s playbook,⁶¹ Bayer published a children’s book entitled *Toby and the Bees*,⁶² in which a friendly

neighborhood beekeeper tells young Toby that the bees are getting sick, but “not to worry” it’s just a problem with mites, and there is special medicine to make bees healthy.

Bayer manufactures that “medicine” — miticide Check-Mite Plus (coumaphos) which, along with other miticides, has been shown to interact with other commonly-used pesticides and fungicides to significantly reduce the survival rate of bee larvae.^{63, 64}

The book fails to mention the role of pesticides in bee declines and the role that neonicotinoids play in making bees more vulnerable to mites and pathogens.



BAYER’S CHILDREN’S BOOK *TOBY AND THE BEES* AIMS TO REACH PARENTS AND CHILDREN WITH ITS SPIN ON THE CAUSE OF BEE DECLINES, MITES, AND PROMOTE BAYER’S MITICIDE AS THE SOLUTION WHILE IGNORING THE ROLE OF PESTICIDES.



“Bee Care” PR Buzz

The major element of industry’s PR strategy has been to go on the offensive by creating an elaborate appearance of “being out in front” and taking a lead role in “saving bees” through the creation and promotion of “bee health,” “Bee Care Centers” and a “Bee Care Tour.”



In May 2013, about the same time that the USDA published its report implicating neonics, Bayer CropScience broke ground on its North American Bee Care Center at Research Triangle Park in North Carolina.⁶⁵ Through this, Bayer engaged in a PR strategy to shape media coverage of the story: its Bee Care Center was designed to establish scientific credibility as well as proactive “feel good” public relations.

“Ultimately what we’re trying to do is provide good scientific support to this epidemic and help understand why bee populations are

declining and really put our money where our mouth is and enable a more scientific approach,” said David Hollinrake, Bayer CropScience agricultural commercial operations marketing vice president.⁶⁶

While Bayer’s North Carolina site was being constructed, Bayer was already producing Bee Care Center videos, such as “We Care for Bees: Challenge and Solutions,” featuring company executives declaring their passion for bee health. “The health of bees and their future is in our hearts,” says Annette Schurmann, Global Bee Health Manager for Bayer CropScience AG, in front of soft-toned images of flowers and bees.

In 2013, Bayer launched its mobile “Bee Care Tour” at the Ag Issues Forum and Commodity Classic in Orlando, Florida. According to the company:⁶⁷

“The specially-wrapped vehicle and interactive exhibit traveled to university agriculture schools and farm communities across the Midwest. Everyone who visited the exhibit had the opportunity to commit to be a Champion for Bee Health encouraging everyone to make pollinator health and stewardship a priority.”

The tour continues in 2014, with stops at Oregon State University, Washington State University, University of California, Davis, South Dakota State University and Purdue University. In June, the Bee Care Tour will be in Washington, D.C. for National Pollinator Week.⁶⁸

Bayer has also created a Bayer Bee Care Community Leadership Award.⁶⁹ The head of the company's Bee Care Program explained: "The support of beekeeping and beekeepers can bring a wide range of benefits to a local community, and we believe these beneficial programs deserve recognition and encouragement."⁷⁰ Additionally, Bayer has dispatched its own employees as "Bee Ambassadors to interface with those concerned about honey bee health."⁷¹



FACEBOOK POST OF THE HONEY AND POLLINATION CENTER AT THE ROBERT MONDAVI INSTITUTE AFTER THE BAYER BEE CARE TOUR STOP AT UC DAVIS IN FEBRUARY 2014.

Buying Credibility

All three companies are strengthening their reach into the scientific community in order to establish credibility for their case, that pesticides are not to blame for bee declines. In addition, they are funding scientific studies and cultivating alliances and strategic partnerships with farmers, beekeepers and agricultural organizations, with the goal of bolstering the legitimacy of their arguments and positioning themselves as "friends of the bees."

In June 2013, Monsanto grabbed headlines by hosting a three-day Bee Health Summit at its Chesterfield Village Research Center, in Chesterfield, Missouri, where the company greatly expanded its reach and influence in the scientific community. At the summit, Monsanto announced the formation of a Honey

Even with a friendly audience at its corporate headquarters, a post-summit survey found that only 14 percent of attendees felt pesticides were covered well or usefully at Monsanto's Bee Health Summit.

Bee Advisory Council — a strategic alliance "comprised of Monsanto executives and others, including Diana Cox-Foster, a professor at Penn State University; David Mendez, past president of the American Beekeeping Association; Gus Rouse, owner of Kona Queen Hawaii Inc.; and Larry Johnson, commercial beekeeper," the St. Louis business Journal reported. The paper noted, "for its part, Monsanto has been investing in bee health in the past several years."⁷²

A press report from the summit noted that Monsanto's research into efforts to control varroa mites was influenced by the very same Honey Bee Advisory Council it had assembled — suggesting that the company may be using the council's scientific credibility to emphasize bee threats other than pesticides: "The company also says that based largely on HBAC's counsel, it has focused its bee health research efforts on finding a way to control the varroa mite, which is a carrier of various viruses that are harmful to honeybees."⁷³

“There is something very wrongheaded about an organization that claims to be defending the interests of bees and beekeepers taking money from the manufacturers of pesticides.”

—Member of the British Beekeeper’s Association after the BBKA received funding from Bayer and Syngenta and took a pro-pesticide stance.

As Monsanto reported on its own summit, “There was general agreement among speakers and summit participants that the causes of declining honey bee health are multi-factorial ... poor nutrition, pesticides, pests and pathogens all playing a role in honey bee decline.”

Mentioning pesticides in a list of factors not only downplays their central role, but implies credibility. Yet, even with a friendly audience at its corporate headquarters, a post-summit survey found that only 14 percent of attendees felt pesticides were covered well or usefully at Monsanto’s Bee Health Summit.⁷⁴

The company’s creation of the Honey Bee Advisory Council as well as its purchase of a bee research firm has generated both internal and broader public credibility as Monsanto positions itself as a key driver of solutions, rather than a source of the problem as a major pesticide manufacturer and a distributor of neonic coated seeds. This framing, for both insider and public consumption, has included the emphasis of causes of bee deaths other than pesticides.

In September 2011 — in what might best be described as fox-buys-henhouse — Monsanto acquired Beelogsics, a bee research firm based in Israel and Florida, for \$113 million. Under the celebratory headline, “Monsanto buys Beelogsics, working to save pollinating bees,” Monsanto’s hometown newspaper, the St. Louis Post-Dispatch, reported that Monsanto’s newest acquisition had developed an antiviral product called Remember, which could provide a solution to the “mysterious disorder” of bee colony collapse. “While the investment is an enabling technology for us, we’re absolutely committed to Beelogsics’ existing work,”

Monsanto spokesperson Kelly Powers said.⁷⁵

Monsanto promptly tapped longtime employee Jerry Hayes to be Beelogsics’ commercial lead. In a press release, Monsanto explained how the corporation would influence Beelogsics: “Monsanto, which has proven expertise in managing a technology pipeline, will support the Beelogsics team and its Technology Advisory Board in advancing its pipeline. Beelogsics’ work to promote bee health will continue under Monsanto’s ownership.”⁷⁶



SOURCE: BEELOGICS WEBSITE

Monsanto’s public relations effort and recent acquisition of Beelogsics has presented the company as a conscientious and effective leader in addressing the bee crisis. Its bee summit garnered glowing media coverage, particularly from hometown press in St. Louis. One headline announced, “Monsanto hopes to win over beekeepers with cure.” The article quoted Jerry Hayes, explaining that one of the summit’s main goals was, “To connect the beekeeping industry more closely to Monsanto, and to connect Monsanto more closely to the beekeeping industry. They’ve heard all the big scary stuff about the company. We want to raise their comfort level.”⁷⁷

In another partnership with bee researchers, Monsanto announced in September 2012 that it would match a grant to Project Apis m. (PAm) from the California Department of Food

and Agriculture, cementing the corporation's financial relationship with the nonprofit.⁷⁸

PAm's "mission is to fund and direct research to enhance the health and vitality of honey bee colonies while improving crop production." PAm, which counts Monsanto's Jerry Hayes as one of its three scientific advisers, touts itself as "the go-to organization at the interface of honeybees and pollinated crops."⁷⁹ The Project Apis m. monthly newsletter reported that, "Jerry Hayes, Honey Bee Lead for Monsanto, announced on September 19th that PAm has been fortified with funding to further promote forage resources for honey bees."⁸⁰ By emphasizing the loss of forage, Monsanto is again attempting to deflect attention away from harmful pesticides.



SOURCE: HAYES VALLEY FARM/FICKER

BEEKEEPERS ACROSS THE US LOST 40-100% OF THEIR HIVES LAST WINTER —ONE OF THE WORST BEE LOSSES ON RECORD.

Hayes, a former apiary inspector for the Florida Department of Agriculture, has become one of Monsanto's most effective and visible spokespeople on the bee crisis. In one blog entry, Hayes wrote: "Monsanto is committed to sustainable agriculture. It makes good business sense to support sustainable agriculture and that's why they want to use their time, talents and resources to contribute positively to honey bee health. This is not a PR stunt; this is a smart business move to help agriculture globally."⁸¹ Beekeeper Larry Johnson, who Monsanto tapped for its "Honey Bee Advisory Council",

blogged that Hayes and his team "truly care about the problems beekeepers face." In a welcoming speech at the bee summit, Johnson made his appreciation for the company clear: "this is a great company that does a lot of great things ... this is a great thing for Monsanto and the bee industry to get together."⁸²

Randy Oliver, one of three key advisors to PAm, consistently praised the company's role in addressing the bee crisis, while repeating key message points that divert the focus away from pesticides: "the key common consensus was that the main causes of colony health problems are poor nutrition and the varroa/virus complex, sometimes exacerbated by pesticide issues."⁸³ At the end of his extensive report on the Monsanto bee summit - which, he emphasized, was "not a corporate sales pitch" - Oliver discloses: "Disclaimer: I received payment from Monsanto this year for the rental of hives and the labor involved in running a research trial." After attending the company's Bee Summit, Oliver authored a lengthy article applauding and defending Monsanto and urging critics to "drop the demonization," adding, "Monsanto appears to genuinely want to be a good corporate citizen."⁸⁴

The industry's reach with beekeepers extends to Europe, where the British Beekeepers Association (BBKA) has received significant funding from Bayer, Syngenta and other pesticide companies, an arrangement that some critics have called a *quid pro quo*, as the organization has endorsed insecticides as "bee-friendly."^{85, 86}

In 2009, after the BBKA took a pro-pesticide stance, one of its members, beekeeper Philip Chandler, stated "In my opinion ... they should not be endorsing pesticides or other toxins under any conditions whatsoever. There is something very wrongheaded about an organization that claims to be defending the interests of bees and beekeepers taking money from the manufacturers of pesticides. Having a dialog with them is one thing, but taking money from them is another."⁸⁷

More recently, the organization appears to be taking up the pesticide lobby's cause, arguing that new restrictions on neonics would result in more harm to wildlife from the use of other chemicals.⁸⁸

One company, Syngenta, has even attempted to bring Friends of the Earth England, Wales, Northern Ireland into their fold, using Friends of the Earth's statements on bee declines as an opportunity to push their own "anything but pesticides" messaging. In one blog item, "Together for Bees," Syngenta remarks, "It was also good to see FoE starting to recognize that the main causes of bee decline in the UK and in other countries are habitat loss, diet deterioration, and above all, mites, diseases and bacteria. Whether they can join bee-keepers and government in accepting that pesticides play an insignificant role remains to be seen."⁸⁹ Syngenta adds: "Wouldn't it be logical, creative and appropriate to bring Syngenta's Operation Pollinator together with the FoE Bee Action Plan? After all, it's so much brighter and better to work together on common solutions for bees than to argue and bicker."⁹⁰

In another blog item - titled "Bed & breakfast for bees ... are Friends of the Earth joining Syngenta to tackle bee health?" - Syngenta appears to welcome cooperation while undermining any criticism of pesticides' impact: "So despite our disagreements, we wonder whether Friends of the Earth are about to reconsider their position and work with us to tackle the real causes of bee health decline instead of trying to get safe pesticides banned."⁹¹

Company Videos Masquerading as News

Syngenta's attempts at creating distraction also include company-produced "news interviews," and direct attacks on critics and regulators.

In one Syngenta-produced video "news interview" about neonicotinoids, chief operating officer John Atkins assures a seemingly sincere

“The small number of instances of damage to bee health from these pesticides has come from the very rare occasions when farmers have used the product incorrectly.”

—Syngenta

actor-journalist, that "we are completely convinced ... that bee declines have nothing to do with this class of chemistry [neonics]" and "millions of hectares have been tested to verify that these products are safe to bee populations ... the combination of their benefits and the lack of impact on the bee populations is why they are so important worldwide."⁹²

Atkins later goes on the offensive: "we are doing much more, truly, to support the health of bees, than many people who are attacking us... there is much more at stake than money, this is about the principles of scientific evaluation, it's about the benefits of this product, it's about the facts." He then criticizes the European Commission move to restrict neonicotinoids, insisting the agency "ignored plenty of evidence from the real world that these pesticides do not damage the health of bees."⁹³

Blaming the Farmer

While denying criticism of pesticides, Syngenta adds another element of diversion by blaming pesticide users (i.e., farmers) for any "rare" negative effects on bees. Listing "misused pesticides" as one of its 11 causes of bee declines, Syngenta claims, "Some theoretical research recently has purported to show that

pesticides are directly responsible for bee losses, even when they are applied correctly and appropriately at the right time and in the right place. There is no real-life evidence to support this conclusion.” In a comment belying its feel-good cooperative PR, Syngenta goes a step further, directly blaming farmers for any negative consequences of pesticide use: “The small number of instances of damage to bee health from these pesticides has come from the very rare occasions when farmers have used the product incorrectly (e.g. not followed label instructions).”⁹⁴

Bayer’s Bee Care website emphasizes the “bee-responsible use”⁹⁵ of its products and implies that any problem with neonics is because of improper use of its products by farmers and other users.

SOURCE: ROWAN COLLINS/FLICKR



Spinning Science

The companies’ denials of blame and attempts to spin science are nothing new.

When Bayer’s most lucrative neonic pesticide, imidacloprid, was restricted in France due to patent expirations and government bans in 1999, the company “brought a similarly functioning successor product, clothianidin, onto the market,” according to Environment News Service. A French scientific advisory panel “declared that the treatment of seeds with imidacloprid leads to significant risks for bees. Bayer’s application for approval of clothianidin was also rejected by French authorities.”⁹⁶

Yet this didn’t prevent Dr. Hans-Josef Diehl,

head of development and registration at Bayer CropScience Deutschland, from claiming at expert hearings on bee losses in Germany: “Seed treatments are one of the most targeted and environmentally friendly forms to apply crop protection products. We regret the recent bee losses and the situation they have created for the beekeepers in Baden-Württemberg.”

Similarly, in 2008, Bayer ecologist Dr. Richard Schmuck, asserted, “All studies available to us confirm that our product is safe to bees if the recommended dressing quality is maintained. This is also shown by the product safety assessments which we have submitted to the registration authorities.”⁹⁷

But European and other government agencies contradicted Bayer’s attempts to spin the science. As Environment News Service reported in 2008, “The accusation of flawed studies is echoed by the Canadian Pest Management Regulatory Agency which said of Bayer’s clothianidin application, ‘All of the field/semi-field studies, however, were found to be deficient in design and conduct of the studies and were, therefore, considered as supplemental information only. Clothianidin may pose a risk to honey bees and other pollinators, if exposure occurs via pollen and nectar of crop plants grown from treated seeds.’”⁹⁸ The PMRA released further findings in 2013: “the PMRA has concluded that current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable.”⁹⁹

Attacking Regulators

Industry’s PR machine, with its well-honed diversionary messaging, went into full force after the European Union announced its proposal to ban neonicotinoids.

In January 2013, Bayer issued a press release asking the dramatic question, “Is Europe heading for a set-back in agriculture?”¹⁰⁰ Calling the European Commission’s proposal to ban neonicotinoids “draconian,” Bayer claimed that the pesticides can be “safely and effectively

used in sustainable agriculture.” Once again, Bayer pointed to “multiple factors” that can cause poor bee health and colony losses, and suggested that the EU’s precautionary principle need not apply here.¹⁰¹

By March 2013, Syngenta and Bayer proposed an alternative plan to support bee health. Their suggestions in this “comprehensive” plan included planting more flowering field margins and monitoring neonicotinoids.¹⁰²

During this time, Bayer¹⁰³ and Syngenta¹⁰⁴ also used PR to amplify any lack of consensus on the ban amongst EU member countries and publicize this lack of compromise as recognition of the safety of neonicotinoids.¹⁰⁵

The same diversionary messaging is incorporated into lobbying documents.

Documents obtained by the Corporate Europe Observatory revealed that, from as early as June 2012, Syngenta, Bayer and the European Crop Protection Association (the pesticide makers’ lobbying group) were engaged in a private behind-the-scenes lobbying campaign to prevent a ban on neonicotinoids in the EU.¹⁰⁶ Through a series of letters, these companies made accusations with questionable scientific and factual backing in an effort to convince European commissioners that neonicotinoids were not the problem.

For example, in a letter to Commissioner Dalli of Belgium, Bayer suggested that the harm done to honeybees in the past was the fault of the farmers for improper use of the pesticides.¹⁰⁷ A letter from Syngenta to the same commissioner accused some member states as being “driven by a small group of activists and hobby bee-keepers” and urged him to “resist the pressure” to give in.¹⁰⁸ When the European Food Safety Authority published its findings, critical of the use of the pesticides, Syngenta and Bayer continued to push forward their own independent analysis of the findings¹⁰⁹ and even threatened to take legal action against the EFSA.¹¹⁰

When All Else Fails, Go to Court

After their PR and lobbying efforts to stop the neonic ban failed, Syngenta and Bayer filed lawsuits against the European Commission in August 2013 for the ban of thiamethoxam, one of the three neonic suspended insecticides, claiming that the Commission’s decision was based on an “inaccurate and incomplete assessment.”¹¹¹ Despite Syngenta’s rhetoric that it had “no other choice” but to take legal action,¹¹² the lawsuit made clear that the companies will use every tool at their disposal to protect their profits.

Within a week of opening its new “Bee Care Center” in Triangle Park, North Carolina, Bayer increased its lobbying muscle by hiring Cornerstone Government Affairs, a D.C.-based lobby firm.

U.S. Politics

Some observers surmise that the chemical industry’s aggressive lobbying in Europe is, in part, driven by fear that the United States might act next.¹¹³ While U.S. regulatory agencies have not made any significant move to adopt similar restrictions, in July 2013, Representatives John Conyers (D- Mich.) and Earl Blumenauer (D- Ore.) introduced the Saving America’s Pollinators Act (H.R. 2692), which would suspend the use of neonicotinoid pesticides until a full review of scientific evidence indicates they are safe, and a field study demonstrates no harmful impacts to pollinators.¹¹⁴



While lobbying disclosures are not bill-specific, Bayer lobbied Congress during the first¹¹⁵ and second¹¹⁶ quarters of 2013 on the issue of bee health and specifically had “discussions on EPA regulatory actions involving pollinator protection.”

In April 2014, according to Politico, within a week of opening its new “Bee Care Center” in Triangle Park, North Carolina, Bayer increased its lobbying muscle by hiring Cornerstone Government Affairs, a D.C.-based lobby firm, “to help ‘pollinator health and habitat promotion’ after a growing campaign, which includes reports from the European Union, has accused the chemical company of causing large-scale harm to the bee population with its pesticides.”¹¹⁷ Current clients of Cornerstone Government Affairs also include Syngenta and CropLife America (a trade association representing the manufacturers of pesticides and other agricultural chemicals).¹¹⁸

While bee health was not listed as a specific issue on Monsanto’s¹¹⁹ and Syngenta’s¹²⁰ lobbying records, the documents do indicate that the companies lobbied the Environmental Protection Agency in 2013 on agricultural research, biotech regulations and pesticides. The EPA is currently charged with reevaluating neonicotinoids through its pesticide registration review program, which is not set to be completed until at least 2018.¹²¹

Despite the EPA’s scientific conclusions,

similar to that of the European Food Security Association, on the high risk that neonicotinoids pose to bees,¹²² the EPA and U.S. Department of Agriculture have indicated that a ban in the U.S. is not necessary.¹²³

This failure to act persists despite leaked documents from EPA that indicate the agency is ignoring warnings from its own scientists about the dangers of the neonic clothianidin. Here is how agriculture journalist Tom Philpott described the leaked memo in 2010:

“EPA scientists have essentially rejected the findings of a study conducted on behalf of Bayer that the agency had used to justify the registration of clothianidin. And they reiterated concerns that widespread use of clothianidin imperils the health of the nation’s honeybees.”¹²⁴

Nevertheless, instead of a ban, the EPA has developed a new pesticide label that will allegedly help to protect bees from toxic exposure to neonicotinoids by prohibiting their use where bees are present. However, the labels ignore the widest application of neonicotinoid pesticides: the seed treatments that enable the uptake of pesticides into the plant and later into pollen and nectar, which are gathered and eaten by bees and other key pollinators. The proposed labels would therefore do little to address the problem of bee declines.

Conclusion

For decades, tobacco companies muddled the science, misled regulators and the public, and caused incalculable injury to protect cigarette sales. How much longer will we allow similar tactics to delay meaningful action in protecting these small but essential pollinators?

Bees are essential to one out of three bites of the food we eat, and two thirds of global food crops, from almonds to strawberries. While industry attempts at spin, distraction, and the manufacture of doubt may be effective political tools in the U.S. for causing delay and inaction, they will only cause more harm in the long run.

Policy Action Needed Now

It's time for the United States government to follow the lead of the European Union and act to protect such a vital component of our food system and healthy ecosystems. We urge Congress to pass the Saving America's Pollinators Act. We urge the EPA to listen to the growing body of science linking neonicotinoids to bee declines and move quickly to limit the use of these pesticides while taking other steps to protect bees and other essential pollinators. The White House must also demonstrate leadership and push Congress and federal agencies to move quickly to protect bees.

Fair and Accurate Reporting

We also urge members of the media to be aware of the tobacco-style tactics pesticide companies are using - including spinning the science, buying credibility, blaming the user and promoting the "anything but pesticides" multiple factors theory - to deflect blame from pesticides in the bee crisis.

A strong and growing body of science indicates that neonics are a core contributor to bee declines that must be addressed. Studies indicate these pesticides not only harm and kill bees directly, but also increase pollinators' vulnerability to other stressors such as mites, climate change and habitat loss.^{125,126,127,128,129}

**We must act before it's too late.
Our very food supply is at stake.**



References

- 1 United Nations Food and Agriculture Organization. 2005. Protecting the pollinators. FAO Spotlight. <http://www.fao.org/ag/magazine/0512sp1.htm>.
- 2 Calderone NW. 2012. Insect Pollinated Crops, Insect Pollinators and US Agriculture: Trend Analysis of Aggregate Data for the Period 1992–2009. PLoS ONE 7(5): e37235. doi:10.1371/journal.pone.0037235.
- 3 Gallai N, Salles JM, Settele J, Vaissiere BE. 2009. Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. Ecological Economics 68:810–821.
- 4 Losey JE, Vaughan M. 2006. The economic value of ecological services provided by Insects. Bioscience 56: 311–323. http://www.xerces.org/wp-content/uploads/2008/09/economic_value_insects.pdf.
- 5 Mullin CA, Frazier M, Frazier JL, Ashcraft S, Simonds R, vanEngelsdorp D, et al. 2010. High Levels of Miticides and Agrochemicals in North American Apiaries: Implications for Honey Bee Health. F. Marion-Polled. PLoS ONE 5:e9754; doi:10.1371/journal.pone.0009754.
- 6 European Food Safety Authority (EFSA). 2013. Conclusion on the peer review of the pesticide risk assessment for bees for the active substance clothianidin. EFSA Journal 11: 3066. European Food Safety Authority (EFSA). 2013. EFSA identifies risks to bees from neonicotinoids. Press Release: January 16, 2013. <http://www.efsa.europa.eu/en/press/news/130116.htm>.
- 7 Pilatic H, et al. Pesticides and Honey Bees: the State of the Science. Pesticide Action Network. May 2012. http://www.panna.org/sites/default/files/Bees&Pesticides_SOS_FINAL_May2012.pdf.
- 8 Jenkins, Peter, et. Al. Heavy Costs: Weighing the Value of Neonicotinoid Insecticides in Agriculture. Center for Food Safety. March 2014. <http://www.centerforfoodsafety.org/issues/304/pollinators-and-pesticides/reports/2999/heavy-costs-weighing-the-value-of-neonicotinoid-insecticides-in-agriculture#>.
- 9 Henry M, Beguin M, Requier F, Rollin O, Odoux J-F, Aupinel P, et al. 2012. A Common Pesticide Decreases Foraging Success and Survival in Honey Bees. Science 336: 348–350; doi:10.1126/science.1215039.
- 10 Williamson SM, Wright GA. 2013. Exposure to multiple cholinergic pesticides impairs olfactory learning and memory in honeybees. Journal of Experimental Biology 216: 1799–1807; doi:10.1242/jeb.083931.
- 11 Alaux C, Brunet J-L, Dussaubat C, Mondet F, Tchamitchan S, Cousin M, et al. 2010. Interactions between Nosema microspores and a neonicotinoid weaken honeybees (*Apis mellifera*). Environmental Microbiology 12: 774–782; doi:10.1111/j.1462-2920.2009.02123.x.
- 12 Cox-Foster DL, Conlan S, Holmes EC, Palacios G, Evans JD, Moran NA, et al. 2007. A metagenomic survey of microbes in honey bee colony collapse disorder. Science 318: 283–287; doi:10.1126/science.1146498.
- 13 Naug D. 2009. Nutritional stress due to habitat loss may explain recent honeybee colony collapses. Biological Conservation 142: 2369–2372.
- 14 Potts SG, Biesmeijer JC, Kremen C, Neumann P, Schweiger O, Kunin WE. 2010. Global pollinator declines: Trends, impacts, and drivers. Trends in Ecology & Evolution 25: 345–353; doi:10.1016/j.tree.2010.01.007.
- 15 Williamson SM, Wright GA. 2013. Exposure to multiple cholinergic pesticides impairs olfactory learning and memory in honeybees. Journal of Experimental Biology 216: 1799–1807; doi:10.1242/jeb.083931.
- 16 Henry M, Beguin M, Requier F, Rollin O, Odoux J-F, Aupinel P, et al. 2012. A Common Pesticide Decreases Foraging Success and Survival in Honey Bees. Science 336: 348–350; doi:10.1126/science.1215039.
- 17 Whitehorn PR, O'Connor S, Wackers FL, Goulson D. 2012. Neonicotinoid Pesticide Reduces Bumble Bee Colony Growth and Queen Production. Science 336: 351–352; doi:10.1126/science.1215025.
- 18 Pettis JS, Lichtenberg EM, Andree M, Stitzinger J, Rose R, vanEngelsdorp D. 2013. Crop Pollination Exposes Honey Bees to Pesticides Which Alters Their Susceptibility to the Gut Pathogen *Nosema ceranae*. PLoS ONE 8:e70182; doi:10.1371/journal.pone.0070182.
- 19 Gennaro Di Prisco, Valeria Cavaliere, Desiderato Annoscia, Paola Varricchio, Emilio Caprio, Francesco Nazzi, Giuseppe Gargiulo, and Francesco Pennacchio. Neonicotinoid clothianidin adversely affects insect immunity and promotes replication of a viral pathogen in honey bees. PNAS 2013 110 (46) 18466–18471; published ahead of print October 21, 2013, doi:10.1073/pnas.1314923110. <http://www.pnas.org/content/110/46/18466>.
- 20 Kruschik VA. Non-Target Effects of Imidacloprid on Beneficial Insects. University of Minnesota CUES: Center for Urban Ecology and Sustainability website (last modified March 6, 2013). <http://www.entomology.umn.edu/cues/non-target/index.html>.

- 21 Krischik, V. A., A. Landmark, and G. Heimpel. 2007. Soil-applied imidacloprid is translocated to nectar and kills nectar-feeding *Anagyrus pseudococci* (Girault) (Hymenoptera: Encyrtidae). *Environ. Entomol.* 36(5): 1238-1245.
- 22 Mineau P, Palmer C. 2013. The Impact of the Nation's Most Widely Used Insecticides on Birds. American Bird Conservancy. http://www.abcbirds.org/abcprograms/policy/toxins/Neonic_FINAL.pdf.
- 23 Goulson D. 2013. Review: An overview of the environmental risks posed by neonicotinoid insecticides. *Journal of Applied Ecology* 50: 977-987; doi: 10.1111/1365-2664.12111.
- 24 R Mason, H A Tennekes, F Sánchez-Bayo, P U Epsen. 2013. Immune suppression by neonicotinoid insecticides at the root of global wildlife declines. *J Environ Immunol Toxicol* 1: 3-12.
- 25 Pesticide Action Network UK. Factsheet: Bee Declines & Pesticides Factsheet 4: Different regulatory positions on neonicotinoids across Europe. http://bees.pan-uk.org/assets/downloads/Bee_factsheet4.pdf.
- 26 European Food Safety Authority (EFSA). 2013. Conclusion on the peer review of the pesticide risk assessment for bees for the active substance clothianidin. *EFSA Journal* 11: 3066.
- 27 European Food Safety Authority (EFSA). 2013. EFSA identifies risks to bees from neonicotinoids. Press Release: January 16, 2013. <http://www.efsa.europa.eu/en/press/news/130116.htm>.
- 28 European Commission. 2013. Bee Health: EU-wide restriction on Pesticide use to enter into force on 1 December. European Commission Press Release. Retrieved June 20, 2013 from http://europa.eu/rapid/press-release_IP-13-457_en.htm?locale=en.
- 29 Tobacco Documents Online. 1969 Smoking and Health Proposal. <http://tobaccodocuments.org/landman/332506.html>.
- 30 Case, D. "The Real Story Behind Bisphenol A: How a handful of consultants used Big Tobacco's tactics to sow doubt about science and hold off regulation of BPA, a chemical in hundreds of products that could be harming an entire generation." *Fast Company*. January 2009. Accessed 4/21/2014. <http://www.fastcompany.com/1139298/real-story-behind-bisphenol>.
- 31 Carrington, D. IPCC vice-chair: Attacks on climate science echo tobacco industry tactics. *The Guardian*. October 28, 2010. <http://www.theguardian.com/environment/2010/oct/28/ipcc-climate-science-attacks-tobacco>.
- 32 Union of Concerned Scientists. *Smoke, Mirrors and Hot Air: How ExxonMobil Uses Big Tobacco's Tactics to Manufacture Uncertainty on Climate Science*. January 2007. http://www.ucsusa.org/assets/documents/global_warming/exxon_report.pdf.
- 33 Syngenta, 2012 Annual Report, page 10. http://annualreport2012.syngenta.com/assets/img/pdfs/Syngenta_FinancialReport2012.pdf page 9.
- 34 Jeschke P, Nauen R, Schindler M, Elbert A, 2011. Overview of the Status and Global Strategy for Neonicotinoids. *Journals of Agricultural and Food Chemistry* 59: 2897-2908.
- 35 Bayer, 2012 Annual Report, page 75. <http://www.annualreport2012.bayer.com/>. (Converted Euro to USD.)
- 36 Jeschke P, Nauen R, Schindler M, Elbert A, 2011. Overview of the Status and Global Strategy for Neonicotinoids. *Journals of Agricultural and Food Chemistry* 59: 2897-2908.
- 37 Monsanto, 2012 Annual Report, page 23. <http://www.monsanto.com/global/uk/whoweare/documents/monsanto-2012-annual-report.pdf>.
- 38 Philpott, T. 90 Percent of Corn Seeds Are Coated With Bayer's Bee-Decimating Pesticide. *Mother Jones*. May. 16, 2012. <http://www.motherjones.com/tom-philpott/2012/05/catching-my-reading-ahead-pesticide-industry-confab>.
- 39 Acceleron. 2014. Acceleron IX-409 and IC-609 Insecticide Seed Treatment Product labels. <http://www.acceleronsts.com/Soybeans/Documents/IX409.pdf> <http://www.acceleronsts.com/Corn/Documents/IC609.pdf>.
- 40 McMahan, K. Bayer CropScience, Monsanto combine seed treatments. *Farm Industry News*. Aug 10, 2011. <http://farmindustrynews.com/seed-treatments/bayer-cropscience-monsanto-combine-seed-treatments>.
- 41 Jeschke P, Nauen R, Schindler M, Elbert A, 2011. Overview of the Status and Global Strategy for Neonicotinoids. *Journals of Agricultural and Food Chemistry* 59: 2897-2908.
- 42 Bayer CropScience United States. 2013. Decision to restrict use of neonicotinoid-containing products will not improve bee health. Press Release: May 24, 2013. <http://www.bayercropscience.us/news/press-releases?storyId=37273802-f1c7-4e83-b994-10c235b884c2>.
- 43 Ibid.
- 44 Ibid.

- 45 Gillam, C. "Monsanto, Bayer seek answers to bee losses." NBC News. May 20, 2013. <http://www.reuters.com/article/2013/05/20/usa-bees-idUSL2N0E10YQ20130520>.
- 46 USDA. 2012. Report on the National Stakeholders Conference on Honey Bee Health. <http://www.usda.gov/documents/ReportHoneyBeeHealth.pdf>.
- 47 "We care for bees challenge and solutions," May 11, 2012, video accessed January 15, 2014, YouTube, <http://www.youtube.com/watch?v=dOj0u7CZHSY>.
- 48 Hakim, D. "Accused of Harming Bees, Bayer Researches a Different Culprit." New York Times. December 11, 2013. http://www.nytimes.com/2013/12/12/business/energy-environment/accused-of-harming-bees-bayer-researches-a-different-culprit.html?_r=0.
- 49 McCullough, DG. The Guardian. How bee health is creeping up the corporate agenda at Bayer: The disappearance of bees has started to worry corporations, but should companies like Bayer be involved in saving them? January, 21 2014. <http://www.theguardian.com/sustainable-business/blog/bee-health-corporate-agenda-bayer>.
- 50 Bayer. Bayer CropScience Opens North American Bee Care Center. Press release: April 15, 2014. <http://beecare.bayer.com/media-center/news/news-detail/null-9>.
- 51 Bayer Bee Care Twitter feed: <https://twitter.com/BayerBeeCare>.
- 52 Bayer Bee Care Twitter Feed: 19 Feb 2014 <https://twitter.com/BayerBeeCare/status/436221386487787520>.
- 53 Bayer Bee Care Twitter Feed: 17 Dec 2013 <https://twitter.com/BayerBeeCare/status/412983126382505984>.
- 54 Bayer Bee Care Twitter Feed: 17 Dec 2013 <https://twitter.com/BayerBeeCare/status/412982130939949056>.
- 55 Syngenta. 2013. EU Member States again fail to agree restriction on key crop protection technology. April 29, 2013. <http://www.syngenta.com/global/corporate/en/news-center/news-releases/pages/130429.aspx>.
- 56 Winters, P. "Syngenta Plans PR Drive to Boost Perception of Crop Chemicals." Bloomberg Businessweek. July 24, 2013. <http://www.businessweek.com/news/2013-07-24/syngenta-plans-pr-drive-to-boost-perception-of-crop-chemicals> (accessed 1/15/2014).
- 57 Syngenta. 2012. CCD. <http://www.syngenta.com/eame/plightofthebees/en/causes/Pages/ccd.aspx>.
- 58 Syngenta. 2012. Plight of the Bees, Bee Basics. <http://www.syngenta.com/eame/plightofthebees/en/bee-basics/Pages/BeeBasics.aspx>.
- 59 "Plight of the honeybee stung by funding from the chemical industry." Guardian. October 14, 2009. <http://www.theguardian.com/environment/blog/2009/oct/14/bees-scientific-research> (accessed 1/15/2014).
- 60 Ibid.
- 61 Lewis, K. Addicting the Young: Tobacco Pushers and Kids. Multinational Monitor. January, 1992. http://www.multinationalmonitor.org/hyper/issues/1992/01/mm0192_07.html.
- 62 Bayer Crop Science, Toby and the Bees, 2013. http://beecare.bayer.com/bilder/upload/dynamicContentFull/Publications/Toby_and_the_beeshfattqbf.pdf.
- 63 Wanyi Zhu, Daniel R. Schmehl, Christopher A. Mullin, James L. Frazier. Four Common Pesticides, Their Mixtures and a Formulation Solvent in the Hive Environment Have High Oral Toxicity to Honey Bee Larvae. PLoS ONE, 2014; 9 (1): e77547 DOI: 10.1371/journal.pone.0077547.
- 64 Penn State. "Common crop pesticides kill honeybee larvae in the hive." ScienceDaily. January 27, 2014. www.sciencedaily.com/releases/2014/01/140127122825.htm.
- 65 Doran, T. "Bayer CropScience expands bee research efforts." Agrinews. September 27, 2013. <http://www.agrinews-pubs.com/Content/News/Latest-News/Article/Bayer-CropScience-expands-bee-research-efforts-/8/6/8395> (accessed 1/15/2014).
- 66 Ibid.
- 67 Bayer. 2013. Bee Health in the Community. <http://www.bayercropscience.us/Our-Commitment/Bee-Health/Bee-Health-in-the-Community>.
- 68 Bayer. 2014. Bayer Bee Care Tour Webpage. <http://www.beecaretour.bayer.com>.
- 69 Bayer. 2014. Bee Health in the Community. <http://www.bayercropscience.us/our-commitment/bee-health/bee-health-in-the-community>.
- 70 USAgNet. Bayer CropScience Seeks Nominations for Beekeeping Award. Wisconsin Ag Connection. April 2, 2014. <http://www.wisconsinagconnection.com/story-national.php?id=735&yr=2014>.
- 71 Bayer. 2013. Bayer Bee Care Ambassadors. <http://beecare.bayer.com/service-center/videos/video-galleries-detail/bee-care-ambassadors>.

- 72 Solomont, E.B. "Monsanto launches honey bee advisory council." St. Louis Business Journal. June 14, 2013. <http://www.bizjournals.com/stlouis/news/2013/06/14/monsanto-launches-honey-bee-advisory.html> (accessed 1/15/2014).
- 73 Monsanto. 2013. Monsanto company Forms Honey Bee Advisory Council, Pledges Support For Honey Bee Health At First-Of-Its-Kind Summit. Press Release: June 13, 2013. <http://news.monsanto.com/press-release/sustainability/monsanto-company-forms-honey-bee-advisory-council-pledges-support-honey>.
- 74 Beeologics. Honey Bee Health Summit. 2013. http://www.beeologics.com/wp-content/uploads/summit_analysis_summary_web.pdf.
- 75 Gustin, G. "Monsanto buys Beeologics, working to save pollinating bees." St. Louis Post-Dispatch. September 29, 2011. http://www.stltoday.com/news/science/monsanto-buys-beeologics-working-to-save-pollinating-bees/article_19f6f7b2-1c8a-50f8-b84f-47c351ec044d.html (accessed 1/15/2014).
- 76 Beeologics. 2011. Monsanto Acquires Targeted-Pest Control Technology. Press Release: September 28, 2011. <http://www.beeologics.com/2011/09/monsanto-acquires-targeted-pest-control-technology-start-up/>.
- 77 Gustin, G. "Monsanto hopes to win over beekeepers with cure." St. Louis Post-Dispatch. June 14, 2013. http://www.stltoday.com/business/local/monsanto-hopes-to-win-over-beekeepers-with-cure/article_19e82066-0e5f-5a57-bcfd-9232d81db401.html (accessed 1/15/2014).
- 78 Project Apism. 2012. Latest news from Project Apism. <http://archive.constantcontact.com/fs052/1109892572559/archive/1111094737138.html#LETTER.BLOCK13>.
- 79 Project Apis m. 2014. Enhancing the Health of Honey Bees. <http://projectapism.org/>.
- 80 Project Apis m. October 2012. News from Project Apis m. <http://archive.constantcontact.com/fs052/1109892572559/archive/1111094737138.html>.
- 81 Monsanto. 2012. Here for the bees. <http://monsantoblog.com/2012/05/01/here-for-the-bees/>.
- 82 Beeologics. Larry Johnson. <http://www.beeologics.com/honey-bee-health-summit/larry-johnson/>.
- 83 Beeologics. 2013. Reflections on the Honey Bee Health Summit. http://www.beeologics.com/wp-content/uploads/reflect_honeybee_summit-aug2013.pdf.
- 84 Beeologics. 2013. Reflections on the Honey Bee Health Summit. http://www.beeologics.com/wp-content/uploads/reflect_honeybee_summit-aug2013.pdf.
- 85 British Beekeepers Association. 2011. Open Letter to the British Bee Keepers Association. <http://www.britishbeekeeping.com/>.
- 86 Edwards, J. Bayer Funding of Beekeepers' Association Draws Controversy. CBS MoneyWatch January 19, 2009. <http://www.cbsnews.com/news/bayer-funding-of-beekeepers-association-draws-controversy/>.
- 87 Ibid.
- 88 Bertini, I. "Ban on pesticides may harm wildlife, beekeepers say." Blue&Green. November 28, 2013. <http://blueandgreentomorrow.com/2013/11/28/ban-on-pesticides-may-harm-wildlife-beekeepers-say/> (accessed 1/15/2014).
- 89 Syngenta. 2013. Together for Bees. <http://www.syngenta.com/eame/plightofthebees/en/blog/Pages/O60713.aspx>.
- 90 Ibid.
- 91 Syngenta. 2013. Bed & breakfast for bees...are Friends of the Earth joining Syngenta to tackle bee health? <http://www.syngenta.com/eame/plightofthebees/en/blog/Pages/220513.aspx>.
- 92 "John Atkin, COO, talks about bee decline and the role of neonicotinoids in agriculture," February 19, 2013, video clip, accessed January 15, 2014, YouTube, <http://www.youtube.com/watch?v=CJHZsqSJku4>.
- 93 Ibid.
- 94 Syngenta. 2012. Misused Pesticides. <http://www.syngenta.com/eame/plightofthebees/en/causes/Pages/misused-pesticides.aspx>.
- 95 Bayer. 2014. Bayer Bee Care Program. <http://beecare.bayer.com/bayer-bee-care/bayer-bee-care-program>.
- 96 "German Coalition Sues Bayer Over Pesticide Honey Bee Deaths." Environment News Service. August 25, 2008. <http://www.ens-newswire.com/ens/aug2008/2008-08-25-01.asp> (accessed 1/15/2014).
- 97 Ibid.
- 98 Ibid.

- 99 Health Canada. 2013. Evaluation of Canadian Bee Mortalities in 2013 Related to Neonicotinoid Pesticides Interim Report as of September 26, 2013. <http://www.ontariobee.com/sites/ontariobee.com/files/PMRAreportOct2013U.pdf>.
- 100 Bayer CropScience. 2013. Bayer CropScience strongly disagrees with proposal by EU Commission: January 31, 2013. <http://beecare.bayer.com/media-center/press-releases/press-release-detail/bayer-cropscience-strongly-disagrees-with-proposal-by-eu-commission>.
- 101 Bayer CropScience. 2013. Syngenta and Bayer CropScience propose a comprehensive action plan to help unlock EU stalemate on bee health. Press Release: March 28, 2013. <http://www.syngenta.com/global/corporate/en/news-center/news-releases/Pages/130328.aspx>.
- 102 Syngenta. 2013. Syngenta and Bayer CropScience propose a comprehensive action plan to help unlock EU stalemate on bee health. Press Release: March 28, 2013. <http://www.syngenta.com/global/corporate/en/news-center/news-releases/pages/130328.aspx>.
- 103 Bayer CropScience. 2013. Bayer CropScience welcomes the proportionate response of Member States on EU Commission proposal on neonicotinoids. Press Release: March 15, 2013. <http://beecare.bayer.com/media-center/press-releases/press-release-detail/bayer-cropscience-welcomes-the-proportionate-response-of-member-states-on-eu-commission-proposal-on-neonicotinoids>.
- 104 Syngenta. 2013. No majority in favor of banning key crop protection technology. Press Release: March 15, 2013. <http://www.syngenta.com/global/corporate/en/news-center/news-releases/pages/130315.aspx>.
- 105 Syngenta. 2013. EU Member States again fail to agree restriction on key crop protection technology. Press Release: April 29, 2013. http://www3.syngenta.com/country/uk/en/about/news/Pages/EUMembers_neonicotinoid_decision_April2013.aspx.
- 106 Corporate Europe. 2012. Letter Interexchange Between Syngenta Bayer and EFSA. <http://corporateeurope.org/agribusiness/2013/04/pesticides-against-pollinators>.
- 107 Corporate Europe. June 12, 2012. Letter from Bayer CropScience to Commissioner John Dalli. http://corporateeurope.org/sites/default/files/letter_from_bayer_cropscience_to_commissioner_john_dalli_12th_june_2012.pdf.
- 108 Corporate Europe. June 8, 2012. Letter from Syngenta to Commissioner John Dalli. http://corporateeurope.org/sites/default/files/letter_from_syngenta_to_commissioner_john_dalli_8th_june_2012.pdf.
- 109 Corporate Europe. September 2012. Letter Interexchange between Syngenta Bayer and EFSA. http://corporateeurope.org/sites/default/files/letter_interexchange_between_syngenta_bayer_and_efsa.pdf.
- 110 Corporate Europe. January 15, 2013. Letter and fax interexchange between Syngenta Ashurst lawyers and EFSA. http://corporateeurope.org/sites/default/files/letter_and_fax_interexchange_between_syngenta_ashurst_lawyers_and_efsa.pdf.
- 111 Syngenta. 2013. Syngenta submits legal challenge to EU suspension of thiamethoxam. Press Release: August 27, 2013. <http://www.syngenta.com/global/corporate/en/news-center/news-releases/Pages/130827.aspx>.
- 112 Keating, D. "Syngenta, Bayer challenge EU pesticide ban." European Voice. August 27, 2013. <http://www.europeanvoice.com/article/2013/august/syngenta-challenges-eu-pesticide-ban/78075.aspx> (accessed 1/15/2014).
- 113 Schultz, K. "EU Ban on Bee Killing Pesticides Puts Pressure on US." The International. May 9, 2013. <http://www.theinternational.org/articles/411-eu-ban-on-bee-killing-pesticides-puts-pre> (accessed 1/15/2014).
- 114 "House Legislation Proposed to Ban Bee-Killing Pesticides." Ecowatch. July 17, 2013. <http://ecowatch.com/2013/07/17/legislation-proposed-ban-bee-killing-pesticides/> (accessed 1/15/2014).
- 115 United States Senate. 2013. Bayer Corporation Q1 Lobbying Report. United States Senate Lobbying Disclosure Electronic Filing System. <http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=0675E877-483A-4833-B4E2-1CA15FE36B12&filingTypeID=51>.
- 116 United States Senate. 2013. Bayer Corporation Q2 Lobbying Report. United States Senate Lobbying Disclosure Electronic Filing System. <http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=1FB51D7E-F001-47D4-9780-161318135436&filingTypeID=60>.
- 117 Hopkinson, J. Cornerstone to help Bayer's bee problem. Politico Morning Agriculture. April, 21, 2014 <http://www.politico.com/morningagriculture/0414/morningagriculture13676.html>.

- 118 Center for Responsive Politics. Cornerstone Government Affairs Firm Summary: 2013. Opensecrets.org <http://www.opensecrets.org/lobby/firmsum.php?id=D000021939>. Accessed April 21, 2014.
- 119 United States Senate. 2013. Monsanto Corporation Q1 Lobbying Report. United States Senate Lobbying Disclosure Electronic Filing System. <http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=AEC59832-3B1C-477A-B63A-81B42991EF27&filingTypeID=51>.
- 120 United States Senate. 2013. Syngenta Corporation Q1 Lobbying Report. United States Senate Lobbying Disclosure Electronic Filing System. <http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=64732E4B-18A1-40AB-BE22-D66B33C155C7&filingTypeID=51>.
- 121 US Environmental Protection Agency. 2013. Pollinator Protection: EPA Actions to Protect Pollinators. <http://www.epa.gov/pesticides/ecosystem/pollinator/risk-mgmt.html>.
- 122 US Environmental Protection Agency. 2013. Colony Collapse Disorder: European Bans on Neonicotinoid Pesticides. <http://www.epa.gov/pesticides/about/intheworks/ccd-european-ban.html>.
- 123 Schultz, K. "EU Ban on Bee Killing Pesticides Puts Pressure on US." *The International*. May 9, 2013. <http://www.theinternational.org/articles/411-eu-ban-on-bee-killing-pesticides-puts-pre> (accessed 1/15/2014).
- 124 Philpott, T. "Leaked document shows EPA allowed bee-toxic pesticide despite own scientists' red flags." *Grist*. December 11, 2010. <http://grist.org/article/food-2010-12-10-leaked-documents-show-epa-allowed-bee-toxic-pesticide/> (accessed 1/15/2014).
- 125 Williamson SM, Wright GA. 2013. Exposure to multiple cholinergic pesticides impairs olfactory learning and memory in honeybees. *Journal of Experimental Biology* 216: 1799–1807; doi:10.1242/jeb.083931.
- 126 Henry M, Beguin M, Requier F, Rollin O, Odoux J-F, Aupinel P, et al. 2012. A Common Pesticide Decreases Foraging Success and Survival in Honey Bees. *Science* 336: 348–350; doi:10.1126/science.1215039.
- 127 Whitehorn PR, O'Connor S, Wackers FL, Goulson D. 2012. Neonicotinoid Pesticide Reduces Bumble Bee Colony Growth and Queen Production. *Science* 336: 351–352; doi:10.1126/science.1215025.
- 128 Pettis JS, Lichtenberg EM, Andree M, Stitzinger J, Rose R, vanEngelsdorp D. 2013. Crop Pollination Exposes Honey Bees to Pesticides Which Alters Their Susceptibility to the Gut Pathogen *Nosema ceranae*. *PLoS ONE* 8:e70182; doi:10.1371/journal.pone.0070182.
- 129 Gennaro Di Prisco, Valeria Cavaliere, Desiderato Annoscia, Paola Varricchio, Emilio Caprio, Francesco Nazzi, Giuseppe Gargiulo, and Francesco Pennacchio. Neonicotinoid clothianidin adversely affects insect immunity and promotes replication of a viral pathogen in honey bees. *PNAS* 2013 110 (46) 18466–18471; published ahead of print October 21, 2013, doi:10.1073/pnas.1314923110. <http://www.pnas.org/content/110/46/18466>.