
From: Heather Spalding
Sent: Thursday, April 27, 2017 3:27 PM
To: Pesticides; Jim Dill
Subject: Article for next BPC packet

Dear Representative Dill and members of the Maine Board of Pesticides Control,

I read this article and thought you would be interested in it.

<https://thewalrus.ca/big-agro-on-campus/>

I hadn't heard about the Irving project with the University of Maine and was intrigued. I would like to know more. I thought you might wish to include the article in the packet for the upcoming meeting on May 12.

Thank you very much,

Heather Spalding
Deputy Director
Maine Organic Farmers and Gardeners Association

FEATURE (HTTPS://THEWALRUS.CA/CATEGORY/LONG-READS/FEATURE/)

Big Agro on Campus

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Universities claim industry-funded research on chemical and pesticide safety is scientifically sound. Not everybody is convinced

BY BRUCE LIVESEY (HTTPS://THEWALRUS.CA/AUTHOR/BRUCE-LIVESEY/)

ILLUSTRATION BY KATIE CAREY (HTTPS://THEWALRUS.CA/AUTHOR/KATIE-CAREY/)

APR. 11, 2017

In early 2014, New Brunswick's Department of Natural Resources (DNR) was facing a crisis. Rod Cumberland, former chief deer biologist for the province, had been waging a media and letter-writing campaign to draw attention to an unfolding disaster in the province's forests—namely, the collapse of the white-tail deer population, which had dropped to 70,000 from a peak of 286,000 in 1985.

Cumberland was convinced that he had identified the culprit: glyphosate, the world's most popular weed killer, which is sold primarily by Monsanto, an agrochemical multinational. Glyphosate is sprayed on 15,000 hectares of New Brunswick's Crown land each year, and Cumberland believes the herbicide is wiping out the animal's food source. "Each white-tail eats about a ton of food a year," he explains, "so we were basically removing enough food to feed 32,000 of them annually."

Cumberland's charges placed the province in a bind. The government uses glyphosate to stunt the growth of hardwood trees—which the deer feed on—making it easier for the forest industry to grow softwood trees that can be turned into lumber. The chemical therefore sits at the very centre of one of the province's most important industries. Internal emails from 2014 show senior provincial DNR bureaucrats scrambling to respond to Cumberland, at one point sharing damage-control suggestions from J. D. Irving Ltd., New Brunswick's largest forestry company. Eventually, they hit upon a solution: find scientists who could defend glyphosate to the public.

Among the experts they enlisted was Len Ritter, a toxicologist from the University of Guelph well known for his claims that the dangers of pesticides and herbicides are misrepresented. Ritter was touted as one of three go-to scientists on a pro-glyphosate website sponsored by the

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New Brunswick government and forest companies. Last year, he and the others were sent to cities and towns across both New Brunswick and Nova Scotia, where they made presentations and answered questions from local residents about the provincial herbicide-spraying programs. At the public forums, the scientists argued that the decline in deer had been caused by harsh winters and coyotes. (Cumberland counters that deer populations in Maine and Quebec face the same climate challenges and predators, yet haven't plunged as dramatically.)

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By this time, Cumberland's criticisms had helped spur a popular no-spraying movement, which was attracting thousands of petition signatures and setting up protests. His focus had shifted to glyphosate's health and environmental impact. In March 2015, the International Agency for Research on Cancer (IARC)—an advisory arm of the World Health Organization (WHO)—concluded that the chemical is a “probable carcinogen.”

One month after the IARC issued its decision, Cumberland sent a list of studies to the New Brunswick government that detailed the herbicide's dangers. In December 2015, he received a lengthy response from Ritter, who argued that the studies weren't supported by reviews carried out by “major regulatory authorities,” and that glyphosate did not pose an unacceptable risk to human health. “I would advise that much of my attached commentary is not simply my personal opinion but rather is drawn from the recent [federal government] and EU reviews of the safety of glyphosate,” he wrote. Ritter copied the deputy minister of natural resources on the email, which was sent from his University of Guelph account.

A Fellow of the Academy of Toxicological Sciences, Ritter is one of Canada's leading experts on the effects of pesticides and herbicides on humans, and was awarded a medal by the WHO in 2006, in recognition of his contributions as an advisor to the organization.

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But Ritter also has a history of championing some of the industry's most controversial agrochemical products. Critics such as Green Party leader Elizabeth May have accused him of having supported a dioxin-laced pesticide linked to Agent Orange while he was at Health Canada in the early 1980s—a pesticide whose sales, by 1979, had been suspended in the United States. In 1994, while on unpaid leave from his position as the director of what is now Health Canada's Veterinary Drugs Directorate, Ritter testified during a parliamentary committee hearing that bovine growth hormone, which boosts milk production, was "99.9 percent" safe (the government eventually decided against allowing its use in Canada). In 2015, the Prince Edward Island Potato Board flew him to Charlottetown to address fears that the pesticides being used by farmers were a cancer threat. Environmental activist Sharon Labchuk called him a "pesticide proponent" in a letter to PEI's *Journal Pioneer*. "Ritter," she claimed, "says pesticides are too difficult for the average Canadian to understand, that we should quit worrying and leave it up to the experts."

Industry-funded scientists often demand an incredibly high standard of proof before they will accept something as toxic.

The fact that Ritter is a professor emeritus of environmental toxicology at the University of Guelph comes as no surprise to his detractors. Located in the city of Guelph, one hour west of Toronto, the university—nicknamed "Moo U"—is Canada's top agricultural school and home to more than 20,000 students. Opened in 1874 on a farm provided by the province of Ontario, the university remains focused on supplying graduates for the agricultural, farming, forestry, and veterinary industries. This, inevitably, has meant that the school often teams up with the companies that dominate those sectors, forming partnerships that have paid dividends for the institution, which today claims to attract more research dollars per capita than any other comprehensive university in Canada. Indeed, as part of a push to make academic research more relevant in the marketplace, Ontario's agriculture



ministry—headquartered on campus—has ramped up its co-sponsorship of private sector ~~financed projects~~. Scientists are graded on the amount of outside investment they secure.

Academic critics warn that the arrangement is a Faustian bargain. Faculty members, they say, are being recruited by agrochemical giants to undermine criticisms levelled at their products, and therefore help keep potentially dangerous chemicals on the market.

About 3 billion kilograms of pesticides are sprayed across the globe annually; these chemicals constitute a \$60 billion (US) market, and that number is expected to increase by one-third by 2019. In Canada, 100 million kilograms of pesticides were sold in 2014—up nearly 15 percent from five years earlier. Given the widespread use of these chemicals, it's critical that agrochemical companies prove to regulatory agencies that their products are safe.

Every year, Monsanto, Bayer CropScience, BASF, and DuPont collectively spend hundreds of thousands of dollars at the University of Guelph on research projects largely designed to examine the environmental and health impacts of their compounds. The university has done its best to welcome this money. It has built a sprawling six-acre research park on its grounds that has housed offices for Monsanto, Syngenta, and dozens of other private-sector agricultural and farming corporations. Numerous companies—including Bayer—also sponsor research chairs.

These initiatives have resulted in one of the world's largest concentrations of expertise and facilities dedicated to crop research and development—a Silicon Valley of agriculture responsible for breakthrough after breakthrough: edible nanomaterials that extend the colour and flavour of food; bioplastics derived from ingredients such as beans, soy, and wheat straw; DNA barcoding that helps distinguish more than 400,000 species of land plants. Jay Bradshaw, president of Syngenta Canada, may well have been speaking for the entire industry when, in a 2014 report that was prepared to drum up investment in the university, he was quoted as saying: “There is a phenomenal network of agrifood hubs of activity—of formal networks and informal networks—to be able to tap into. That’s a huge benefit for us.”

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Part of that benefit, for Syngenta and others, appears to involve access to a number of Guelph researchers who are capable of effectively challenging claims that herbicides and pesticides are a threat to people, wildlife, and the environment. Ritter, for one, has long argued that pesticides generally pose no threat if applied properly, because they are present in such small concentrations in food and drinking water. “What government regulators do with any potentially toxic substance is control the exposure in order to control the risk,” he tells me over the phone. “The algorithm is based on a definition of ‘reasonable probability of no risk, no harm,’ even if exposure takes place every day for the rest of your life.”

One of the most widely used of those “potentially toxic substances” is glyphosate. Since its invention in the 1970s by Monsanto, nearly 8.6 billion kilograms of it have been applied around the world. An active ingredient in the company’s blockbuster product, Roundup, it also appears in weed-killer lines from Dow and Syngenta. By 2014, the global market for it was \$5.5 billion (US).

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While both the US Environmental Protection Agency (EPA) and the European Food Safety Authority (EFSA) have declared the use of glyphosate to be safe, recent research has been setting off alarm bells. Two years before the IARC described the herbicide as a “probable

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carcinogen,” researchers at the Massachusetts Institute of Technology claimed that it could cause obesity, dementia, autism, and Parkinson’s, among other chronic diseases.

But the controversy surrounding glyphosate has also become—thanks in no small part to the interventions of University of Guelph scientists—a case study in how difficult it is to establish any fixed opinion on the safety of such compounds. In 2001, with funding from the US National Science Foundation, Rick Relyea, a community ecologist then at the University of Pittsburgh, began a series of experiments looking into the effects of pesticides on amphibians. The sensitivity of that animal class to environmental changes makes it a useful indicator of ecosystem health. When Relyea introduced glyphosate to tadpoles, the results were dramatic. “The day after applying the pesticides,” he later wrote, “we found very high tadpole mortality in the tanks treated with Roundup.” In 2005, he published his findings in the journal *Ecological Applications*.

Soon afterwards, the journal published a lengthy letter from a group of scientists, including University of Guelph researchers Dean G. Thompson, then an adjunct professor there, and Keith Solomon. Now seventy-two, Solomon has published hundreds of papers, joined numerous international toxicology organizations and committees, and supervised dozens of graduate students. Both Solomon and Thompson have also conducted research funded by Monsanto.

The letter challenged Relyea’s findings, claiming, among other things, that the tadpoles had been exposed to a chemical concentration greater than typical application rates, and that his experiment had not tested real-world scenarios: because glyphosate is not sprayed directly over water, they argued, it poses a limited threat to aquatic life.

In his response, published in the same issue, Relyea insisted that he had applied a manufacturer-recommended concentration of the chemical, and suggested that his critics’ letter had contradicted the research findings of one of its own authors: years earlier, Thompson had asserted that wetlands are inadvertently affected by the over-spraying of glyphosates. In a later article, Relyea highlighted Solomon and Thompson’s ties to Monsanto: “Accepting research money from a pesticide manufacturer is not a problem. Debating the safety of the

company's product without full disclosure that the company is funding your research is a problem. It ~~(can affect the way)~~ world's assessment of your independence and objectivity."

"Funding bias," which skews scientific studies toward the interests of their financial sponsors, is a well-documented phenomenon. But evidence also suggests that corporations have underwritten pesticide-friendly research as part of a larger strategy. "We call it 'doubt-mongering,'" explains Harvard University science historian Naomi Oreskes, co-author of *Merchants of Doubt* (2010). "If you create doubt in people's minds, you can delay action to regulate a product."

Take the example of bisphenol A, used to make plastic bottles. According to a 2005 review of 115 studies that examined the effects of the industrial chemical on living organisms, 94 of the 104 that were publicly funded uncovered harmful results—none of the 11 funded by industry did. The chemical manufacturers, however, used their own studies to call into question any opposing findings.



Oreskes says this strategy was also used by Big Tobacco. In the 1950s, cigarettes were found to cause cancer—in response, the industry built a sophisticated public-relations apparatus to obfuscate the link. In 1979, for instance, R. J. Reynolds established a \$45 million research program at top universities in the US, including Harvard, to study degenerative diseases and how things like stress affect health. The purpose of this



research, according to internal tobacco documents, was to develop “data useful in defending the industry ~~typical against attacks~~.” In short, it was intended to arm tobacco executives with information that would allow them to argue that there were other possible causes for premature deaths in smokers. “There’s a very famous tobacco-industry document where they say ‘doubt is our product,’” says Stanton Glantz, a professor of medicine at the University of California, San Francisco. “They funded research designed to confuse people about everything you could possibly think of related to tobacco.”

Since then, pharmaceutical, oil, and agrochemical companies have been accused of taking a page from this playbook. Industry groups create apparently neutral websites to promote the safety of their products, and serve up experts who share with the public positive messages about pesticides—both tactics used in response to Cumberland’s campaign. Most important, they fund scientists who produce supportive research.

According to Kathleen Cooper, a senior researcher with the Canadian Environmental Law Association, industry-funded scientists often subscribe to a paradigm of risk assessment that demands an extremely high standard of proof of harm before they will accept something as toxic. “It’s the reason we hardly ban stuff anymore. It’s the paradigm industry insisted upon, and they won that battle. Government agencies are now entrenched in it.”

According to this risk model, when chemicals enter the environment at recommended amounts, they are assumed to pose little or no risk to people or animals—until overwhelming evidence suggests otherwise. Studies that produce unfavourable results are often treated as outliers. “The people who’ve made a living off this paradigm believe in it,” says Cooper. “It’s a belief system as much as a scientific system.”

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Cumberland understands how difficult it is to shake that belief system. Now teaching in Fredericton, ~~he notes that glyphosate is still being sprayed in New Brunswick, and that one of the herbicide's biggest users, J. D. Irving, has reportedly jumped into a multi-year \$1.5 million research project with the University of New Brunswick and the University of Maine to study the deer decline. "It's about proving that glyphosate is safe," says Cumberland, who believes that, whatever the finding, the industry is too invested in the chemical to give it up. "I have no idea what the next step is. We just have to continue to educate the public on the issue. If you spray this stuff, it has an impact. It has a cost. People have to ignore the science not to realize that."~~

Tyrone Hayes is one of America's most famous dissident scientists. A biologist at the University of California, Berkeley, he has been the subject of a lengthy profile in *The New Yorker* and a documentary film by Hollywood director Jonathan Demme, both of which explored the protracted campaign Syngenta mounted to discredit him after he questioned the environmental safety of their best-selling weed killer, atrazine. (The company's strategy to "exploit Hayes's faults/problems" was detailed in internal PR memos obtained by lawyers in 2004.)

Hayes's struggle with Syngenta made headlines—less well known, however, is the role University of Guelph scientists played in countering his research.

Invented in 1958, atrazine is sprayed on crops such as maize, canola, and sugar cane. Effective against weeds that have grown resistant to glyphosate, it is the second-most widely used herbicide in the US, and the one most frequently detected in the country's drinking water. (It was banned by the European Union in 2003 because of concerns about groundwater contamination.) About 34.5 million kilograms of the chemical are sprayed across the US every year, and more than 500,000 kilograms are sold annually in Canada.

Syngenta AG, a global Swiss agrochemical company, is the world's largest manufacturer of atrazine. When the EPA ordered a large-scale review of the chemical in 1994, Syngenta (known then as Novartis AG) assembled a panel of scientists through a consulting firm called EcoRisk, and invited Hayes, a Harvard-educated scientist, to join. Hayes

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began studying atrazine's effects on amphibians. He soon discovered that atrazine had a dramatic ~~impact on the sex~~ impact on the sexual organs of frogs: some of the specimens he dissected could no longer be clearly identified as male or female.

By 2000, Hayes had cut ties with Syngenta and begun publishing his own findings: frogs exposed to atrazine at levels thirty times *below* what the EPA permitted in water, it seemed, were being transformed into hermaphrodites. He concluded that atrazine was contributing to the decline of frog populations around the world. "Atrazine is an endocrine-disruptor," he says. "And the concern is that it increases estrogen production. That means male frogs turn into females. In humans, it's associated with things like breast cancer, prostate cancer, decreased sperm count, and infertility. It's also associated with birth defects, including male genital malformations."

Syngenta disputed Hayes's results. According to Chris Davison, a company spokesperson, "No one has, will, or can ingest enough atrazine via drinking water to adversely affect their health." He notes that the EPA reviewed the relevant laboratory and field studies of amphibians, and concluded that atrazine "does not adversely affect amphibian gonadal development"—a conclusion its Scientific Advisory Panel reaffirmed in 2011.

But last June, the agency appeared to reverse this decision. It released a 500-page draft report that stated that atrazine exceeded its "levels of concern" for chronic risk to birds, mammals, and fish. Syngenta declared the findings "scientifically unjustified" and complained that the report contained "numerous data and methodological errors."

Hayes says the studies that have determined that atrazine is not harmful to frogs have one thing in common—they're all funded by Syngenta. He doesn't think it's an accident that, as part of its campaign to undermine him, the company asked academics they considered friendly to test his findings. Among those academics were two University of Guelph scientists: biologist Glen Van Der Kraak and Keith Solomon.

Solomon, who was on Syngenta's Eco-Risk panel, has for two decades claimed that atrazine isn't harmful at the levels found in the environment. He has also accepted sums from Syngenta—nearly \$110,000 between 2011 and 2014 alone—to conduct studies on its product. In 2013, he received \$14,976 to examine atrazine's effects on a species of green algae that exists in symbiosis with salamander embryos. Solomon concluded that the algae exhibited a tolerance to the herbicide greater than that of other species. "He never met a chemical he didn't like," quips Hayes.

Targeting Hayes, and other scientists who had produced similar results, Syngenta funded a massive study that examined more than 100 papers on the chemical. Released in 2008 and co-written by six researchers, among them Van Der Kraak and Solomon, it concluded "that environmentally relevant concentrations of atrazine do not affect amphibian growth, sexual development, reproduction, and survival."

Studies have shown that the peer-review system is subjective, prone to bias, and unreliable when it comes to catching errors.

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However, Jason Rohr, a biologist at the University of South Florida, examined the Syngenta-backed study and found it rife with errors. Search "They misrepresented over fifty papers from the scientific literature,"



Rohr says. “There were 122 inaccurate or misleading statements in their review paper, and about 97 or 98 percent of them were biased in the direction of suggesting that atrazine was safer than it was.” Rohr assembled a detailed list of statements he considered false. The Solomon group suggested, for example, that one atrazine study had used charcoal filters in tanks to which the chemical was introduced: “Since charcoal will absorb atrazine, this may have affected exposure concentrations” and “seriously . . . compromised the study,” it wrote. But Rohr pointed out that the original researchers had not placed filters in the tanks at all.

In his co-authored critique of the Syngenta-funded study, Rohr noted that Solomon and his co-authors “cast doubts on the validity of 94 percent of the sixty-three presented cases where atrazine had adverse effects, whereas they only weakly criticized 2.8 percent of the seventy cases where there were no effects of atrazine at environmentally relevant concentrations.” He added that his group “found no evidence that the criticized studies were more poorly conceived or conducted than those that were not criticized.”

If this is true, how did such a study survive the peer-review process? While peer reviewing is regarded by the public as the gold standard for vetting science, a number of studies reveal that the system is subjective, prone to bias, and unreliable when it comes to catching errors. The process, says Rohr, “is altruistic—most reviewers trust that the primary authors are accurately reflecting the literature. Whether or not this means the process is broken is a matter of opinion. Nevertheless, it isn’t perfect.”

Studies produced at the University of Guelph on behalf of agrochemical companies have also had a profound impact on regulators—as seen in the case of neonicotinoids, or neonics.

Developed by Bayer in the 1980s, neonics are currently used in more than 120 countries and make up a global market of \$3 billion (US). One of the world’s most popular class of insecticides, they are applied to almost all corn and to one-third of the soy grown in the US. Of the eighty pest-control products that Canada allows, thirty-six are neonics.

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In recent years, bee populations have been declining significantly across North America—in California alone, honey production has fallen by half—and there is reason to believe that, in some regions, neonics are playing a part. In 2014, more than half of the bees in Ontario didn't survive the winter, while other provinces lost on average about 25 percent (an acceptable level of winter loss for Canadian beekeepers is about 15 percent). “We first noticed something wrong in 2010, something that was chronically poisoning the bees,” says Tibor Szabo, president of the Ontario Beekeepers' Association. “But then in 2011, there was a lot more, and again in 2012, right at the start of the year, hives were just dropping dead in a twenty-four-hour period.”

Davis Bryans is one of the owners of Munro Honey, which has bred bees in Alvinston, Ontario, for more than a century. “We had a big loss in 2012 after the farmers planted early,” he recalls. “Bees were healthy in the mornings, and they came back and were dying at the entrance of the hives.” When those bees were tested, they were found to have traces of neonics. Munro Honey is now a plaintiff in a class-action lawsuit, launched in 2014 on behalf of Ontario and Quebec beekeepers, that is seeking \$450 million in damages from Bayer and Syngenta over the use of neonics. In 2015, the Ontario government introduced regulations that will reduce neonic use in the province by 80 percent.

Why did Canadian and US regulators approve neonics despite the fact that many beekeepers believe they are toxic to bees? One influential study, launched at the University of Guelph in 2005 and funded by Bayer, found that bees exposed to canola grown from neonic-treated seeds showed no long-term effects. The research was conducted by environmental biologist Cynthia Scott-Dupree, currently the Bayer CropScience Chair in sustainable pest management. She has completed at least three Bayer-funded studies on bees and neonics, one of which was co-authored by David Drexler, a former director of development and licensing at Bayer. Both the EPA and the Pest Management Regulatory Agency (PMRA)—which regulates pesticides in Canada—relied on her findings to justify expanding neonics registration in both countries.

But as bee populations around the world declined, the Scott-Dupree study was “downgraded from a top research study to a supplemental study by EPA scientists because it was not a strong valid study,” says Jim Frazier, a professor emeritus of entomology at Pennsylvania State University.

When scientists at the EPA examined Scott-Dupree’s research more closely, they found irregularities in how it had been conducted. The agency said that control and test hives had been placed too close together, resulting in contamination of the controls. Frazier says the bees had access to plants that were not treated with neonics. “And so, of course, the colonies are not going to show degradation inside that neonic-treated field, because that’s only a fraction of the food they’re consuming,” he explains. “So it’s really not a valid study for assessing the impact of neonicotinoids on treated pollen, because it’s been diluted by other pollen coming in from greater distances.”

In 2012, after downgrading Scott-Dupree’s original study, the EPA and PMRA asked Bayer to conduct it again. With \$950,000 from the company, Scott-Dupree repeated her work, this time following more rigorous standards. In 2014, she arrived at the same results: there was no connection between neonics and bee fatalities. Critics pounced on this study, too, claiming that the colonies she gathered—both the control group and non-control—were taken from areas where bees might have been exposed to neonics. All hives may therefore have had insecticide in their pollen before the study began. “If they wanted a proper control,” one Canadian bee inspector told me, “they should have used colonies that could not have had contaminated food sources.”

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When I contacted Bayer, the company referred me to Croplife Canada, the main lobby group for the country’s agrochemical industry. Pierre Petelle, Croplife’s vice-president of chemistry, argues that the colony numbers gathered by Statistics Canada suggest the fears may be exaggerated. “When you look at the Canadian situation, with the use of

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neonics that we have here, we're just not seeing that storyline of bee decline and massive bee loss. ~~The decline seems~~ much more related to the severity of winter. I mean, if you track how cold and long the winter was, there you start to see a correlation of highs and lows in terms of losses—much more than the neonic use.”

Studies not financed by agrochemical companies, however, continue to raise concerns about neonics and bees. In 2015, a group of scientists in Switzerland, along with Dave Shutler, a biologist at Nova Scotia's Acadia University, published a peer-reviewed study in *Scientific Reports* that explored how queen bees—crucial to the health of a colony or hive—are affected by neonics. The team compared a control group of clean queen bees to queens that were exposed to “field-realistic” amounts of the pesticide. The results showed that neonics can affect the development of queen bees' reproductive systems and lead them to store fewer sperm—which in turn can lead to fewer new worker bees. Any honeybee colony that falls below a certain critical mass of workers faces tougher odds of survival. “As a broad statement,” Shutler told me, “there's no question that neonics in significant concentrations are toxic to honeybees.”

The agrifood industrial complex emphasizes a message: that herbicides and pesticides are a boon to forestry companies and farmers, offering them safe ways to suppress pests and weeds. Scientists who accept the need for such chemicals may not see anything wrong with taking funds from companies to evaluate their effects. “I don't want to give the impression,” says Rohr, “that all people supported by the industry are necessarily being unethical or disingenuous in their scientific work. I think people can remain objective.”

But Cooper isn't so sure. When she reviews scientific literature on a particular chemical for government consultations, she's skeptical of studies that disclose industry funding. “You're immediately concerned that it could be biased, so you tend to steer clear of them—especially if you have a situation where you see a pattern, where the industry-funded studies find no effect and the more independent work does show an effect. I mean, that's a big red flag.”

When asked whether cash from the agrochemical sector was influencing the outcome of ~~research conducted~~ by its scientists, Malcolm Campbell, the vice-president of research at the University of Guelph, responded that “properly conducted research is agnostic to the funding source. As well, our university has established guidelines regarding research integrity and conflict of interest to which all faculty must adhere.”

For his part, Ritter disputes the notion that he is pro-industry. “I know there are people who’ve been critical of my position,” he says. “But I don’t take a position which is industry friendly. I take a position which is influenced by the data.”

Solomon is likewise unapologetic about taking industry money. “Are the works of Beethoven and Mozart any less good because they were paid for?” he asked in 2014 during an interview on Global TV. “We deliver a good product, and we go with the science, we go with the data. We live and die by the data.”

An earlier version of this article incorrectly referred to the PMRA as the “Pesticide Management Review Agency.” It is, in fact, the Pest Management Regulatory Agency. The Walrus regrets the error.

This originally appeared in the May 2017 edition under the headline “Science for Sale.”

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I still shop to save my soul, but I know now that what you wear is ephemeral—it's insecurities that last a lifetime
