



MERCHANTS OF POISON

How Monsanto Sold the World on a Toxic Pesticide

A case study in disinformation, corrupted science, and manufactured doubt about glyphosate

by Stacy Malkan

with Kendra Klein, PhD and Anna Lappé

Acknowledgements

This report is informed by the work of many researchers and journalists who have investigated Monsanto and, since its 2018 purchase of the company, Bayer, and reported on the documents released via lawsuits alleging that Monsanto's glyphosate-based Roundup herbicides cause a type of cancer called non-Hodgkin lymphoma (NHL). We thank especially Carey Gillam, former research director at U.S. Right to Know, whose [reporting on the Monsanto trials](#) and [discovery documents](#) provided the most comprehensive public record available on the litigation.^{1,2} Gillam's two books — *Whitewash: The Story of a Weed Killer, Cancer, and the Corruption of Science* ([Island Press, 2017](#))³ and *The Monsanto Papers: Deadly Secrets, Corporate Corruption, and One Man's Search for Justice* ([Island Press, 2021](#))⁴ provide further insights into Monsanto's herbicide business that we drew on for this account. We also owe a debt of gratitude to Gary Ruskin, executive director of U.S. Right to Know, who launched a public records investigation into the pesticide industry and its PR firms in 2015 to uncover ties between the companies, their front groups, academic allies, and government regulators who are supposed to protect public health. Documents Ruskin obtained through this investigation provide the basis for much of the analysis in this report.

About the Authors

Stacy Malkan is the co-founder of U.S. Right to Know, a non-profit investigative research group whose public record research and reporting informs this report. Kendra Klein, PhD is Senior Staff Scientist with Friends of the Earth and provided support on the state of the science on pesticides and their impacts on ecosystem and public health. Anna Lappé is an author and sustainability advocate who provided editorial, writing, and research support.

Available online at
www.usrtk.org

© December 2022

*Merchants of Poison: How Monsanto Sold the World on a Toxic Pesticide.
A case study in disinformation, corrupted science, and manufactured doubt about glyphosate*

Design: Keiko Okisada

This report is for general information purposes only. It is intended solely as a discussion piece. It is not and should not be relied upon as legal advice. While efforts were made to ensure the accuracy of the information contained in this report and the above information is from sources believed reliable, the information is presented "as is" and without warranties, express or implied. If there are material errors within this briefing note, please advise the author.

Table of contents

Key Milestones	5
Preface	7
Introduction	8
Part 1: What's at Stake? Health, Climate, and Biodiversity	13
The Rise of Glyphosate	13
Part 2: The Spin	19
Tactic 1: Corrupting Science	20
Tactic 2: Co-opting Academia	29
Tactic 3: Cultivating Third-Party Allies	39
Tactic 4: Tracking and Attacking Scientists, Journalists, and Influencers	52
Tactic 5: Weaponizing the Web	62
Conclusion	72
Part 3: What Can We Do?	73
Appendix I: Expenses of Key Third-Party Allies Named in Monsanto Glyphosate Defense Documents	77
Appendix II: Debunking the Myth that Pesticides Are Safe and Necessary	78
Appendix III: Science of Solutions	81
Appendix IV: Recommended Resources & Readings	84
Endotes	86

Acronyms

AAAS	American Association for the Advancement of Science
ACC	American Chemistry Council
ACSH	American Council on Science and Health
ATSDR	Agency for Toxic Substances and Disease Registry
BIO	Biotechnology Innovation Organization*
BLP	Biotech Literacy Project
CAPHR	Campaign for Accuracy in Public Health Research
CAS	Cornell Alliance for Science
CBA	Consumer Brands Association
CBI	Council for Biotechnology Information
CFACT	Committee for a Constructive Tomorrow (CFACT)
CFI	Center for Food Integrity
CLA	CropLife America
CLI	CropLife International
CSSN	Climate Social Science Network
ECPA	European Crop Protection Association
EFSA	European Food Safety Authority
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organization of the United Nations
FAS	U.S. Foreign Agricultural Service
FPA	Foreign Press Association
FPF	Foreign Press Foundation
GEBN	Global Energy Balance Network
GLP	Genetic Literacy Project
GMA	Grocery Manufacturers Association**
HCIA	Hawaii Crop Improvement Association
IFIC	International Food Information Council
IWF	Independent Women's Forum
IARC	International Agency for Research on Cancer
ILSI	International Life Sciences Institute
JMPR	WHO/FAO Joint Meeting on Pesticide Residues
STATS	Statistical Assessment Services USA
TIRC	Tobacco Institute Research Center
WHO	World Health Organization

* BIO was formerly known as the Biotechnology Industry Organization

** The GMA rebranded itself as the Consumer Brands Association in 2020

Key Milestones

1901	Monsanto founded, headquartered in Creve Coeur, Missouri.
1950	Swiss chemist Dr. Henri Martin discovers glyphosate [N-(phosphonomethyl) glycine].
1970	Monsanto scientist John Franz discovers glyphosate can be used as a weedkiller and the company patents it.
1974	U.S. Environmental Protection Agency (EPA) registers glyphosate for use as an herbicide.
1985	EPA classifies glyphosate as Class C “possibly carcinogenic to humans.”
1986	Under pressure from Monsanto, EPA downgrades glyphosate to class D “not classifiable as to human carcinogenicity”; key EPA scientists disagree with ruling.
1996	First crop genetically modified (GMO) to resist glyphosate-based herbicides, known as Roundup Ready soy, is approved for planting in the U.S.
2012 - 2014	Four U.S. states—California, Oregon, Washington, Colorado—launch ballot initiatives to label GMO foods. Chemical and food companies led by Monsanto spend more than \$100 million to defeat them.
Apr 2013	Pesticide companies announce a new PR initiative to turn the tide on growing public concern about GMOs. The Council for Biotechnology Information (Monsanto, Syngenta, BASF, Bayer, Dow, DuPont) and Ketchum launch GMO Answers campaign.
2014	Globally, glyphosate use is up almost 15-fold since the introduction of Roundup Ready GMO crops in 1996.
May 2014	Vermont passes the nation’s first law requiring labeling of food including ingredients produced with genetic engineering.
Feb 2015	Internal documents reveal Monsanto’s “Freedom to Farm” PR offensive to protect the company from glyphosate regulation in the EU.
Mar 2015	International Agency for Research on Cancer declares glyphosate “probably carcinogenic to humans.”
Jul 2016	U.S. House of Representatives passes bill creating a national standard for GMO labeling, nullifying the Vermont GMO law and making it illegal for states to enact labeling laws.
Jul 2017	California Office of Environmental Health Hazards Assessment adds glyphosate to Proposition 65 list of chemicals known to cause cancer.
Oct 2017	Researchers at UC San Diego report human exposure to glyphosate has increased 500 percent since the introduction of genetically modified crops, raising concerns about health impacts .
Dec 2017	The European Commission grants a five-year approval for glyphosate-based pesticides until December 15, 2022.

Jun 2018	German agrochemical and pharmaceutical company Bayer buys Monsanto for \$63 billion.
	Two academic papers analyze Monsanto documents and report on Monsanto's interference with scientific studies and regulatory actions on glyphosate.
Aug 2018	Bayer loses its first Roundup case, Johnson v. Monsanto Co.. A jury unanimously finds Monsanto failed to warn of the carcinogenic dangers of Roundup products and awarded \$289 million to the plaintiff. (The judge reduced the award to \$87 million).
	U.S. Right to Know begins posting the Monsanto Papers discovery documents released in the Roundup cancer trials.
Apr 2019	U.S. Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR) links glyphosate to cancer .
Jun 2020	Bayer agrees to set aside more than \$10 billion to settle roughly 100,000 claims from people who say exposure to Roundup caused their cancers.
Jul 2021	Bayer says it will remove glyphosate from Roundup for the U.S. consumer market by 2023 but will keep selling it to commercial applicators and farmers.
May 2022	EU delays its decision about glyphosate reauthorization until 2023.
Jun 2022	Ninth Circuit Court of Appeals rejects EPA's decision that glyphosate likely poses no "unreasonable risk" to the environment and human health.
	U.S. Supreme Court rejects Bayer appeals to stop Roundup lawsuits.
Sep 2022	U.S. EPA withdraws its interim decision on glyphosate and will start again with a new review. Tens of thousands of lawsuits are still pending against Bayer from people who say their cancers were caused by exposure to Roundup.

Preface

Ten years ago, pesticide and processed food companies spent \$45 million — roughly \$1 million a day — to defeat a ballot initiative to label genetically modified foods (GMOs) in California. The anti-transparency campaign led by Monsanto, one of the largest producers of GMOs, blitzed the state with misleading messages amplified by a wide range of seemingly independent third parties: from universities, professors, and scientists to many groups that claimed expertise on matters of food, health, nutrition, and science. But investigations would eventually reveal close ties between these so-called neutral groups and the companies fighting transparency.

The following year, 2013, the pesticide companies launched a major public relations salvo to try to win back consumer trust for their GMOs and pesticide products. They soon faced an even bigger PR crisis when the World Health Organization's cancer research panel concluded, in 2015, that glyphosate — the chemical ingredient in the herbicides that most GMO crops have been engineered to tolerate — is a probable human carcinogen. In the wake of that finding, tens of thousands of people sued Monsanto, claiming exposure to glyphosate-based Roundup weed killers caused their cancers. Monsanto and its allies accelerated their PR efforts, engaging many of the same industry-connected third parties and professors who helped them fight labeling, in an all-out battle to defend glyphosate against science raising cancer concerns.

How do these corporate partnerships and disinformation campaigns work? What financial arrangements exist between pesticide companies and the front groups, professional organizations, and academics they depend on to defend their products? My colleague on the pro-labeling campaign, Gary Ruskin, began filing Freedom of Information requests in 2015 at public universities across the country to investigate these questions. We shared what we were learning about industry influence through the nonprofit research group we co-founded, U.S. Right to Know.

In the years since, U.S. Right to Know has obtained, reported on, and posted online thousands of industry and government documents, including discovery documents released in the Monsanto Roundup cancer trials, and many others acquired through judicial enforcement of public records laws. These once-secret documents provide a rare and invaluable view into how the largest pesticide and food

companies work to protect their profits at the expense of public health.

Pulling from these documents — as well as investigative journalism that has exposed elements of this subterfuge — this report showcases the breadth of Monsanto's deception on glyphosate and adds to the growing literature about how corporations deny science and manufacture doubt about the harm of their products. This report reveals key tactics in the pesticide industry's disinformation playbook, showing how, like Big Oil and Big Tobacco, they rely on deceptive PR strategies to maintain their "freedom to operate" without meaningful limits — with dangerous consequences for public health and the environment.

The PR effort has been so forceful — especially Monsanto's efforts to discredit the WHO's researchers — that some observers have described it as a particularly harsh and aggressive effort to undermine cancer research and prevention.

This report builds on previous reporting I and my colleagues have done on pesticide industry disinformation. This includes a 2015 report, [Spinning Food](#), that documents how food and pesticide industry front groups use covert communication tactics to shape the narrative about industrial agriculture and organic and sustainable food production.

Thanks to a long history of writing and research, from Rachel Carson's *Silent Spring* (1962) to Robert van den Bosch's *Pesticide Conspiracy* (1989) to David Michael's *The Triumph of Doubt* (2020); Carey Gillam's reporting on Monsanto's herbicide business and the Roundup cancer trials and her two books, *Whitewash* (2017) and *The Monsanto Papers* (2021); the seminal research by Naomi Oreskes and Erik Conway in their book *Merchants of Doubt* (2010), and other investigative journalists and nonprofits working for transparency, there is growing awareness about industry spin and its harms to people and planet. We hope this report — by taking a deep dive into one company's decades-long disinformation campaign to protect its herbicide, and the sector in general, from regulation — can add to this awareness of industry tactics and convey the urgency of action to address it.

Stacy Malkan
US Right to Know
Oakland, California
October 2022

Introduction



Tobacco industry executives are sworn in to testify at a Congressional hearing where they claimed nicotine is not addictive.

On the morning of April 14, 1994, the House Committee on Energy and Commerce Subcommittee on Health and the Environment swore in seven tobacco executives for a hearing on the regulation of tobacco products. The video from that day⁵ — with executive after executive stating a version of “I don’t believe that nicotine or our products are addictive” — is seared into the collective memory of Big Tobacco’s lies and deception. Indeed, for decades before that testimony, tobacco executives had known that cigarettes cause cancer — and that nicotine is, in fact, addictive.

In October 2019, at a House oversight subcommittee hearing on civil rights, Martin Hoffert, a former consultant for Exxon, testified that in the early 1980s, scientists working for the company were already predicting how fossil fuel use would increase carbon dioxide levels, leading to rising temperatures.⁶ Internal documents would show that as far back as 1968, the American Petroleum Institute, an oil industry trade group, had identified the threat of global warming and the role of the companies in their sector in it.⁷

Oil industry executives knew fossil fuel use would cause global warming and yet not only hid the science but actively attacked those who raised alarm. Tobacco executives [knew and covered up the health risks](#) of their products.⁸

These industries used [now well-documented disinformation tactics](#) to push doubt and denialism.⁹ Big Tobacco’s spin tactics arguably cost millions of lives as regulations emerged long after it was evident that cigarettes cause cancer — and continue to cost lives. (The WHO estimates 8 million people die annually from tobacco use).¹⁰ The fossil fuel sector’s spin pushed science denialism and political inaction that has led to a warming world and is associated with millions of deaths per year,¹¹ with few clear pathways to averting catastrophic climate change.

For decades, the pesticide industry has used similarly deceptive communication strategies to shape the public debate and influence regulators — even manipulating the very science on which policy is made — to distract from the evidence that pesticide-intensive agriculture threatens ecosystems and human health. In this report, we show how pesticide companies not only followed in the footsteps of Big Oil and Big Tobacco, they helped to write the public relations playbook that obscures the dangers of widely used products that science shows are threatening human and environmental health around the globe. This report about Monsanto’s campaign to defend glyphosate tells one piece of a broader story: that for decades, pesticide companies have waged expensive PR campaigns to shape the

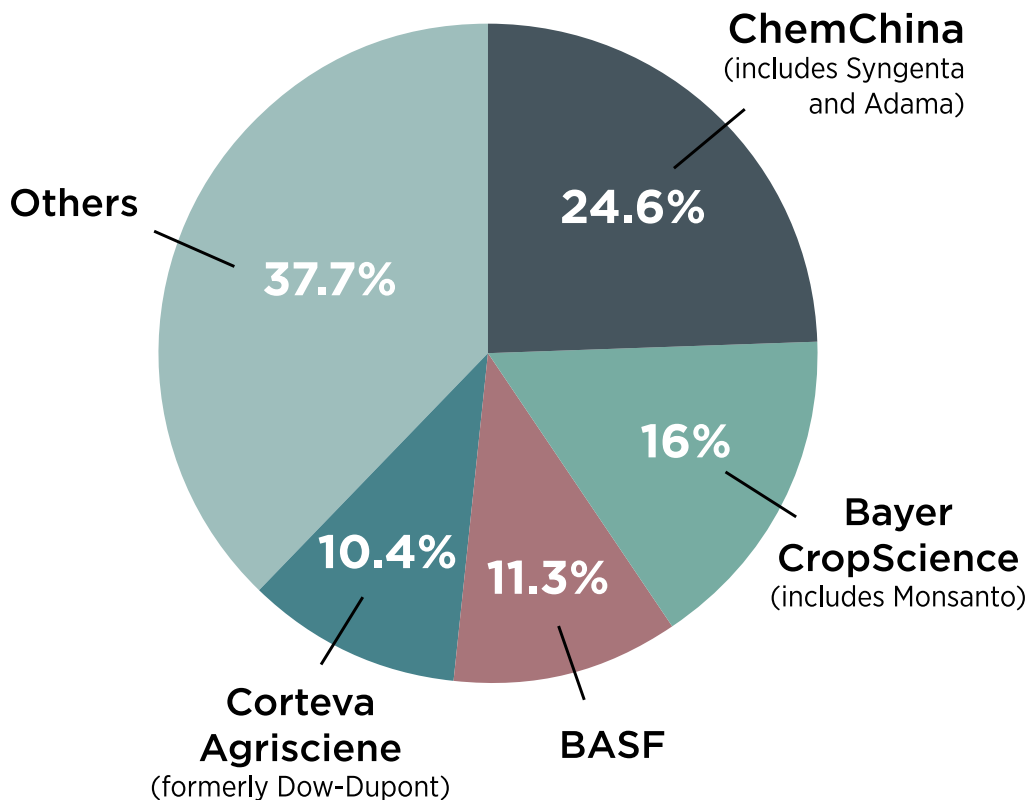
narrative about science and our food system, pushing the twin ideas that pesticides — a term that encompasses insecticides, herbicides, fungicides, and more — are safe and that we need them to feed the world. In recent years, groundbreaking global studies have shown the grave threat agricultural chemicals pose to biodiversity and public health and how they fail to deliver on their promises for greater agricultural productivity, leading to crop loss and weed and pest resistance.¹² Yet despite the mounting evidence, the pesticide industry has doubled down on deceptive messaging.

This report comes at a time of ever greater industry consolidation in the agrichemical and seed sector — much like we’ve seen across the economy. By 2020, thanks to recent purchases including the Bayer-Monsanto deal, just four companies controlled 62 percent of the global market for agrichemicals and 51 percent of the global market for commercial seeds, according to ETC Group. Bayer’s market share of agrichemicals, 16 percent, was second only to ChemChina/Syngenta at 25 percent,

followed by BASF with 11 percent of the market and Corteva (the rebranded name of the merged Dow and Dupont company) with 10 percent. For commercial seeds and seed traits, Bayer controls 23 percent of the market, while Corteva has a 17 percent market share, with ChemChina at 7 percent and BASF at 4 percent.¹³

To bring light to the pesticide industry’s PR spin, this report provides a deep dive into one company and one PR campaign: Monsanto, bought in 2018 by German pharmaceutical and agrichemical multinational Bayer AG, and its product defense campaign to promote glyphosate-based herbicides sold under the brand name Roundup, and to protect these products from the threat of regulation. This report builds on a [2015 white paper](#) written by Friends of the Earth’s Kari Hamerschlag along with Stacy Malkan and Anna Lappé, which documents some of the messages and tactics of food industry front groups, including the millions of dollars they spend every year to shape the story of our food system.¹⁴

Figure 1: Pesticide Industry Consolidation
Leading companies by agrochemical sales



Source: Food Barons, ETC Group, 2022

Two major developments in recent years prompted further reporting on this topic: First, new scientific evidence, discussed in Part 1, makes clear the urgency of addressing the health and environmental impacts associated with the pesticide industry's products, including glyphosate herbicide formulations. Second, access to new evidence from internal corporate documents, obtained over the past five years via legal actions and public interest investigations, provides new insight into how Monsanto ran its propaganda operations, with the help of the pesticide and processed food industries. Thanks to tens of thousands of pages of internal corporate documents made available by these efforts, the public has unprecedented access to how the industry develops strategies to mislead the public. These documents include the "Monsanto Papers" obtained from litigation over glyphosate-based herbicides, and public records made available through an investigation led by colleagues at U.S. Right to Know. (Many of these documents are available on the U.S. Right to Know website and via the University of California, San Francisco, [chemical and food industry documents archives](#).)¹⁵

This report adds to a growing body of research and reporting on the deceptive tactics of the pesticide industry: [The Intercept's reporting](#) on the PR spin pushing neonicotinoids, the class of pesticides driving the "[insect apocalypse](#)," and detailing of the tactics industry used to keep the deadly pesticide [paraquat](#) on the market for decades; or [The New Yorker's](#) reporting on pesticide company Syngenta's attacks on the scientist Tyrone Hayes; or [DeSmog Blog's](#) mapping of pesticide industry misinformation outlets. Taken together, this reporting has helped reveal key PR tactics of the pesticide industry and helped expose the myth-making about the safety and necessity of pesticides.

In this report, we add to this research by detailing the spin tactics used to push the most ubiquitous herbicide in the world: glyphosate. We show — using industry's own words from their own documents — how the largest producer of glyphosate-based herbicides, Monsanto (purchased by Bayer AG in 2018), used stealth tactics to obscure the truth and shape the narrative about this pesticide and our food system more broadly. We detail how the company produced corrupt science,

undermined public health institutions, bought influence at the most prestigious universities in the United States, and deployed an army of third-party allies to spread product-defense messaging, including attacks on scientists and journalists. We show how the company tracked and attacked critics and tried to dominate online spaces related to pesticides and genetically modified organisms (GMOs). Throughout this report, we show how a small group of industry insiders deployed deceptive messaging through seemingly independent voices, using many of the same strategies and funding streams — and sometimes the very same people — the tobacco and fossil fuel industries use to mislead the public.

Why focus on the PR spin around glyphosate? There are certainly more acutely toxic pesticides in agricultural use. There's paraquat, where exposure to even a capful can be deadly, and the class of insecticides known as neonicotinoids, which have increased the toxicity of U.S. agriculture for insects by 48-fold in the past 25 years.¹⁶ But while not the most toxic, glyphosate is still toxic to humans and devastating to ecosystems; we discuss in Part 1 the science linking glyphosate to cancer, reproductive harm, kidney disease, monarch butterfly declines and other health and environmental impacts. And, as the most widespread agricultural chemical in the world, a detailing of how long the company knew about this toxicity, how much it did to spin a different story, and how it continues to push doubt, science denial, and deflection as it faces thousands of lawsuits from farmers and gardeners suffering from cancers related to glyphosate use is critically important. Furthermore, the internal documents paint a clear picture of the PR tactics Monsanto/Bayer used and the players the company relies on, providing insight into product-defense strategies not used just for glyphosate but across all classes of pesticides.

Finally, this story is important because it is connected to the promotion and defense of genetically engineered crops or GMOs, first commercialized in the mid-1990s. The connection is simple: most GMO crops sold to date have been developed with traits to express an insecticide or tolerate an herbicide or do both, and nearly all have been engineered with the trait of glyphosate tolerance.¹⁷ So, the

debates about the risks and rewards of GMOs are intimately linked to the story of the spin around glyphosate safety.

Based on these thousands of pages of internal Monsanto documents and investigative reporting, analyzed together in one place for the first time, this report reveals five pesticide industry disinformation tactics, chronicling how Monsanto worked to:

1. Corrupt the science

We show how Monsanto employees shaped the science on glyphosate, including paying academics, ghostwriting papers, influencing regulatory agencies, and using other covert tactics to shape the scientific and regulatory record;

2. Co-opt academia

We report how Monsanto and other pesticide companies partnered with and paid universities and professors who in turn promoted and defended glyphosate and the GMO seeds designed to tolerate the herbicide. Many of these partnerships were not transparent to the public.

3. Mobilize third-party allies

We describe the large and well-funded third-party echo chamber — the front groups, professional organizations, universities, astroturf campaigns, and others—who disseminated messaging crafted by Monsanto and its PR firms for the purpose of opposing health, safety, and transparency regulations for pesticide industry products.

4. Track and attack scientists, journalists, and influencers

We examine how industry front groups that claim to be “pro-science” — including the Genetic Literacy Project and American Council on Science and Health—targeted the World Health Organization’s cancer researchers, and other scientists and journalists who reported on glyphosate’s links to cancer.

5. Dominate online spaces

We discuss how Monsanto and other companies deployed the same front groups that attacked scientists and journalists in defense of glyphosate to infiltrate online spaces and garner top placement in Google News searches to elevate industry messaging.

This report also documents how the sector’s influence campaigns are themselves big business: Together, six of the trade associations named in Monsanto documents for glyphosate defense — the Biotechnology Innovation Organization, CropLife America, American Chemistry Council, the Grocery Manufacturers Association, the National Corn Grower’s Association and the American Soybean Association — spent \$1.3 billion over a five-year period (2015-2019) funding marketing, lobbying, and messaging. (See Appendix I) And, just seven of the non-profit organizations named in Monsanto’s internal documents as key allies in its product-defense strategy spent up to \$76 million during that same period. (This is all on top of \$206 million Monsanto spent on its reported advertising budget over the three-year period just before the Bayer purchase).¹⁸ While glyphosate defense is only part of what these organizations do — in some cases a small part — the size of their budgets conveys the huge resources available to groups that run product-defense campaigns using the disinformation tactics we describe in this report. These groups are an unquestionable industry unto themselves: their purpose is to protect and defend the chemical-intensive food, products, and processes that are the basis of today’s industrial food chain.

As this report goes to press, the European Union is debating whether to reauthorize the use of glyphosate next year. Here in the United States, the Ninth Circuit Court of Appeals ruled in June 2022 that EPA’s approval of glyphosate was unlawful.¹⁹ The same month, the U.S. Supreme Court rejected Bayer’s bid to dodge a \$25 million jury award to a California man who said decades of exposure to glyphosate-based Roundup caused his non-Hodgkin’s lymphoma.²⁰ Largely as a result of the pressures from glyphosate litigation, Bayer announced in July 2021 that it would replace its glyphosate-based products in the U.S. residential “Lawn & Garden” market with new formulations beginning in 2023.²¹ Agricultural use of glyphosate will continue. Numerous other commercial and industrial uses, including on school grounds and in city parks, will also continue. While these uses are still permitted, there is growing public pressure to further regulate the herbicide.

Debates about the future of glyphosate, indeed all formulations of pesticides, should be deliberated in light of what is revealed in this report and in other reporting on pesticide industry public relations spin: The fact that it is now well-documented how the pesticide industry works to shape science and public opinion in order to avoid regulation. In this context, this report raises key questions: How do we expose industry manipulation of the science around pesticides? How do we ensure harmful chemicals like glyphosate are not replaced by even more toxic ones? And, how do we regulate pesticides to protect public health and ecosystems and not remain at the mercy of voluntary action from chemical companies? More broadly, how do we ensure that public officials, not influenced by industry or its third-party allies, make independent policy decisions so critical to our health and the wellbeing of our planet?

In Part 1 we delve into why this matters and what's at stake for our health, the climate, biodiversity and our future. In Part 2, we describe the spin tactics Monsanto used, including what the internal corporate documents reveal about how the company

manipulated the scientific record on glyphosate over many years. In Part 3 we discuss actions that policy makers, media institutions, academics, and everyday people can take to combat industry disinformation tactics like the kinds described here. On pages 76, we provide substantive addendums debunking the myths that pesticides are safe and necessary to feed the world.

Ultimately, the story of deceit this report documents is a story about the pesticide industry's vulnerability: To evade the regulation and transparency that would impact their profitability and market share, the pesticide industry — just like the oil and tobacco industries — are profoundly reliant on the success of PR subterfuge to maintain profitability. Understanding how this subterfuge works is paramount for journalists, policymakers, and public interest groups working to inform the public about the health and environmental risks posed by the increasing use of pesticides and the availability of safer alternatives.



Part 1: What's at Stake? Health, Climate, and Biodiversity

The Rise of Glyphosate

Glyphosate is now the most widely used agricultural chemical in the world — it is registered in 130 countries, approved for use on over 100 crops, and marketed as 750 different types of products.²² Traces of the chemical are found in many everyday foods, from cereal and hummus to honey and wine.^{23, 24} Glyphosate is now so ubiquitous in the environment, it is even found in rain, contaminating 86 percent of samples gathered from across the United States.²⁵ And it's ubiquitous in our bodies, too. A June 2022 Centers for Disease Control study found the chemical in the urine of more than 80% of the children and adults they tested.²⁶ Never before have we sprayed so much of a chemical on our food, on our yards, and even on our children's playgrounds. But it wasn't always so widely used.

In 1970, a Monsanto chemist discovered that glyphosate, formerly used as a descaling agent, could be an effective herbicide. The company patented its use as a weedkiller that year and first marketed it under the trade name Roundup in 1974. For two decades, it was used less frequently than other herbicides, such as 2,4-D, dicamba, and atrazine. But, as Carey Gillam details in her investigative book on the history of glyphosate — *Whitewash: The Story of a Weed Killer, Cancer, and the Corruption of Science* — in the 1990s, as companies like Monsanto began gaining the technological capacity to genetically engineer crops, scientists at Monsanto discovered organisms in the sludge-filled waste ponds surrounding its Roundup production plant in Louisiana that could confer resistance to glyphosate.²⁷ The company successfully inserted genetic material from those bacteria into soybeans and found that the crop could withstand being sprayed with Roundup and continue to grow. The company saw huge potential. Historically, farmers would have to take care not to spray herbicides on their crops as it would kill them, but these new genetically engineered

“Roundup Ready” crops allowed farmers to spray glyphosate directly on their fields throughout the growing season, killing weeds without damaging their crops.

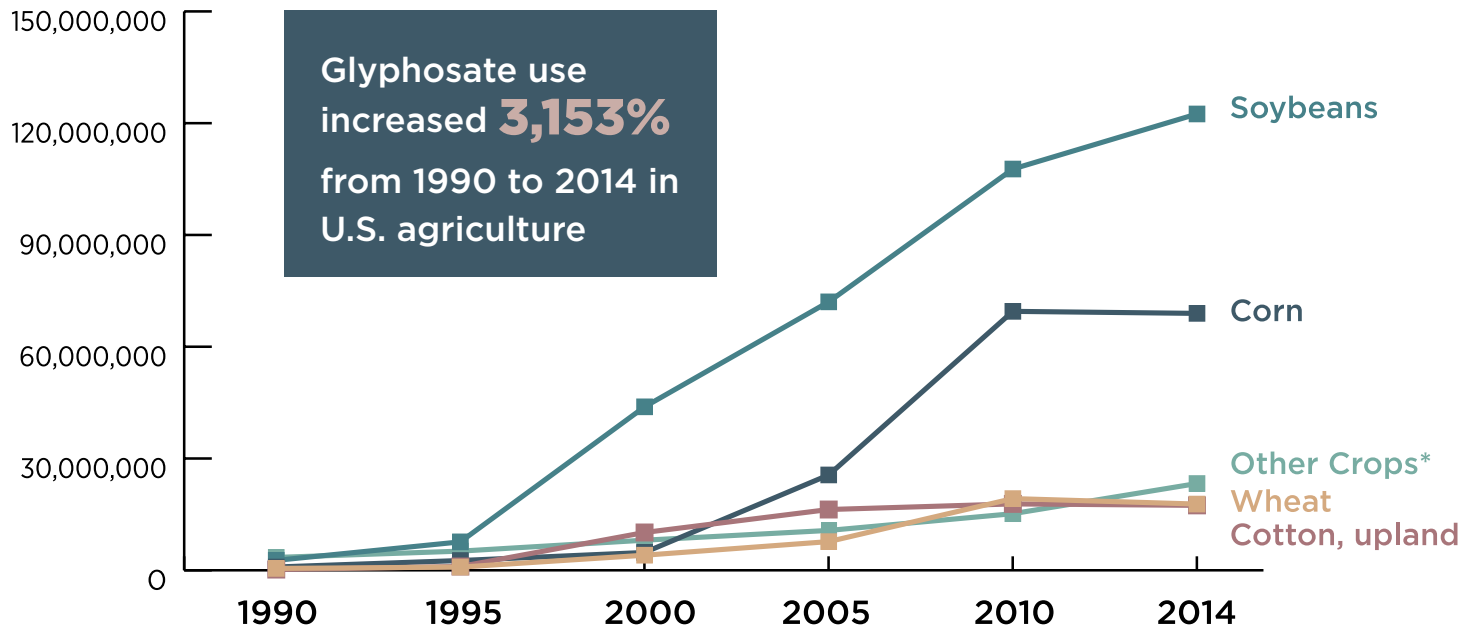


“In the U.S., no pesticide has come remotely close to such intensive and widespread use.”

Charles Benbrook,
Environmental Sciences Europe

In 1996, Monsanto released GMO Roundup Ready soybeans followed in 1998 by Roundup Ready corn; these are two of the most widely planted crops in the U.S., representing over 180 million acres of production in 2021.²⁸ Engineering these crops to go hand-in-hand with glyphosate was a major market coup for Monsanto. Largely as a result of Roundup Ready corn and soy, use of glyphosate in the U.S. spiked 3,100 percent between 1990 and 2014,²⁹ by which point 94 percent of soybeans and 92 percent of corn acreage in the U.S. were Roundup Ready.³⁰ By the 2000s, Monsanto was making billions in revenue on glyphosate and the GMO seeds that go with it.³¹

Figure 2: Increase in Agricultural Glyphosate Use in the United States



*Includes sorghum, sugar beets, canola, oranges, barley, and alfalfa

Source: Benbrook, C. (2016). Trends in glyphosate herbicide use in the United States and globally. *Environ Sci Eur.* 28(1): 3. Data are pounds of active ingredient applied

In 2018, German agrichemical giant Bayer AG purchased the company for \$63 billion, evaluating it as a solid investment,³² presumably based on current and projected profits from the lucrative herbicide and GMO seed segment of the company's operations. But by that year, there had already been evidence emerging about the safety of glyphosate — evidence Bayer chose to ignore and continues to deny.³³ Mounting concern about the safety of glyphosate would soon cost the company billions of dollars. (In this report, we will refer to Monsanto for activity before its purchase by Bayer AG, which since 2003 has been structured as a holding company for its pharmaceutical and chemical businesses as well as its agricultural input business, known as Bayer CropScience. For post-2018 activity, we will refer to Bayer).

The science of glyphosate's harms

Despite the fact that scientists at the U.S. Environmental Protection Agency [flagged](#) glyphosate as having the potential to cause cancer as far back as 1984,³⁴ Monsanto's spin tactics, many of which are detailed in this

report, have long suppressed these concerns and maintained a widely held public narrative that the herbicide is benign.³⁵ The company even ran ads claiming glyphosate was safer than table salt.³⁶

However, in March 2015, thirty years after the EPA first raised cancer concerns about glyphosate, the herbicide was publicly classified as a probable human carcinogen.³⁷ The finding came from the world's premiere independent cancer research agency — the World Health Organization's International Agency for Research on Cancer (IARC). The agency is tasked with identifying cancer hazards, and its classifications have global implications, influencing public policy, regulatory decisions, public health recommendations, and litigation.³⁸ IARC found "strong" evidence of genotoxicity (damage to genetic information within a cell causing mutations, which may lead to cancer) and a "statistically significant association between non-Hodgkin lymphoma and exposure to glyphosate."³⁹



DeWayne “Lee” Johnson, a groundskeeper for California schools, was the first cancer victim to take Monsanto to court.

©Josh Edelson/Getty Images

The Roundup Trials

In the years following the IARC classification, more than 125,000 people have sued Monsanto over claims that Roundup and other glyphosate-based herbicides caused them or their loved ones to develop non-Hodgkin lymphoma, a cancer that affects the immune system. Plaintiffs include farmers, school and park groundskeepers, and homeowners who used products like Roundup on their lawns and gardens.

The first trial, *Dewayne Johnson v. Monsanto Company*, concluded in August 2018.⁴⁰ School groundskeeper Dewayne “Lee” Johnson developed non-Hodgkin lymphoma after routinely using glyphosate-based herbicides at his job. Johnson reports that, despite wearing protective gear, he was soaked in the herbicide after a hose broke on his equipment. He later developed rashes, lesions, and was soon diagnosed with cancer.⁴¹ A jury awarded Johnson \$289 million (reduced to \$78 million by the judge), which included compensation for damages along with punitive damages based on the finding that Monsanto failed to warn consumers of its products’ potential dangers.

The next two trials were brought by homeowners who frequently used Roundup on their properties, first Edward Hardeman and then a married couple, Alberta and Alva Pilliod. In both cases, juries unanimously found that Roundup caused the plaintiffs’ non-Hodgkin lymphoma and also found that Monsanto acted negligently by not warning about risk. Hardeman was awarded \$80 million in damages, while the jury awarded the Pilliods over \$2 billion, which was then cut to \$86.7 million by the judge.

After losing the first three trials, Monsanto owner Bayer set aside roughly \$14 billion to cover Roundup cancer claims. Litigation and settlement talks are ongoing. In June 2022, The Supreme Court of the United States rejected Bayer’s bids to dismiss legal claims in two cases. The court left in place lower court decisions upholding the judgements and jury awards for Hardeman and the Pilliods.⁴²

For more information see: <https://usrtk.org/monsanto-papers/>

Cancer is not the only health concern associated with glyphosate. Research has linked the chemical to high rates of kidney disease in farming communities and to shortened pregnancy and low birth weight in a cohort of women in the Midwest.^{43,44} Animal studies and bioassays have linked glyphosate and its formulations to endocrine disruption, decreased sperm function, and disruption of the gut microbiome.^{45,46,47,48,49} One animal study found a link with increased risk of fatty liver disease even at ultra-low doses of glyphosate.⁵⁰ Research also shows that glyphosate is genotoxic, causing DNA damage in human cells that can lead to cancer.⁵¹

What's more, research shows that when glyphosate is combined with other chemicals in commercial formulations, such as Roundup, the end product may be much more harmful than glyphosate alone.⁵² While research has raised important health concerns about ingredients such as surfactants that help glyphosate penetrate the surface of plants, regulators have failed to address the safety of these ingredients or how they may interact with glyphosate to harm human health.⁵³

In the environment, glyphosate can kill or harm 93 percent of the plants and animals protected under the Endangered Species Act, according to the EPA.⁵⁴ Researchers have identified glyphosate use as a primary driver of the decimation of monarch butterfly populations because the ubiquity of spraying is wiping out the milkweed plants their young depend on.⁵⁵ And glyphosate is now linked to bee declines as emerging research shows that it can have a range of negative impacts, from killing bees outright to reducing their ability to reproduce and find food.^{56,57,58,59} Mounting evidence also shows that glyphosate harms critical soil organisms, from the mycorrhizal fungi that enable the flow of carbon to the soil, to the earthworms that are responsible for healthy soil structure.^{60,61}

The ecological sourcing of glyphosate — largely from phosphate mines in southeastern Idaho — is also problematic. To produce glyphosate, phosphate ore is extracted and refined into elemental phosphorus. This mining involves stripping the soil off mountaintops, which destroys vegetation, contaminates water, creates noise and air pollution, and destroys acres of habitat for critical species.⁶²

Processing the ore into glyphosate raises further concerns. A plant in Soda Springs, Idaho formerly owned by Monsanto and now owned by Bayer, is the only site in North America that can refine phosphate ore into elemental phosphate. The plant has been designated as a Superfund site and has resulted in decades-long contamination of groundwater and contributes to surface-water pollution that violates Idaho water-quality standards in several nearby streams and creeks.^{63,64}

An overwhelming body of science suggests that, from sourcing to processing to end product, glyphosate imperils the health of ecosystems and people.

The spin and its consequences

As illustrated in the section that follows, the story of glyphosate is one of spin and deflection by Monsanto — and subsequently Bayer — and their product defense consultants, PR firms, and others. We describe how Monsanto worked to shape the scientific record for over 40 years to protect its use of glyphosate. We show how the company co-opted academic institutions and paid academics to promote and defend its products, and lobby for deregulation. We document how the company deployed a wide range of third-party allies — many of whom falsely claimed to be independent of industry — to defend its products, attack the scientists who raised cancer concerns about glyphosate, and dominate online spaces, including Google “news” searches, with pesticide industry messaging.

These tactics have had very real consequences. Despite evidence of harm, the federal government turned a blind eye when it came to monitoring glyphosate — failing to test for it on food until 2016 and in our bodies until 2022, despite doing so for other commonly used pesticides for decades. And rather than restricting the use of glyphosate, the EPA has raised the legal threshold for residues on some foods up to 300-fold since the 1990s.⁶⁵ Glyphosate now finds its way into our food supply at alarming levels not only because it is used so widely on genetically engineered corn and soy, but also because it is increasingly sprayed on crops such as wheat, oat, and beans just before harvest to kill them so that they dry uniformly — a process known as desiccation.

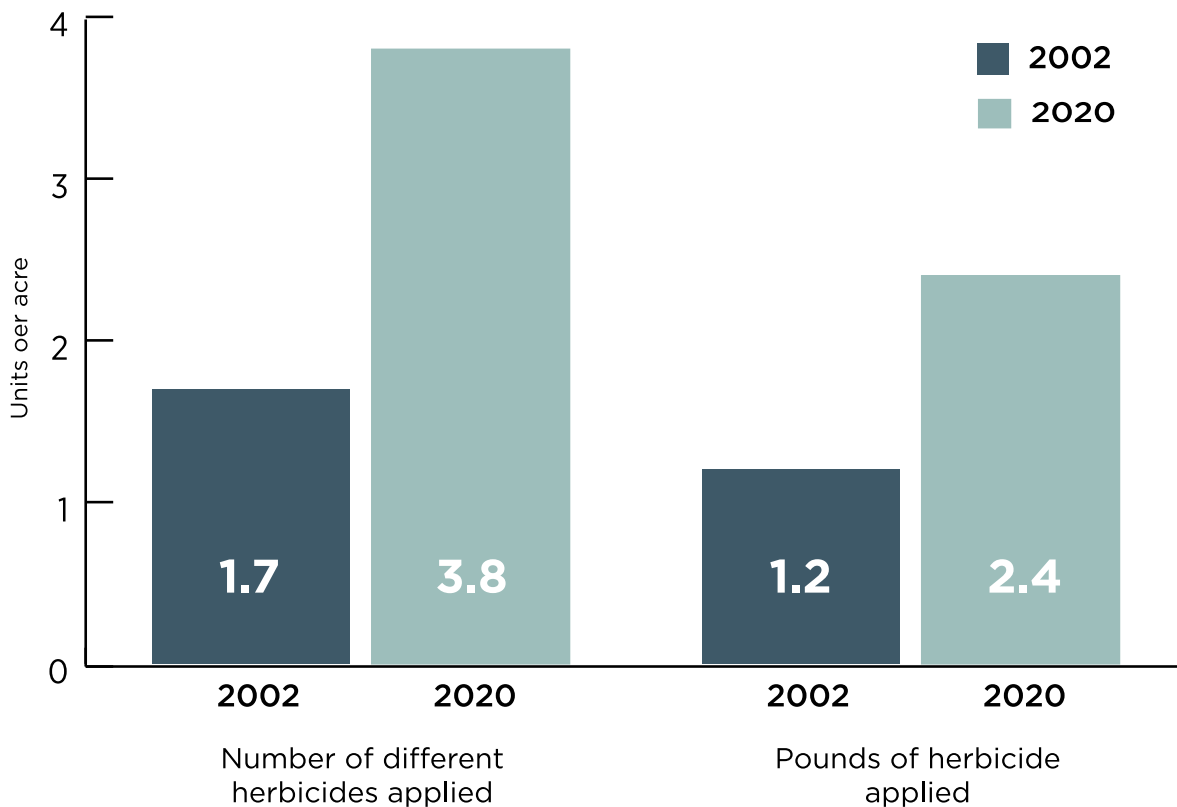
The EPA's slipshod regulation of glyphosate has led to a dramatic increase in exposure. Research shows that the percentage of the U.S. population with detectable levels of glyphosate in their bodies increased from 12 percent in the early 1990s to 70 percent by 2014.⁶⁶ A 2020 study suggests even more widespread exposure, finding glyphosate in all study participants.⁶⁷



Genetically engineered crops have accelerated a pesticide treadmill. Bayer AG is now developing a corn seed that is genetically engineered to resist five herbicides at once.

What's more, Roundup Ready genetically engineered crops have accelerated a destructive pesticide treadmill. "Superweeds" that no longer respond to glyphosate now plague more than 60 million acres of U.S. farmland.⁶⁸ As the efficacy of glyphosate has waned over the past decade, the use of herbicides across the American Midwest has doubled as farmers attempt to deal with herbicide-resistant weeds.⁶⁹ In fact, despite using significantly more pesticides than they did more than half a century ago, farmers are actually losing more of their crops to pests — including weeds, insects, and fungi. The pesticide industry is doubling down on this failing but lucrative approach, with the latest genetically engineered crops designed to tolerate multiple herbicides, for example glyphosate and 2,4-D combined. As of 2020, farmers were using 19 times more 2,4-D and dicamba — antiquated chemicals linked to increased risk of cancer, reproductive problems, genetic damage and more.⁷⁰ And Bayer AG is now developing a corn seed engineered to resist five herbicides at once: 2,4-D, dicamba, glufosinate, glyphosate, and quizalofop.⁷¹ USDA is reviewing the proposal, as of publication.

Figure 3: Average use of herbicides per acre on soybeans in the U.S. doubled from 2002 to 2020



“Regulatory agencies use science out of the Jurassic. The possibility that they might begin to use modern science is an existential threat to the chemical industry as we know it.”

Pete Myers, PhD, chief scientist,
Environmental Health Sciences

way EPA uses scientific data. As the biologist Pete Myers states: “Regulatory agencies use science out of the Jurassic. The possibility that they might begin to use modern science is an existential threat to the chemical industry as we know it.”

[For more information, see Appendix II: Debunking the Myth that Pesticides Are Safe and Necessary.](#)

To continue with the overuse of toxic pesticides to grow our food is like continuing dependence on coal as an energy source: the preponderance of scientific data points to more sustainable and economically efficient solutions (See Appendix III: Science of Solutions). It is in this context that it is necessary to understand the pesticide industry’s efforts to silence concerns and dilute the voices of communities and agroecological experts — using a range of spin tactics we dive into next.

These consequences highlight the urgency of understanding and combating the pesticide industry’s spin as we face a future in which hazardous pesticide use is likely to rise. This must go along with holding regulators accountable and pushing to modernize the

Total herbicide tolerant acreage: 98.18%

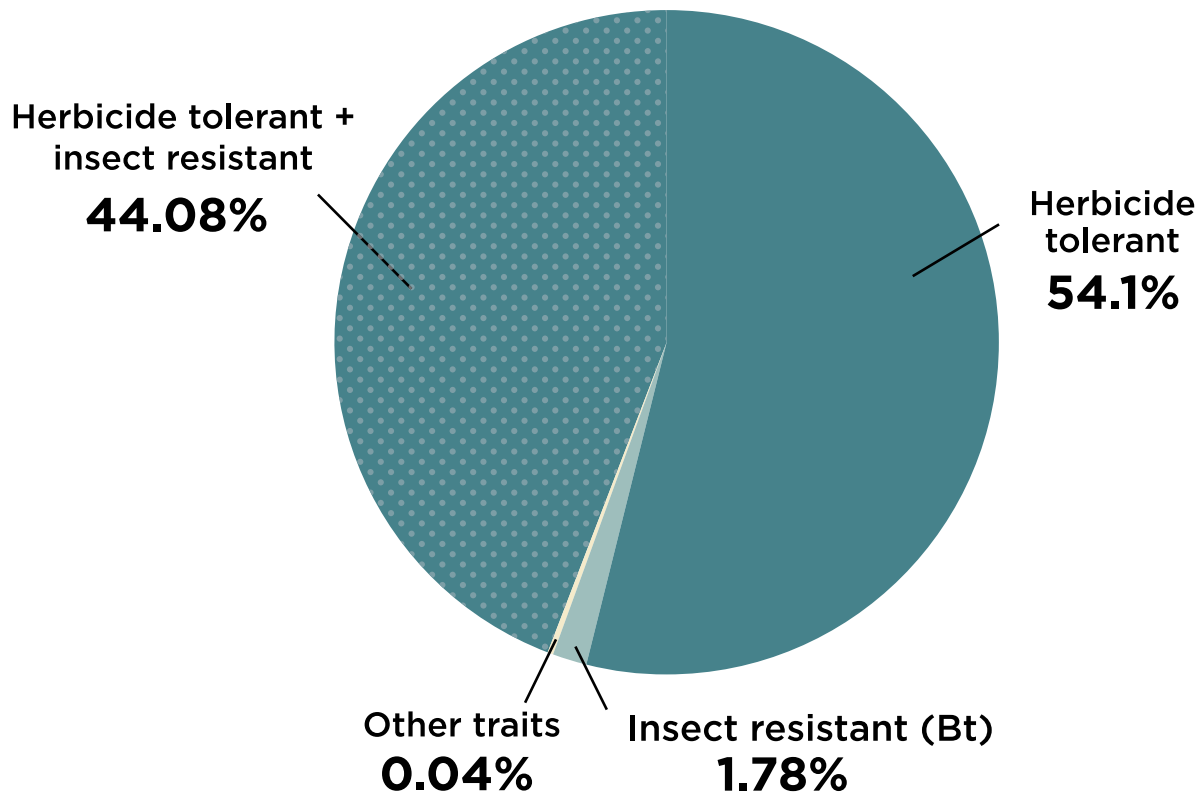


Figure 4: Genetically Engineered Seed Traits by Crop Acreage in United States

Source: ISAAA Briefs 52 Global Status of Commercialized Biotech/GM Crops: 2016

Part 2: The Spin



“The point of modern propaganda isn’t only to misinform or push an agenda. It is to exhaust your critical thinking, to annihilate truth.”

Garry Kasparov, Russian chess grandmaster

In this report, we illuminate **five of the core spin tactics industry uses** to influence regulation, policy, and attitudes about pesticides and the future of food systems by diving deep into how Monsanto (now Bayer) ran its disinformation campaigns around the herbicide glyphosate. We note how the use of these covert messaging and product defense tactics has escalated in the past several years as Monsanto and now Bayer faced a cascade of crises after a prestigious international science panel — the World Health Organization’s International Agency for Research on Cancer (IARC) — ruled in 2015 that glyphosate is a probable human carcinogen.⁷²

In **Tactic 1**, we detail how the company worked to shape the scientific record on glyphosate, and their influence over regulatory reviews and oversight. We then describe in **Tactic 2** how the company and its allies in the pesticide industry mobilized public universities and professors — several of whom were receiving undisclosed payments — to promote and defend glyphosate and the patented seeds that were genetically modified to tolerate the chemical. In **Tactic 3**, we examine some of the third-party allies — including front groups, trade groups, and public relations firms — Monsanto deployed to disseminate its

product-defense messaging. In **Tactic 4**, we share another key product defense strategy: attacking and attempting to silence and marginalize scientists and journalists who raise public health concerns. Finally, in **Tactic 5**, we look at strategies Monsanto/Bayer — and the pesticide industry more broadly — has used to move their messaging online, dominate Google News search results, and create the false impression of consensus about the necessity and safety of pesticides and specifically glyphosate.

A core component of all these tactics is the attempt by industry to conceal its fingerprints — all the more reason why shining the light on these stealth tactics is a critical step in reshaping our understanding of glyphosate, and the use of pesticides more generally. Revealing how industry uses these tactics to shape the public discourse about its products is crucial for journalists, policy makers, and the public to make decisions about the policies that impact our health and environment. As we noted in the introduction, the tactics we describe here are used across industries; fossil fuel companies have deployed them to stall action on climate, and the tobacco industry deployed them to slow regulation and deflect responsibility for harm.



TACTIC 1: Corrupting Science

“It is not an exaggeration to say that in the product defense model, the investigator starts with an answer, then figures out the best way to support it.”

David Michaels

The Triumph of Doubt: Dark Money and the Science of Deception

“Doubt is our product,” quipped a tobacco industry executive in a [now infamous 1969 memo](#).⁷³

More than a decade earlier, the science on cigarettes was already clear: smoking caused cancer. But to avoid regulation and keep its products on the market, the tobacco industry worked for decades to create doubt about the science linking cigarettes to health harms. To do so, the tobacco industry’s PR firm Hill & Knowlton hatched an initiative, the Tobacco Institute Research Center (TIRC), that would go on to spend the next 40 years, and \$300 million, designing and conducting research on cigarettes.⁷⁴ Funded by and working in the interest of the industry, the Center “had no interest in answering a scientific question,” noted Harvard historian Allan Brandt. The “goal was to maintain vigorous control over the research program, to use science in the service of public relations.” These tobacco industry efforts, Brandt wrote, “would ultimately become the cornerstone of a large range of efforts to distort scientific processes for commercial ends during the second half of the 20th century.”⁷⁵

As the tobacco industry wove its influence through research and academic institutions for decades, the fossil fuel industry used similar PR tactics. “If you really want to change someone’s mind in a big way, you don’t give them a single fact or point to a contradiction in an argument,” explained the Climate Reality Project in a 2019 report about the climate denial machine, “you tell them a story that gives them a new worldview.”⁷⁶ Pushing faux-research and white

papers through right-wing, anti-environmental regulation think tanks like the Cato Institute, Heritage Foundation, Heartland Institute, and others, the oil industry has been working to promote a worldview that denies climate science and the threat of the fossil fuel industry.⁷⁷



For decades, the pesticide industry has relied on similar tactics — and some of the same groups — to create a false narrative of certainty about the safety and necessity of their products. The industry is not just following the science-denial playbook of Big Tobacco and Big Oil, pesticide companies helped invent it. Internal corporate documents discovered in litigation related to pesticides have provided evidence of how companies denied, manipulated, and covered up evidence of harm to keep their products on the market.⁷⁸

“Science is supposed to be constant, apolitical, and above the fray,” writes David Michaels, an

epidemiologist and the longest-serving head of the U.S. Occupational Safety and Health Administration, [in the Boston Review](#).⁷⁹ But over the past several decades, he writes, we've seen the rise of "science-for-sale specialists" and a "'product-defense industry' that sustains them — a cabal of apparent experts, PR flaks, and political lobbyists who use bad science to produce whatever results their sponsors want."⁸⁰ Michaels describes this trend as "mercenary science," in which scientific studies are designed not to better understand the world, but to defend products and protect corporations.

Michaels and others have long noted the danger of industry influence on science and how it distorts public policy and impacts public health. In this section, we examine how Monsanto worked over decades to shape the science, regulatory reviews, and public perceptions of glyphosate.

An 'unprecedented' strategy to save glyphosate

In 2015, when the World Health Organization's IARC classified glyphosate as a probable human carcinogen, Monsanto deployed an "unprecedented and harsh strategy" to push back on the ruling, wrote Jonathan Samet, Dean of the Colorado School of Public Health, in [a 2019 paper](#). "The Monsanto strategy parallels those used by the tobacco industry and others," Samet wrote, "but the glyphosate story is notable for its intensity, its reach to working group members, and the immediacy and scope of litigation in the United States related to non-Hodgkin's lymphoma."⁸¹

"In order to save glyphosate, the Monsanto corporation has undertaken an effort to destroy the United Nations' cancer agency by any means possible."

Le Monde

In an award-winning [investigative series](#) for *Le Monde*, journalists Stéphane Horel and Stéphane Foucart detail the strategies Monsanto used "to interfere with science, influence the regulatory process and orchestrate PR campaigns to defend their products." They summed up their findings: "In order to save glyphosate, the Monsanto corporation has undertaken an effort to destroy the United Nations' cancer agency by any means possible."⁸²

But Monsanto's efforts to shape the science on glyphosate date back much farther. Internal documents and investigative reporting in the wake of the IARC ruling reveal evidence of the company working to shape the scientific research on glyphosate for decades.

Long-standing concerns about glyphosate

"You cannot say that Roundup is not a carcinogen. We have not done the necessary testing on the formulation to make that statement."

Donna Farmer, Monsanto

"Glyphosate is one of the most studied herbicides in the world," Bayer claims on its website.⁸³ The herbicide, the company claims, "has been subject to rigorous testing and oversight by regulatory authorities" whose "conclusions consistently support the safety of glyphosate and glyphosate-based herbicides when used as directed." Indeed, as Bayer notes, regulatory authorities in the U.S., Europe, and elsewhere have stated glyphosate does not pose a cancer risk. But how robust were those reviews? Whose research were they based on? Were they conducted with transparency and using the best scientific methods?

Evidence from the Roundup cancer trials undercuts Bayer's rhetoric — and before it Monsanto's — about rigorous scientific scrutiny and regulatory oversight. In videotaped testimony, Monsanto's longtime CEO Hugh Grant admitted the company never conducted an epidemiological analysis of glyphosate

to determine if people who used it had an increased risk of cancer.⁸⁴ The record shows that the company also did not conduct studies on formulated Roundup products — the chemical combination of glyphosate and other ingredients such as surfactants — to determine cancer risk.⁸⁵

Yet concerns about cancer date back to the chemical's earliest days on the market. A 1983 Monsanto study found that mice exposed to glyphosate developed rare tumors at statistically significant rates.^{86,87} Based on concerns about kidney tumors in the mice, EPA toxicologists signed a [consensus review](#) of glyphosate in March 1985, stating they were classifying glyphosate as a Category C carcinogen, a substance “possibly carcinogenic to humans.”⁸⁸ But after Monsanto pressured the agency, EPA's top brass overruled its own scientists' concerns,⁸⁹ assuring instead that glyphosate posed no cancer risk — a position EPA still holds today.⁹⁰

While Monsanto employees publicly declared certainty about the safety of glyphosate, behind the scenes they acknowledged uncertainties in the science. Monsanto toxicologist Donna Farmer [emailed to colleagues in 2003](#): “you cannot say that Roundup is not a carcinogen. We have not done the necessary testing on the formulation to make that statement.”⁹¹ A year earlier, Monsanto toxicologist Dr. William Heydens had [written to a Monsanto consultant](#): “What I've been hearing from you is that this continues to be the case with these studies — Glyphosate is OK but the formulated product (and thus the surfactant) does the damage.”⁹²

Years later, Heydens would acknowledge “vulnerabilities” in the science that could trigger a cancer warning for glyphosate from the IARC. In a 2014 email, Heydens wrote: “while we have vulnerability in the area of epidemiology, we also have potential vulnerabilities in the other areas that IARC will consider, namely, exposure, genotox, and mode of action.” Heydens would know. In 1999, he did not conduct the tests necessary to understand these risks, despite the [advice of an outside expert](#) to do so.⁹³ These internal communications among Monsanto executives suggest a remarkable lack of willingness to do the necessary testing, even as Monsanto

scientists and consultants noted concerns. Revelations about how Monsanto scientists handled its research on glyphosate prompted U.S. District Court Judge Vince Chhabria, who oversaw multi-district legislation involving cancer risk of glyphosate-based Roundup herbicides, to observe in 2019: “...there is strong evidence from which a jury could conclude that Monsanto does not particularly care whether its product is in fact giving people cancer, focusing instead on manipulating public opinion and undermining anyone who raises genuine and legitimate concern about the issue.”⁹⁴

So how did Monsanto influence the science? In the following pages, we describe numerous examples from internal Monsanto documents, showing how employees worked behind the scenes to shape the scientific record and influence regulatory reports to bolster one core message: glyphosate is safe. These strategies included courting friendly scientists to write papers favorable to the company — even ghostwriting scientific papers and influencing a meta-analysis — while keeping the company's role hidden. The documents also show how the company used the scientific literature they had helped create to influence federal agencies, including the U.S. Environmental Protection Agency, and tried to prevent a domestic ruling on glyphosate they feared would align with IARC's. In this section, we also show how the company used this science to manufacture a broader public narrative about glyphosate safety and the genetically modified seeds designed to resist it.

Cultivating friendly scientists

In the late 1990s, Dr. James Parry, an expert on genotoxicity hired by Monsanto to review studies on glyphosate, concluded the chemical could be genotoxic, meaning it could induce genetic mutation, chromosomal breaks or chromosomal rearrangements that have the potential to cause cancer. In a series of internal emails from 1999, Monsanto executives discussed whether to [“drop Parry” or “work closely with him”](#) to edit the presentation of information.⁹⁵ Monsanto's Heydens [advised his colleagues](#): “let's step back and look at what we are really trying to achieve here. We want to find/develop someone who is comfortable with the genotox profile of glyphosate/Roundup and who can be influential with regulators and

Scientific Outreach operations when genotox issues arise.”⁹⁶ Heydens continued, “My read is that Parry is not currently such a person, and it would take quite some time and \$\$\$/studies to get him there... We simply aren’t going to do the studies Parry suggests... we should *seriously* start looking for one or more other individuals to work with.” [emphasis in original] Notably, Heydens added: “we are currently very vulnerable in this area.”

Internal emails indicate that the Monsanto team ultimately did decide to “drop Parry” and find another scientist to write about genotoxicity. In a [September 1999 email](#), Monsanto toxicologist Donna Farmer suggested that the “only person” who could “dig us out of this ‘genotox hole’ is the Good Dr. Kier.”⁹⁷ It would seem the doctor delivered. In 2013, Dr. Kier, a former Monsanto scientist, co-authored a review paper concluding that glyphosate-based herbicides “do not appear to present significant genotoxic risk.”⁹⁸ [Emails](#) reveal that Monsanto scientists played a significant role in shaping that paper: One helped draft the paper and several others worked with Kier to “re-group and redesign” it to clarify the key message that “glyphosate is not genotoxic.”⁹⁹

In correspondence about the paper, Monsanto executives discussed how adding a co-author would give “substantial expertise and credibility to this critical paper.” They floated the name of Dr. David Kirkland, an independent consultant, and noted including him would cost the company an additional £14,000, the equivalent to about \$22,000 today.¹⁰⁰ Kirkland is listed as a co-author on the published paper. While the acknowledgments note that Kier and Kirkland were paid consultants of the industry-funded Glyphosate Task Force, and that Kier was a former Monsanto employee, it also states that the “authors had sole responsibility for the writing and content of the paper and the interpretations and opinions expressed in the paper are those of the authors.”

Ghostwriting scientific papers

The Kier and Kirkland paper is just one example of how Monsanto employees shaped the peer-reviewed scientific literature on glyphosate. Additional internal documents reveal how widespread this practice was. In an article in the [Journal of Public Health Policy](#), Carey

Gillam and Sheldon Krinsky note “multiple email exchanges authored by Monsanto employees that discuss, as an ostensibly normal business practice, ‘ghostwriting’ papers that, when published, appear to be authored by independent academic scientists or consultants with academic credentials.”¹⁰¹

These papers have in turn shaped the public’s understanding of Monsanto herbicides — and regulators’ policy frameworks around them. One of the most influential of these studies was an April 2000 paper published in *Regulatory Toxicology and Pharmacology*. Characterized by the authors as “a comprehensive safety

“Now the hard work by public affairs begins.”

Lisa Drake, Monsanto

evaluation and risk assessment for humans” of glyphosate and its use in Roundup, allegedly independent scientists Gary Williams, Robert Kroes, and Ian Munro concluded that “Roundup herbicide does not pose a health risk to humans.”¹⁰² Regulators around the world have relied on this paper as foundational proof of the safety of glyphosate.

But how independent are these authors and their findings? In an email the summer before the paper’s publication, Monsanto’s William Heydens shared with co-author Gary Williams that he “sprouted several new gray hairs during the writing of this thing.” Heydens also noted he would be attaching “text, tables and references.”¹⁰³ In the wake of the paper’s publication, Lisa Drake, Monsanto’s lead on government affairs, sent out a [congratulatory email](#) to her colleagues with the subject line: “Kudos on Publication of Roundup Tox[icology] Paper.”¹⁰⁴ In the email, Drake praised her colleagues and cited seven of them for “their hard work over three years of data collection, writing, review and relationship building with the papers’ authors.” She singled out another five colleagues for “their moral and budget support and counsel and advice.” She also thanked specific consultants “for helping us pull this together through infinite edits and

reviews.” Now that the paper was published, Drake noted, the “public affairs strategy begins to kick in globally,” what Monsanto called its “freedom to operate” initiative to promote sales of its glyphosate-based herbicides.¹⁰⁵

A February [2015 email](#) would further reveal Monsanto’s role in the paper: As the IARC panel prepared to release its report on glyphosate, Monsanto’s Heydens discussed commissioning a meta-study to respond to what the company expected would be a negative carcinogenicity ruling. One option for “keeping costs down,” he noted, would involve “us doing the writing and [authors’] would just edit & sign their names so to speak. Recall that is how we handled Williams, Kroes and Munro in 2000.”¹⁰⁶ (We discuss the meta-study further in the next section.)

To this day, Monsanto has maintained the independence of the 2000 paper’s authors. Monsanto claims the company “did not ghostwrite”¹⁰⁷ the paper and the medical school where one of the paper’s co-authors is on faculty found “no evidence” the authors “violated the schools’ prohibition against authoring a paper ghostwritten by others.”¹⁰⁸ But the email record quoted above suggests a different story.

The paper “would be more powerful if authored by non-Monsanto scientists.”

William Heydens, Monsanto

Hiding Monsanto’s involvement in 2016 meta-analysis

In the spring of 2015, two months after IARC designated glyphosate a probable human carcinogen, William Heydens [wrote to Monsanto colleagues](#) about “what could be done” about the genotoxicity concerns. In an email with the subject line, “Post-IARC Activities to Support Glyphosate,” Heydens floated the idea of conducting a meta-analysis — a statistical analysis that combines the results of multiple scientific studies. He noted that the manuscript would be “initiated by

[Monsanto] as ghost writers” and that it “would be more powerful if authored by non-Monsanto scientists.”¹⁰⁹

A year later, in 2016, *Critical Reviews in Toxicology* published an “independent review” of the science on glyphosate. In the disclosures, the authors state: “Neither any Monsanto company employees nor any attorneys reviewed any of the Expert Panel’s manuscripts prior to submission to the journal.”¹¹⁰ That statement was disproven in the fall of 2017 when internal Monsanto records came to light showing Monsanto scientists’ [extensive involvement](#) in drafting and editing the papers,¹¹¹ as well as selecting the authors and [paying](#) at least one of them.¹¹²

In response to these revelations, the journal’s publisher Taylor & Francis initiated a review and its team of legal and ethical experts found the authors had hidden Monsanto’s true involvement in the papers. Internal [emails](#) reveal a [protracted disagreement](#) between the publishing group, which wanted to retract at least three of the five papers, and the journal editor Roger McClellan who refused to do so, citing concerns about his reputation and the “sensitive” position Monsanto was in with trials underway involving glyphosate.^{113, 114}

As of the summer of 2022, the journal has not retracted the papers.¹¹⁵ In September 2018, the journal Editor-in-Chief and Publisher posted an [“expression of concern”](#) over the declarations made in the original papers. “We have not received an adequate explanation as to why the necessary level of transparency was not met on first submission,” they wrote. “When reading the articles, we recommend that readers take this context into account.”¹¹⁶ Monsanto’s influence on the review papers is now public only because of litigation and the release of these internal emails.

These examples of corporate influence over the science of glyphosate raise the question: How many other studies that shape what we believe about the safety of pesticides have had hidden corporate influence? Peer-reviewed journals are considered the gold standard in science. These studies form the basis not just for news stories and regulatory decisions, but for bodies of knowledge, and common understandings, about whether products pose risks or not. Their

influence is profound. This is why companies like Monsanto work to shape these sources of information: They matter.

Capturing the U.S. Environmental Protection Agency

The cornerstone of Monsanto's (now Bayer's) defense of glyphosate has been that safety assessments conducted by regulatory agencies in the U.S. and Europe cleared the chemical of cancer concerns. But internal company and government documents show how Monsanto not only exerted influence over the science on which those agencies' rulings are based, but also on the very processes of the agencies themselves.

“Glyphosate is a clear case of ‘regulatory capture’ by a corporation acting in its own financial interest while serious questions about public health remain in limbo.”

In These Times

An investigation by journalists Valerie Brown and Elizabeth Grossman in [In These Times](#) of government documents dating back 40 years reveals how Monsanto influenced EPA decisions on glyphosate. “Throughout the 1970s,” Brown and Grossman write, “EPA staff repeatedly raised red flags about the inadequacy of testing data that Monsanto was submitting in support of glyphosate’s original registration,” but, they report, those concerns were buried or overruled, often by higher ups within the agency.¹¹⁷

In one early incident, an EPA scientist raised concerns in a 1978 memo about a study conducted by one of Monsanto’s contract labs. The lab not only failed to record what happened in the experiment but also reported on specimens that were supposedly taken from the uteri of *male* rabbits — an organ not found in male rabbits. “This is only the most egregious example of the unreliable data made available to the EPA during its original regulatory review in the 1970s,” Brown and Grossman report. The journalists note that

many other memos they examined were either “incomplete” or had “otherwise unacceptable toxicology screening tests.”

Brown and Grossman conclude: “Glyphosate is a clear case of ‘regulatory capture’ by a corporation acting in its own financial interest while serious questions about public health remain in limbo. The record suggests that in 44 years — through eight presidential administrations — EPA management has never attempted to correct the problem.”¹¹⁸

Trying to stop a “domestic IARC”

Internal records show that Monsanto executives also counted on allies within the EPA to help keep its products on the market. For example, [Monsanto emails](#) show a persistent effort by multiple officials within the EPA to try to stop the Agency for Toxic Substances and Disease Registry (ATSDR), a department of the U.S. Department of Health and Human Services, from reviewing the science on glyphosate.¹¹⁹ In June 2015, Monsanto’s science and policy lead Eric Sachs [sent a text message](#) to former EPA toxicologist Mary Manibusan to inquire if she knew anyone in the ATSDR to help the company.¹²⁰ Manibusan [replied](#), “Sweetheart - I know lots of people. You can count on me.” Sachs responded: “We’re trying to do everything we can to keep from having a domestic IARC occur w [sic] this group. may [sic] need your help.”¹²¹ (After a long stint at the EPA, Manibusan went to work for Exponent, one of the big product defense firms that “combine science with public relations to help clients avoid regulation and litigation,” as former OSHA head David Michaels explained to *Fast Company*.¹²² Under the Trump administration, Manibusan was back at EPA.)¹²³

Monsanto executives also engaged Jess Rowland, a senior EPA official who oversaw the agency’s cancer assessment for glyphosate, and key author of a report that found glyphosate unlikely to be carcinogenic. In one email, a Monsanto regulatory affairs executive claimed that Rowland [boasted](#) about his efforts to stop the ATSDR review: “If I can kill this, I should get a medal.”¹²⁴ In a [letter filed with the court](#) in 2017, a 30-year career EPA toxicologist Marion Copley accused Rowland of playing “political conniving games with the science” to favor pesticide manufacturers. Citing evidence

*“Sweetheart - I know lots of people.
You can count on me.”*

EPA toxicologist Mary Manisbusan to
Monsanto’s Eric Sachs

from animal studies and the data, Copley wrote: “It is essentially certain that glyphosate causes cancer.”¹²⁵

While Rowland may have helped delay the ATSDR review of glyphosate, he was not able to stop it; the agency released its draft report in 2018 and a [final toxicological profile](#) on glyphosate in 2020, noting links between glyphosate and cancer.¹²⁶ Nevertheless, the EPA continues to assert that glyphosate does not cause cancer.¹²⁷ However, in 2022, the Ninth Circuit Court of Appeals found that the EPA disregarded its own rules when assessing glyphosate, and ordered the agency to re-examine glyphosate’s impacts on health and the environment.¹²⁸

Influencing global government safety assessments

Like the EPA, the European Food Safety Authority (EFSA) and the European Chemicals Agency have said glyphosate is not likely to be carcinogenic to humans — and like the EPA, those regulatory authorities have come under scrutiny for corporate influence. A March 2017 report by environmental and consumer groups argued that European regulators relied improperly on research that was directed and manipulated by pesticide companies.¹²⁹ A 2019 study commissioned by Members of the European Parliament, for example, found that entire sections of a glyphosate assessment conducted by Germany’s Federal Institute for Risk Assessment had been plagiarized from Monsanto studies.¹³⁰ The German agency study, which found no cancer risk, played a key role in EFSA’s decision to reauthorize the chemical.

Pesticide industry conflicts also surfaced with the United Nations’ Joint FAO/WHO Meeting on Pesticide Residues (JMPR), which determined in 2016, a year after the IARC ruling, that glyphosate is unlikely to pose a

cancer risk through diet. Both the chairman and co-chairman of the JMPR panel on glyphosate concurrently held unpaid leadership positions with the International Life Sciences Institute (ILSI).^{131, 132} Documents obtained by U.S. Right to Know further revealed that ILSI had received more than \$1 million in 2012 from Monsanto and CropLife International, the pesticide trade industry group whose members include Monsanto.¹³³ As a WHO official told *The Guardian*, which reported on the documents, “ILSI is not an independent body. That is very clear. Private companies are supporting it and its structure.”¹³⁴ (The scientists said their positions with ILSI were unpaid and did not constitute a conflict, and so did not need to be reported in public disclosures.)¹³⁵

“It is extremely worrying to see that up to 50% of some chapters of the German regulator’s assessment were actually written by Monsanto.”

Bart Staes, EU Member of Parliament

Fraud and corruption has also come to light at laboratories the pesticide industry relied on to conduct risk assessments for government agencies in both the U.S. and Europe. In February 2020, [revelations surfaced](#) that 24 scientific studies submitted to European regulators to prove the safety of glyphosate came from a large German laboratory that has been accused of fraud and other wrongdoing in service of corporations trying to get their products approved by regulatory agencies.¹³⁶ Similar problems arose in the U.S. many years earlier, when Industrial Bio-Test (IBT) Laboratories, a leading chemical research firm, was caught falsifying data for pesticide risk assessments. An [EPA audit](#) found that some studies IBT conducted for Monsanto on glyphosate were invalid.¹³⁷ The company repeated the studies and no IBT data is used to support glyphosate registration today; however, the scandal — which included criminal convictions for three former officials of IBT Labs — added to the public distrust of the corporate-controlled system for assessing chemical risk.¹³⁸

Crafting a PR narrative for GMO foods

As Monsanto scientists worked behind the scenes to shape the scientific record on glyphosate, they also developed a public relations narrative about genetically modified crops (GMOs), most of which are engineered to tolerate glyphosate-based herbicides. That narrative, too, was designed to emphasize safety and ward off regulation and government oversight. A [September 2013 email](#) from Monsanto scientist John Vicini offers a view into the company's approach. Vicini shared with his colleagues a draft paper he had written about animal consumption of GMOs. He described the paper as "a first draft of a manuscript that I prepared with the intention of submitting either as a co-author with some global faculty in animal science or turn it over to them and just be a ghost writer."¹³⁹ Vicini wrote, "I do not need to be on it and think that a non-[Monsanto] paper is the best-case scenario." The paper was "not Nobel Prize science," Vicini noted, "but it is intended to provide two simple messages: 1) billions of animals are consuming large amounts of GM crops every day for long periods and, 2) the forecasted health effects are not apparent in publicly available datasets."¹⁴⁰

A year later, Alison van Eenennaam, an animal geneticist at the University of California, Davis, published a paper in the *Journal of Animal Science and Biotechnology* that was based on the same datasets that Vicini was referring to and echoed the messages he sought to promote.¹⁴¹ That van Eenennaam was a former Monsanto employee was not noted by the journal.¹⁴²

The paper's conclusions appear to have been part of a coordinated PR push. Before the official publication date, Monsanto collaborator Jon Entine (whose group now receives money from Bayer) published a lengthy article in *Forbes* claiming that van Eenennaam's study was the "most comprehensive study of GMOs and food ever conducted" and proved that "the debate about GMO safety is over."¹⁴³

Claims that the "debate is over" or that there is a "consensus of safety" about GMOs are topline arguments of the pesticide industry and its PR allies.¹⁴⁴ However, these claims

"The paper is not Nobel Prize science but it is intended to provide two simple messages."

John Vicini, Monsanto

are "not supported by an objective analysis of the refereed literature," according to [a statement](#) signed by 300 independent scientific researchers and scholars.¹⁴⁵ These researchers assert that there is "no consensus on GMO safety." They described blanket safety assurances as "an artificial construct that has been falsely perpetuated" by industry stakeholders.¹⁴⁶

Making general claims about the safety of genetic engineering is "unscientific, illogical, and absurd," wrote Belinda Martinau, a geneticist who helped develop the first genetically engineered food, in a letter to the *New York Times*; "because each product is different ...the safety of each one must be assessed individually."¹⁴⁷ The World Health Organization concurs, according to its FAQ: "it is not possible to make general statements on the safety of all GM foods" because "individual GM foods and their safety should be assessed on a case-by-case basis."¹⁴⁸

Genetic engineering, including newer genome-editing techniques, have "unpredictable outcomes," says Michael Antoniou, a molecular geneticist at King's College London. To understand health impacts, he said, "You basically need to conduct a long term feeding trial in animals and see what happens ... and that's just not going on anywhere in the world for regulatory purposes, at all."

It is important to also note: due to patents involved, studies on genetically engineered seeds and crops are [largely controlled](#) by companies that own the intellectual property rights, since in most cases researchers must ask for permission to research patented materials.¹⁴⁹ As noted previously, just four companies — Bayer, Corteva (formerly DowDuPont), BASF and Syngenta/ChemChina — controlled 75 percent of plant breeding research, 60 percent of the commercial seed market, and 76 percent of global agrichemical sales in 2019.¹⁵⁰

The bottom line, according to the researchers’ “no consensus” statement: scientific research in the field of GM crop safety “is nuanced; complex; often contradictory or inconclusive; confounded by researchers’ choices, assumptions, and funding sources, and in general has raised more questions than it has currently answered.” In their view, decisions about food and agriculture “should not be based on misleading and misrepresentative claims made by an internal circle of likeminded stakeholders,” but rather should be “supported by strong scientific evidence on the long-term safety of GM crops and foods ... obtained in a manner that is honest, ethical, rigorous, independent, transparent, and sufficiently diversified to compensate for bias.”¹⁵¹

Relying on insufficient science

The examples described in Tactic 1: Corrupting Science demonstrate some of the many methods Monsanto employees used to influence the science on glyphosate. These examples raise questions about the validity, rigor, and bias in the studies conducted, or influenced, by Monsanto to assess the safety of their products. In the words of former *Nature* editor Mark Buchanan, the strategies Monsanto used to shape the science on glyphosate may have been “desperate” and “underhanded” — but they were also “perfectly legal.” Companies can get away with selling dangerous products, he said, because the “current science regulators rely on for toxicity testing is wildly out of date.”¹⁵²

A 2021 report from the Institute of Cancer Research at the Medical University of Vienna underscores this point in regard to glyphosate research. Researchers [reviewed](#) 53 safety studies on glyphosate submitted to regulators by large chemical companies, and found that most of the studies do not comply with modern international standards for scientific rigor.^{153, 154} Most of the studies did not even include tests that are most able to detect cancer risks.

In the next two tactics, we describe how Monsanto, using the scientific findings they helped craft, worked with a range of third-party allies, including leading academic institutions, to disseminate their messaging about the safety and necessity of glyphosate and the genetically engineered crops at the core of their business model.

“The quality of these studies, not of all, but of many of these studies is very poor.”

Siegfried Knasmueller,
Institute of Cancer Research, Medical
University of Vienna





TACTIC 2: Co-opting Academia

“USRTK’s plan [to FOIA universities] will impact the entire industry.”

Monsanto memo

In the fall of 2014, as voters in Oregon and Washington were poised to vote on whether genetically engineered foods should be labeled, industry allies grew worried about Monsanto’s plan to feature scientists in ads for the anti-labeling campaign. “I’m a little skeptical that a letter with a lot of scientist signatures will be enough to counter the flood of fear mongering,” Val Giddings, the former Vice President of the biotechnology trade association BIO, [wrote to Monsanto’s Lisa Drake](#).¹⁵⁵ Giddings suggested the company instead consider creating “TV spots featuring attractive young women, preferably mommy farmers” to persuade voters to vote against labeling requirements. Drake shot down that idea: “Doesn’t poll as well as credible third party scientists,” she told Giddings. “I know [it is] hard to believe but I have seen the poll results myself ... and that is why the campaigns work the way they do.”¹⁵⁶

Indeed, the “voices of authority” — especially academic experts — receive the highest marks on trust, according to global surveys.¹⁵⁷ In this context, the growing private-sector influence over universities, and land grant institutions in particular, is concerning. From 1970 to 2014, public funding to land grant universities for agricultural research and development grew by just 20 percent, while private funding grew by 193 percent to \$6.3 billion, according to an analysis from the Agricultural Policy Analysis Center.¹⁵⁸ Today, hundreds of millions of dollars flow from agribusiness, including pesticide companies, into land grant universities in the United States. This funding is used to sponsor buildings,¹⁵⁹ endow professorships and pay for research, according to an analysis from the public interest group Food and Water Watch.¹⁶⁰ “The influence this money purchases is

enormous,” the Food and Water Watch analysis concluded. “Corporate money shifts the public research agenda toward the ambitions of the private sector, whose profit motivations are often at odds with the public good.”

The tobacco industry and fossil fuel industry have long recognized the benefits of working with academics and influencing academic agendas through institutional funding. We now have ample evidence of how Monsanto, too, has influenced academic institutions and enlisted academics in its campaign to shape consensus on the safety of glyphosate and crops genetically engineered to tolerate the chemical.

How much money did Monsanto and other pesticide companies give to land grant universities and to individual professors? What benefits do corporate donors get in return for these investments? And why is so much of this information hidden from the public? These are some of the questions that prompted Gary Ruskin at U.S. Right to Know (USRTK) to launch an investigation in 2015, using the Freedom of Information Act (FOIA) and state public record laws to research how Monsanto and other pesticide firms work with and pay academics. In the years since, USRTK has obtained and reported on thousands of industry and government documents, many of which are now posted in the USCF food and chemical industry document libraries.¹⁶¹

The documents shed light on how food and chemical corporations rely on many third-party allies, including academics, to promote their products. They also make clear that inquiries into the ties between industry and academia were questions that Monsanto and other pesticide companies wanted to avoid answering.

Monsanto Company Confidential
Internal Use Only / Do Not Distribute
U.S. Right to Know FOIA Communications Plan – Updated: 7/25/2019

This 31-page Monsanto memo details plans to try to discredit U.S. Right to Know's public records investigation to uncover details about how industry works with academics.

Fighting FOIAs at public universities

A [confidential Monsanto memo](#) dated July 2019 noted: "USRTK's plan [to FOIA universities] will impact the entire industry" and "has the potential to be extremely damaging."¹⁶² The 31-page memo details Monsanto's plan to form a coordinated defense to counter the public record requests — involving PR firms, trade groups, 11 Monsanto employees, and academic allies — to protect Monsanto's reputation and what the company dubbed "freedom to operate" or FTO, and to protect its relationships with academics.

The memo gives guidance to employees on how to avoid disclosing details about funding while conveying "complete transparency in our relationship with academics." Sample questions

and suggested answers are offered along with additional action items like: "Brainstorm more; especially funding options like unrestricted grants." In response to the sample question: "Should we have been more transparent about payment for travel for the academics/financing these scholars?" the Monsanto memo directs employees to explain: "We follow the guidance for gifts, grants, research agreements, etc. that is provided by the universities that we fund."¹⁶³

One way universities can receive corporate donations without transparency is via university foundations, which are not required to disclose their donors. In the case of the University of Florida Foundation, there was specific guidance for how to answer questions about donations. If asked whether Monsanto was a "gold donor" to the foundation, for example, the company document suggested this answer: "I have not

The screenshot shows the University of Florida Foundation website. The header includes the UF logo and the text "University of Florida FOUNDATION". A navigation bar contains links for "Home", "The Foundation", "Florida Tomorrow", "UF Preeminence", "Giving", and "Contact Us". Below the navigation bar, the page title is "2013/2014 Honor Roll of Donors". A large photograph shows a graduation ceremony with a speaker at a podium and a large audience of graduates. Below the photo, the search results for "monsanto" are displayed, showing "Organizations" and "Monsanto Co. - Gold Donor".

Monsanto was a "gold donor" to the University of Florida Foundation in 2013/2014, signifying a donation of more than \$1 million.

been able to secure information to address your mention of Monsanto as a ‘gold donor.’” The company was a gold donor — a fact that had already been reported by the [New York Times](#) in 2015.¹⁶⁴

Undisclosed partnerships with academics and universities

The FOIA research turned up a number of examples of how Monsanto relied on academics to shape the narrative about its products and help keep them unregulated. In 2015, Pulitzer-Prize winning journalist Eric Lipton reported on this influence in a front-page [New York Times article](#): “Food industry enlisted academics in GMO labeling war, emails show.”¹⁶⁵ The article reports on internal company documents, first obtained by U.S. Right to Know, showing how Monsanto paid academics to promote genetically engineered foods in an effort to keep these products unlabeled and unregulated. Monsanto relied on academics, Lipton reported, “for the gloss of impartiality and weight of authority that come with a professor’s pedigree.”¹⁶⁶

As one example, Monsanto gave a \$25,000 grant to University of Florida Professor Kevin Folta to run promotional programs for GMOs¹⁶⁷, even as Folta publicly claimed to have no ties to Monsanto.^{168, 169} The programs involved Folta

“Professors/researchers/scientists have a big white hat in this debate and support in their states.”

Bill Mashek, Ketchum PR firm

traveling to other universities to train students and academics on how to promote GMOs and argue that they should not be labeled. (After the Monsanto funding became public, Folta donated the money to a food bank, but he continued receiving money from pesticide companies without full disclosure about his sources of industry funding.)¹⁷⁰

In documents reported by the [New York Times](#), the pesticide industry’s PR firm Ketchum was clear how valuable Folta, and academics more broadly, have been for the industry’s public relations: “Professors/researchers/scientists have a big white hat in this debate and support in their states, from politicians to producers,” Bill Mashek, a vice president at Ketchum, [wrote to Folta](#) in 2014. “Keep it up!”¹⁷¹

In 2015, Monsanto’s Lisa Drake engaged Folta to help boost the profile of GMOs on WebMD, a website that Vox characterized as the “most popular source of health information in the United States.”¹⁷² “Over the past six months,”

The screenshot shows the UCSF Chemical Industry Documents Library website. The navigation bar includes categories: ALL INDUSTRIES, TOBACCO, OPIOIDS, CHEMICAL, DRUG, FOOD, FOSSIL FUEL, and a 'Take a tour' button. The main header is 'CHEMICAL INDUSTRY DOCUMENTS' with links for Blog, About, Bibliography, Research Tools, Help, and Collections. Below the header is a search bar with 'SEARCH' and 'ADVANCED SEARCH' options, a 'CLEAR' button, and a 'SEARCH' button. There are also checkboxes for 'Hide Restricted Documents', 'Hide Folders', and 'Hide Possible Duplicates'. The page includes a 'Search Options' section with 'Document Date Ranges' and 'Chemical Collections' (all selected). At the bottom, there are four 'Highlights' sections with images and titles: 'Benzene collection', 'Popular Chemical Documents', 'USRTK Agrichemical Collection', and 'Roundup Litigation Documents'.

The USRTK Agrichemical Collection donated to the [UCSF Chemical Industry Documents Library](#) includes documents acquired through state public records requests, FOIA requests, whistleblowers and litigation.

[Drake wrote to Folta](#), “we have worked hard through third parties to insert fresh and current material on WebMD relating to biotechnology health and safety.” Before that effort, she said, “the material popping up” about the topic “dredged up highly negative input from Organic Consumer Association and the anti-GMO critics.” While Drake noted that recent pieces that had been placed by third parties had “improved the search results somewhat,” she was seeking Folta’s support to do more: “It is a fairly simple process,” she said, and asked Folta to consider, “submitting a blog on the safety and health of biotech,” and gave him instructions for how to do so. Folta’s response: “Can do! My pleasure.”¹⁷³

“I thought your talk was excellent ... and it is harmonious with the stance we are taking on GMOs at the University of Florida.”

UF/IFAS Director David Clark to
Monsanto’s Robb Fraley

Monsanto’s influence with academia doesn’t simply run through individual professors. The University of Florida Foundation has also received significant funds from pesticide and seed companies — more than \$12 million for the 2013-14 academic year, including a \$1 million grant from “gold donor” Monsanto.¹⁷⁴ The University of Florida, in turn, has been a stalwart ally in communicating industry-friendly messaging. In [a 2014 email](#) to Monsanto, Professor David Clark, from the university’s Institute of Food and Agricultural Sciences Plant Innovation Program (IFAS) described how the institution’s “stance” on GMOs is “harmonious” with Monsanto’s.¹⁷⁵ As an example of this harmonious messaging, Clark shared a video of Jack Payne, IFAS senior vice president, stating, “there is no science that agrees with these folks that are afraid of GMOs.”¹⁷⁶

Clark also noted that both Jack Payne, UF’s senior vice president for agriculture and natural resources, and Kevin Folta were “ramping up

their efforts to spread the good word.” He added: “Kevin is our lead spokesperson at UF on the GMO topic and he has taken on the charge of doing just what we discussed — educating the masses.”¹⁷⁷ In that role, Folta has mounted a passionate defense of pesticides. On his “Talking Biotech” podcast, Folta has claimed that the health risk of consuming pesticides through food is “probably somewhere between 10,000 and a million times lower than a car accident.” He has also said that he drank glyphosate and would do it again “to demonstrate its harmlessness.”¹⁷⁸

AgBio Chatter list

Internal documents also shed light on how Monsanto and its PR firms worked to coordinate messaging and lobbying efforts with their academic allies using a private email list called AgBioChatter. The list included two Monsanto executives, DuPont’s former director of scientific affairs, two higher-ups at the biotechnology industry trade association, and more than a dozen academics with industry connections — many of them affiliated as experts or ambassadors with the pesticide-industry funded marketing campaign GMO Answers (described in Tactic 5) run by Ketchum. Several of the academics also served in leadership roles for industry front groups connected with pesticide companies, such as Genetic Literacy Project, Academics Review, and Sense About Science (described in Tactic 3). These groups, along with the listserv itself — identified under the name “Academics (AgBioChatter)” — appear among the “industry partners” in Monsanto’s PR plan to defend glyphosate.¹⁷⁹

The **AgBioChatter list** looped together chemical industry executives and industry-friendly academics, many of whom were affiliated with spin groups we describe in this report.

[Emails](#) from the listserv highlight messaging themes: for example, efforts to frame science documenting health concerns about pesticides as “agenda-driven,” while studies that claim safety are “pro science.”¹⁸⁰ Another major theme involved efforts to discredit industry critics. Records show that former Monsanto Communications Director Jay Byrne peppered the listserv with calls to action and messaging suggestions to confront influencers who raised concerns about GMOs, including the scholar and environmental activist Vandana Shiva, plant scientist and former Purdue Professor Don Huber, and the nonprofit group Consumers Union. As we describe in Tactic 4, attacks on critics have been a key component of Monsanto’s communications efforts to protect glyphosate.

Academics provide lobbying aid

These internal records also show how pesticide companies and affiliated trade associations tap academic networks to help lobby for industry-favorable policy. In one example, the Hawaii-based Hawaii Crop Improvement Association (HCIA) — a trade group funded by Corteva CropSciences (formerly DowDuPont) and Bayer — recruited and paid academics, including Kevin Folta, to travel to the state in

2014 to help lobby against proposed pesticide restrictions there. The industry trade group set up the meetings and coordinated the scientists’ messaging, according [to internal emails](#).¹⁸¹ One email describes key messages to be presented to the Kauai Business Council, including, “Giving them peace of mind about the pesticides being used and the crops being grown,” including glyphosate.¹⁸² Despite these industry ties, Folta promoted the trip as an effort by “independent expert scientists” who went to Hawaii “simply to share science.”¹⁸³

The lack of public disclosure about pesticide industry ties to academics who lobby for industry interests is a recurring problem. In another example, Bruce Chassy, a professor emeritus of food and nutrition at the University of Illinois, appeared frequently in the media as an independent expert promoting GMOs and lobbying to keep them unlabeled. In May 2016, the *Associated Press* quoted Chassy twice in a single week as an independent expert on the topic.¹⁸⁴ But he, too, was receiving funds from Monsanto. Two months earlier, [Monica Eng of WBEZ](#) revealed that Chassy had received \$57,000 from Monsanto over a two-year period to travel, write, and promote GMOs, and that Monsanto donated at least \$5.1 million to the University of Illinois Foundation between 2005 and 2015.¹⁸⁵

From: Alicia Maluafiti - HCIA <director@hciaonline.com>
Sent time: 07/24/2013 04:00:18 AM
To: Steve Savage <savage.sd@gmail.com>; Folta, Kevin M.
Cc: rizzo@fivecomersstrategies.com; Kirby Kester <kirby.kester@basf.com>; Renee Kester <reneekester@mac.com>; McFarland, Scott <McFarland@dow.com>
Subject: Breakfast with Kauai Business Council

OK – you are on for breakfast on Tuesday, July 30, 8:30 am (location tbd). You each get 10 minutes to present. **The goal is to get the Council to oppose the bill (publicly – with written and/or oral testimony and maybe even an op/ed! Wowee!).** So the time will be spent 1) educating them about the flaws in the bill and its impact on the island, 2) giving them peace of mind about the pesticides being used and the crops being grown, and 3) increasing awareness about the overall economic contribution of the seed farms on Kauai. So splitting this up:

1. Pesticides (Steve)
2. Ag Biotechnology (Kevin)
3. Seed Farmers (Kirby)

This is a working breakfast meeting. So probably no video projector but possibly handouts would help. I am cc’ing Frank Rizzo to see if he has time to attend as well.

Internal documents [posted by the New York Times](#) further reveal that, for years, Chassy had been lobbying federal regulators to deregulate GMOs while receiving funds from Monsanto.¹⁸⁶ In 2011, when the EPA proposed a data requirement to better understand the health and environmental impacts of genetically engineered crops, [Chassy organized a lobbying effort](#) to defeat it.¹⁸⁷ According to Chassy's [notes from a conference call](#), shared with Monsanto executives and others, the goal was “to ensure the EPA proposal never sees the light of day.”¹⁸⁸ For this lobbying effort, Chassy enlisted other high-profile academics, the internal documents show, including Nina Fedoroff, a molecular biologist at Penn State University, who was at that time president of the American Academy for the Advancement of Science (AAAS), the world's largest multidisciplinary scientific society.¹⁸⁹

In July 2011, Chassy emailed Eric Sachs of Monsanto¹⁹⁰ to share that Fedoroff and 60 members of the National Academy of Sciences had sent a letter to EPA¹⁹¹ opposing the EPA data requirement for genetically engineered foods. “Nina really picked up the ball and moved it down the field,” Chassy wrote. Chassy later [reported to Sachs](#) that he and Fedoroff had a “surprisingly productive meeting” with the EPA's Steve Bradbury that had been arranged by Stanley Abramson, a lobbyist for the biotechnology industry trade group.¹⁹² Interspersed in Chassy's emails to Sachs were queries about whether Monsanto had sent a check to the University of Illinois Foundation in support of Chassy's “biotechnology outreach and education activities.”¹⁹³

Hosting industry-funded messaging “boot camps” for journalists and scientists

Professors Chassy and Folta also collaborated with the pesticide industry to arrange a series of messaging training programs at public universities — described as “boot camps” — to shape coverage of pesticides and GMOs in the popular press. “Independent scientists and researchers can play a unique role in reframing the GMO debate because the public holds them in such high esteem,” noted a promotional flier for the Biotech Literacy Project “boot camps.” The three-day conferences held at [University of](#)

[Florida](#) in 2014¹⁹⁴ and [University of California, Davis](#) in 2015¹⁹⁵ were “dedicated to helping scientists and journalists work together to bring science to the public in a way that is accessible and persuasive,” according to the agendas. Expenses for the two events ran to over \$300,000, and routed through a nonprofit group called Academics Review, co-founded by Chassy.¹⁹⁶ Although the group claimed to be independent of industry, tax records show that Academics Review received most of its funding (including funding for the boot camps) from the Council for Biotechnology Information (CBI) — a trade group funded by chemical giants BASF, Bayer, DowDuPont, and Syngenta.¹⁹⁷

The agenda left no doubt about the public relations purpose of the boot camps: to provide “broad communications skills training” that participants could use for “reframing the food safety and GMO debate” and lobbying for those products. “Participants will be provided both training and hands-on assistance in developing the tools and support resources necessary to effectively engage the media and appear as experts in legislative and local government hearings,” states the agenda for the UC Davis event.¹⁹⁸ Sessions included “Reframing the Debate: 5 Arguments for GMOs,” “Claiming Your Real-Estate on Social Media,” “Building Trust in Science and the Science of Agriculture,” and “Chasing the Media.”

The pro-pesticide industry bias was not subtle. A panel on organic foods, for example, was moderated by Chassy, who had written a report condemning the organic industry as a marketing scam in 2014.¹⁹⁹ A panel on “GMOs and chemicals” was led by Hank Campbell, president of the [industry-funded](#) American Council on Science and Health (ACSH), a group that frequently defends glyphosate and other products made by its funders.²⁰⁰ [Keynote speakers](#) at the UC Davis event included Yvette d'Entremont, who blogs as SciBabe and mounts an ardent defense of pesticides in her writings and public appearances, including talks at farming conferences sponsored by Monsanto and DuPont.²⁰¹ In one podcast, for example, d'Entremont claims, “We've proven very, very carefully that, once they get into the food supply, [pesticides] are safe for people.”²⁰² (While SciBabe's website²⁰³ cites her former job as an analytical chemist, it omits that she

worked for Amvac Chemical Corporation,²⁰⁴ which, according to a [Los Angeles Times](#) investigation, did “booming business” selling older dangerous pesticides and fighting to “keep those chemicals on the market as long as possible, hiring scientists and lawyers to do battle with regulatory agencies.”²⁰⁵

Payoff for the pesticide industry’s investment in events like the boot camps can be seen in the post-event press. A few weeks after the UC Davis event, *Popular Science* ran a flattering “Q&A with SciBabe,” presenting d’Entremont as a credible source on science.²⁰⁶ The piece was written by Brooke Borel, a journalist who had attended the boot camp. In 2014, a month after attending the University of Florida boot camp, Marc Gunther penned an article in *The Guardian* claiming that nonprofit organizations like Friends of the Earth and Consumers Union — two groups that have been ardent critics of glyphosate — “can’t be trusted on GMOs.”²⁰⁷ Gunther, an editor-at-large at the *Guardian*, noted that he came up with the idea for his article after reading a critique of Consumers Union written by Val Giddings, the former executive of the biotech industry trade group BIO.²⁰⁸ Gunther did not mention that he had

recently moderated a panel about GMO labeling at the industry-funded boot camp, and that Giddings and Bruce Chassy had helped him prepare, according to [planning emails](#).²⁰⁹ Among the proposed questions Chassy advised Gunther to ask was one about the costs of labeling, referencing a Cornell study that alleged that labeling GMOs would cost a typical family \$500 a year.²¹⁰ Funded by the same industry trade group — whose members include Monsanto — that funded the boot camps, the study design had been debunked. A Consumers Union rebuttal details the flaws in the study design, finding that the industry-funded study “dramatically overestimates the cost of [GMO labeling].”²¹¹ Another journalist “faculty” member of the 2014 boot camp, *Washington Post* columnist Tamar Haspel, used her space in the *Post* a year later to defend glyphosate. The article appeared at a politically important moment, just days before a key Congressional vote on a bill that made it illegal for states to label GMOs. Haspel’s article downplaying cancer concerns of glyphosate quoted David Ropeik, a risk analyst who had shared a panel with her at the boot camp. In her *Post* opinion column, Haspel did not mention that Ropeik owns a PR firm that serves [pesticide industry clients](#).²¹²

Gates-funded PR campaign at Cornell promotes Monsanto’s messaging

As public universities lent their venues to the boot camps, a longer-term public relations effort was underway — this one under the auspices of an Ivy League institution. By the early 2010s with most commercialized GMOs engineered to tolerate glyphosate, use of the chemical was skyrocketing and Monsanto was ramping up its efforts to promote these seeds, and the glyphosate herbicides used to grow them, as safe and necessary to feed the world. Key aid came from the Cornell Alliance for Science, a communications initiative launched in 2014 with an initial \$5.6 million grant from the Bill & Melinda Gates Foundation.²¹³ (The foundation has since donated a total of at least \$22 million to the effort. Additional funders are named on its website, but total revenues are not disclosed).



SciBabe’s talks on the farming circuit have been sponsored by chemical companies.

While the Alliance described its mission to “add a stronger voice for science” and “depolarize the charged debate around GMOs,” African civil society groups [have characterized it](#) instead as a “public relations strategy” that spreads “false promises, misrepresentations and alternative facts” in its efforts to convince African countries to accept patented genetically engineered seeds.²¹⁴

“Their immediate goal is to weaken national biosafety laws, thereby removing any barriers to their access to African markets for their contentious high-risk products.”

[Alliance for Food Sovereignty in Africa](#)

A central strategy of the Alliance has been to recruit and train global fellows in communications, focusing on fellows from regions with pushback on policies favorable to the biotech industry, particularly African countries that have resisted GMO crops. In 2018, for example, twenty-seven Global Leadership Fellows were chosen from seven countries — Nigeria, Uganda, Kenya, Ghana, Zambia, Zimbabwe, and Tanzania — to attend a 12-week training program to learn “strategic planning, grassroots organizing, the science of crop biotechnology and effective communications” to help them advocate for access to biotechnology.²¹⁵ More than half the fellows were journalists or marketing professionals.

The Gates Foundation has also donated heavily to efforts in Africa to transition farmers away from traditional seeds and crops to commercial seeds and synthetic fertilizer to grow commodity crops for the global market, promising those efforts would boost agricultural productivity and lift small-scale farmers out of poverty. The foundation has donated over \$600 million to its flagship project in the region, the Alliance for a Green Revolution in Africa (AGRA), which works in 11 countries to transition farmers to high-input industrial agriculture.^{216, 217} But these efforts have failed to improve food security, according to a 2022 review commissioned by AGRA

donors.²¹⁸ The program has also been criticized by [African food sovereignty groups](#),²¹⁹ [faith leaders](#),²²⁰ and [researchers](#)²²¹ who say AGRA is increasing corporate control in food systems, damaging the environment, and increasing debt for farmers.²²²

Although its main focus is promoting GMO seeds and crops, Alliance fellows have also defended glyphosate-based Roundup products, using similar messaging and tactics that appear in Monsanto’s strategy documents. As one example, the Cornell-based group jumped into the glyphosate debate with a scathing critique of the IARC cancer report, echoing the anti-IARC theme described in Monsanto’s [PR plan](#).²²³ In a 2017 blog on the Alliance for Science website, Mark Lynas, a writer for the group, described the highly respected IARC cancer research panel as “a flaky offshoot” of the World Health Organization, and claimed its glyphosate report was a “witch hunt” orchestrated by people overcome with “hysteria and emotion” who committed an “obvious perversion of both science and natural justice” by reporting cancer concerns. Glyphosate, Lynas claimed, is the “most benign chemical in world farming.”²²⁴

In another example of playing defense for the pesticide industry, the Alliance served a key function in trying to discredit the U.S. Right to Know’s (USRTK) FOIA investigation into the industry’s academic partnerships — echoing Monsanto’s strategy to counter these investigations. As one of its first public efforts, the Alliance [launched a petition](#) opposing the USRTK public records investigation, describing the FOIA requests as an “anti-science bullying tactic” that would “stifle academic freedom.”²²⁵ Similar messaging appears in Monsanto’s [U.S. Right to Know FOIA communication plan](#), which notes among its objectives: “position this activist tactic as an attack on scientific integrity and academic freedom.”²²⁶ The Monsanto plan even suggests reaching out to a key ally at the Gates Foundation for help. In a section describing plans to enlist “academic support,” the document suggests: “consider asking Robb [Fraley] to engage [Rob] Horsch” (underline in original). The note refers to Monsanto executive Fraley engaging Horsch, a former Monsanto executive who was at that time leader of the Gates Foundation’s Agricultural Development team.

Academic Support

- **In Progress:** Emailed Byrne about academic interest in agency / communications support
- **ACTIONABLE:** Develop a list of key relationship owners; hold a brainstorm to identify additional needs
- **In Progress:** Kate Hall (CBI) checking on APLU / CARET
- **In Progress:** Kate Hall / Ketchum developing plan to amplify USDA extension service ... **consider asking Robb to engage Horsch**
- **ACTIONABLE:** Ask Connie to pursue letter with Brett and University of Missouri
- **In Progress:** Eric checking with Wendy Winterstein and Peter Raven
- **ACTIONABLE:** Determine how to amplify Entine first person essays

Monsanto's PR plan to discredit a public records investigation suggests reaching out to Rob Horsch of the Gates Foundation. A Gates-funded group spearheaded a petition attacking the investigation. (highlight added for emphasis).

While Cornell Alliance for Science says it does not receive any funds from industry, these examples show how Monsanto's allies provided aid to the company at key moments in the public debate about glyphosate safety. It is also worth noting that the Alliance's main funder, the Gates Foundation, has had financial ties to Monsanto. In 2010, the Gates Foundation Trust came under criticism for buying 500,000 shares of Monsanto stock.²²⁷ Although the Trust sold the stock, the financial ties continued,

through Gates Foundation Trustee Warren Buffet's company, Berkshire Hathaway. In 2018, Berkshire Hathaway, which is also the largest holding of the Gates Foundation Trust, played a key role in supporting the merger between Bayer and Monsanto. As the financial press reported at the time, Buffet [increased Berkshire's stake](#) in Monsanto stock by 19 million shares (a 62 percent jump) just as Bayer was closing in on the merger — signaling [support for the deal](#) to investors at a crucial moment.^{228, 229}

BUFFETT AT THE BUFFET

One of the food world's most controversial mergers just got the biggest cheerleader of all: Warren Buffett



Headline in *Quartz*, February 15, 2017

The GMO-pesticide connection: a battle in Hawaii

The work of the Cornell Alliance for Science also underscores the important connection between genetically engineered crops and pesticide use. To create an enabling environment for GMOs requires that pesticide companies operate with fewer restrictions; so, along with promoting GMOs, the Alliance has focused its communications firepower on fighting important political battles to stop pesticide regulations, notably in Hawaii. In the last couple of decades, some of the world's biggest agrichemical companies, including Bayer, have taken over massive agricultural land tracts on the islands for genetically engineered crop field trials and seed development.²³⁰ Drawn by the year-round growing season and lax regulatory environment, these companies have made Hawaii ground zero for open-air testing of "restricted use pesticides," pesticides that are not available to the general public because of their toxicity concerns.

“I have personally witnessed families and lifelong friendships torn apart.”

Fern Holland, Hawaii Alliance for Progressive Action, describes the “vicious divide-and-conquer tactics” used by the Gates-funded Cornell Alliance for Science

In the face of the widespread pesticide spraying on the islands and health and environmental [concerns linked to these pesticides](#), including glyphosate, community advocates have fought to pass pesticide regulations.²³¹ As one of these advocates shared in [an op-ed](#) in the *Cornell Daily Sun*, “In 2013, as the efforts to pass these county-level regulations picked up steam, Cornell Alliance for Science associates came to our island to undermine community concerns about pesticides. It was the beginning of a massive public relations disinformation campaign designed to silence community concerns.”²³² By 2016, the Alliance had launched a local chapter, the Hawaii Alliance for Science, to counter the communities organizing for regulation.²³³

The writings of Joan Conrow, the managing editor of Cornell Alliance for Science,²³⁴ give a sense of their tactics: In her blog *Kauai Eclectic* and other media outlets, Conrow accused local advocacy groups working for pesticide reforms of [tax evasion](#),²³⁵ [compared a food safety group to the Ku Klux Klan](#),²³⁶ and [critiqued](#) media reports that raise concerns about pesticides.²³⁷

Despite these attacks, some pesticide regulations did pass. Hawaii was the first in the nation to approve a ban on the brain-damaging

insecticide chlorpyrifos, for example. But the wins were not without a huge toll. In the *Daily Sun* op-ed, the local organizer described the Alliance’s work in Hawaii as “vicious divide-and-conquer tactics to silence those critical of the pesticides used on biotech crops.” These tactics, she noted, have had “a huge impact” on the close-knit rural communities of the islands. “I have personally witnessed families and lifelong friendships torn apart,” she shared.²³⁸

The Hawaii community groups were not the only ones to speak out about the Cornell Alliance. Many scientists and advocates have documented similar concerns about inaccurate claims and misleading information promoted by the group and its spokespeople.^{239,240} Nevertheless, the Gates Foundation renewed its funding commitment in the Alliance in 2020, and the Alliance announced it is expanding its scope “to counter conspiracy theories and disinformation campaigns that hinder progress in climate change, synthetic biology, agricultural innovations and other key issues.”²⁴¹

As we demonstrate in this section, prestigious academic institutions — entities often trusted by the public and viewed as independent — provided valuable platforms for Monsanto and other pesticide companies to move their product-defense messaging for glyphosate and the GMO seeds designed to tolerate the chemical. These academic allies are at the core of the industry’s public relations spin. In the next section we take a closer look at the role other impartial- and scientific-sounding groups play in the pesticide industry’s disinformation network, and how Monsanto moved its glyphosate-defense messaging through a wide range of these third-party allies — groups that took their messaging cues from the company and its PR firms.





TACTIC 3: Cultivating Third-Party Allies

“The key will be keeping Monsanto in the background so as not to harm the credibility of the information.”

Eric Sachs, Monsanto

As pressure mounted in the European Union to ban glyphosate in the wake of the IARC 2015 cancer ruling, members of a new group called **Freedom to Farm** began appearing at agricultural events and farmers’ markets across Europe. Marketing itself as a grassroots effort led by farmers, the group warned of the “threat to farming” posed by restricting the use of glyphosate. But Freedom to Farm was not the grassroots uprising it purported to be. Monsanto’s name did not appear anywhere on Freedom to Farm materials, yet the operation was fully staffed and supported by PR firms working for the company. An [“intelligence report”](#) prepared for Monsanto by the PR firm FleishmanHillard, reveals the scope of the operation: 39.5 full-time equivalent staff from four PR firms were promoting “Freedom to Farm” in seven countries. And that was not all: “In addition to the campaign team,” the report noted, “56 trained operatives are supporting the on-site recruiting process for grassroots.”²⁴²

PR firm **FleishmanHillard**, the document noted, was also buying URLs and developing websites on the Freedom to Farm theme and working with research partners across Europe to

produce papers on additional topics, including economic impact studies and research to pitch glyphosate as a climate solution.

Astroturf groups and other third-party allies

Freedom to Farm was a classic “astroturf” operation, an effort that appears to be led by grassroots groups when it is actually an industry PR construct. The Monsanto-funded PR operation was run by **Red Flag Consulting**, a Dublin-based political firm, with help from the U.S. political consulting agency **Lincoln Strategy Group**, according to a [2019 investigation](#) by *Unearthed*, the investigative wing of Greenpeace.²⁴³ Red Flag counts among its clients²⁴⁴ the tobacco giant British American Tobacco. Lincoln Strategy Group has been exposed for numerous stealth PR campaigns, including Protect America’s Consumers, a secretive group tied to the Koch brothers.²⁴⁵ The group spent more than \$130,000 on TV and radio ads attacking the Consumer Financial Protection Bureau, according to Politico.²⁴⁶ Founders of the Lincoln Strategy Group have also been linked to suspected voter²⁴⁷ fraud and political bribery.²⁴⁸



CONFIDENTIAL – FOR INTERNAL USE ONLY



FH Glyphosate Campaign Weekly Intelligence Report
2 – 9 December, 2016

Dashboard

- Current campaign team EFT of **39.5** (addition to MON staff; slight increase to reflect Publicis in France and .5 additional staff in Brussels)
 - Twenty one active employees in FH country level teams in Brussels (5.5), France (4.5), Germany (3.5), Italy (3), UK (3.5) and Poland (1)
 - Two and a half EFT employees from Llorente & Cuenca in Spain
 - Nine EFT Red Flag employees across grassroots (5) and climate change (4). An additional Red Flag employee is expected to join to support grassroots by the end of the year.
 - Seven core EFT Lincoln employees managing grassroots campaigns

Monsanto’s [“Freedom to Farm”](#) astroturf operation had 39.5 full time employees plus 56 “trained operatives” in the field recruiting farmers to oppose glyphosate restrictions.

Ultimately, the EU did not ban glyphosate; it extended authorization of the chemical to the end of 2022, then delayed the decision again to 2023.²⁴⁹ Red Flag’s promotional materials, Unearthed noted, boasts how the firm “won the single-biggest regulatory and public affairs campaign in the European Union,” using “non-traditional allies.”²⁵⁰ While Red Flag did not name Freedom to Farm and its campaign to protect glyphosate, that’s the implication: “Red Flag leveraged these efforts on identified targets through media and direct engagement to ultimately change votes in a key committee in Brussels to bring about a win for our client.”²⁵¹

The PR machine behind Freedom to Farm is just one example of how companies use third-party allies to push messaging that seems like it’s coming from independent sources. Internal Monsanto documents make clear that the company relied on a wide range of such third-party allies to disseminate its messaging on glyphosate. While many of these industry allies present themselves to the public as independent authorities on pesticides and GMOs, the documents tie their messaging — and in many cases their funding — back to Monsanto.

Taxonomy of Third-Party Allies

- **Astroturf groups** — seemingly led by grassroots activists when they’re actually an industry PR construct;
- **Front groups** — presented as neutral, or as serving the public interest, that actually serve a company of industry and whose funding is often opaque or hidden;
- **Industry spin groups** — run by PR firms of funded by industry groups that disclose their industry funding but do not make clear their purpose as PR and lobbying arms of industry;
- **Science spin and lobby groups** — industry-funded organizations conducting or promoting science to assist with corporate lobbying;
- **Professional associations** — groups that receive funding from industry and/or offer industry executives positions of leadership.

“Put your words in somebody else’s mouth.”

PR executive Merryl Rose describes the third-party strategy

The tactic of using third-party allies dates back to the dawn of the public relations industry at the turn of the last century and Edward Bernays, a nephew of Sigmund Freud. Long considered the father of modern-day public relations, Bernays worked for various political and corporate interests to shift public opinion in ways that often left the public unaware they were being influenced, or nudged, at all. In one of his earliest campaigns, Bernays hired a team of doctors in 1913 to promote the benefits of bacon for breakfast. Bernays did not disclose that the doctors he hired were paid by the pork industry. As historian Alan Brandt noted about Bernays’ work, “the best public relations work left no fingerprints.”²⁵²

“Put your words in somebody else’s mouth,” is how Merryl Rose, an executive at the PR firm Porter Novelli, sums up this third-party strategy.²⁵³ Monsanto’s internal documents provide a rare window into how the company moved its product-defense messaging through many mouths — and name many of the third party allies the company relied on. The reach and influence of these industry allies — and the powerful false impression of independence they create — cannot be overstated. They are an industry unto themselves; an entire sector of the economy devoted to efforts to convince the public and policy makers to accept Monsanto’s spin, and the pesticide industry more broadly.

“(T)he best public relations work left no fingerprints.

Historian Alan Brandt

The PR Firms Behind the Scenes

The years 2013 and 2014 brought a noticeable uptick in pesticide industry defense efforts, as new writers, speakers, and groups emerged, and existing ally groups accelerated their output. The timing was no coincidence, and no mystery: In spring 2013, a few months after California voters narrowly defeated a ballot initiative to label genetically engineered foods, the pesticide industry announced a new PR offensive to rehabilitate the image of its embattled GMO and pesticide products. Monsanto selected PR firm **FleishmanHillard** to “reshape” its reputation amid “fierce opposition” to GMO foods, according to the *Holmes Report*.²⁵⁴ FleishmanHillard also became the PR agency of record for Bayer.²⁵⁵

In 2013, the **Council for Biotechnology Information (CBI)** — a trade group funded by Bayer, Corteva (formerly DowDuPont), Syngenta, and BASF — hired **Ketchum** to lead the GMO Answers campaign, a marketing and PR effort to promote GMOs and pesticides using the voices of academics (discussed in Tactic 5). **FTI Consulting**, along with **Red Flag** and **Lincoln Strategy Group**, are also identified in Monsanto documents and news reports as key players in Bayer and Monsanto’s efforts to defend glyphosate from cancer concerns.

All these PR firms have histories of using covert tactics to defend polluting industries, including working for tobacco and oil companies. In the 1980s, for example, FleishmanHillard helped convert a tiny air ventilation company into the Healthy Buildings Institute, a promotional group that received hundreds of thousands of dollars from tobacco industry lobbyists “to spread the message that secondhand smoke was a symptom, not a cause, of indoor air pollution,” *Washington Post* reported.²⁵⁶ FleishmanHillard also used espionage tactics against public health and tobacco control advocates, sending industry spies to conferences and secretly tape recording sessions despite explicit instructions from conference organizers not to do so, according to a study by Ruth Malone in the *American Journal of Public Health*.²⁵⁷

Ketchum — owned by the same parent company, **Omnicom**, as FleishmanHillard — also did work for the tobacco industry and has a history of subterfuge.²⁵⁸ The firm was

once involved in an espionage operation conducted against environmental groups that opposed hazardous chemicals and GMOs, according to leaked documents reported in 2008 by James Ridgeway in *Mother Jones*.²⁵⁹ The documents establish that Beckett Brown International (BBI), a private security firm that worked extensively with Ketchum, “spied on Greenpeace and other environmental organizations from the late 1990s through at least 2000, pilfering documents from trash bins, attempting to plant undercover operatives within groups, casing offices, collecting phone records of activists, and penetrating confidential meetings,” *Mother Jones* reported. That Ketchum was using BBI’s services to craft PR campaigns for its client Dow Chemical is established by an [August 1999 “intelligence analysis”](#) from BBI that Ketchum shared with its “Dow Global Trends Tracking Team.”²⁶⁰ The document details the internal plans and budgets for environmental and health groups that were trying to clean up polluted areas and reduce toxic chemical exposures from Dow products — information that, according to the memo, was “supplied by confidential sources and should be used with great discretion.”

FTI Consulting, another firm that worked with Monsanto and Bayer to spin the glyphosate story, is known as a key player in oil and gas industry efforts to discredit climate change science. The firm “drove influence campaigns nationwide for Big Oil,” the *New York Times* reported in 2020.²⁶¹ FTI’s work for Monsanto, according to [internal company documents](#), included trying to discredit Carey Gillam’s book about Monsanto’s herbicide business.²⁶² And in May 2019, an employee of FTI Consulting was caught [posing as a freelance journalist](#) at a federal Roundup cancer trial in San Francisco.²⁶³ The employee, Sylvie Barak, claimed to work for the BBC as she chatted with reporters and suggested story angles.^{264, 265} It was not the first time FTI staff were caught pretending to be journalists. As the Climate Docket reported, in January 2019, two FTI Consulting employees “posed as journalists in an attempt to interview an attorney representing Colorado communities that are suing Exxon for climate change-related damages.”²⁶⁶ FTI Consulting also has a long history of working with the tobacco industry, according to the Tobacco Control Research Group.²⁶⁷

Monsanto's many partners

To give a sense of the scope of these third-party efforts, we analyzed the publicly available financial records of seven of the groups named as key allies in Monsanto documents detailing company efforts to defend glyphosate-based Roundup herbicides:²⁶⁸

1. Academics Review
2. American Council for Science and Health (ACSH)
3. Center for Food Integrity (CFI) and the Foundation for Food Integrity
4. GMO Answers/Council for Biotechnology Information (CBI)

5. International Food Information Council (IFIC) and Foundation
6. Science Literacy Project/Genetic Literacy Project
7. Sense About Science

(In addition to these seven non-profit organizations, other specific groups named in the documents we reviewed include Biofortified, Inc., Global Farmer Network, and the Science Media Centre; these groups are not included in our financial analysis due to the lack of publicly available IRS 990 financial disclosures.)

Figure 5: Expenses of Key Third-Party Allies Named in Monsanto Glyphosate Defense Documents

Non-Profit Organizations	2015-2019
Academics Review	\$577,060
American Council on Science and Health	\$8,569,186
Center for Food Integrity	\$14,889,183
Foundation for Food Integrity	\$594,050
GMO Answers / Council for Biotechnology	\$22,687,700
International Food Information Council	\$19,376,743
International Food Information Council Foundation	\$4,694,134
Science Literacy Project/Genetic Literacy Project*	\$2,967,614
Sense About Science	\$1,773,888
	\$76,129,558

Trade Groups	2015-2019
American Chemistry Council	\$622,391,307
American Soybean Association	\$5,159,738
Biotechnology Innovation Organization	\$408,207,588
CropLife America	\$82,541,996
Consumer Brands Association**	\$144,791,582
National Corn Growers Association	\$108,224,267
	\$1,371,316,478

	2015-2019
Total Expenses for Key Trade Groups, Front Groups, and Other Key Third-Party Allies	\$1,447,446,036

*Until 2014 was filing as Statistical Assessment Service

**Known as Grocery Manufacturers Association until 2019

All expenses are pulled from publicly available IRS Form 990s. Where fiscal year doesn't follow the calendar year, the reporting uses the end month of the calendar year.

Based on the available data, these third-party, non-profit organizations Monsanto tapped for glyphosate defense spent more than \$76.1 million during the five-year period, starting the year of the IARC ruling, 2015, through 2019. (See Appendix I).

Well-resourced industry trade associations are also named in key Monsanto internal documents to be tapped for glyphosate defense. These include:

- 1. Biotechnology Innovation Organization (BIO)**
- 2. CropLife America (CLA)**
- 3. Consumer Brands Association (CBA), formerly Grocery Manufacturers Association (GMA)**
- 4. National Corn Growers Association (NCGA)**
- 5. American Soybean Association (ASA)**
- 6. American Chemistry Council and its Campaign for Accuracy in Public Health Research (CAPHR)**

Together, these trade associations spent a total of \$1.37 billion over this same five-year period, advancing their sector's agenda, including the defense of pesticides like glyphosate. (Along with these five trade associations, the documents also named CropLife International (CLI) and the European Crop Protection Association (ECPA), whose budgets are not included in these totals).

While some of these expenses may be duplicative because, as we discuss, some of these trade groups have funded some of these non-profit initiatives, it is still worth remarking on the scale of these expenses. Combined, from 2015 to 2019, seven of the non-profit groups and six of the trade groups named in Monsanto PR documents pertaining to glyphosate defense spent over \$1.45 billion on total operations, including on marketing, advertising, lobbying, and advocacy — work that has helped shape the narratives informing regulations of pesticides and biotech seeds, most of which as of this writing are genetically modified with the trait for glyphosate resistance.

While glyphosate defense is only part of the budgets of these organizations — in some cases a small part — the size of their budgets, taken together, conveys what a huge industry this sector and these trade associations are. These budgets reflect the resources available to be marshaled for promoting and lobbying to deregulate the chemical-intensive farming practices and ultra-processed food products at the heart of our industrial food chain.

Deploying partners to protect Roundup

To explore how these third-party allies engaged in the spin around glyphosate-based herbicides, we reviewed documents that lay out the network of organizations the company tapped, particularly in response to IARC's classification of glyphosate as a probable human carcinogen.²⁶⁹ In a confidential memo from February 23, 2015, a month before IARC issued its report, Monsanto described its "[preparedness and engagement plan](#)." The company's goal? "Protect the reputation and FTO [freedom to operate] of Roundup" and "provide cover for regulatory agencies."²⁷⁰ To push back against the IARC cancer classification, the plan assigned more than 20 Monsanto staffers to a range of jobs including: "neutralize impact of decision," "ensure MON POV [Monsanto Point of View]" and "lead voice" on "outrage" over the IARC decision.

The memo named four tiers of "industry partners" that could disseminate the company's messaging:

- 1.** trade groups like CropLife with ties to powerful Washington DC lobby groups with success in blocking policy and regulation;
- 2.** "science" groups that claim to be independent from corporate interests, though the documents clearly tie their strategies and messaging to Monsanto;
- 3.** "consumer trust" groups funded by food and pesticide companies that work to convince consumers to accept processed foods and pesticides;
- 4.** groups representing industrial corn and soy growers.

2. Inform / Inoculate / Engage Industry Partners

- Develop a “toolkit” containing key information and resources
 - Identify any message shortcomings and address through updates to [monsanto.com/glyphosate-and-through US and EU blog posts](http://monsanto.com/glyphosate-and-through-US-and-EU-blog-posts)
- Work with RPSA, Stakeholder Outreach Team, Industry Affairs, Government Affairs, US Business, Global CE and Regulatory teams, etc. to engage industry partners
 - Tier 1: Crop Life International / European Crop Protection Association / GMO Answers / BIO – identify committees that are best to engage
 - Tier 2: Academics (AgBioChatter), Biofortified, Sense About Science, Genetic Literacy Project, Academics Review
 - Tier 3: Alert food companies via Stakeholder Engagement team (IFIC, GMA, CFI) for “inoculation strategy” to provide early education on glyphosate residue levels, describe science-based studies versus agenda-driven hypotheses
 - Tier 4: Inoculate key grower associations

Monsanto’s PR plan for the IARC glyphosate report named four tiers of “industry partners” the company planned to engage in its efforts to “protect Roundup.”

In the following section, we describe some of the strategies and groups named in these internal documents and showcase the range of tactics Monsanto used to spin its messaging about the safety of glyphosate and GMO seeds designed to tolerate the chemical. While these examples relate specifically to glyphosate, they are common pesticide industry defense strategies.

Cooking up an academic front group

“Organics Exposed!” “Organic Industry Booming by Deceiving Consumers,” and “Tyranny of the Organic Mommy Mafia” — these headlines appeared in 2014 among a spate of articles criticizing the organic food industry. Many of them linked back to a report written by Dr. Bruce Chassy of **Academics Review**.²⁷¹ Several years earlier, Bruce Chassy was preparing to retire as a professor at the University of Illinois when he teamed up with Dr. David Tribe of the University of Melbourne to launch Academics Review. Described as a “non-profit led by independent academic experts” the group claimed to accept no corporate funds.²⁷² That 2014 report attacking the organic industry underscored such independence, noting “no conflicts of interest associated with this publication.”²⁷³

Internal Monsanto documents tell a different story: They reveal Academics Review was

established with backing from Monsanto and other leading pesticide firms. Tax records also show that most of the funding for Academics Review came from the Council for Biotechnology Information (CBI), a trade group of pesticide firms. Between 2014-2016, CBI donated \$650,000 to Academics Review,²⁷⁴ more than 80 percent of the organization’s spending in those years. (\$790,000 in reported expenses).²⁷⁵

“Where should we send future gifts ‘in support of biotechnology outreach’ by the university?”

Monsanto’s Eric Sachs to Bruce Chassy

Emails obtained by U.S. Right to Know revealed the maneuvering to set up Academics Review as a corporate front group, promoting industry messaging from behind a mask of independence. In [a series of emails from March 2010](#), Chassy discusses the concept for Academics Review with Jay Byrne, Monsanto’s former director of corporate communications.²⁷⁶ Byrne compared the idea for Academics Review with the Center for Consumer Freedom, a front group that Byrne said “has cashed in on this to the extreme and I think we have a much better concept.” (The

Center for Consumer Freedom is directed by Rick Berman, a lobbyist who has been called the “king of corporate front groups” for his work promoting the interests of tobacco and restaurant industries, among many others.)²⁷⁷

The emails suggest Academics Review had a clear role to play for the industry’s communication needs: discrediting critics of GMOs and pesticides. In one email, Byrne told Chassy that he was developing an “‘opportunities list’ with targets” comprised of people and groups critical of agricultural biotechnology. The targets, Byrne noted, would attract money from “a range of well-heeled corporations.” He offered that he and Val Giddings, the former Vice President of the BIO trade group, could serve as “commercial vehicles to connect these entities [corporations] with the project in a manner which helps to ensure the credibility and independence (and thus value) of the primary contributors/ owners.”²⁷⁸

Monsanto’s involvement with Academics Review is documented in these internal emails. In an [email later that year](#), Chassy communicated with Monsanto’s Eric Sachs about setting up a non-profit “to facilitate fundraising.”²⁷⁹ Sachs told Chassy that his colleagues at Monsanto could “help motivate” the industry trade organization to support the effort. Sachs noted, “The key will be keeping Monsanto in the background so as not to harm the credibility of the information.” Chassy responded, “I think we are on the same page.”²⁸⁰

In February 2015, when Monsanto needed help defending glyphosate, the company named Academics Review among the “industry partners” it planned to engage. And Academics Review joined the chorus of messengers trying to downplay cancer concerns, with a March 2015 post that gave the IARC report a failing grade of “F.”²⁸¹

In 2015, *The New York Times* published a story about the ties between Chassy, Academics Review, and Monsanto.²⁸² As of this writing, the Academics Review website last published content three days before that story broke; its website still claims no conflicts of interest.²⁸³

‘Pro-science’ groups promote industry views

“We are funded mostly by readers like you,” claims the homepage of the pro-industry non-profit, the **American Council on Science and Health (ACSH)**. Founded in 1978, ACSH positions itself as a “pro-science consumer advocacy organization,” but internal documents reveal the organization’s significant corporate funding, including from the pesticide industry.²⁸⁴ A “consumer front organization for its business backers,” is how consumer advocate Ralph Nader has described ACSH. “It has seized the language and style of the existing consumer organizations, but its real purpose... is to glove the hand that feeds it.”²⁸⁵

[A leaked financial document](#),²⁸⁶ provided to *Mother Jones* in 2013, provides a rare window into how this spin works.²⁸⁷ The document describes ACSH’s plans to pitch its services to corporations for specific product-defense campaigns. For example, the document includes plans to ask food companies to fund a messaging campaign opposing GMO labeling, to court e-cigarette companies, and to pitch a project to the Vinyl Institute, which, the document notes, “previously supported [ACSH’s] chlorine and health report.” Among the group’s funders in 2012: Bayer CropScience, Syngenta, Coca-Cola, Chevron, and several leading tobacco companies.

“Each and every day, we work hard to prove our worth to companies such as Monsanto.”

Gil Ross, American Council on Science and Health

[Internal Monsanto documents](#) reveal that the company also tapped ACSH to help defend glyphosate. In early 2015, Monsanto executive Daniel Goldstein emailed ACSH’s Gil Ross with concerns that IARC would be assessing glyphosate at a time when both the EU and U.S. were reviewing reregistration of the chemical. Ross replied enthusiastically, noting that ACSH

Message

From: GOLDSTEIN, DANIEL A [AG/1000] [/O=MONSANTO/OU=NA-1000-01/CN=RECIPIENTS/CN=527246]
Sent: 2/26/2015 8:08:31 PM
To: VICINI, JOHN L [AG/1000] [/O=MONSANTO/OU=NA-1000-01/cn=Recipients/cn=56908]; REYNOLDS, TRACEY L [AG/1000] [/O=MONSANTO/OU=Na-1000-01/cn=recipients/cn=133378]
CC: SACHS, ERIC S [AG/1000] [/O=MONSANTO/OU=NA-1000-01/cn=Recipients/cn=171736]
Subject: ACSH

While I would love to have more friends and more choices, we don't have a lot of supporters and can't afford to lose the few we have....

I am well aware of the challenges with ACSH and know Eric has valid concerns- so I can assure you I am not all starry-eyed about ACSH- they have PLENTY of warts- but:

You WILL NOT GET A BETTER VALUE FOR YOUR DOLLAR than ACSH:

They are working with us to respond if needed to IARC- Gil has asked for information feed.

Monsanto's Daniel Goldstein pitches his colleagues on funding the American Council on Science and Health.

was already engaged in a “full-court press” against IARC over the agency’s cancer rulings on pesticides, phthalates, and diesel exhaust.²⁸⁸ In an email to his Monsanto colleagues, Goldstein championed ACSH, writing, “While I would love to have more friends and more choices, we don’t have a lot of supporters and we can’t afford to lose the few we have...” To show how ACSH could be effective in shaping the discourse, Goldstein shared links to 53 blogs, two books, and a pesticide review he described as “EXTREMELY USEFUL” (emphasis in original). Goldstein acknowledged problems with ACSH’s reputation, writing, “I am well aware of the challenges with ACSH... I can assure you I am not all starry eyed about ACSH- they have PLENTY of warts- but: You WILL NOT GET A BETTER VALUE FOR YOUR DOLLAR than ACSH”.²⁸⁹ (emphasis in original).

Ross [defended Monsanto's investments](#) in ACSH, at one point confiding to Goldstein that “it does get frustrating at times when we feel as though we can’t count on the unrestricted support of a company like Monsanto — whose products and technologies are constantly vilified by activist groups but heralded by ACSH. Each and every day, we work hard to prove our worth to companies such as

Monsanto...”²⁹⁰ Later that same day, Goldstein informed Ross that Monsanto would send the donation. “Great news. Thanks Dan,” Ross responded. He then asked for information about IARC and glyphosate.²⁹¹ In the wake of these email exchanges, ACSH attacked the IARC report as “Glyphosate-Gate: IARC’s Scientific Fraud.”²⁹² ACSH’s president at the time, Hank Campbell, penned many more attacks on IARC and scientists who wrote critically about glyphosate and published them on his “Science 2.0” website.^{293,294,295}

ACSH, like Academics Review, is one of several groups identified in Monsanto documents as a third-party ally the company reached out to for its glyphosate defense needs. These groups, including **Sense About Science**, the **Science Media Centre**, and the **Genetic Literacy Project**, all promoted common messaging about glyphosate and pesticides more generally: downplaying or denying environmental and health concerns and arguing that glyphosate and other pesticide industry products do not need to be regulated.^{296, 297, 298} (In Tactic 4, we take a closer look at how these groups, especially the Genetic Literacy Project, played a key role in attacking the scientists who raised cancer concerns about glyphosate.)



Dr. Nina Fedoroff, second from right, appears at the ACSH press conference to promote their “junk science” book.

Connections Between Industry Front Groups and Academic Influencers

“Pro-science” spin groups that Monsanto tapped to defend glyphosate also have ties to each other. To give just one example: in 2011, the ACSH published a book by Jon Entine, who went on to found the Genetic Literacy Project. Entine’s book about “chemophobia” (the fear of chemicals) mounts an ardent defense of atrazine, a pesticide manufactured by Syngenta, one of ACSH’s funders at the time. [Internal documents show](#) that ACSH asked Syngenta in 2009 for \$100,000 — a grant “separate and distinct from the general operating support Syngenta has been so generously providing over the years” — to produce a “consumer friendly booklet” about atrazine.²⁹⁹ When asked about the documents, Entine told Tom Philpott at *Mother Jones* that he [had “no idea”](#) his publisher was funded by Syngenta.³⁰⁰

Entine had claimed for years that his own organization, Genetic Literacy Project, had no corporate funding, although its disclosures

suggested otherwise (see page 54). GLP now says it does accept corporate funding; tax records show that Bayer gave the group \$100,000 in 2020/2021. Another top donor was DonorsTrust, a leading funder of climate science denial efforts.³⁰¹

Academics have also helped elevate these front groups. In the photo above, Dr. Nina Fedoroff, a former president of the prestigious AAAS (second from right), appears at a press conference to promote the ACSH’s “Little Black Book of Junk Science.”³⁰² Appearing alongside her, to the left, are Dr. Angela Logomasini of the Competitive Enterprises Institute, a [group that disputes](#) the man-made causes of climate change; and Dr. Alan Moghissi, who served on the advisory board of a Phillip Morris front group that tried to discredit research about the harms of tobacco.³⁰³ Fedoroff also serves as a board member for the Genetic Literacy Project.

Rallying the food industry to defend pesticides

Another powerful third-party ally Monsanto used to defend glyphosate: the world's largest processed food companies. Internal documents show Monsanto's plan to use a "Stakeholder Engagement team" in the wake of the IARC ruling to help disseminate Monsanto's point of view to the food industry. The team was composed of two industry-funded spin groups — the **Center for Food Integrity** and the **International Food Information Council (IFIC)** — and the **Grocery Manufacturers Association (GMA)**, the food industry's largest trade group. (The GMA rebranded itself as the Consumer Brands Association in 2020.) According to internal documents, the Stakeholder Engagement team could share Monsanto's "inoculation" strategy for food companies, emphasizing the low levels of glyphosate in food and framing the IARC cancer report as an "agenda-driven hypotheses" at odds with the "science-based studies" Monsanto preferred.³⁰⁴

IFIC's message about glyphosate, and pesticides in general, echoed Monsanto's narrative. In the wake of the IARC ruling, IFIC's "food insight" website offered product-defense blog entries including "Cutting Through the Clutter on Glyphosate"³⁰⁵ and "8 Crazy Ways They're Trying to Scare You About Fruits and Vegetables."³⁰⁶ IFIC advised women not to "freak out" about glyphosate, but rather "listen to the experts... the real experts." These "experts" promoted in IFIC blogs included Val Giddings, the former vice president of the BIO trade association who helped set up the



How IFIC messages to women. This image was removed from the IFIC website after USRTK wrote about it.

front group Academics Review; David Zaruk, a former pesticide industry lobbyist; and Keith Solomon, a toxicologist who had received funds from Monsanto for a paper that downplayed concerns about glyphosate's genotoxicity.³⁰⁷ (Some of the content and images in IFIC blogs, such as this image of a woman with a Post-It on her forehead, were removed or edited after U.S. Right to Know published a [fact sheet about IFIC](#) describing internal emails showing how the group works with corporations on product defense campaigns.)³⁰⁸

IFIC's product-defense messaging defending glyphosate is part of a broader effort to support the interests of the processed food, beverage and chemical companies that fund the group. A 2022 study co-authored by U.S. Right to Know found that IFIC is "central to promoting industry-favorable content in defense of products facing potentially negative press."³⁰⁹

In one resource, IFIC pushes the message that low levels of pesticide residues on food do not pose a health threat by pointing consumers to its "safe produce" calculator.³¹⁰ Consumers are invited to click on a type of food, for example strawberries, to learn that "a woman could consume 453 servings of strawberries in one day without any effect even if the strawberries have the highest pesticide residue recorded for strawberries by USDA."³¹¹ The analysis is based on a report funded by the **Alliance for Food and Farming**, a trade association that represents large conventional grower groups that rely on pesticides.³¹² Their messaging leaves out crucial context about how government safety standards fail to account for the long-term health risks of exposure to multiple pesticide residues found on fruits and vegetables sold in the U.S.³¹³ Scientists have raised concerns especially about the documented health risks of pesticides for children.³¹⁴ Groups like IFIC are well funded to produce messaging and materials designed to persuade the public that pesticides and chemical additives in food do not pose a health risk. Between 2013 and 2017, IFIC spent over \$22 million, according to tax forms filed with the IRS. Public disclosures show that its funders include Bayer CropScience, DowDuPont, Coca-Cola, and many processed food companies.³¹⁵

From previous research we know that negative perceptions of processed foods are deeply rooted and cut across all consumer demographics. For this reason, it is crucial that the benefits of food processing are communicated by credible individuals and organizations such as the IFIC Foundation. **If you are not a current supporter, please consider contributing the suggested \$10,000 voluntary contribution to the Foundation to support the *Understanding Our Food* initiative** to help further our work. Attached for your use internally is a new resource which illustrates the accomplishments and future deliverables of the initiative.

IFIC's Dave Schmidt solicits funds from corporate executives on the IFIC Board of Directors. Past supporters of the processed food promotional materials, he noted, included Bayer, DuPont, Dow and Monsanto.

Internal emails provide more details about how IFIC works with these funders. One email obtained by U.S. Right to Know reveals that IFIC solicited money from corporations to produce specific product-defense materials.³¹⁶ In April 2014, the group's CEO, Dave Schmidt, [emailed a long list](#) of corporate board members asking for \$10,000 contributions to update IFIC's "Understanding Our Food" initiative³¹⁷ to improve consumer views of processed foods. The email notes previous financial supporters included Bayer, Coca-Cola, Dow, Kraft, Mars, McDonalds, Monsanto, Nestle, PepsiCo, and DuPont.³¹⁸

Co-opting professional trade groups

Professional organizations for dieticians, beekeepers, food technologists, farmers, and other groups that represent fields with obvious — and sometimes not so obvious — pesticide industry connections have also been tapped to amplify pesticide industry messaging, including the defense of glyphosate. These groups sometimes receive funding from pesticide companies or include pesticide industry executives in positions of leadership on their boards or advisory councils.

Some professional groups spend enormous sums on direct marketing efforts that echo pesticide industry views. Commodity groups, such as corn and soy growers' associations, spend tens of millions each year on programs to defend and expand chemical-intensive corn and soy crops, nearly all of which are genetically modified to tolerate glyphosate in the U.S.³¹⁹ Just one of these groups that appears in Monsanto PR materials, the **National Corn Growers Association**, spent over \$108

million in five years. (See Appendix I.) To give a sense of state level spending, in 2017, groups representing corn growers in five Midwestern states (Iowa, Kansas, Kentucky, North Carolina and South Dakota) spent over \$32 million. That Monsanto counted on these groups for glyphosate messaging support is noted in the company's response plan for the IARC ruling. In a section describing efforts to engage industry partners, the plan states: "inoculate key grower associations."³²⁰ In the wake of the IARC report, commodity groups issued press statements defending glyphosate and trying to preempt cancer concerns about other pesticides. For example, a June 2015 joint press release from the National Corn Growers' Association and the **American Soybean Association** — both named as third-party allies³²¹ in the Monsanto documents — accused IARC of creating "confusion and unnecessary fear amongst the public" and using "narrowly-focused data removed from real-world situations to find almost everything that it reviews as potentially carcinogenic."³²² The release also warned that IARC might raise cancer concerns about other widely used herbicides, including dicamba and 2,4-D. (A couple weeks after its IARC ruling, the cancer agency did issue a report on 2,4-D, classifying the widely used herbicide as a possible human carcinogen.³²³) For further information on IARC and its glyphosate report, the trade groups' joint press release links to a resource from **CropLife America**, the pesticide industry trade group.

Influencing journalism groups

Bayer also exerted influence over journalism groups, according to internal emails from 2018. The emails revealed [details of a sponsorship agreement](#) between Bayer and the U.S. arm

of the **Foreign Press Association (FPA)**.³²⁴

The agreement states that Bayer would be guaranteed that “selection of the honorary awardees for the Foreign Press Awards should not be contradictory to Bayer’s strategic communications plans and initiatives,” and that Bayer would be made “aware in advance about the honorees of the Foreign Press Awards.” The company was also promised the Association’s annual all-day forums for media professionals would be on topics “relevant to Bayer’s strategic communications goals and priority (for example agriculture, or any other issue that matter to Bayer)” and that Bayer could help identify “media influencers from the American and international community of journalists” to attend its two main cocktail parties each year. In addition, the Association offered to organize “three background briefings” with Bayer representatives and “selected members of the international and national press and online bloggers” to dive into “topics that fit in Bayer’s communications priorities and strategic goals.”³²⁵

While the FPA has since replaced the executive director behind these emails, and current leadership stands by the group’s independence, the internal emails indicate that there had been widespread support for this kind of industry influence. As the FPA’s executive director [shared](#) with his Bayer contacts in 2018: “I informed all Board Members of the FPA and the FPF [Foreign Press Foundation] about the dissatisfaction from Bayer that over the last couple of years the FPA didn’t deliver as much as it was expected given that Bayer was one of the major contributors of our programs. I got everyone from the two boards to agree that this situation won’t happen again and I got the full and exclusive authorization from our boards to work with you from my role on the initiatives I deployed in my previous emails and discussed over the phone with Chris [from Monsanto] for 2018, 2019 and 2020.”³²⁶

Using a prestigious scientific group to promote industry messaging

Another key industry strategy is to work with experts connected to groups that have the veneration of scientific impartiality. We see this in the way Monsanto used the branding of the

American Association for the Advancement of Science (AAAS), the world’s largest multidisciplinary scientific society, to advance its product-defense messaging.

To give one example of this, a 2015 op-ed for the *Guardian* opposing the U.S. Right to Know investigation into the pesticide industry’s ties with academic institutions, three former AAAS presidents touted their affiliation with the prestigious scientific organization, but not their industry ties.³²⁷ Nina Fedoroff, Peter Raven, and Phillip Sharp decried the public records research as “science denialism” and compared it to “Climate-gate,” in which climate scientists’ emails were illegally hacked — the same framing Monsanto front groups were pushing.³²⁸ Fedoroff was at that time a Senior Science Advisor at OFW Law,³²⁹ a lobbying firm whose clients included pesticide company Syngenta and a pesticide industry trade group. The *Guardian* later noted that conflict³³⁰ but failed to include those of her co-authors: Peter Raven was identified simply as Director Emeritus of the Missouri Botanical Garden. That group counts Monsanto among its “most generous benefactors”³³¹ and has a Monsanto Hall and a Monsanto Center with a Peter H. Raven Library.³³² Phillip Sharp, whom *MIT Technology Review* described as “the man who helped launch biotech,” is the co-founder of two multi-billion dollar biotech companies, Biogen and Alnylam Pharmaceuticals.³³³

“Appearing to be less than transparent is a really bad idea for the scientific community.”

[AAAS member scientists](#)

This was not the first time Fedoroff used her position with AAAS to aid Monsanto. In 2012, while Fedoroff was chair of the AAAS Board of Directors, the Board issued a statement opposing GMO labeling just weeks before California voters went to the polls to decide on the issue.³³⁴ The Board did not solicit input from the scientific society’s 120,000 members, and its statement contained inaccuracies and misleading assertions, according to long-standing AAAS members.^{335, 336} In a letter to

[Science magazine](#) AAAS-member scientists urged the Board to reconsider their anti-labeling statement; “appearing to be less than transparent,” they noted, “is a really bad idea for the scientific community.”³³⁷

More spin groups

There are many more spin groups associated with Monsanto and the pesticide industry than we can profile here. These include influential nonprofits such as the industry-funded **International Life Sciences Institute (ILSI)**, which funds studies helpful to industry and lobbies for industry interests around the world.³³⁸ The *New York Times* has described ILSI as “the most powerful food industry group you’ve never heard of.”³³⁹ An influential nonprofit called the Science Media Centre, partly funded by corporations, connects reporters with hand-picked experts that share industry views on breaking science stories involving controversial topics such as glyphosate, GMOs, aspartame, cell phones, and fracking.³⁴⁰ The model of influencing science reporting is “spreading around the world,”

as *Nature* reported in 2013.³⁴¹ Professional groups such as the **Academy of Nutrition and Dietetics**, the world’s largest organization of food and nutrition professionals, and many others receive funding from pesticide companies, have industry executives on their boards, and also provide helpful channels for industry communications.

The groups discussed in this section all appear in internal Monsanto documents or in the public record as neutral-appearing channels that are disseminating similar messaging: downplaying the risks of pesticides, ultra-processed foods and food additives, and working to create a powerful impression on journalists and the public: if all these groups are saying it, mustn’t it be true?

In the next section, we focus in on another key tactic Monsanto used to defend glyphosate: attacking the scientists and others who raised cancer concerns — and the groups Monsanto relied on to do it.





TACTIC 4: Tracking and Attacking Scientists, Journalists, and Influencers

“You can’t be afraid of the absolute hand-to-hand combat, metaphorically.”

Marc Moreno, Committee for a Constructive Tomorrow

In the documentary *Merchants of Doubt*, Marc Moreno, a former staffer for U.S. Senator James Inhofe (R-OK), described working to thwart action on climate by attacking the scientists speaking out about the crisis. “You’ve got to name names and you’ve got to go after individuals,” Moreno said. That’s just what he did to some of the world’s most renowned climate scientists: “We went after [climate scientists] James Hansen and Michael Oppenheimer,” Moreno added, “and we had a lot of fun with it.”³⁴²

Attacking experts is another key industry spin tactic — one the pesticide industry has been deploying for decades. Sixty years ago, when Rachel Carson published *Silent Spring*, her scientific analysis of the harms of DDT, Monsanto engaged in targeted personal attacks to try to undermine the landmark book. Pesticide defenders derided Carson as a “spinster,” a “priestess of nature,” and even accused of being a “mass murderess” responsible for the lost lives of African children, wrote *Audubon* magazine’s [Frank Graham, Jr.](#) These character assaults, he notes, had “nothing to do with the science or merits of pesticide use.”³⁴³



Mark Moreno ginned up attacks on climate scientists. Conservative foundations that fund Moreno’s group ClimateDepot have also funded Jon Entine’s Genetic Literacy Project.

Character assassination has been deployed against countless scientists since. But industry goes after more than just the scientists; companies and their public relations proxies also attack journalists, public interest groups, and anyone raising concerns about their products as a key tactic. These attacks serve two purposes: they work to undermine the credibility of those raising concerns and, at the same time, they can have a chilling effect, causing many to think twice about putting themselves in industry crosshairs.

Orchestrating “outrage” against cancer researchers

In looking at how Monsanto, and now Bayer, responded to the existential threat of the IARC cancer ruling on glyphosate, we see this tactic at work. In the lead up to IARC’s 2015 report classifying glyphosate as a probable human carcinogen, Monsanto rolled out an “unprecedented and harsh strategy” to discredit experts, as [Jonathan Samet](#), Dean of the Colorado School of Public Health, described in the *American Journal of Public Health*.³⁴⁴ Monsanto’s attacks, he said, amounted to an “attack on expert review” itself. Journalists at *Le Monde* [described](#) Monsanto’s coordinated attack on IARC as “an effort to destroy the United Nations’ cancer agency by any means possible.”³⁴⁵

As we shared in the previous tactic, Monsanto’s own [internal documents](#) reveal that, in the weeks before IARC issued its March 20, 2015 ruling, Monsanto had already begun to engage “industry partners” in a plan to, in their words, “orchestrate outcry” and “outrage” with the cancer agency’s decision.³⁴⁶ The examples below highlight the lengths to which Monsanto and its allies were willing to go — and feel they

needed to go — to marginalize, silence, and discredit critics of glyphosate. These examples also show the hidden influence pesticide companies wield, weaving their narrative through powerful third-party allies in media, academia, and the highest levels of government.

“The Monsanto strategy parallels those used by the tobacco industry and others, but the glyphosate story is notable for its intensity...”

Jonathan Samets,
[American Journal of Public Health](#)

Personal attacks on scientists

One key industry partner engaged in Monsanto’s plan to discredit the IARC cancer panel in the wake of its glyphosate ruling was the **Genetic Literacy Project (GLP)**, a group that claims it is the “most visited biotechnology focused web source in the world.”³⁴⁷ While its tagline is “science not ideology,” and its founder Jon Entine describes himself as an independent journalist,³⁴⁸ the GLP’s mission is to “prevent legislative overreach in genetic engineering,” according to [tax filings](#), and one of its top funders from July 2020 to June 2021 was Bayer.³⁴⁹

Entine and his group have a long history of ties to the chemical industry; Entine’s work has included defending pesticides, industrial chemicals, plastics, fracking, and the oil industry, often with attacks on [scientists](#),³⁵⁰ [journalists](#),³⁵¹ and [academics](#).³⁵² GLP has published [hundreds of articles](#) promoting and defending glyphosate,³⁵³ some authored by chemical industry lobbyists^{354, 355} or climate science skeptics.^{356, 357}

When Entine launched GLP in 2011, he also ran a public relations firm that [included Monsanto among its clients](#).³⁵⁸ And while GLP’s website claimed for years that the organization did not accept corporate funding, its own disclosures suggest otherwise. In fall 2016, GLP disclosed “pass through” funding from Academics Review,³⁵⁹ a disclosure that was removed after documents surfaced showing Academics Review received its funding from pesticide companies.³⁶⁰ GLP also disclosed receiving

funds from the **Center for Food Integrity**, a group underwritten by food and pesticide companies.³⁶¹ Internal Monsanto [emails from 2014](#) suggest additional corporate ties: the emails discuss how Monsanto executives chose GLP as the “primary outlet” to publish a series of papers about GMOs written by professors and influenced by Monsanto.^{362, 363} GLP published the papers with no mention of Monsanto’s involvement.³⁶⁴ (In 2020, GLP says it decided to accept corporate funding and its IRS tax forms for fiscal year 2020/2021 show \$100,000 in funding from Bayer.³⁶⁵)

As part of Monsanto’s strategy to prepare for the IARC ruling, Monsanto Regulatory Affairs Lead Eric Sachs [invited Entine](#) to attend a briefing with executives about the forthcoming IARC report, internal emails show. Entine agreed to participate and asked Sachs whether Monsanto was interested in “expanding/ follow up” on Genetic Literacy Project’s “GMO science” website content. He emphasized that GLP’s reach was growing, with website traffic having “expanded dramatically” in the past year. Following that email exchange, GLP would go on to publish dozens of articles critical of IARC, many of them personal attacks on the scientists involved in the glyphosate report. Posts on the GLP website accused IARC scientists of everything from “[corruption, distortion and fraud](#)”³⁶⁶ to “[conspiracy](#),³⁶⁷ [lying](#),³⁶⁸ and [secrecy](#),”³⁶⁹ some even claiming the independent scientists were motivated by “[profit and vanity](#).”³⁷⁰

IARC scientists weren’t the only ones in GLP’s bull’s eye: When a group of independent scientists — three of whom served on a 2016 EPA expert advisory committee on glyphosate — reported “compelling links” between glyphosate-based herbicides and non-Hodgkin lymphoma in a February 2019 meta-analysis,³⁷¹ Entine and one of his board members, Geoffrey Kabat, suggested those scientists committed “[deliberate fraud](#),” too.³⁷² Kabat, an epidemiologist, has a long history of defending toxic products; he has published several papers favorable to the tobacco industry, for example, including one that claims the health concerns of secondhand smoke are over-hyped.³⁷³ Kabat also has “longstanding financial and other working relationships with the tobacco industry” that have not always been fully disclosed, according to a 2005 paper in *BMJ Tobacco Control*.³⁷⁴

Genetic Literacy Project

SCIENCE NOT IDEOLOGY

Congress should reign in IARC cancer agency's 'corruption, distortion and fraud'

Paul Driessen, climate science denialist

How activist scientists hijacked IARC for personal profit and ideological vanity

David Zaruk, former chemical industry lobbyist

IARC director lied to Congress about cancer agency debacle

David Zaruk, former chemical industry lobbyist

IARC accused of selectively excluding best scientists from glyphosate review

American Council on Science and Health, industry funded group

Corruption and secrecy behind IARC's glyphosate cancer designation?

Jon Entine, executive director of Genetic Literacy Project; principal of a PR firm that had Monsanto as a client when he set up the Genetic Literacy Project

These and over 200 other articles about IARC appear on the Genetic Literacy Project website. A 2015 Monsanto PR plan listed Genetic Literacy Project as one of the "industry partners" that could help protect Roundup from cancer concerns raised by IARC.

Engaging climate science denialists

The efforts of Jon Entine and his Genetic Literacy Project to discredit scientists who raised cancer concerns about glyphosate echo the playbook Marc Moreno used to raise doubts about climate science: "name names" and "go after individuals." The parallels do not end there: despite GLP's claims to stand for "science not ideology," its funding sources trace back to some of the largest, most consistent funders of climate science denial. These include the **Searle Foundation** (which also backs Moreno's³⁷⁵ ClimateDepot), **Scaife Foundation**, and **Templeton Foundation**, which have supported GLP for many years, and more recently,³⁷⁶ the **Charles Koch Foundation** and **DonorsTrust**, a funding organization *Mother Jones* has described as the "dark money ATM of the conservative movement."³⁷⁷ All these are leading funders of climate science disinformation campaigns, according to a [2013 study](#) by sociologist Robert Brulle. These foundations have "bank-rolled denial," Brulle wrote, and they "promote ultra-free-market ideas in many realms."³⁷⁸

Indeed, several GLP posts attacking the IARC scientists were written by individuals with long histories of defending polluting industries. These include not just Kabat, but also David Zaruk,³⁷⁹ a chemical industry lobbyist;³⁸⁰ and Paul Dreissen,³⁸¹ a well-known climate denialist and senior policy advisor at the Committee for a **Constructive Tomorrow (CFACT)**, the parent group of Moreno's **Climate Depot**.

In service of the anti-IARC messaging, well known climate denial groups also echoed the attacks on the scientists raising concerns about glyphosate. "Congress should stop funding the International Agency for Junk Science," declared the **Competitive Enterprise Institute**,³⁸² a "free-market organization that disputes climate change is a problem," according to the *New York Times*.³⁸³ Additional attacks on IARC scientists came from the **Heartland Institute**,³⁸⁴ the **Cato Institute**,³⁸⁵ and **CFACT**³⁸⁶ — all groups that have received funding from oil companies and foundations that have supported climate science disinformation.

Influencing media narratives to discredit scientists

The holy grail of PR spin is free media in your favor. In the case of the IARC ruling, a series of articles critical of the cancer research group appeared in the international wire service Reuters between 2016 and 2018, and gave a boost to Monsanto's campaign to defend glyphosate. Thanks to internal documents the public can now see how Monsanto and its PR firm Red Flag worked to shape the stories that were reported by Kate Kelland, a longtime correspondent for Reuters. One email from a [Red Flag employee](#) to Monsanto notes, "You'll recall that following engagement by Red Flag a number of months ago, the first piece [in Reuters] was quite critical of IARC."³⁸⁷ The email indicates that the PR team helped Kelland [find an anonymous source](#)³⁸⁸ to criticize IARC and also offered her [exclusive materials](#).³⁸⁹ In another case, Kelland [shared an article](#) about glyphosate with Monsanto executives before it went to print.³⁹⁰

The most influential of Kelland's articles ran in [June 2017](#), claiming that the chair of the IARC glyphosate panel, Aaron Blair, withheld key data in the panel's glyphosate assessment.³⁹¹ Had that data been included, the article claimed, the panel would have been less likely to have designated glyphosate a probable human carcinogen. The story reverberated around the world with reprints and reports lifted from the article appearing in many leading newspapers and even progressive outlets such as *Mother Jones*.³⁹²

Questions about Kelland's reporting began surfacing shortly after publication, however. Kelland had characterized her source as "court documents" from a deposition Blair had given in a Monsanto legal case. But the deposition was not filed in court, and Kelland did not provide her readers with access to the original documents, so it was initially impossible to verify her claims. Carey Gillam, a former Reuters' reporter who worked for U.S. Right to Know at the time, gained access to the documents, and [reported how Blair's full testimony](#) contradicted key claims in Kelland's article.³⁹³

Two years after the articles were published, internal documents released via litigation revealed that Kelland's source for the

documents was Monsanto's media relations executive Sam Murphey. In an April 27, 2017 email to Kelland, Murphey included not only Blair's testimony but also suggestions for how to frame the story, along with a slide deck and talking points for a suggested article about how "IARC chair concealed crucial data" and "concealed data undermines IARC's conclusions."^{394, 395} The email also included a request that the information be treated as background material, and not reveal Monsanto as the source. When Reuters published Kelland's article critical of Blair and IARC two months later, the article was centered around those Monsanto talking points, but did not disclose that information had been provided by Monsanto.³⁹⁶

IARC defended its glyphosate assessment and pushed back against Reuters' reporting with a [statement](#) explaining that the panel does not consider unpublished and unfinished data in its assessments.³⁹⁷ IARC also noted that Monsanto had paid a consulting fee to a key source Kelland used for her article, Bob Tarone, industry influence that was not disclosed in the reporting. While Reuters later did add a note about the conflict of interest, no other corrections were made. (Kelland has not responded to requests for comment on these critiques.)

Kelland's reporting continues to circulate on social media and has appeared in paid ads on Google and Facebook. It also won the 2017 Science Story of the Year Award from the Foreign Press Association. (There is no direct evidence the award was influenced by Bayer, but the evidence described earlier about Bayer's sponsorship deal with the Foreign Press Association raises questions about the group's impartiality.)



Ginning up political effort to defund IARC

Internal Monsanto documents also shine light on how the company used its political allies to try to further undermine IARC experts. An internal email from 2015 shows Monsanto executives discussing the company's outreach to several federal agencies, including the U.S. Environmental Protection Agency, the Office of the U.S. Trade Representative, and U.S. Department of Agriculture, as well as the State Department and key members of Congress, to [discuss "managing the IARC issue."](#)³⁹⁸ Another document shows how Monsanto [consultants drafted](#) at least one letter [calling for an investigation](#) of the "flawed" IARC process, designed to look as though it was written by a member of Congress.³⁹⁹

The result? Congressional Republicans "excoriated and pushed to defund the IARC," [reported *The Intercept*](#), a political assault "scripted in part by Monsanto."⁴⁰⁰ The salvo launched with a congressional investigation, a volley of letters from Republicans accusing IARC of wrongdoing, and threats to cut U.S. funding to the cancer research panel. (To put the level of funding in perspective, the U.S. contributed €1.7M in 2021 toward the organization's €22M budget.)⁴⁰¹ In 2018, House Science Committee Chairman Lamar Smith (a climate science denier) called a hearing to investigate the IARC scientists' alleged misdeeds, citing "media reports" as the source of the concerns.⁴⁰² These concerns traced back to the Reuters' reporting described above by Kate Kelland that was based on documents and talking points she had received from Monsanto's public relations.

"Emails show Monsanto orchestrated GOP effort to intimidate cancer researchers. Documents suggest the firm has antagonized regulators and applied pressure to shape research of the world's leading herbicide."

Lee Fang of [The Intercept](#)

Attacking journalists who raise concerns about pesticide products

"Danny Hakim is lying to you – and it's not his first rodeo either," declared an American Council on Science and Health blog in March 2017.⁴⁰³ The attack on Hakim, a *New York Times* journalist, came in the wake of his reporting on corporate interference in the science on glyphosate, pesticides, and pollinator declines, and the failure of GMO crops to increase yields.^{404, 405, 406} The blog derided Hakim as a journalist with this caveat: "if we can even call him that."

Mean-spirited attacks on journalists like this one are another common feature of pesticide industry spin. Often deployed by industry-tied front groups like ACSH, this strategy seeks to undermine journalists reporting on the malfeasance of industry players, while lifting up those who write favorably about companies and their products. Examples abound: Liza Gross, a reporter at *InsideClimate News*, who has written critically about the chemical industry,⁴⁰⁷ tobacco products⁴⁰⁸ and industry spin groups⁴⁰⁹ has been described by ACSH as an "activist" who pushes "corporate conspiracy theories."^{410, 411} In 2018, ACSH stepped up such attacks with a new website called Deniers for Hire, with a section on "bad journalists" with attack profiles on Hakim, Gross, Gillam, and other journalists who critically reported on the pesticide industry, including *New York Times* journalist Eric Lipton, *New York Times* contributing writer Michael Pollan, and former *Times* columnist Mark Bittman.⁴¹² (After promotion pushed "Deniers for Hire" to the top of the Google search for some of the groups and people profiled, ACSH pulled the site without explanation in the summer of 2019.)

Other journalists have experienced blowback. Tom Philpott, a longtime journalist who covers food and agriculture for *Mother Jones*, has experienced industry harassment. Describing the emails, tweets, and other communications he and his editors received from Monsanto's third-party allies after he reported critically about GMOs, [Philpott said](#): "These are vicious and utterly unfounded attacks on a journalist's credibility, well designed to undercut him with his employer."⁴¹³ Monica Eng, a former *Chicago Tribune* journalist, described what

happened after she reported on undisclosed funds Monsanto was paying to a professor: “I’ve worked as a professional journalist in Chicago for more than three decades,” Eng explained in *The Progressive*.⁴¹⁴ “I’ve uncovered questionable activity in government groups, nonprofits, and private companies, but I don’t think I have ever seen a group so intent on trying to personally attack the journalist covering the issue.”

A Monsanto document released in 2019 highlights how Monsanto worked with third-party allies to try to discredit journalist Carey Gillam and her book *Whitewash: The Story of a Weed Killer, Cancer, and the Corruption of Science* (Island Press, 2017), which exposed a range of environmental and health problems associated with the company’s herbicide business. The 2017 document, an Excel spreadsheet titled *Project Spruce: Carey Gillam Book*, describes plans by Monsanto and the crisis management firm FTI Consulting to place paid ads on Google and generate negative book reviews with the help of allies they described as “Pro Science Third Parties.”⁴¹⁵ These included the spin groups Sense About Science and Science Media Center, the Global Farmers Network, and the Campaign for Accuracy in Public Health Research, a project of the American Chemistry Council, the chemical industry’s main trade group. By the spring of 2022, *Whitewash* would have 226 reviews on Amazon.com, most of them 5 star reviews.⁴¹⁶ Of the 29 1 and 2 star reviews, 21 were published on or around October 21, 2017 shortly after the launch of Project Spruce.

“I’m just one person, just one reporter working from a home office in the Midwest, juggling three kids with irregular writing deadlines,” Gillam *wrote in the Guardian in 2019*.⁴¹⁷ “So the knowledge that a multibillion-dollar corporation spent so much time and attention trying to figure out how to thwart me is terrifying ... When corporate power is so intensely brought to silence messengers, to manipulate the public record and public opinion, truth becomes stifled. And we should all be afraid.”

Attacking journalism

The attacks on the New York Times’ Eric Lipton went far beyond smears. After Lipton wrote an article reporting on University of Florida Professor Kevin Folta’s ties to Monsanto, Folta sued Lipton and the New York Times for defamation. In his lawsuit, Folta made wide-ranging motions to try to obtain documents from people involved in the story—requests a federal judge dismissed as “downright silly” and “laughable.” And the New York Times pushed back on Folta’s claims, noting that Lipton’s reporting was based on Folta’s own email communications. Folta dropped the lawsuit in April 2019, but did not answer queries about who paid for the two-year legal fight. Meanwhile, this kind of attack on journalists can have a chilling effect on others who want to dig into similar storylines.⁴¹⁸

Project Spruce: Carey Gillam Book DRAFT: 9.11.17			
Day	Activity	Lead	Additional Participants
Ongoing	Proactively background key glyphosate reporters		
	Paid placement of existing blog post on Carey Gillam when google search “Monsanto Glyphosate Carey Gillam”	Cole	
	Develop third party stakeholder list and identify engagement lead	Cole / FTI	
wb 9.11.17	Engage Pro-Science Third Parties (Sense About Science, Science Media Center, Global Farmer Network, CAPHR) *Identify independent spokesperson (spokespeople)	Cole	[insert Mon person responsible]
	Engage Industry & Farmer Customers (ASA, NCGA, individual customers, etc.)	Cole	[insert Mon person responsible]
	Engage Regulatory Authorities via regulatory teams (EPA, EFSA, ECHA, PMRA) Ask regulatory authorities to engage	Cole	[insert Mon person responsible]

The “Project Spruce” spreadsheet shows how Monsanto and FTI planned to ask third-party allies to write negative reviews about Carey Gillam’s book that is critical of glyphosate.

Deploying women to attack organic food

Another tool in the corporate attack toolbox: recruit women to go after “organic moms” and other concerned citizens who are trying to cut down on exposures of glyphosate and other pesticides. Why target mothers? According to Pew research, 80 percent of women with children do most of the food shopping and most of the meal preparation in their households (for women with spouses but no children, the number was 68 percent for shopping and 75 percent for meal prep).⁴¹⁹ And market trends are clear: demand for organic food continues to outpace conventional foods that allow synthetic pesticides, with many consumers citing health concerns about pesticides as their reason for choosing organic.⁴²⁰ As *Fortune magazine* reported in 2015, concerns over pesticides, GMOs, antibiotics and food additives — led by moms and millennials — were driving an “\$18-billion food revolution” with demand shifting away from conventional food companies.^{421, 422}

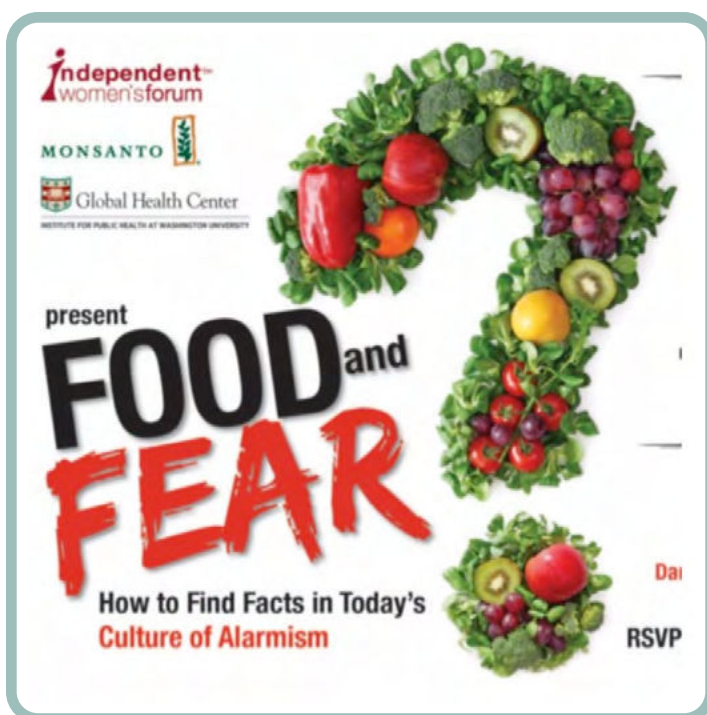
Monsanto and other pesticide companies have pushed back by teaming up with groups and writers who disparage these concerns. In 2017, for example, Monsanto partnered with the non-profit **Independent Women’s Forum (IWF)** on a “Food and Fear” lecture series, during which speakers encouraged women to ignore

“alarmist” concerns about toxic chemicals in food. A 2016 IWF podcast encourages “reasonable moms” to push back on organic “food alarmism.”⁴²³ That same year, [IWF asked Monsanto to contribute](#) \$43,000 to a “Super Women of Science” lecture series designed to undercut support for a California law to label toxic chemicals in food and consumer products.⁴²⁴

Founded in 1993, IWF spent \$3 million in 2019 toward its mission to “engage more individuals in the civic process, educate them about the impact of public policies on their lives and our economy, and build support for policies that empower individuals.”⁴²⁵ This mission belies the group’s actual work: serving the interests of corporate donors like Monsanto and foundations like the Scaife Foundation, Searle Freedom Trust, and DonorsTrust that heavily back deregulation of toxic industries and climate science denial.⁴²⁶

Monsanto and Bayer have also allied with a particular genre of female writers and public speakers: “science communicators” who claim to correct misinformation about chemical risks. The *Washington Post* featured “**Sci Babe**” in a 2018 column about “skeptics” who are “using science to fight a wave of bad nutrition advice on the Internet.”⁴²⁷ SciBabe also took up the glyphosate debate for *Self* magazine. “Should you worry about herbicides in your food? ... Nope,” she concluded, claiming, inaccurately, that “no studies have found a causal link between glyphosate and cancer.”⁴²⁸ Neither *Self* nor the *Washington Post* mentioned SciBabe’s conflicts of interest, including that her talks have been sponsored by Monsanto and DuPont or that she had a contract with the artificial sweetener company Splenda to “debunk junk science” about artificial sweeteners.⁴²⁹

Other women writers with industry ties also use the “babe” moniker or similar PR handles to push glyphosate product-defense messaging on blogs and social media designed to represent or appeal to women. “This just in ... glyphosate STILL not found to cause cancer,” claims “**Food Science Babe**,” a writer for the farming publication *Ag Daily*, whose social media bio says she is “creating science based information about food and spreading facts not fear.”⁴³⁰ Other defenders of glyphosate in



this genre include *Ag Daily* writers “**Farmer’s Daughter USA**,” the corporate-side attorney Amanda Zaluckyj;⁴³¹ and Michelle Miller, the “**Farm Babe**,” a “writer and public speaker for agriculture” who “reaches millions on social media,” according to *AgriPulse*.⁴³² The “**Foodie Farmer**”⁴³³ and “**Hawaii Farmer’s Daughter**”⁴³⁴ (a one-time Cornell Alliance for Science fellow) are more examples.

More broadly than glyphosate defense, these writers serve up similar messaging fare: they argue that synthetic chemicals in food are nothing to worry about, heap scorn on the organic food industry and public interest groups, and oppose efforts to increase transparency or restrict hazardous chemicals in food or farming — often under the banner of “freedom for women.” The tactic harkens back to one of Edward Bernays most famous stealth PR efforts, the “Torches for Freedom” campaign to eliminate the social taboo of women smoking — and thus increase sales for his tobacco industry clients. Bernays’s salvo opened on March 31, 1929 when a woman named Bertha Hunt stepped out onto a crowded street at New York’s Easter Parade and created a scandal by lighting a Lucky Strike cigarette.⁴³⁵ The contrived stunt that was made to look spontaneous and independent is widely considered to be one of the first public relations campaigns.

The same “freedom for women” framing also plays out in the pesticide debate. One example is a 2019 book *Food Bullying*.⁴³⁶ The author,



Early Phillip Morris ad depicts smoking as empowering for women.

Michele Payn, describes herself as a “kickboxing professional speaker” and also “a mom tired of food bullies and keyboard cowards.”⁴³⁷ Her book claims to reveal the “\$5.75 trillion secret” food marketers don’t want you to know — that organically grown, low-pesticide, non-GMO, unprocessed foods made without chemical additives are no better for your health and the environment. Payne advises mothers to “stand up to the bullies” and “simplify safe food choices” by not worrying about risks like pesticides.

Praise for Payn’s book came from many of the pesticide defenders who appear in this report: University of Florida Professor [Kevin Folta](#),⁴³⁸ former biotech trade association executive [Val Giddings](#),⁴³⁹ Monsanto employees [Cami Ryan](#)⁴⁴⁰ (social sciences lead) and [Robb Fraley](#)⁴⁴¹ (former chief technology officer) and the [Genetic Literacy Project](#).⁴⁴² A [page on Payn’s website](#) entitled “Speaking and Training” offers various “keynotes for agriculture” and “workshops for farm, ranch and ag” options. Clients, the page notes, include Bayer and Syngenta.⁴⁴³

Another example: a 2018 film called *Science Moms*,⁴⁴⁴ produced by a group of “**Sci Moms**” who say their purpose is to promote “evidence-based parenting” and “facts not fear” about chemical risks.⁴⁴⁵ The film was “funded independently by Kickstarter,” according to the [Sci Moms website](#), and among the donors listed in the credits: employees of Monsanto, Syngenta, and the Cornell Alliance for Science.⁴⁴⁶ The film gives special thanks to Vance Crowe, Monsanto’s director of millennial engagement at the time.

SciMom’s co-founder, Kavin Senapathy, co-authored several articles in *Forbes* with similar messaging: denouncing the “fear of pesticides,” attacking the organic industry as a marketing scam, and warning that “radical environmentalists” are more of a threat to the planet than pesticide industry products. *Forbes* deleted all of these articles after the *New York Times* reported that Senapathy’s co-author, Henry I. Miller, published an article about glyphosate in *Forbes* that had been ghostwritten by Monsanto.⁴⁴⁷ (Miller is also a longtime defender of oil and tobacco industry interests.)⁴⁴⁸ Senapathy later tried to distance herself from Miller and Monsanto’s Vance Crowe in a 2019 article she wrote for *Undark* magazine.⁴⁴⁹ But she continues to pen articles

promoting GMOs and using standard pesticide industry spin messaging: downplaying risk and making false assurances of safety about chemical-intensive food and farming.⁴⁵⁰

Surveilling “friends and foes”

Monsanto’s attack tactics — especially its efforts to discredit scientists who raised cancer concerns about glyphosate — are well documented. And so, too, are the pesticide industry’s efforts to closely monitor its critics and gather information for its attacks. In May 2019, a whistleblower from Bayer’s PR firm FleishmanHillard shared with French journalists a “multitude of information” the firm was tracking on 200 journalists, politicians, scientists, nonprofit leaders, and others that had been flagged as influencers in the glyphosate debate.⁴⁵¹ The list of “friends and foes of pesticides,” as [CBS News described it](#), contained personal contact details, opinions, and level of engagement in relation to Monsanto products.⁴⁵² Upon review, the journalists at *Le Monde* shared the list with French authorities, who [opened a criminal probe](#) to determine whether the document represented illegal collection and processing of personal data.⁴⁵³ France’s former Environment Minister Ségolène Royal, who was on the list, noted that this was “a very important discovery because it shows there are objective strategies to silence strong voices.”⁴⁵⁴

In the wake of the revelations, FleishmanHillard admitted it had drawn up similar watch lists in six other European countries. Bayer temporarily suspended the PR company, apologized, and hired a law firm to investigate, claiming in a statement: “Our highest priority is to create transparency. We do not tolerate unethical behavior in our company.”⁴⁵⁵ A few months later, Bayer’s law firm reported finding “no evidence of illegal activity.”⁴⁵⁶ But in 2021, France’s personal data protection agency fined Monsanto \$473,000 “for illegally compiling files of public figures, journalists and activists with the aim of swaying opinion towards support for its controversial pesticides,” reported the French news agency RFI.⁴⁵⁷

Although Monsanto’s strategy raised legal and ethical questions, it is worth noting that tracking “friends and foes” is common industry practice. FleishmanHillard CEO John Saunders defended

his firm’s work, framing it as business as usual: “Corporations, NGOs, and other clients rightfully expect our firm to help them understand diverse perspectives before they engage,” Saunders explained.⁴⁵⁸ “To do so, we and every other professional communications agency gather relevant information from publicly available sources. Those planning documents are fundamental to outreach efforts.”

Monsanto’s Fusion Center

According to internal Monsanto [documents released in 2019](#), the company was also gathering intelligence in the U.S. through what it called its “Fusion Center” — a concept borrowed from the U.S. Department of Homeland Security.⁴⁵⁹ Long the domain of military intelligence-gathering, fusion centers are becoming more common in the private sector, according to a 2018 *New York Times* article by Stacy Cowly.⁴⁶⁰ Industry’s fusion centers are often staffed by “former government cyberspies, soldiers and counterintelligence officials,” Cowly reported, who deploy “the tools and techniques used for national defense.”

“The seeds of life are not what they once were/Mother Nature and God don’t own them any more.”

Neil Young, from his album
The Monsanto Years

Monsanto used the information to defend against concerns raised in the growing body of science that was tying glyphosate and other pesticides to serious health concerns. Internal documents show that Monsanto’s Fusion Center was monitoring digital properties and social media activities and analyzing content from journalists, activists, even popular singers who were speaking out publicly about pesticides in general, and glyphosate specifically. Monsanto executives were tracking individuals, small groups, online comments, and even single tweets. No detail seemed too small.

3. **Traditional and Social Media Monitoring:** Work with the Fusion Center to monitor USRTK digital properties, the volume and sentiment related to USRTK/FOIA, as well as audience engagement. Share weekly report with core team.

Monsanto’s PR plan to counter USRTK’s public records investigation included plans to track the group’s digital impact.

One Monsanto document notes how its Fusion Center tracked the singer Neil Young who was critical of the company in songs appearing in his 2015 album *The Monsanto Years*. According to an email from a Monsanto official [reported by The Guardian](#), the company’s Fusion Center “evaluated the lyrics on (Young’s) album to develop a list of 20+ potential topics he may target” and created a plan to “proactively produce content and response preparedness.” They were also “closely monitoring discussions” about a concert featuring Young, Willie Nelson, John Mellencamp and Dave Matthews.⁴⁶¹

In 2016, the Fusion Center was also tracking Rachel Parent, a Canadian teenager who had founded the GMO labeling advocacy group Kids Right to Know. [Internal emails show](#) that Andy Shaul, director of corporate engagement for the Monsanto Fusion Center, sent background reports to his colleagues about Parent and other women who planned to attend the company’s annual shareholder meeting to raise concerns about glyphosate. The emails discuss how to address the teenager’s crowdfunding campaign (which had raised just \$250 at the time of his emails). Monsanto’s Shaul also shared comments one of the women made on a *Huffington Post* blog and a video clip that “might be useful in preparing for her personality.”⁴⁶²

In other internal documents, the company details how to deal with “1 tweet from Gary Ruskin,” the co-founder of USRTK, who was investigating the pesticide industry’s ties with academics via Freedom of Information Act (FOIA) requests. The Monsanto document describes plans to, “Work with the Fusion Center to monitor USRTK digital properties, volume and sentiment related to USRTK/FOIA, as well as audience engagement,” and included a “social media response” grid for dealing with problematic tweets. The company’s plan

involved developing “foundational messages” to frame USRTK FOIA requests as an attack on scientists and posting the messages on GMO Answers, the industry-funded website run by Ketchum public relations firm discussed below. In the case of “1 tweet from Gary Ruskin,” a “tailored statement” would be posted on GMOAnswers.com, but not promoted. In the case of “More than one day of social volume” at “50+ tweets,” the company detailed plans to promote the GMO Answers response on Facebook and Twitter along with “Google promotion around potential search terms.”

The example shows the intense level of scrutiny and planning Monsanto brought to product defense and its efforts to counter critics. In the next section we look at how they wield their power and attempt to control messaging and reporting about pesticides online.

Scenario
1 st tweet from Gary Ruskin
10 tweets/hour (from different sources)
One of th
If 25 tweets/hour (from different sources)
If 50 tweets/hour (from different sources)

Monsanto was closely tracking tweets and managing responses.



TACTIC 5: Weaponizing the Web

“Think of the internet as a weapon on the table. Either you pick it up or your competitor does — but somebody is going to get killed.”

Presentation by Jay Byrne, Monsanto’s former director of corporate communications, quoting Michael S. Dell, founder and CEO of Dell Computer Corporation⁴⁶³

When Edward Bernays designed PR campaigns for his clients in the 1920s and the decades that followed, he didn’t have the tools that help today’s corporate clients reach millions, even billions, with a stroke of a few keys: the internet and social media. Today, as more people get their news and information from social media, blogs, and seemingly independent online news and information sites like WebMD, companies like Monsanto, now Bayer, have developed many new stealth tactics to shape online public discourse.

Monsanto has been honing its skills in this arena for decades. In 2002, Jay Byrne, Monsanto’s then director of internet outreach, helped influence online debates about genetically engineered foods with the help of “fake citizens” — people who did not actually exist who were “bombarding internet listservs with messages denouncing the scientists and environmentalists who were critical of GM crops,” according to reporting by George Monbiot [in the Guardian](#).⁴⁶⁴ In a [pitch to industry groups](#) in 2001,⁴⁶⁵ the *Guardian* reported, Byrne described “how, before he got to work, the top GM sites listed by an internet search engine were all critical of the technology. Following his intervention, the top sites were all supportive ones” and several of those sites had been established by a Monsanto PR firm, Bivings.⁴⁶⁶

As we have shown throughout this report, Monsanto has worked with a wide range of third-party allies to spread its product-defense messaging, using stealth tactics that make it difficult, and at times impossible, to detect

the company’s fingerprints. That is especially true online, where search engines serve up corporate messaging from independent-appearing sources, and messengers appear seemingly spontaneously across social media platforms to attack journalists, scientists, and others who pose a threat to the company or the pesticide industry more broadly. Internal Monsanto documents point to an inner circle of messengers — including Byrne, now president of a PR firm called v-Fluence Interactive — who coordinate an echo chamber of third-party allies to disseminate messaging laid out in Monsanto/Bayer PR plans. Here we take a closer look at how some of those groups wield influence online.

Monsanto loving ‘science’ websites

Anyone looking for articles on the topic of “IARC and glyphosate” might first try searching those terms in Google News. If they did so on October 14, 2021, they would have found that four of the top 10 “news” results came from one source: the American Council on Science and Health (ACSH), a well-known industry front group described in Tactic 3. Headlines for those ACSH articles included, “The Emperor — IARC — Has No Clothes,” and “Glyphosate Doesn’t Cause Cancer.”^{467, 468} The internal emails we reported on in Tactic 3 revealed that Monsanto had paid ACSH to help try to discredit IARC’s findings on the carcinogenicity of glyphosate.

Another “news” source turned up in the top spot of a Google News search in February

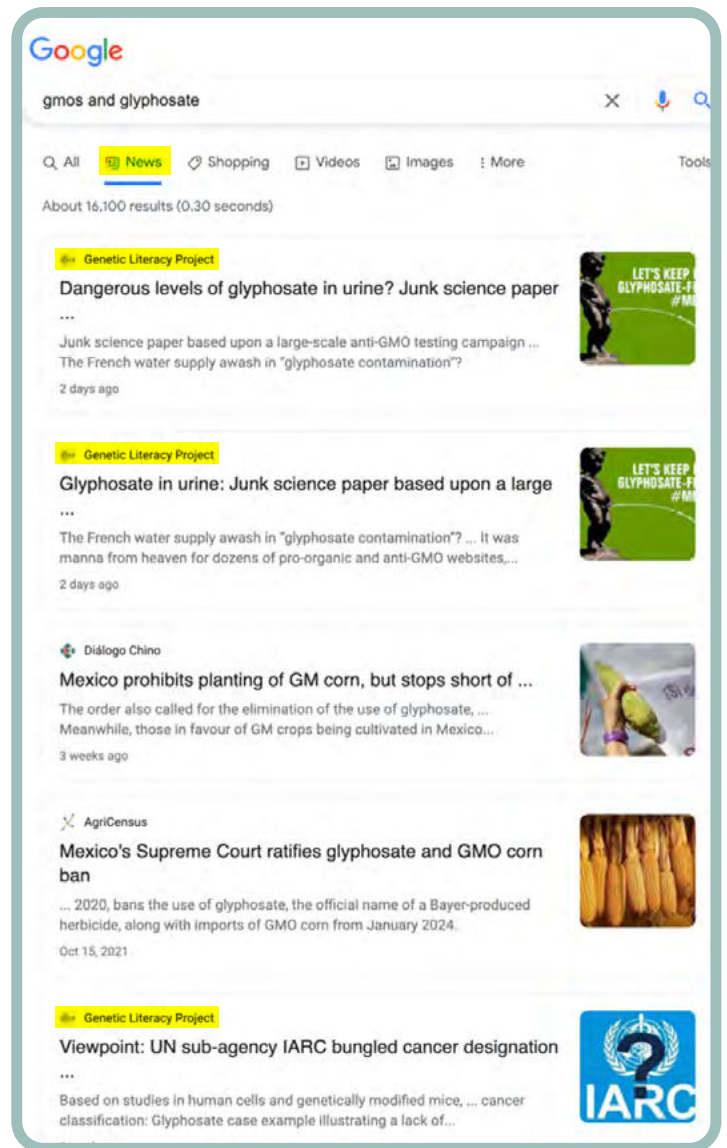
2020 for the terms “glyphosate and cancer”: Science 2.0. The website promotes itself with the tagline, “The world’s best scientists. The internet’s smartest readers.” Its owner, Hank Campbell, was president of the Monsanto-funded ACSH until December 2018. A few weeks prior to Campbell’s departure from ACSH, Charles Seife, a professor of journalism at New York University, posted documents that offer insights into the high visibility of websites connected to Campbell. In a Twitter thread he called “[Mapping a Monsanto-Loving Octopus](#),” Seife explained that, in 2016, ACSH paid \$60,000 to ION Publications, which owned science blogging websites including Science 2.0 and Science Codex.⁴⁶⁹ The payment was for promotional services to increase traffic to the ACSH.org website, according to tax records.⁴⁷⁰ The owner of ION Publications was ACSH’s Campbell. In 2018, Campbell expanded his ring of science-focused websites when he converted Science 2.0 into a non-profit and acquired another popular blogging website, ScienceBlogs.com.

All the “science” websites under this umbrella, including Science 2.0, Science Codex, and ScienceBlogs, cross-promoted the others and ACSH’s own website with content promoting and defending pesticides and other products made by companies that fund ACSH, [among them Monsanto](#).⁴⁷¹ Seife summed up his findings: “this is how a once-admired science blogging site, @scienceblogs, was acquired by a complex and [in my opinion] shady network of for-profits and non-profits helping Monsanto.”

Shortly after this post, Campbell left ACSH and delinked his science websites from ACSH.org. However, Campbell and others with connections to Monsanto continue to blog on his science websites, and Science 2.0 continues to enjoy high Google search rankings for search terms related to pesticides.

Topping the Google’s News search

Over a three-year period from 2019 to 2021, we conducted multiple keyword searches on topics related to glyphosate, other pesticides, and genetically engineered foods and found that a small group of Monsanto-connected “science communicators” has dominated the algorithm for Google News searches, leading to high-ranking results. Industry influence of



A Google News search for “GMOs and pesticides” displays Genetic Literacy Project post in 3 of the top 5 returns.

search results warrants further study to better understand the extent of the reach, but the results we found from the keywords searched raises concerns about the integrity of Google News searches on these themes.

In a search for “glyphosate and cancer” across numerous dates,⁴⁷² for example, we found links to the Genetic Literacy Project, a group funded by Bayer,⁴⁷³ ranked at or near the top every time.

In a Google News search for those keywords on February 14, 2020, for example, six of the top 10 returns were from Genetic Literacy Project and all with content that downplayed concerns about glyphosate. As we highlighted earlier, internal Monsanto documents and public record results showcase that the Genetic Literacy Project has been an important entity

in Monsanto-coordinated PR and lobbying campaigns, particularly in pushing personal attacks on scientists who raised cancer concerns about glyphosate.

The Genetic Literacy Project links with high Google News ranking included headlines that align with talking points laid out in Monsanto's PR glyphosate defense plan. For example, a top "news" return was a headline claiming "activists" were pushing a "conspiracy claim" about the toxicity of glyphosate surfactants.⁴⁷⁴ The article was written by Cameron English, former managing editor of Genetic Literacy Project who now works for ACSH.⁴⁷⁵ The timing of his article coincided with Bayer's efforts to end the Roundup litigation and offer a \$10 billion settlement with cancer victims who had sued Monsanto claiming exposure to glyphosate-based Roundup caused them to develop non-Hodgkin lymphoma.⁴⁷⁶

Additional searches found a range of industry-aligned and industry-funded messages and messengers rising to the top of Google News. For a February 25, 2020 search for "Chris Portier," a scientist who served on the IARC glyphosate panel, five of the first six Google News returns were articles attacking his credibility. Two of these were from the Genetic Literacy Project, one was from ACSH, and another was from the ACSH-connected Science 2.0. Another top result was a link to a *Forbes* column by Geoffrey Kabat, the epidemiologist mentioned in Tactic 3 who has a history of defending tobacco industry interests, and who also serves on the board of Genetic Literacy Project's parent group.

According to Google, its news search "helps you learn about what's happening in the world through an organized experience of top stories, articles, videos and more" and the "Top stories feature aims to display relevant, high-quality results for a news topic."⁴⁷⁷ But these findings raise questions about the credibility of the "high-quality results." Our searches for keywords important to Monsanto and now Bayer, and the pesticide industry more broadly, indicate that industry front groups are elevating corporate messaging over legitimate news to the top of the search results.

This search domination is critically important for two key reasons: Many people may presume that Google results provide links to legitimate

Six of 10 top Google "News" search returns for a scientist's name were attacks from Monsanto front groups.

reporting (for news) and trustworthy resources (for general searches). Secondly, most people do not click lower ranking results, even on the first page of returns let alone past page one. So, ensuring articles and links appear high in search returns makes a huge impact on visibility. One recent study by Sistrix, a Search Engine Optimization software company, found that in a 2020 analysis of billions of search results, 28.5 percent of people click the very first result in a Google Search, with click-through rates falling considerably past that: Second and third place rankings had only a 15 and 11 percent click-through rate (CTR), respectively.⁴⁷⁸ By the tenth result, the CTR is just 2.5 percent, with virtually no one moving on to the second page.

Driving traffic to pro-industry messaging

One of the strategies Genetic Literacy Project uses to get these high-ranking results is to republish content of mainstream news articles. The website pulls articles from a range of outlets, ensuring a continual fresh stream of content. Importantly, GLP changes headlines, condenses content, adds graphics, and emphasizes specific keywords (such as glyphosate) in headlines. The website also sometimes adds promotional content to emphasize product-defense messaging, while linking back to the original news outlet. These practices elevate the site's Search Engine Optimization (SEO),⁴⁷⁹ helping vault Genetic Literacy Project's industry-friendly messages to the top of the Google News search. As an example: in Google News searches for "glyphosate and cancer" conducted 11 days apart (on February 14 and February 25, 2020) six of the top 10 returns on both dates were from Genetic Literacy Project or the ACSH-connected Science 2.0. Several of these were reposts of articles lifted from other news outlets and reprinted by Genetic Literacy

Project in condensed form. Reposts included articles from the *Wall Street Journal*, *Reuters*, *Bloomberg Law*, and *USA Today*, posted with new headlines and some text cut to emphasize or downplay particular themes. For instance, a 33-paragraph [Bloomberg Law article](#) by Stephen Gardner — titled “Four Pesticides Could Show U.K.s Post-Brexit Regulation Plans”⁴⁸⁰ — is condensed to five non-consecutive paragraphs in Genetic Literacy Project with a different headline (naming glyphosate and neonicotinoids) and missing context, yet still carrying the reporter’s byline. [The reprint](#) does not include, for example, a paragraph explaining the controversy in the EU over glyphosate safety and a pending ban in Luxembourg.⁴⁸¹

Genetic Literacy Projects explains these excerpted, retitled reprints with a disclaimer: “This article or excerpt is included in the GLP’s daily curated selection of ideologically diverse news, opinion and analysis of biotechnology innovation.” GLP explains that it “aggregates approximately 11 articles” each day from news sources following the fair use doctrine and Creative Commons guidelines.⁴⁸² The page explains, “Excerpted articles list the original media outlet as the source.” The page further notes that GLP, “selects short segments from an article chosen to reflect the original piece,” changes titles “so as not to pose a conflict in searches,” and “often” also “adds pictures or illustrations to excerpted articles.” All of this provides opportunities to emphasize product-defense messaging, while keeping a stream of fresh content on the GLP website.

Genetic Literacy Project also makes frequent use of “Editor’s notes” to promote its own content. For example, a [February 11, 2020 press release](#) from the State of California Department of Justice describes an amicus brief filed by the state arguing that federal laws should not preempt California laws requiring warnings on cancer-causing chemicals.⁴⁸³ GLP [reprinted the press release](#) under the byline of then California Attorney General Xavier Becerra, but added an “Editor’s note” in bold near the top: “Most experts, including EPA regulators, don’t share California’s view that glyphosate causes cancer. The agency therefore told California in August 2019 that it would be “irresponsible” to put a warning label on the herbicide.”⁴⁸⁴ The note includes links to two Genetic Literacy Project articles.

Post-Brexit rules on glyphosate, neonicotinoid pesticides may reveal UK’s willingness to break from EU regulations

Stephen Gardner | Bloomberg | February 5, 2020

[Twitter](#) [LinkedIn](#) [Facebook](#) [YouTube](#) [RSS](#) [Email](#)



This article or excerpt is included in the GLP’s daily curated selection of ideologically diverse news, opinion and analysis of biotechnology innovation. It is posted under Fair Use guidelines.

Post-Brexit regulation of controversial pesticides including glyphosate and neonicotinoids could be test cases for how far the U.K. is prepared to go in diverging from the European Union.

While the U.K. will no longer officially be part of the European Union the U.K. will continue to follow EU rules on pesticide authorizations during a transition period lasting at least through Dec. 31.

But when the transition period ends, the U.K. could choose to go its own way, with big implications for several significant pesticides, namely glyphosate, neonicotinoids, chlorpyrifos, and asulam.

...

Glyphosate will be “an early test of whether the U.K. will diverge” from EU rules, said Alan Speed, spokesman for U.K. industry group the Crop Protection Association. The U.K. government should take a risk-based approach and would be expected to reauthorize the substance in 2022, he said.

In a risk-based system (like in the U.S.), hazardous pesticides can be authorized as long as the risks of exposure to them are minimized. In a hazard-based system (like the EU’s), pesticides are outlawed if their hazards are judged to exceed a safe threshold.

[Read the original post](#)

Example of aggregated article on the GLP site shows new headline, added image, and text condensed to five non-consecutive paragraphs, carrying the original reporter’s byline.

To give another example of how the Genetic Literacy Project alters content to emphasize particular messaging, consider the excerpt from a January 28, 2020 BBC [article by Emma Woollacot](#), titled “Zap! How microwaves and electricity are killing weeds.”⁴⁸⁵ The reprint is [retitled](#): “Glyphosate herbicide cancer fears could turn electricity, microwaves into viable weed-killing tools,” and leads with a paragraph that appears later in the piece.⁴⁸⁶ The actual opening to Woollacot’s article was not as helpful to pesticide industry messaging: Woollacot began by explaining that the weed-zapping machines are part of an effort to clean up parks by “doing away with potentially dangerous weedkillers.” The repost also includes a GLP Editor’s note: “Most experts say glyphosate probably doesn’t cause cancer.”

Monsanto's "Let Nothing Go" strategy

"[Let Nothing Go](#)" was Monsanto's strategy to respond to any and all media coverage and social media posts involving the company or its products.⁴⁸⁷ As plaintiff's lawyers in one case against the company [described](#), Monsanto was determined "to leave nothing, not even Facebook comments, unanswered" — a sort of "broken windows" approach to shaping the public narrative on GMOs and pesticides.⁴⁸⁸ The lawyers further explained how Monsanto "employs individuals who appear to have no connection to the industry, who in turn post positive comments on news articles and Facebook posts, defending Monsanto, its chemicals, and GMOs." The court brief calls out the Genetic Literacy Project and American Council on Science and Health specifically, describing them as "organizations intended to shame scientists and highlight information helpful to Monsanto and other chemical producers."⁴⁸⁹

The "Let Nothing Go" strategy was to dominate social media and online fora to reframe the conversation about glyphosate, and GMOs generally, pushing back on all reporters, editors, influencers, and others who published unflattering material about these topics. A "[Let Nothing Go report](#)" compiled by the PR firm FleishmanHillard for Monsanto in 2017 describes how the firm was doing just this:

tracking key influencers, volume and tone of conversation, and other social and media metrics in six European countries.⁴⁹⁰

PR firm "balances" online conversation

One of the strategies Monsanto/Bayer and other pesticide companies developed to influence online conversations is GMO Answers. Though the effort was clearly a marketing and PR campaign [launched in 2013](#) by PR firm Ketchum,⁴⁹¹ the GMO Answers [website](#) described itself as a "transparency" initiative.⁴⁹² The initiative centers around a website that looks like a definitive source of information and features the voices of experts enlisted to build public trust in GMOs and the pesticides used to grow them. These experts, however, have been handpicked by Ketchum, the industry-funded PR firm running the site. Tax records show that the Council for Biotechnology Information, a trade group funded by Bayer, Syngenta, BASF, DowDupont, and formerly Monsanto, paid Ketchum over \$14 million between 2014 and 2018 to conduct GMO Answers.⁴⁹³ (CropLife International, the pesticide industry trade association, has since taken over the funding.)⁴⁹⁴

Ketchum characterized GMO Answers as an effort to answer public concerns with "nothing filtered or censored, and no voice silenced." As the *St. Louis Post Dispatch* reported at the

This article or excerpt is included in the GLP's daily curated selection of ideologically diverse news, opinion and analysis of biotechnology innovation.

Concern about glyphosate – the world's most widely-used weedkiller – has been growing since 2015, when the World Health Organization's International Agency for Research on Cancer (IARC) [said it was probably carcinogenic](#).

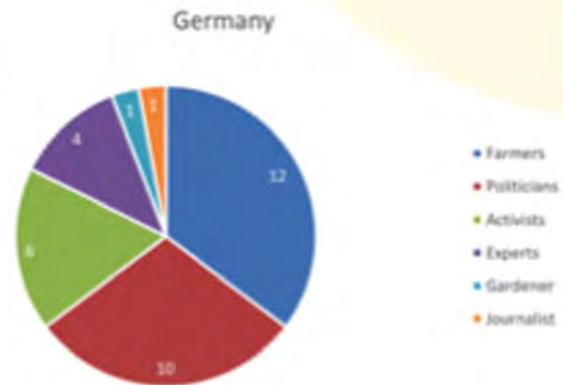
[Editor's note: Most experts say glyphosate probably [doesn't cause cancer](#).]

...

In their efforts to minimize pesticide use, some are refining abandoned weed-killing technologies of the past – such as zapping weeds with electricity.

- **Germany** reported on 34 influencer mentions. Key mentions are listed below:

██████████ / ██████████ farmers' association	farmer	positive
██████████, BfR	expert	positive
Dr. ██████████, Toxicologist PAN	activist	negative
██████████, NABU	activist	negative
Prof. Dr. ██████████ (University of Bremen)	expert	negative
██████████, BUND	activist	negative
██████████	politician	positive
██████████	gardener	negative
██████████ (Green Party EP)	politician	negative
██████████ ("██████████")	farmer	positive
██████████, EFSA director	expert	positive
██████████ (Green Party EP)	politician	negative
██████████, BfR	expert	positive
██████████, Süddeutsche Zeitung	journalist	negative
██████████, Aurelia Foundation	activist	negative
Dr. ██████████, Eco-toxicologist NABU	activist	negative
██████████, BUND	activist	negative



A “Let Nothing Go report” for Monsanto tracks public comments about glyphosate.

time, the top pesticide companies launched the campaign to “help clear up confusion — and dispel mistrust — about their products.”⁴⁹⁵

The website discloses that it is funded by the largest pesticide firms, but how “filtered” is the site’s content? Internal documents reveal what a heavy hand industry has had in shaping content. In one example, these documents reveal the specific ways that Monsanto used GMO Answers in its glyphosate defense. In its PR plan to protect the company from cancer concerns related to glyphosate-based Roundup herbicides, for example, Monsanto named GMO Answers as an “industry partner.” GMO Answers also appears as a key partner in [Monsanto’s PR plan](#) to discredit the U.S. Right to Know public records investigation into industry influence on academics.⁴⁹⁶ And emails obtained by U.S. Right to Know via the public records search found a number of the “independent” experts and groups listed on the GMO Answers website were receiving funds from Monsanto or were working with the company on PR projects, which were not disclosed on the site.^{497, 498} These internal records also reveal at least three instances of Ketchum employees working with professors to ghostwrite content for GMO Answers.⁴⁹⁹

Messaging on the site also mirrors industry talking points, often with industry sources. On the GMO Answers website, typing in the question, “Does glyphosate cause cancer?” yields an answer from Bayer scientist David Saltmiras: “No, glyphosate does not cause cancer. But don’t just take my word for it. Please also consider statements from multiple authorities who reviewed both robust glyphosate data sets and peer-reviewed literature.”⁵⁰⁰ Queries about the IARC cancer report on glyphosate elicit an infographic from Monsanto’s Cami Ryan (who now works for Bayer) comparing the toxicity of glyphosate to wine,⁵⁰¹ and a quote from Kevin Folta, the University of Florida professor who worked with Monsanto on PR projects discussed in Tactic 2, claiming, “Glyphosate is amazingly non-toxic to humans or any other animals.”⁵⁰² (Folta now also works for the Bayer-funded Genetic Literacy Project.)⁵⁰³

Alongside the website, Ketchum developed a social media plan to engage people on platforms that were discussing GMOs and bring visitors to the site. Ketchum boasted this work had a measurable impact on the conversation about GMOs online. In a [promotional video](#) about GMO Answers, Ketchum noted: “On Twitter, where we closely monitor the

conversation, we've successfully balanced 80 percent of interactions with detractors." As a result of this engagement, and the GMO Answers project more generally, Ketchum reported a doubling of "positive media coverage" about GMOs during its first year of operation. In the video, the firm also bragged about its success in GMO Answers' position on Google search results: Before Ketchum got to work, "anyone searching for GMOs had to navigate more than 25 pages of hate before finding one factual scientific response. We're now on the first page of search results."⁵⁰⁴

In 2014, these efforts on behalf of the pesticide industry earned Ketchum recognition for its success spinning the media and online coverage of the industry's products: GMO Answers was shortlisted in the "Public Relations: Crisis and Issue Management" category for a CLIO Award, a prominent international advertising award.⁵⁰⁵

Unleashing the trolls

Coordinated, aggressive pushback on social media is a common experience for people who disagree with pesticide industry narratives about pesticides and GMOs. In Tactic 4, we discussed how attacking critics — often with *ad hominem* personal attacks — is a common product-defense strategy, one that is increasingly playing out on social media and in other online spaces.

In one example from the summer of 2017, Marion Nestle, a professor of nutrition at New York University, became a target when she [posted a blog critical](#) of a documentary called *Food Evolution*.⁵⁰⁶ The pro-GMO film was funded by an industry trade group and heavily promoted by industry allies, including the professors, trade groups and front groups described in this report. On her blog, Nestle characterized the documentary as a "GMO propaganda film." She explained to her readers on June 21, 2017, "I have asked repeatedly to have my short interview clip removed from this film. The director refuses. He believes his film is fair and balanced. I do not." Cue a coordinated troll attack. "Would you believe 870 comments? These were filed in response to my post of last week about the GMO propaganda film," Nestle [reported on June 26](#).⁵⁰⁷ In a post titled,

"A Win for GMO Trolls," Nestle announced she is no longer accepting comments on her website. "The GMO trolls — people who post deliberately hostile comments — have defeated me," she wrote. "This is not about thoughtful discussion of the scientific, social, and political issues raised by GMOs. This is about personal attacks to discredit anyone who raises questions about those issues, as I did."

Nassim Nicholas Taleb, author of *The Black Swan*, *Antifragile*, and other bestselling books on risk management became a target of GMO trolls after he [co-authored a paper](#) in 2014 calling for a precautionary approach to genetically engineered foods; and a year later, when he described the GMO endeavor in the *New York Times* as a "too big to fail" system "vastly riskier" than the 2008 financial sector meltdown.^{508, 509} The attacks coming from product-defense groups were swift and familiar: "unintelligible gibberish," declared the Competitive Enterprise Institute,⁵¹⁰ while David Ropeik, a risk management consultant with pesticide industry clients, tried to discredit Taleb's paper as "anti-GMO advocacy" via Twitter and a lengthy article on Medium.^{511, 512} Genetic Literacy Project wondered whether Taleb is a "dangerous imbecile in the pay of the anti-GMO mafia."⁵¹³ A familiar ring of industry-friendly writers, including the freelance reporter Keith Kloor⁵¹⁴ and Mark Lynas of Cornell Alliance for Science,⁵¹⁵ jumped in on Twitter to promote these critiques. In a Facebook post he called "How to Argue with GMO Propagandists," Taleb noted that these attacks echoed "the history of how the tobacco industry spread disinformation." Taleb concluded, "unlike the mafia with tentacles, corporations are monstrously fragile. The fact that they need so much lobbying and spinning indicates how fragile they are."

"Unlike the mafia with tentacles, corporations are monstrously fragile. The fact that they need so much lobbying and spinning indicates how fragile they are."

Nassim Taleb
Author, *The Black Swan*

Coordinating the industry troops: Bonus Eventus

While Monsanto's and now Bayer's tactics for shaping public debates are adapted to the age of social media and online news, the core strategy — to track, attack, and try to discredit critics of chemical-intensive industrial agriculture — has been developed over decades. Consider Jay Byrne, Monsanto's former director of communications who ensured back in 2001 that the top websites appearing in an internet search for GMO foods "were all supportive ones."⁵¹⁶ Today, as president of the public relations firm v-Fluence, Byrne plays an active role in pesticide industry defense efforts via his "[Bonus Eventus](#)."⁵¹⁷ The "private social networking portal" supplies academics and other industry allies with talking points and promotional opportunities.⁵¹⁸ Members receive Byrne's newsletter, access to his reference library of talking points on agribusiness topics, a "stakeholder database" of influential people in the GMO and pesticide debate, and training and support for social media engagement.

Examples of Byrne's newsletter can be found in a cache of emails from Byrne to Peter Phillips, a University of Saskatchewan professor who has been criticized for his close ties to Monsanto.⁵¹⁹ The emails were obtained by U.S. Right to Know via a public records request. In a newsletter from November 2016, Byrne urged Phillips and other recipients to share content on key topics important to the pesticide industry — and these influencers in turn share messages via Twitter and other social media channels on topics Byrne suggests. That week Byrne urged followers to discuss the "flaws and omissions" in a *New York Times* story

that reported on the failure of GMO crops to increase yields and reduce pesticides,⁵²⁰ and the "mounting questions" facing the IARC scientists who reported glyphosate is probably a human carcinogen. Byrne prompted his audience to share content on these themes from industry-connected writers Julie Kelly,⁵²¹ Dr. Henry I. Miller,⁵²² Kavin Senapathy,⁵²³ and Hank Campbell⁵²⁴ formerly of the American Council on Science and Health (ACSH), one of the groups Monsanto was paying to help discredit the cancer scientists.⁵²⁵ All these writers, though they appear to be independent, are linked to Monsanto and participate in the echo chamber that shares pesticide industry messaging via blogs and social media activities.

Byrne's [client list](#) has included a range of agribusiness and pharmaceutical companies and business groups, including the American Chemistry Council, Syngenta, AstraZeneca, Monsanto, Pfizer, the American Farm Bureau, National Corn Growers Association, Grocery Manufacturers Association, the pesticide industry trade group CropLife, and the International Rice Research Institute (IRRI), which promotes genetically engineered "Golden Rice."⁵²⁶

His pitch to industry groups, urging them to spend more money for product defense and attack strategies, is laid out in a [2013 presentation](#) to the African Agricultural Technology Foundation (AATF) — a group funded by the Gates Foundation to develop commercial seeds for the private sector.^{527, 528} Byrne described the threats posed by "eco-advocates," ranked their influence online, and urged companies to pool their resources to confront such influencers to avoid "regulatory market constraints."⁵²⁹

From: [Holtzman, Max - OSEC](#)
To: ["jon@jonentine.com"](mailto:jon@jonentine.com)
Cc: [Peckins, Stacey FAS](#); ["jay.byrne@v-fluence.com"](mailto:jay.byrne@v-fluence.com); [Lubinsky, Pace \(FAS\)](#)
Subject: Re: anti-GMO crop biotech challenges with GLP and Jay Byrne
Date: Saturday, December 07, 2013 11:25:34 AM
Attachments: [GLP3.png](#)

Thanks Jon. It was great meeting w you as well. I think your outline below provides natural intersection points where usda/USG messaging and your efforts intersect well. I'd like to engage further and loop other folks here at usda not only from the technical/trade areas but from our communications shop as well. Realistically this would occur after the turn of the year, likely mid january as I will be in and out travelling thru year end.

Email from USAID rep discussing partnership with Monsanto PR helpers Jay Byrne and Jon Entine to create a "journalism enclave" and do global media outreach with industry messaging.

Food & ag focused campaigns today



Jay Byrne presentation describes “eco-activist” groups that he argues need to be confronted.

The policy endgame

The documents described throughout this report point to a number of individuals and organizations — including Byrne, the Genetic Literacy Project, and the American Council on Science and Health — as key players in the effort to paint GMOs and glyphosate products as “science-based” solutions, while attacking industry critics using product-defense efforts paralleling those by the tobacco and fossil fuel industries. While many of these efforts play out on social media or other online spaces, they are ultimately about lobbying in the real world: they are part of a coordinated effort to keep toxic products unregulated, even as health, environmental, and safety concerns mount.

As Harvard professors Naomi Oreskes and Erik Conway recount in their seminal book *Merchants of Doubt*, the product-defense efforts of fossil fuel and tobacco corporations succeeded in shaping public opinion and policy for decades, efforts that can be traced back to “a handful of scientists” who “obscured the truth on issues from tobacco smoke to climate change.”⁵³⁰ As Oreskes said in the documentary

Merchants of Doubt: “None of this is about the science. All of this is a political debate about the role of government.”⁵³¹

*“None of this is about the science.
All of this is a political debate about
the role of government.”*

Naomi Oreskes
Autor, *Merchants of Doubt*

As we have shown throughout this report, policy debates over glyphosate, GMOs, and the broader topic of chemical-intensive industrial agriculture, have been heavily influenced by a small group of actors, too, led by academics and front groups with ties to industry. The U.S. government has also been an ally to these efforts, keeping products unregulated and helping to spread corporate messaging. As one example, a [December 2013 email](#) reveals communications between Genetic Literacy

Project's Jon Entine and Max T. Holtzman, then acting deputy undersecretary at USDA. Entine shared a pitch for a series of "US government – GLP – Byrne projects" to influence journalists, noting that he and Jay Byrne, Monsanto's former communications director, had spoken to "two dozen people at State, with reps from USDA/FAS and USAID on how to effectively engage NGOs and journalists on agricultural biotech" and to preview Byrne's stakeholder database tool.⁵³²

Entine proposed collaborating on a series of projects to increase global acceptance of GMOs and pesticides. The projects he described include many of the stealth tactics named in this report. He mentioned: a "boot camp and response SWAT team" to prepare third-party academics for "potential legislative engagement;" a "journalism enclave" to bolster media coverage about food security challenges; "coaching for younger journalists;" a global media outreach campaign; and "multi-media content and placements from credible sources" reinforcing key themes "with segments and footage made available on U.S. government websites, GLP and other platforms."

Holtzman responded, "Thanks Jon. It was great meeting you as well. I think your outline below provides natural intersection points where usda/USG [U.S. government] messaging and your efforts intersect well. I'd like to engage further and loop other folks here at usda not only from the technical/trade areas but from our communications shop as well."⁵³³ Further details of this partnership are not public, but the Monsanto investigations reveal numerous examples of the U.S. government aiding pesticide industry PR efforts. As one example, in 2012, U.S. taxpayers paid to produce a series of videos to promote

genetically engineered foods with corporate messaging. Byrne's PR firm v-Fluence helped create the videos that were "designed to appear a little low budget and amateurish," according to an email from University of Illinois Professor Bruce Chassy obtained by U.S. Right to Know.⁵³⁴

Chassy [wrote to Monsanto employees](#) on April 27, 2012 to inform them he had a small grant from the U.S. State Department to produce 10 YouTube videos, noting that he thought it was important the videos came from the University of Illinois with credit to the State Department. He also noted he was seeking more government funding as well as outside sources to produce more videos, and he invited the Monsanto employees to provide suggestions. Monsanto's Eric Sachs responded, "in a completely parallel effort, Monsanto is shooting videos to reinforce the safety of GM foods in support of food/retail industry requests for Monsanto to defend the onslaught of attacks on biotech crop safety and Bt/RR [Bt and Roundup Ready] sweet corn in particular. I alerted this team of your project and everyone was eager to see your work online. Obviously, independent content from the U of I and supported by US Govt agencies is the preferred approach."⁵³⁵

The example is just one of many, as we have shown throughout this report, indicating that Monsanto's public relations efforts to defend its flagship glyphosate-based Roundup herbicides and Roundup Ready seed products depend on subterfuge: on convincing the public that corporate product-defense messaging is coming from independent sources that are, in reality, anything but.



Conclusion

In recent years, outrage over Big Oil's decades-long campaign of doubt and denialism to stall climate action has spilled onto the front page of major newspapers and into the Halls of Congress.⁵⁷⁷ Outrage around Big Tobacco's long-standing attempts to delay action on tobacco regulation, and the industry's continued marketing and misinformation, has fueled similar public outcry. With more than 480,000 people dying for tobacco-related reasons⁵⁷⁸ and 5 million extra deaths related to climate change every year,⁵⁷⁹ this misinformation is literally deadly. In this report, through a case study about one pesticide company and one spin campaign to protect one chemical, we hope to add to the growing literature building the case for vigilance about industry misinformation, including from the pesticide industry.

Thanks to discovery and the findings from public records investigations, we now have a clear record of the disinformation campaigns waged by Monsanto/Bayer, and with these tactics revealed, we see clearly one more case of a pesticide marketed as safe. Companies like Monsanto, now Bayer, didn't just take a page from the PR playbook of Big Oil and Big Tobacco, they helped to write it.

Ultimately, the story of deceit this report documents is a story about industry vulnerability: To forgo the regulation that would impact their profitability and market share, companies in the pesticide, oil, and tobacco industry are profoundly reliant on the success of PR subterfuge. They must protect the secrecy about how the evidence on which they base their defense is influenced by their cooptation of scientific and academic institutions; and they need to cover up the large web of organizations — from non-profits to academic think tanks and fake grassroots groups — that they rely on to push their products around the world. In the case of the pesticide industry, their current business

model would not be possible if pesticide products were subject to rigorous, independent research and if there were widespread public understanding of the harms and risks of many of these products.

Dissipating the industry fog of doubt, denial, and deflection, we can more clearly see that glyphosate, as well as many of the most widely used pesticides in the world, are indeed harmful — to people and planet. And, not only is it possible to feed the world without glyphosate and other toxic pesticides, but given increasing weed and pest resistance to these agrichemicals and their impact on the climate and on the health of the soil, water, and biodiversity on which we depend to grow food, it is indeed our only way to do so.

While the propaganda tactics of Big Oil and Big Tobacco are well-documented and their grave impacts well understood, the pesticide industry's similar role in widespread disinformation, and its extensive scope and impact, has not been as well documented or publicly understood. We hope this report, and the chorus of recent reporting, will change that and give journalists, policy makers, public interest groups, and consumers the tools they need to correct the record, hold pesticide companies accountable, and foster a more honest conversation about the choices we face for our food system and our future.

Part 3: What Can We Do?

As this report has detailed, companies like Bayer, and the pesticide industry broadly, spend millions every year on a range of tactics to mislead the public about its products and its sector. Like the tactics of the tobacco and fossil fuel industries, the methods Monsanto and Bayer used to protect glyphosate are designed to thwart transparency, public scrutiny, independent scientific examination, and regulatory oversight. These tactics are also used to distract the public and policymakers from grappling with the systemic changes needed to address the impacts of glyphosate, and pesticides more generally, on ecosystems and public health.

In this final section, we offer six suggestions for policy makers, media outlets, academics, and others to counteract industry spin tactics like those described in this report. We see the following recommendations as just some of the steps necessary as part of a multifaceted effort that is urgently needed to rein in the disinformation spread by the pesticide industry to influence public policies and mislead the public. We offer these not as an exhaustive set of recommendations, but as examples of actions needed to curtail industry influence

1. Understand and Expose the Strategies

This report adds to a growing body of research and reporting on pesticide industry disinformation tactics and, more broadly, to a literature and social science field that reveals how polluting industries manufacture ignorance and doubt and influence popular understanding and public policy around critical health issues. A key to upending the narrative hold of these companies is to understand their PR strategies and expose them. Doing so helps to inoculate the public and policymakers from their persuasive power. As Louis Brandeis said in Harper's magazine in 1913, "Sunlight is said to be the best of disinfectants."

Internal corporate documents have made clear how long the fossil fuel industry knew about the dangers of the climate crisis and how long the tobacco industry knew about the deadliness of cigarettes. In recent years, massive public action campaigns have focused on teaching this history. As the #ExxonKnew campaign states: "Exxon knew about climate change half a century ago. They deceived the public, misled their shareholders, and robbed humanity of a generation's worth of time to reverse climate change."

From the internal Monsanto and Bayer documents shared in this case study, it's clear the company was aware that glyphosate herbicide formulations posed a risk to human health and ecosystems and yet worked to suppress evidence about these threats. Beyond the Monsanto/Bayer case, there is a robust literature showing how pesticide companies have also known about the human health and environmental impacts of other pesticides — including paraquat, atrazine, chlorpyrifos, neonicotinoids and organophosphates — yet have long worked to suppress or deny the science. We believe it's crucial for the public and policymakers to understand that the pesticide industry has known about these threats for decades, but like the tobacco and fossil fuel industries, purposefully pushed disinformation and doubt, leading to immeasurable harm, illness, and biodiversity loss. These same companies are now marketing themselves — and their current business models — as [solutions to climate change](#), claiming they will engineer more sustainable methods as they push to expand fossil-fuel intensive industrial farming reliant on synthetic nitrogen fertilizers, one of the top climate-polluting industrial chemicals. The pesticide industry's claims must be scrutinized and challenged, for they risk, alongside other industry disinformation, robbing us of crucial time to deploy real solutions for reversing climate change.

Reports like this and other efforts by the media and research institutions are key to exposing these disinformation campaigns and their real-world impacts. To name just a few examples of this growing body of evidence, exposés on pesticide industry PR and influence campaigns can be found in [Lee Fang's investigation](#) of neonicotinoids; [Sharon Lerner's](#) and [Stéphane Horel's](#) reporting on paraquat; and extensive [reporting by Carey Gillam](#) on Bayer/Monsanto and glyphosate-based herbicides. We hope this report will play a role in this effort and will add to this growing body of evidence and public understanding of the extent and impact of pesticide industry spin techniques.

2. Protect the Integrity of Scientific Journals

As we discussed in Tactic 1, shaping the scientific literature is a key industry disinformation tactic. Ghostwriting or otherwise covertly influencing journal content is one powerful tool to do so. To maintain the integrity of peer-reviewed journals, it's critical to limit the publication of scientific articles by authors with conflicts of interest or, at the very least, clearly divulge those conflicts when they occur. Unfortunately, this transparency is still not consistent. Just to give one example, four out of five authors of a [2018 paper](#) in the peer-reviewed journal Food and Chemical Toxicology that [significantly downplayed](#) the dietary risk of eating foods with pesticide residues noted their employment by Bayer, but they did not declare this affiliation as a conflict of interest.

Like other scientific journals, Food and Chemical Toxicology has clear guidelines for its authorship: "All financial relationships with any entities that could be viewed as relevant to the general area of the submitted manuscript" should be declared along with "Any other relationships or affiliations that may be perceived by readers to have influenced, or give the appearance of potentially influencing, what you wrote in the submitted work." This paper is an example of how, even with strong policies, enforcement and oversight is needed. Furthermore, some corporate agreements with researchers include provisions that enable the funding company to prevent the publication of unfavorable research, as U.S. Right to Know's Gary Ruskin and co-authors document in a

2019 Journal of Public Health Policy [article](#) about Coca-Cola. Ruskin and colleagues recommend that to further protect the integrity of peer-reviewed journals, in addition to conflict of interest and funding disclosures, journals should also require authors to include their research agreements as appendices to papers when they are published.

3. Uphold Strong Journalistic Standards for Disclosing Conflicts of Interest and Vetting Sources

It is imperative that media outlets also uphold strong standards for revealing conflicts of interest among sources, both those quoted on the record and those used on background. The Society of Professional Journalists, a membership organization of more than 6,000 journalists, has a comprehensive [code of ethics](#), which includes: "Identify sources clearly. The public is entitled to as much information as possible to judge the reliability and motivations of sources." Many reporters do just that: they vet whether to report on studies or quote so-called experts with conflicts of interest if the integrity of the science or source could be questionable. They do things like follow the money behind the funding of think tanks housed at academic institutions. This report includes many examples of journalists doing just such digging to expose these funding streams. Unfortunately, thorough vetting isn't ubiquitous, and when a media outlet fails to do this robust source excavation, or when a news outlet relies on or reports information from an astroturf group or front group without disclosing their conflicts of interests, the media can end up being a pawn in an industry public relations campaign.

As one example of an effort to hold media accountable, in 2017, two dozen public interest groups [wrote to USA Today](#) editors raising concerns that the paper was publishing science columns by members of the American Council on Science and Health (ACSH) without identifying that group as a corporate front group with a history of spinning science for corporate benefactors. (As we described earlier, internal documents establish that Monsanto paid ACSH in 2015 to help defend glyphosate.) USA Today editors declined to take action; for years afterward, the paper's opinion section board of contributors included Alex

Berezow, ACSH's vice president of scientific communications, without full disclosure about Berezow's affiliation with a corporate front group. Berezow left the USA Today board (and ACSH) in June 2022, but still describes himself in his Twitter bio as a "contributor" to USA Today — an affiliation that helps legitimize industry-affiliated spin. Although the pressure from public interest groups did not yield results in this case, it is important to document this type of corporate influence of a media outlet, and to notify editors and apply pressure when they fail to properly identify corporate-funded groups and writers.

4. Challenge and Expose Corporate Influence at Universities

Partnering with universities and academics is a well understood PR tactic of health-harming industries. A "public relations masterstroke" of tobacco industry PR was direct funding to universities, writes the historian Alan Brandt; "offering funds directly to university-based scientists would enlist their support and dependence. Moreover, it would have the added benefit of making academic institutions 'partners' with the tobacco industry in its moment of crisis." Fossil fuel companies, too, "pour money into prestigious universities," according to a 2022 [investigation by the BMJ](#), in an attempt "to weaken messages on climate change, capture academia and protect their interests." The BMJ also describes a growing student movement to end fossil fuel funding on campuses across the country. Pesticide and food industry funding at universities also deserves scrutiny. As we describe in this report, the pesticide industry relies heavily on universities and professors to assist with their product defense campaigns, and public universities, professors and researchers depend on funding from large multinational food and chemical companies. This dependence shapes research agendas and communications and messaging in ways that often benefit corporate profits at the expense of public health.

But there is much students on campus can do to challenge this, and it starts with asking questions and doing research. There are many resources for students to raise questions on their campuses. U.S. Right to Know, for

example, has a toolkit for students on how to [uncover the influence of the food and pesticide industries on campus](#). The toolkit explains how to use Freedom of Information laws and other strategies to uncover corporate influence within universities, what questions to ask, and other strategies for leading campaigns for transparency on campuses.

Nationally, stronger transparency laws are needed. The Physician Payment Sunshine Act, passed in 2013, requires drug and medical product manufacturers to disclose payments and other items of value given to physicians and teaching hospitals, with data disclosed on a [public website](#). A similar requirement should be put in place for universities, university departments and foundations, and professors to disclose funding or gifts they receive from food and pesticide companies.

5. Hold Public Relations Professionals Accountable

As we describe in Tactic 3, the PR agencies Monsanto and Bayer employed to lead their glyphosate and GMO-defense efforts — including FleishmanHillard, Ketchum, and FTI Consulting—have histories of using underhanded tactics to defend Big Tobacco and Big Oil interests. These PR agencies can also be held to account for their role in pesticide disinformation. In November 2020, Duncan Meisel and Jamie Henn launched the [Clean Creatives campaign](#), housed within the nonprofit Fossil Free Media. The campaign calls on PR firms and ad agency executives to "divest" from fossil fuel contracts and "pledge to only work with businesses who support climate solutions." As the campaign's founders write: "Unless the entire ecosystem of agencies, creatives, and clients take action to address the growing harm of fossil fuel disinformation, the expansive relationship between PR and ad firms and fossil fuels will grow once more. Individuals and companies in every part of the advertising ecosystem have a role to play." There is a parallel with PR firms and ad agencies working for pesticide companies and promoting pesticide products. Those agencies and professionals should be called on to make a similar commitment not to work for pesticide companies.

6. Support Independent Investigative Journalism

Independent investigative journalism is critical for a functioning democracy — journalism that exposes corporate and government wrongdoing, fraud, lies, deceit, crimes, and the multi-faceted disinformation tactics these entities use to control the narrative about crucial health and environmental issues. Yet, investigative journalism — long-considered democracy’s fourth estate for its role in holding those in power to account—is eroding. Without a strong independent media sector, the public and elected officials are even more vulnerable to the covert communications tactics the pesticide industry is using to shape public opinion.

As the public relations industry booms and media institutions around the country are impacted by consolidation and a changing media landscape journalism has suffered. Since 2008, employment in U.S. newsrooms plummeted 26 percent, a [2021 Pew study](#) found. By 2018, there were 6 public relations professionals for every journalist, up from

5 two years before. Several new nonprofit newsrooms, some quoted in this report, including ProPublica, The Intercept, and U.S. Right to Know, have helped to fill this void, but there is more need than ever to support reliable investigative reporting to expose industry spin. Supporting investment in independent media and nonprofit investigative research groups will be critical to fight this disinformation.

As we finish this report, lawsuits against Bayer from people alleging their cancers were caused by the company’s glyphosate products continue to wind through the courts. It’s likely that, as a result of these cases, even more evidence will emerge about the company and industry’s attempts to shape public opinion about glyphosate. Additionally, as the EU considers reauthorizing the chemical in 2023, we expect to see new waves of industry product-defense messaging. In this context, we recommend these strategies as just some of the steps needed to help take on industry disinformation and empower policymakers to better regulate not only glyphosate, but other toxic pesticides as well.



Appendix I: Expenses of Key Third-Party Allies Named in Monsanto Glyphosate Defense Documents (2015-2019)

Non-Profit Organizations	2015-2019	2019	2018	2017	2016	2015
Academics Review	\$577,060	\$17,369	\$50,722	\$119,244	\$138,026	\$251,699
American Council on Science and Health	\$8,569,186	1,571,356	\$1,995,725	\$1,729,003	\$1,790,837	\$1,482,265
Center for Food Integrity	\$14,889,183	\$3,235,372	\$2,225,630	\$2,152,888	\$2,838,497	\$4,436,796
Foundation for Food Integrity	\$594,050	71,361	\$44,276	\$199,371	\$156,242	\$122,800
GMO Answers / Council for Biotechnology	\$22,687,700	1,842,702	\$2,743,571	\$3,359,708	\$4,081,201	\$10,660,518
International Food Information Council	\$19,376,743	\$3,147,965	\$3,619,060	\$3,547,503	\$3,880,537	\$5,181,678
International Food Information Council Foundation	\$4,694,134	\$805,227	\$809,058	\$812,860	\$608,812	\$1,658,177
Science Literacy Project/ Genetic Literacy Project*	\$2,967,614	\$603,069	\$515,549	\$476,983	\$520,423	\$851,590
Sense About Science	\$1,773,888	\$147,270	\$344,846	\$675,800	\$605,972	Founded in 2015
	\$76,129,558	\$11,441,691	\$12,348,437	\$13,073,360	\$14,620,547	\$24,645,523

Trade Groups	2015-2019	2019	2018	2017	2016	2015
American Chemistry Council	\$622,391,307	\$128,437,437	\$127,095,033	\$122,864,215	\$123,062,092	\$120,932,530
American Soybean Association	\$5,159,738	\$1,112,467	\$1,080,062	\$1,016,941	\$976,954	\$973,314
Biotechnology Innovation Organization	\$408,207,588	\$96,191,552	\$86,524,501	\$78,317,024	\$79,374,677	\$67,799,834
CropLife America	\$82,541,996	\$15,403,449	\$18,009,462	\$16,852,934	\$16,680,588	\$15,595,563
Consumer Brands Association**	\$144,791,582	\$20,339,069	\$26,004,128	\$25,210,314	\$34,923,435	\$38,314,636
National Corn Growers Association	\$108,224,267	\$23,281,167	\$22,123,051	\$21,503,549	\$20,517,944	\$20,798,556
	\$1,371,316,478	\$284,765,141	\$280,836,237	\$265,764,977	\$275,535,690	\$264,414,433

Total Expenses for Key Trade Groups, Front Groups, and Other Key Third-Party Allies	2015-2019	2019	2018	2017	2016	2015
	\$1,447,446,036	\$296,206,832	\$293,184,674	\$278,838,337	\$290,156,237	\$289,059,956

*Until 2014 was filing as Statistical Assessment Service

**Known as Grocery Manufacturers Association until 2019

Monsanto Reported Advertising Costs (2015-2017)

Total Monsanto Advertising Costs	2015-2017	\$2,019	\$2,018	\$2,017	\$2,016	2015
	\$206,000,000	N/A	N/A	\$68,000,000	\$64,000,000	\$74,000,000

Based on corporate SEC filings up until the year Monsanto was purchased by Bayer.

Appendix II: Debunking the Myths that Pesticides Are Safe and Necessary

Debunking the Myth that Pesticides Are Safe

While humans have long used various pesticides in agriculture, what we think of as modern-day pesticides — synthetic chemicals — were not widely used until the post-World War II period. Weapons-grade chemicals were converted into peacetime uses in agriculture. Nerve gas agents became organophosphate pesticides. The insecticide DDT, used to thwart mosquitoes and lice to stave off malaria and typhus among soldiers, was pushed for agricultural use after World War II. In the ensuing decades, pesticides have become widely used around the world in farming and beyond, including in war. The US government tapped Monsanto and other chemical manufacturers to produce the toxic defoliant dubbed Agent Orange that was sprayed extensively during the Vietnam War.⁵³⁶ Today, U.S. agriculture uses more than 1.1 billion pounds of pesticides annually, representing approximately 15 percent of total global pesticide usage.⁵³⁷

The widespread use of pesticides has led to the inevitable ecological result: resistance to these very pesticides by insects and weeds. By one count, more than 360 weed varieties and 540 insect species have developed resistance to pesticides.⁵³⁸ As a result, farmers are stuck on a “pesticide treadmill” — a term coined by the American entomologist Robert van den Bosch in 1978 to describe the problem that farmers must spray more often and use more toxic pesticides to deal with ever more resistant pests.

The scientific record shows that an ecological, rather than chemical, approach to agriculture is dramatically more successful at managing pests without incurring environmental and health costs. As just one example, a recent study found that farmers who *did not* use insecticides and relied on ecological methods to manage pests had *10 times less* pest pressure than farmers who used insecticides.⁵³⁹ Ecological farming methods work with nature to disrupt pest cycles. Rather than toxic chemicals, they

use crop rotations, foster natural predators of pests and increase crop diversity to disrupt growth of pest populations, they plant “trap” crops that draw insects to the edges of fields, and they build healthy soils that confer greater pest immunity to plants.

Pesticides do not discriminate between pests and beneficial insects like pollinators. A peer-reviewed study co-authored by Friends of the Earth found that U.S. agriculture has become 48 times more toxic to bees and other insects since the introduction of neonicotinoid insecticides 25 years ago.⁵⁴⁰ This study came on the heels of the first meta-analysis of global insect declines which found that 40 percent of insect species could face extinction in coming decades, leading the authors to warn of “catastrophic ecosystem collapse” if we don’t change the way we farm.⁵⁴¹

Along with life aboveground, pesticides destroy biodiversity belowground. A recent meta-analysis shows that pesticides harm the living organisms that are the basis of healthy soils — which we need to prevent erosion, conserve water and draw carbon down from the atmosphere.⁵⁴² Scientists warn that we are experiencing the “sixth great extinction” and that this collapse of biodiversity is on par with the climate crisis.⁵⁴³

Many pesticides also harm human health. The same properties that make pesticides toxic to insects and weeds can also make them toxic to other forms of life, including us. More than 90 percent of the U.S. population has detectable pesticides in their bodies,⁵⁴⁴ and there are more pesticide residues on our food now than a decade ago.⁵⁴⁵ Decades of studies show that pesticides can disrupt and derail the healthy functioning of our bodies. Pesticide exposure is linked to cancers, asthma, neurodevelopmental disorders like autism and ADHD and to neurological diseases like Alzheimer’s and Parkinson’s.^{546,547,548,549} Exposure is also associated with reproductive disorders like infertility and birth defects and metabolic diseases like obesity and diabetes.^{550,551}

Emerging science reveals more than 50 pesticides are endocrine disruptors, meaning they can mimic, block or scramble our hormones.⁵⁵² Miniscule exposures to endocrine disruptors may lead to various cancers, ADHD, Parkinson's, depression, fertility problems, obesity, diabetes, and birth defects.⁵⁵³ Timing of exposure also matters, putting pregnant women, infants, children, and adolescents at greatest risk. Exposure during these important developmental windows can lead to lifelong impacts.

Farmers, farmworkers, and pesticide applicators, and those living in communities abutting farm fields are particularly impacted. Farmworkers can be exposed at levels hundreds of times higher than consumers' exposure to pesticides. Farmers, farmworkers and their families have higher rates of acute poisonings, cancers, birth defects, asthma, infertility, autism, and other neurological and reproductive effects.⁵⁵⁴

U.S. regulatory systems are not based on the latest science on the harms of pesticides. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) has proven to be woefully inadequate to protect human health and the environment from toxic pesticides. While some countries have in recent years banned the most toxic pesticides, the U.S. still allows use of over 80 pesticides that have been restricted or banned in other countries.⁵⁵⁵

While the Environmental Protection Agency (EPA) sets legal limits for pesticide residues on food, referred to as maximum residue limits, many scientists and medical professionals say that these limits are outdated.⁵⁵⁶ They do not reflect the unique vulnerabilities of infants, children, pregnant women, and the elderly nor do they account for our cumulative exposure to pesticides via food, water and the environment. Companies and regulatory agencies typically do not test for the health risks of exposures from multiple pesticides and whether there are synergistic effects, and whether those effects are linear or nonlinear. These exposures add up. One study found that approximately 40 percent of U.S. children may have cumulative exposure to organophosphate pesticides at a level greater than benchmarks for neurological impacts.⁵⁵⁷

National and global institutions are taking note. A report from the President's Cancer Panel of the National Cancer Institute highlights the health concerns of pesticides, and noted the ways to reduce risk, including "choosing, to the extent possible, food grown without pesticides or chemical fertilizers."⁵⁵⁸ In a 2012 report, the American Academy of Pediatrics warned: "children's exposure to pesticides should be limited as much as possible."⁵⁵⁹ And a 2017 policy paper from the United Nations Special Rapporteur on the Right to Food noted that: "Pesticides...are a global human rights concern, and their use can have very detrimental consequences on the enjoyment of the right to food...as well as the right to health."⁵⁶⁰

Debunking the Myth that We Need Pesticides to Feed the World

Despite all this, the pesticide industry continues to push the message that pesticides are safe. They do so along with the message that we need these products to "feed the world." It follows then, according to their narrative, that raising concerns about pesticides and calling for stricter regulations or reductions in use poses a threat to food security. But the evidence doesn't add up: We do not need pesticides to feed the global population; indeed, their continued unbridled use threatens food security.⁵⁶¹

To understand why, it's critical that we first look to the root causes of hunger. Experts have long underscored that world hunger is not primarily the manifestation of a scarcity of food, but a scarcity of democracy — of who has power over what is grown, where, and with what methods.⁵⁶² Hunger is the result of poverty and unequal access to land, water and other resources, not simply "not enough." Focusing on increasing productivity does not uproot these underlying forces.

Despite the industry's public relations efforts to insist that GMOs are necessary to "feed the world" — and many media outlets that repeat this narrative uncritically — the truth is that the majority of acreage is devoted to commodities like corn and soy used for livestock feed or industrial processes like corn-based ethanol.⁵⁶³ In addition, if we *do* take productivity as a

primary goal, data show that GMO crops have overall failed to increase crop yields.⁵⁶⁴

What's more: pesticide use is actually undermining the basis of food security. A United Nations report noted pesticides have had "catastrophic impacts on the environment, human health and society as a whole."⁵⁶⁵ The industrial food system has decimated biodiversity, destroyed soil health, and polluted water resources — all of which exacerbates the conditions of world hunger and poverty.⁵⁶⁶ The United Nations Food and Agriculture Organization estimates that industrial agriculture, of which pesticides are a key input, costs the world *three trillion dollars every year* in damages to the environment and public health.⁵⁶⁷

Another path forward is possible. Research shows notable benefits in using ecological principles on farms instead of toxic pesticides.⁵⁶⁸ Organic farmers grow abundant food without the use of over 900 active pesticide ingredients allowed in non-organic farming.^{569,570} Recent studies show that farmers who rely on ecological methods to manage pests may outperform their conventional counterparts. One study found that using ecological methods to protect pollinators increased yields of oil seed crops more than the yield benefit associated with pesticide

use.⁵⁷¹ Another study from France concluded that most farmers would be able to reduce pesticide use significantly without sacrificing profit or productivity, and in some cases, can improve yields and decrease farm costs.⁵⁷² A global synthesis found that managing farms to increase biodiversity of pollinators and beneficial insects results in higher yields and better pest control, and another study found that organic farm management boosts the natural defenses of plants to prevent pest damage even when pests are abundant.^{573,574}

A years-long process involving over 400 independent experts from every continent culminated in the 2009 International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD).⁵⁷⁵ The message was clear: "Business as usual is not an option." The report calls for a paradigm shift in agriculture from industrial models dependent on intensive inputs of pesticides and synthetic fertilizers to an agroecological pathway that protects natural resources. These findings have been repeatedly bolstered in a series of expert reports in the decade since. As the United Nations Special Rapporteur on Food notes, "Without or with minimal use of toxic chemicals, it is possible to produce healthier, nutrient-rich food, with higher yields in the longer term, without polluting and exhausting environmental resources."⁵⁷⁶



Appendix III: The Science of Solutions

Decades of science show that we need a rapid shift to organic and regenerative agriculture in order to feed all people now and in the future and address the intertwined biodiversity and climate crises we face.

[International Scientists Formulate a Roadmap for Insect Conservation and Recovery.](#)

Harvey, Jeffrey A., Robin Heinen, Inge Armbrecht, Yves Basset, James H. Baxter-Gilbert, T. Martijn Bezemer, Monika Böhm, et al. 2020. *Nature Ecology & Evolution*, January.

Key findings: Roadmap for insect recovery highlights agroecology & citizen science methods to monitor insects as solutions alongside reduction of pesticides & increasing landscape heterogeneity."

[Agroecological and Other Innovative Approaches,](#)

FAO High Level Panel of Experts on Food Security and Nutrition, 2019

[Scaling Up Nutrition and Food in the Anthropocene](#)

The EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems, 2019

[Sustainability in global agriculture driven by organic farming.](#)

Eyhorn, Frank, et al., *Nature Sustainability* 2.4 (2019): 253.

[Agroecological Approaches and Other Innovations for Sustainable Agriculture and Food Systems that Enhance Food Security and Nutrition.](#)

CFS/HLPE. 2019. FAO Commission on Food Security, High Level Panel of Experts, Report #14.

Key findings: Includes assessments of multiple types of "innovative" approaches classed under two main types: agroecological and sustainable intensification. See Table 7. Strong evidence that agroecological approaches can enhance food sovereignty and food security (defined as availability, access, utilization, stability, and (potentially) agency).

[Climate Change and Land](#)

Intergovernmental Panel on Climate Change, 2019

[Growing Better](#)

Food and Land Use Coalition, 2019

[Agroecological and Other Innovative Approaches](#)

FAO High Level Panel of Experts on Food Security and Nutrition, 2019

[Climate Change, Global Food Security, and the U.S. Food System](#)

USDA, 2018.

[Landscapes that work for biodiversity and people.](#)

Kremen, Claire, and Adina. M. Merenlender. *Science* 362, no. 6412. 2018.

Key findings: Authors review how biodiversity-based techniques can be used to manage most human-modified lands as "working landscapes." These can provide for human needs and maintain biodiversity not just for ecosystem services but also for maintenance and persistence of nonhuman species.

[Global assessment of agricultural system redesign for sustainable intensification.](#)

Pretty, Jules, et al. *Nature Sustainability* 1.8. 2018. (441).

[Triggering a positive research and policy feedback cycle to support a transition to agroecology and sustainable food systems.](#)

Miles, Albie, Marcia S. DeLonge, and Liz Carlisle. *Agroecology and Sustainable Food Systems* 41.7. 2017 (855-879).

[UN Report on Pesticides](#)

Hilal Elver, UN Special Rapporteur on the right to food. 2017

Key findings: Pesticides cause “catastrophic harm to the human health and the environment” and are not necessary to feed a growing world population. Global corporations that manufacture pesticides are accountable for “systematic denial of harms”, “aggressive, unethical marketing tactics” and heavy lobbying of governments which has “obstructed reforms and paralysed global pesticide restrictions.”

[Farming for the Future](#)

By Chris Cook, Kari Hamerschlag and Kendra Klein for Friends of the Earth. 2016

Key findings: Feeding the world sustainably requires that we protect the ecological resources that are essential for producing food now and in the future. What’s more, research consistently shows that hunger is not a problem of overall supply of food, but results from poverty, lack of democracy and unequal access to land, water and other resources. Rather than producing more food under unequal and ecologically destructive conditions, the solution to hunger hinges on creating a more sustainable, democratic and fair food system for all.

[From Uniformity to Diversity](#)

International Panel of Experts on Sustainable Food Systems (IPES) report. 2016

Key findings: Multiple negative outcomes of the existing food system stem from industrial agriculture: “the input-intensive crop monocultures and industrial-scale feedlots that now dominate farming landscapes.” These systems are “locked in” due to entrenched political-economic power of food industries and instead of “tweaking practices,” a “fundamentally different model of agriculture” is needed, i.e. “diversified agroecological systems.”

[World Hunger: 10 Myths](#)

By Francis Moore Lappé and Joseph Collins, 2016

Key findings: Hunger is not the result of inadequate amounts of food or human overpopulation, but rather stems from poverty and inequalities of political and economic power. Large farms, expanded markets and free trade won’t help solve world hunger, but will likely make it worse.

[Organic agriculture in the twenty-first century.](#)

Reganold, J. P., and J. M. Wachter. *Nature Plants* 2: 15221. 2015.

Key findings: Review paper of organic agriculture showing benefits over conventional production in four main areas: (1) produce adequate amounts of high-quality food (production); (2) enhance the natural-resource base and environment (environment); (3) be financially viable (economics); and (4) contribute to the wellbeing of farmers and their communities (wellbeing).

[Natural Capital Impacts in Agriculture: Supporting better business decision-making](#)

UN FAO, 2015

Key findings: The natural capital costs associated with crop production in this study represent nearly \$1.15 trillion, over 170 percent of its production value, whereas livestock production in this study produces natural capital costs of over \$1.18 trillion, 134 percent of its production value.

[Wake Up Before It Is Too Late](#)

United Nations Conference on Trade and Development report, 2013

Key findings: Hunger is not a supply-side productivity problem and “meeting food security challenges is primarily about empowerment of the poor.” A shift is needed “from a conventional, monoculture-based and high-external-input-dependent industrial production towards mosaics of sustainable, regenerative production systems that also considerably improve the productivity of small-scale farmers.”

[Ecosystem services in biologically diversified versus conventional farming systems: benefits, externalities, and trade-offs.](#)

Kremen, Claire, and Albie Miles. *Ecology and Society* 17.4. 2012.

[UN Report on Agroecology](#)

Olivier De Schutter, *United Nations Special Rapporteur on the Right to Food*, 2010

Key findings: “Agroecology, if sufficiently supported, can double food production in entire regions within 10 years while mitigating climate change and alleviating rural poverty.” State support for scaling up agroecology is crucial in both developed and developing countries and should focus on small-scale farmers, their organizations and the innovative agroecological practices they can develop alongside scientists.

[Agriculture at a Crossroads Global Report](#)

International Assessment of Agricultural Knowledge, Science, and Technology for Development (IAASTD) report, 2009

Key findings: “Business as usual is not an option” to reach goals of environmental protection and hunger reduction. Small-scale agriculture and traditional ecological knowledge of farmers and indigenous people are as — if not more — important to a future food system than genetic engineering and capital-intensive forms of agriculture.



Appendix IV: Recommended Resources & Readings

Our Organizations

U.S. Right to Know: A non-profit investigative research group focused on promoting transparency for public health. // <https://usrtk.org/>

Real Food Media: Storytelling, critical analysis and strategy for the food movement // <https://realfoodmedia.org/w>

Friends of the Earth: An environmental organization fighting for a more just and healthy world // www.foe.org

Organic for All: A project of Friends of the Earth on the science of why organic works // www.OrganicForAll.org

Document Databases

The Poison Papers: Documenting the hidden history of chemical and pesticide hazards in the United States // <https://www.poisonpapers.org/>

UCSF Industry Documents Library: A portal to millions of documents created by industries that influence public health // <https://www.industrydocuments.ucsf.edu/>

Project TOXIDOCS: A project of Columbia University and the City University of New York to release millions of previously classified documents on industrial poisons // <https://www.toxicdocs.org/>

Monsanto Papers: Internal company documents obtained via litigation revealing Monsanto's deception around glyphosate // <https://usrtk.org/monsanto-papers/>

Organizational Resources

Center for Public Integrity: A nonprofit investigative journalism organization that releases reports via its website to media outlets throughout the U.S. and around the globe. CPI is one of the largest nonpartisan, nonprofit investigative centers in America. // www.publicintegrity.org

Center for Responsive Politics: A nonprofit, nonpartisan research group that tracks the effects of money and lobbying on elections and public policy. Its website allows users to track federal campaign contributions and lobbying by lobbying firms, individual lobbyists, industry, federal agency and bills. Other resources include the personal financial disclosures of all members of the U.S. Congress, the president, and top members of the administration. // www.opensecrets.org

LittleSis: A free database detailing the connections between powerful people and organizations. It tracks the key relationships of politicians, business leaders, lobbyists, financiers, and their affiliated institutions. // www.littlesis.org

Recommended Reading

Books

[The Monsanto Papers: Deadly Secrets, Corporate Corruption, and One Man's Search for Justice.](#) Carey Gillam. 2021. Island Press: Washington DC.

[Whitewash: The Story of a Weedkiller, Cancer, and the Corruption of Science](#). Carey Gillam. 2018. Island Press: Washington DC.

[Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming](#). Naomi Oreskes and Erik M. Conway. 2010. Bloomsbury: New York, NY.

[The Triumph of Doubt: Dark Money and the Science of Deception](#). David Michael. 2020. Oxford

Reports documenting industry spin

[Disinformation and Environmental Advocacy](#). by Melissa Ryan with Michael Khoo and Kevyyn Gomez. Friends of the Earth. 2019.

[Spinning Food: How Food Industry Front Groups and Covert Communications are Shaping the Story of Food](#). by Kari Hamerschlag, Anna Lappe and Stacy Malkan. Friends of the Earth. 2015.

[The Best Public Relations Money Can Buy](#), by Michele Simon and the Center for Food Safety. 2015.

[Seedy Business: What Big Food is Hiding with Its Slick PR Campaign](#), by Gary Ruskin, *U.S. Right to Know*. 2015.

[Buzz Kill: How the pesticide industry is clipping the wings of bee protection efforts across the U.S.](#) Friends of the Earth. 2016.

[Follow the Honey: Seven ways pesticide companies are spinning the bee crisis to protect profits](#), Friends of the Earth, 2014.

Articles documenting industry spin:

[Monsanto Papers: In order to save glyphosate, the Monsanto corporation has undertaken an effort to destroy the United Nations' cancer agency by any means possible](#). A dozen investigative articles exploring the many strategies used by Monsanto to interfere with science, influence the regulatory process and orchestrate PR campaigns to defend their products. Stephane Foucart and Stephane Horel. *Le Monde*. 2018

[The Pesticide Industry's Playbook for Poisoning the Earth](#). Lee Fang. *The Intercept*. 2020.

[Tracking the Pesticide Industry Propaganda Network](#). Stacy Malkan. Series of fact sheets documenting key players in the pesticide industry's PR network. *U.S. Right to Know*.

[Investigation: How Pesticide Companies are Marketing Themselves as the Solution to Climate Change](#). Sharon Kelly and Francis Rankin. *DeSmog*. 2020.

[The Misinformation Industry](#): An ongoing series seeking to illuminate misleading tactics special interest groups sometimes use to gain public support for their political agendas. The Center for Public Integrity.

Endnotes

1. Gillam, C. (2021, November 24). Monsanto Roundup & Dicamba Trial Tracker. *U.S. Right to Know*. <https://usrtk.org/monsanto-roundup-trial-tracker-index/>
2. Gillam, C. (2021, August 5). Monsanto Papers. U.S. Right to Know. <https://usrtk.org/monsanto-papers/>
3. Gillam, C. (2017). *Whitewash: The Story of a Weed Killer, Cancer, and the Corruption of Science*. Island Press.
4. Gillam, C. (2021). *The Monsanto Papers*. Island Press.
5. U.S. Congress. (1994). Hearing on the Regulation of Tobacco Products House Committee on Energy and Commerce Committee on Health and Environment. <https://senate.ucsf.edu/tobacco-ceo-statement-to-congress>.
6. Holden, Emily. (2019, October 23). Exxon sowed doubt about the climate crisis, House Democrats hear in testimony. *The Guardian*. <https://www.theguardian.com/business/2019/oct/23/exxon-climate-crisis-house-democrats-hearing>
7. Robinson, E., & Robbins, R.C. (1968). Sources, abundance, and fate of gaseous atmospheric pollutants. Final report and supplement. United States: Stanford Research Institute, Menlo Park, CA. <https://www.smokeandfumes.org/documents/16>
8. Tobacco Litigation Documents. (Online). Legacy Tobacco Documents Library. UCSF Library Truth Initiative. <https://www.industrydocuments.ucsf.edu/tobacco/research-tools/litigation-documents/>.
9. Oreskes, Naomi; Conway, Eric M. (2011) *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Climate Change*. Bloomsbury Press.
10. Ritchie, Hannah, & Max Roser.(2013, May 23). Smoking. *Our World in Data* <https://ourworldindata.org/smoking>
11. Lombrana, Laura Milan. (2021, July 7). Climate Change Linked to 5 Million Deaths a Year, New Study Shows. *Bloomberg*.<https://www.bloomberg.com/news/articles/2021-07-07/climate-change-linked-to-5-million-deaths-a-year-new-study-shows>
12. Hakim, Danny. (2016, Oct. 29). Doubts About the Promised Bounty of Genetically Modified Crops. *New York Times*. <https://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html>
13. Research by ETC Group, September 2022 - Full report with citations is available here: <https://www.etcgroup.org/content/food-barons-2022>
14. Hammerschlag, K., Lappe, A. and Malkan, S. (2015). *Spinning Food: How food industry front groups and covert communications are shaping the story of food*. Prepared for Friends of the Earth, Real Food Media and U.S. Right to Know. <https://foe.org/resources/food-industry-shapes-story-food/>
15. Ruskin, Gary. (2021, June 11). UCSF Chemical Industry Documents Library Now Hosts USRTK Collection. U.S. Right to Know <https://usrtk.org/our-investigations/ucsf-industry-documents-library-to-hold-key-agricultural-industry-papers/>. More documents are posted at <https://usrtk.org>.
16. DiBartolomeis, M., Kegley, S., Mineau, P., Radford, R., & Klein, K. (2019). An assessment of acute insecticide toxicity loading (AITL) of chemical pesticides used on agricultural land in the United States. *PLoS one*, 14(8), e0220029. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0220029>
17. USDA Economic Research Service. (2020). Adoption of Genetically Engineered Crops in the U.S. <https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption.aspx>.
18. Methodology: These seven front groups and six trade associations were selected because all were named in Monsanto internal documents as organizations to enlist to support glyphosate defense. All expenses are found in publicly available IRS Form 990s. (Where the fiscal year doesn't follow the calendar year, the reporting uses the end month of the calendar year.) Monsanto advertising budget figures are taken from corporate SEC filings the three years before the Bayer purchase.
19. NRDC v. USEPA (United States Court of Appeals for the Ninth Circuit June 17, 2022). *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2022/06/Ninth-Circuit-glyphosate-June-2022.pdf>
20. Stohr, Greg; Feeley, Jef. (2022, June 21). Bayer Rejected by US Supreme Court in Bid to End Roundup Suits, *Bloomberg*. <https://www.bloomberg.com/news/articles/2022-06-21/bayer-rejected-by-us-supreme-court-in-bid-to-end-roundup-suits>
21. Bayer Global. (Online). Roundup litigation - five-point plan. <https://www.bayer.com/en/roundup-litigation-five-point-plan>
22. Valavanidis, A. (2018). *Glyphosate, the most widely used herbicide*. Department of Chemistry, National and Kapodistrian University of Athens. <http://chem-tox-ecotox.org/wp-content/uploads/2018/03/GLYPHOSATE-REVIEW-12-3-2018-1.pdf>
23. Environmental Working Group. (2018, Aug 14). Breakfast with a Dose of Roundup? <https://www.ewg.org/research/breakfast-dose-roundup>
24. Ledoux, M. L., Hettiarachchy, N., Yu, X., Howard, L., & Lee, S. O. (2020). Penetration of glyphosate into the food supply and the incidental impact on the honey supply and bees. *Food control*, 109, 106859. <https://www.sciencedirect.com/science/article/abs/S0956713519304487>
25. Battaglin, W. A., Meyer, M. T., Kuivila, K., & Dietze, J. E. (2014). Glyphosate and AMPA in US streams, groundwater, precipitation and soils. *Journal of the American Water Resources Association*, 50(2), 275-290. <https://pubs.er.usgs.gov/publication/70046159>
26. Gillam, Carey. (2022, July 9). Weedkiller ingredient tied to cancer found in 80% of US urine samples. *The Guardian* <https://www.theguardian.com/us-news/2022/jul/09/weedkiller-glyphosate-cdc-study-urine-samples>
27. Gillam, Carey. (2017). *Whitewash: The Story of a Weed Killer, Cancer, and the Corruption of Science*. Chapter 3: The "Roundup Ready" Rollout. Island Press: Washington DC.
28. USDA National Agricultural Statistics Service. (2021, June 30). Acreage Report. <https://downloads.usda.library.cornell.edu/usda-esmis/files/j098zb09z/00000x092/kw52k657g/acrg0621.pdf>
29. Benbrook, C. (2016). Trends in glyphosate herbicide use in the United States and globally *Environ Sci Eur*. 28(1): 3.
30. International Service for the Acquisition of Agri-biotech Applications. (2016). 2016 Annual Report. https://www.isaaa.org/resources/publications/annualreport/2016/pdf/ISAAA-Aannual_Report-2016.pdf
31. Picchi, A. (2018, June 27). Monsanto's Roundup weed-killer goes on trial with billions at stake. *CBS News*. <https://www.cbsnews.com/news/monsantos-roundup-weed-killer-goes-on-trial-with-billions-at-stake/>
32. Bayer AG. (2018, June 7). Bayer Closes Monsanto Acquisition. <https://media.bayer.com/baynews/baynews.nsf/id/Bayer-closes-Monsanto-acquisition>
33. Bayer AG. (accessed 2022, July 30). Glyphosate's Impacts on Human Health and Safety <https://www.bayer.com/en/glyphosate/glyphosate-impact-on-human-health-and-safety>
34. United States Environmental Protection Agency. (1985). Consensus Review of Glyphosate. (Caswell #661A) *Office of Pesticides and Toxic Substances* <https://archive.epa.gov/pesticides/chemicalsearch/chemical/foia/web/pdf/103601/103601-171.pdf>
35. Gillam, Carey. (2017, June 8). Of Mice, Monsanto, and a Mysterious Tumor. *Huffington Post*. https://www.huffpost.com/entry/of-mice-monsanto-and-a-mysterious-tumor_b_5939717fe4b014ae8c69de40

36. AP News. (1996, November 25). Monsanto Agrees to Modify Roundup Ads in New York State. <https://apnews.com/article/d196b9a5bb54637a7b281760b0f7a966>
37. WHO International Agency for Research on Cancer. (2015). IARC Monograph on Glyphosate. <https://www.iarc.who.int/featured-news/media-centre-iarc-news-glyphosate/>
38. Samet, J. M. (2019). Expert review under attack: glyphosate, talc, and cancer. *American Journal of Public Health*, 109(7), 976-978. <https://ajph.aphapublications.org/doi/10.2105/AJPH.2019.305131>
39. WHO International Agency for Research on Cancer. (2015). IARC Monograph on Glyphosate. <https://www.iarc.who.int/featured-news/media-centre-iarc-news-glyphosate/>
40. Baum, Hedlund. (Online). Johnson vs. Monsanto Co. <https://www.baumhedlundlaw.com/toxic-tort-law/monsanto-roundup-lawsuit/johnson-v-monsanto-co-/>
41. Gillam, Carey. (2018, November 21). I won a historic lawsuit but may not live to get the money. *Time Magazine*. <https://time.com/5460793/dewayne-lee-johnson-monsanto-lawsuit/>
42. Dietrich Knauth, L. H. (2022, June 27). U.S. Supreme Court again Nixes Bayer Challenge to weedkiller suits. *Reuters*. <https://www.reuters.com/business/us-supreme-court-again-nixes-bayer-challenge-weedkiller-suits-2022-06-27/>
43. Jayasumana, C., Gunatilake, S., & Senanayake, P. (2014). Glyphosate, hard water and nephrotoxic metals: are they the culprits behind the epidemic of chronic kidney disease of unknown etiology in Sri Lanka?. *International journal of environmental research and public health*, 11(2), 2125-2147. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945589/>
44. Parvez, S., Gerona, R. R., Proctor, C., Friesen, M., Ashby, J. L., Reiter, J. L., ... & Winchester, P. D. (2018). Glyphosate exposure in pregnancy and shortened gestational length: a prospective Indiana birth cohort study. *Environmental Health*, 17(1), 1-12. <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-018-0367-0>
45. Altamirano, G. A., Delconte, M. B., Gomez, A. L., Ingaramo, P. I., Bosquiazzo, V. L., Luque, E. H., ... & Kass, L. (2018). Postnatal exposure to a glyphosate-based herbicide modifies mammary gland growth and development in Wistar male rats. *Food and Chemical Toxicology*, 118, 111-118. <https://pubmed.ncbi.nlm.nih.gov/29746933/>
46. Nerozzi, C., Recuero, S., Galeati, G., Bucci, D., Spinaci, M., & Yeste, M. (2020). Effects of Roundup and its main component, glyphosate, upon mammalian sperm function and survival. *Scientific reports*, 10(1), 1-9. <https://www.nature.com/articles/s41598-020-67538-w>
47. Samsel, A., & Seneff, S. (2013). Glyphosate's suppression of cytochrome P450 enzymes and amino acid biosynthesis by the gut microbiome: pathways to modern diseases. *Entropy*, 15(4), 1416-1463. <https://www.mdpi.com/1099-4300/15/4/1416>
48. Mesnage, R., Renney, G., Séralini, G. E., Ward, M., & Antoniou, M. N. (2017). Multiomics reveal non-alcoholic fatty liver disease in rats following chronic exposure to an ultra-low dose of Roundup herbicide. *Scientific reports*, 7(1), 1-15. <https://www.nature.com/articles/srep39328>
49. Gillam, Carey. (2021, September 27). *Glyphosate Fact Sheet: Cancer and other health concerns*. U.S. Right to Know. <https://usrtk.org/pesticides/glyphosate-health-concerns/>
50. Mesnage, R., Renney, G., Séralini, G. E., Ward, M., & Antoniou, M. N. (2017). Multiomics reveal non-alcoholic fatty liver disease in rats following chronic exposure to an ultra-low dose of Roundup herbicide. *Scientific reports*, 7(1), 1-15. <https://www.nature.com/articles/srep39328>
51. Woźniak, E., Sicińska, P., Michałowicz, J., Woźniak, K., Reszka, E., Huras, B., ... & Bukowska, B. (2018). The mechanism of DNA damage induced by Roundup 360 PLUS, glyphosate and AMPA in human peripheral blood mononuclear cells-genotoxic risk assessment. *Food and chemical toxicology*, 120, 510-522. <https://pubmed.ncbi.nlm.nih.gov/30055318/>
52. Székács, I., Fejes, Á., Klátyik, S., Takács, E., Patkó, D., Pomóthy, J., ... & Székács, A. (2014). Environmental and toxicological impacts of glyphosate with its formulating adjuvant. *International Journal of Biological Veterinary Agricultural and Food Engineering*, 8(3), 212-218. https://www.researchgate.net/publication/262013094_Environmental_and_toxicological_impacts_of_glyphosate_with_its_formulating_adjuvant
53. Mesnage, R., Benbrook, C., & Antoniou, M. N. (2019). Insight into the confusion over surfactant co-formulants in glyphosate-based herbicides. *Food and Chemical Toxicology*, 128, 137-145. <https://www.sciencedirect.com/science/article/pii/S0278691519301814>
54. U.S. Environmental Protection Agency. (2021, November). Final National Level Listed Species Biological Evaluation for Glyphosate. <https://www.epa.gov/endangered-species/final-national-level-listed-species-biological-evaluation-glyphosate>
55. Thogmartin, W. E., Wiederholt, R., Oberhauser, K., Drum, R. G., Diffendorfer, J. E., Altizer, S., ... & Lopez-Hoffman, L. (2017). Monarch butterfly population decline in North America: identifying the threatening processes. *Royal Society open science*, 4(9), 170760. <https://royalsocietypublishing.org/doi/10.1098/rsos.170760>
56. Dai, P. et al. (2018). The herbicide glyphosate negatively affects midgut bacterial communities and survival of honey bee during larvae reared in vitro. *Journal of agricultural and food chemistry*. 66(29), pp.7786-7793. <https://pubmed.ncbi.nlm.nih.gov/29992812/>
57. Vázquez, D.E., Illina, N., et al. (2018). Glyphosate affects the larval development of honey bees depending on the susceptibility of colonies. *PloS one*, 13(10), p.e0205074. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0205074>
58. Balbuena, M.S., Tison, L., et al. (2015). Effects of sublethal doses of glyphosate on honeybee navigation. *Journal of Experimental Biology*, 218(17), pp.2799-2805. <https://pubmed.ncbi.nlm.nih.gov/26333931/>
59. Paul, N. (2019). The Impacts of Glyphosate on Bumble Bee Productivity and Parasite Load. Masters Thesis. School of Biological Sciences. Queen's University Belfast. <https://bit.ly/3QjVIBU>
60. Druille, M., Cabello, M. N., Omacini, M., & Golluscio, R. A. (2013). Glyphosate reduces spore viability and root colonization of arbuscular mycorrhizal fungi. *Applied Soil Ecology*, 64, 99-103. <https://www.sciencedirect.com/science/article/abs/pii/S0929139312002466>
61. Gaupp-Berghausen, M., Hofer, M., Rewald, B., & Zaller, J. G. (2015). Glyphosate-based herbicides reduce the activity and reproduction of earthworms and lead to increased soil nutrient concentrations. *Scientific Reports*, 5(1), 1-9. <https://www.nature.com/articles/srep12886>
62. Wozniacka, Gosia (2019, June 24). Roundup's Other Problem: Glyphosate is sourced from controversial mines. *Civil Eats*. <https://civileats.com/2019/06/24/roundups-other-problem-glyphosate-is-sourced-from-controversial-mines/>
63. Center for Biological Diversity. (2021, April 27). Lawsuit Challenges Trump administration Approval of Southeast Idaho Phosphate Mine. <https://biologicaldiversity.org/w/news/press-releases/lawsuit-challenges-trump-administration-approval-of-southeast-ida-ho-phosphate-mine-2021-04-27/>
64. US EPA. (Online). Monsanto Chemical Co. (Soda Springs Plant). <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=1000213#bkground>
65. Environmental Working Group et al. (2018, Sept 27). Petition to modify the tolerance of glyphosate in oats to 0.1ppm and require glyphosate-containing product labels to explicitly prohibit the use of glyphosate as a pre-harvest desiccant. Submitted to the U.S. Environmental Protection Agency. <https://www.ewg.org/sites/default/files/Glyphosate%20Petition%20Final%20.pdf?ga=2.113994951.1767375155.1591202521-1157746858.1582135909>

66. Mills, P. J., Kania-Korwel, I., Fagan, J., McEvoy, L. K., Laughlin, G. A., & Barrett-Connor, E. (2017). Excretion of the herbicide glyphosate in older adults between 1993 and 2016. *JAMA*, *318*(16), 1610-1611. <https://jamanetwork.com/journals/jama/fullarticle/2658306>
67. Fagan, J., Bohlen, L., Patton, S., & Klein, K. (2020). Organic diet intervention significantly reduces urinary glyphosate levels in US children and adults. *Environmental research*, *189*, 109898. <https://pubmed.ncbi.nlm.nih.gov/32797996/>
68. Mortensen, D. A., Egan, J. F., Maxwell, B. D., Ryan, M. R., & Smith, R. G. (2012). Navigating a critical juncture for sustainable weed management. *BioScience*, *62*(1), 75-84. <https://academic.oup.com/bioscience/article/62/1/75/295845>
69. USDA National Agriculture Statistics Service. (Online). QuickStats. <https://quickstats.nass.usda.gov/>
70. Malkan, Stacy. (2021, October 20). 2,4-D: Concerns about Cancer and Other Serious Illnesses, U.S. *Right to Know*. <https://usrtk.org/pesticides/2-4-d-health-concerns/>; Gillam, Carey. (2020, June 12). Dicamba: Concerns about Health Risks and Crop Damage, U.S. *Right to Know*. <https://usrtk.org/pesticides/dicamba/>
71. Held, Lisa. (2020, July 1). Bayer forges ahead with new crops resistant to five herbicides. *Civil Eats*. <https://civileats.com/2020/07/01/bayer-forges-ahead-with-new-crops-resistant-to-5-herbicides-glyphosate-dicamba-2-4-d-glufosinate-quizalofop/>
72. WHO International Agency for Research on Cancer. (2015). IARC Monograph on Glyphosate. <https://www.iarc.who.int/featured-news/media-centre-iarc-news-glyphosate/>
73. Smoking and Health Proposal. (1969). Brown & Williamson Records. Minnesota Documents; Tobacco Industry Influence in Public Policy; Master Settlement Agreement. <https://www.industrydocuments.ucsf.edu/docs/psdw0147>
74. Tobacco Industry Research Committee. (2020, February 7). TobaccoTactics. <https://tobaccotactics.org/wiki/tobacco-industry-research-committee/>
75. Brandt A. M. (2012). Inventing conflicts of interest: a history of tobacco industry tactics. *American journal of public health*, *102*(1), 63-71. <https://doi.org/10.2105/AJPH.2011.300292>
76. Rojas, Diego. (2022, April 7). The Climate Denial Machine: How the Fossil Fuel Industry Blocks Climate Action. *The Climate Reality Project*. <https://www.climateRealityProject.org/blog/climate-denial-machine-how-fossil-fuel-industry-blocks-climate-action>
77. Banerjee, Neela, C.-A. (2020, December 7). How Big Oil Lost Control of Its Climate Misinformation Machine. *Inside Climate News*. <https://insideclimatenews.org/news/22122017/big-oil-heartland-climate-science-misinformation-campaign-koch-api-trump-info-graphic/>
78. See for example: Lerner S., (2015, August 11). The Teflon Toxin: DuPont and the Chemistry of Deception. *The Intercept*. <https://theintercept.com/2015/08/11/dupont-chemistry-deception/>; Nelson, A., (2017, August 10) Monsanto sold banned chemicals for years despite known health risk, archives reveal. *The Guardian*. <https://www.theguardian.com/environment/2017/aug/09/monsanto-continued-selling-pcbs-for-years-despite-knowing-health-risks-archives-reveal>; Dowler, C. The Paraquat papers: How Syngenta's bad science helped keep the world's deadliest weedkiller on the market. *Unearthed*. <https://unearthed.greenpeace.org/2021/03/24/paraquat-papers-syngenta-toxic-pesticide-gramoxone/>; Hettinger, J. (2020, December 4) 'Buy it or else': Inside Monsanto and BASF's moves to force dicamba on farmers. *Midwest Center for Investigative Reporting* <https://investigatamidwest.org/2020/12/04/buy-it-or-else-inside-monsanto-and-basfs-moves-to-force-dicamba-on-farmers/>;
79. Michaels, David. (2020, January 28). Science for Sale. *Boston Review*. <https://bostonreview.net/articles/david-michaels-science-sale/>
80. Michaels, David. (2020). *The Triumph of Doubt: Dark Money and the Science of Deception* (1st ed.). Oxford University Press.
81. Samet, Jonathan. (2019). Expert Review Under Attack: Glyphosate, Talc, and Cancer *American Journal of Public Health* *109*, 976-978, <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2019.305131>
82. Foucart, S. & Horel, S. (2019, April 7). *Monsanto Papers*. European Press Prize. <https://www.europeanpressprize.com/article/monsanto-papers/>
83. Condon, Liam. (Online). Commonly asked questions about glyphosate. <https://www.bayer.com/en/glyphosate/is-glyphosate-safe>
84. Atkins, Dorothy. (2019, March 25). Ex-Monsanto CEO Defends Roundup, Concedes Study Limits. *Law 360*. <https://www.law360.com/articles/1142398/ex-monsanto-ceo-defends-roundup-concedes-study-limits>
85. Adams, Stephen. (2010, December 14). Re: Response Need - Re: Glyphosate Questions (Argentina); FW: publicaciones CASAFE en la pagina. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/28-internal-email-monsanto-employee-admits-company-has-not-tested-carcinogenicity-of-roundup-formulation.pdf>
86. United States Environmental Protection Agency. (1984, February 10). Glyphosate; oncogenicity study in the mouse (Caswell # 661A). *Office of Pesticides and Toxic Substances* <https://usrtk.org/wp-content/uploads/2017/06/1984-mouse-is-oncogenic.pdf>
87. United States Environmental Protection Agency. (1985, February 26). Use of historical data in determining kidney tumor incidence in glyphosate. *Office of Pesticides and Toxic Substances*. <https://archive.epa.gov/pesticides/chemicalsearch/chemical/foia/web/pdf/103601/103601-170.pdf>
88. United States Environmental Protection Agency. (1985, March 4). Consensus Review of Glyphosate. (Caswell #661A). *Office of Pesticides and Toxic Substances*. <https://archive.epa.gov/pesticides/chemicalsearch/chemical/foia/web/pdf/103601/103601-171.pdf>
89. Gillam, Carey. (2017, June 08). Of mice, Monsanto and a mysterious tumor. *Huffpost*. https://www.huffpost.com/entry/of-mice-monsanto-and-a-mysterious-tumor_b_5939717fe4b014ae8c69de40
90. United States Environmental Protection Agency. (2022, April 30). EPA Takes Next Step in Review Process for Herbicide Glyphosate, Reaffirms No Risk to Public Health. <https://www.epa.gov/pesticides/epa-takes-next-step-review-process-herbicide-glyphosate-reaffirms-no-risk-public-health>
91. Farmar, Donna. (2003, December 24). RE: Agitation Against Roundup. [Email]. *Corporate Europe Observatory* <https://corporateeurope.org/sites/default/files/attachments/27-internal-monsanto-email-you-cannot-say-that-roundup-is-not-a-carcinogen.pdf>
92. Dirks, Richard (2002, April 4). RE: European Commission Endocrine Disruptors developments. [Email]. *Baum Hedlund Law* <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/37-monsanto-executive-admits-studies-demonstrate-formulated-roundup-does-the-damage.pdf>
93. Baum Hedlund Law (Online). Email from William Heydens Monsanto vulnerable on gene tox after Parry <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/email-from-william-heydens-monsanto-vulnerable-on-gene-tox-after-parry.pdf>
94. Baum Hedlund Law. (2019, March 7). Monsanto Motion Denied for Summary Judgment in Roundup Cancer Cases. <https://www.baumhedlundlaw.com/blog/2019/march/monsanto-motion-denied-for-summary-judgment-in-r/>
95. Wilson, Alan. (1999, September 2). RE: Comments on Parry Write-up. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/monsanto-toxicologist-donna-farmer-dr-parry-left-monsanto-in-a-genotox-hole.pdf>
96. Heydens, William. (1999, September 16). RE: Parry Report. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/email-from-william-heydens-monsanto-vulnerable-on-gene-tox-after-parry.pdf>
97. Wilson, A. (1999, September 2). RE: Comments on Parry write-up. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/monsanto-toxicologist-donna-farmer-dr-parry-left-monsanto-in-a-genotox-hole.pdf>

98. Kier, L. D., & Kirkland, D. J. (2013). Review of genotoxicity studies of glyphosate and glyphosate-based formulations. *Critical Reviews in Toxicology*, 43(4). <https://doi.org/10.3109/10408444.2013.770820>
99. Buelig, M. (2012, July 19). AW: Genotox Review: your approval requested! [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/emails-between-william-heydens-david-saltmiras-and-others-discussing-kier-kirkland-study.pdf>
100. Ibid.
101. Krinsky, S. & Gillam, C. (2018). Roundup litigation discovery documents: implications for public health and journal ethics. *J Public Health Pol* 39, 318-326 <https://doi.org/10.1057/s41271-018-0134-z>
102. Williams, G., Kroes, R., Munro, I.C. (2000). Safety Evaluation and Risk Assessment of the Herbicide Roundup and Its Active Ingredient, Glyphosate, for Humans, *Regulatory Toxicology and Pharmacology*. *Science Direct*, 31, 2. <https://doi.org/10.1006/rtp.1999.1371>.
103. Heydens, W. (1999, July 30.) Glyphosate Mammalian Manuscript. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents-2/final-draft-of-williams-et-al-2000-article-heydens-admits-to-having-sprouted-gray-hairs-during-the-writing-of-article.pdf>
104. Carr, Katherine. (2000, May 30). RE: Kudos on Publication of Roundup Tox Paper - now posted on the Internet. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/bsk-pdf-manager/2019/04/Ghostwriting-Monsanto-Email-Congratulating-scientists-for-their-work-on-independent-Williams-Kroes-Munro-article.pdf>
105. Ibid.
106. Heydens, William. (2015, February 19.) RE: IARC Planning. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/03/Heydens.png>
107. Bayer Global. (2017, March 14). Monsanto did not ghostwrite the Williams et al (2000) glyphosate paper. *Wayback Machine*. <https://web.archive.org/web/20200329053442/https://monsanto.com/products/product-stewardship/articles/monsanto-not-ghostwrite-williams-et-al-2000-glyphosate-paper/>
108. Conrwall, Warren. (2017, March 23). Update: After Quick Review, medical school says no evidence Monsanto Ghostwrote Professor's paper. *Science*. <https://www.science.org/content/article/update-after-quick-review-medical-school-says-no-evidence-monsanto-ghostwrote>
109. Koch, Michael. (2015, May 11). RE: Post-IARC Activities to Support Glyphosate. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/5-monsanto-involvement-with-scientific-studies-without-disclosing-conflicts-of-interest.pdf>
110. Williams, G. M. et al. (2016). A review of the carcinogenic potential of glyphosate by four independent expert panels and comparison to the IARC assessment. *Critical Reviews in Toxicology*, 46(sup1), 3-20. <https://doi.org/10.1080/10408444.2016.1214677>
111. Waldman, P., Stecker, T., & Rosenblatt, J. (2017, August 09). Monsanto was its own ghostwriter for some safety reviews. *Bloomberg*. <https://www.bloomberg.com/news/articles/2017-08-09/monsanto-was-its-own-ghostwriter-for-some-safety-reviews>
112. Kier, L. and Monsanto. (2015, August 17). Project Ammendment Letter. [Consulting Agreement]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents/23-email-showing-monsanto-paid-a-consultant-on-expert-panel-believed-to-be-composed-of-independent-scientists.pdf>
113. Whalley, C., Khan, D., McClellan, R. (2017). All communications with Taylor & Francis Regarding the 2017 Ethical Investigation into the Publication of the five manuscripts by the Intertek Expert Panel. [Emails.] *U.S. Right to Know*. https://usrtk.org/wp-content/uploads/2019/08/McClellan-Roger-Exhibit-05_Redacted-final.pdf
114. Gillam, C. (2019, August 23). Emails reveal science publisher found papers on herbicide safety should be retracted due to Monsanto meddling. *U.S. Right to Know*. <https://usrtk.org/monsanto-roundup-trial-tracker/emails-reveal-science-publisher-found-papers-on-herbicide-safety-should-be-retracted-due-to-monsanto-meddling/>
115. Gillam, C., & Donley, N. (2018, August 27). A Story Behind the Monsanto Cancer Trial - Journal sits on Retraction. <https://careygillam.com/articles/article/a-story-behind-the-monsanto-cancer-trial-journal-sits-on-retraction>
116. *Critical Reviews in Toxicology*. (2018). Expression of Concern - 26 September 2018, 48:10, 891-891, DOI: 10.1080/10408444.2018.1522786. <https://www.tandfonline.com/doi/abs/10.1080/10408444.2018.1522786>
117. Grossman, E., & Brown, V. (2017, November 1). How Monsanto captured the EPA-and twisted science-to keep glyphosate on the market. *In These Times*. https://inthesetimes.com/features/monsanto_epa_glyphosate_roundup_investigation.html
118. Ibid.
119. Malkan, S. (2021, March 08). Read the emails and texts that show EPA efforts to stop ATSDR glyphosate review. *U.S. Right to Know*. <https://usrtk.org/pesticides/read-the-emails-texts-that-show-epa-efforts-to-slow-atsdr-glyphosate-review/>
120. Text Messages between Monsanto and the EPA. (2013, November 2). *UCSF Industry Documents Library*. <https://www.industrydocuments.ucsf.edu/docs/hjvm0226>
121. Ibid.
122. Case, David. (2012, July 30). Manufacturing doubt in product defense. *Fast Company*. <https://www.fastcompany.com/1139299/manufacturing-doubt-product-defense>
123. Sass, Jennifer. (2019, April 11). ATSDR Report Confirms Glyphosate Cancer Risks, NRDC. <https://www.nrdc.org/experts/jennifer-sass/atsdr-report-confirms-glyphosate-cancer-risks>
124. Heydens, William. (2015, April 28). RE: Glyphosate IARC Question. Roundup Litigation Documents. [Email]. *UCSF Industry Documents Library*. <https://www.industrydocuments.ucsf.edu/docs/#id=rjvm0226>
125. Gillam, Carey. (2018, February 14). Questions about EPA-monsanto collusion raised in cancer lawsuits. *Huffpost*. <https://www.huffpost.com/entry/questions-about-epa-monsanto-collusion-raised-in-cancer-lawsuits>; Copley, M. Copley correspondence Jess Rowland, [Letter]. <https://usrtk.org/wp-content/uploads/2022/08/Copley-correspondence-Jess-Rowland.png>
126. U.S. Department of Health and Human Services. (2020, August). Toxicological Profile for Glyphosate. <https://www.atsdr.cdc.gov/toxprofiles/tp214.pdf>
127. United States Environmental Protection Agency. (2020, January). Interim Registration Review Decision and Responses to Public Comments for Glyphosate. <https://www.epa.gov/ingredients-used-pesticide-products/interim-registration-review-decision-and-responses-public>
128. Dinzeo, Maria. (2022, June 17). Ninth Circuit orders EPA to reexamine glyphosate's toxicity to humans and the environment. *Courthouse News*. <https://www.courthousenews.com/ninth-circuit-orders-epa-to-reexamine-glyphosates-toxicity-to-humans-and-the-environment/>
129. Burtcher-Schaden, H., et al. (2017). Glyphosate and Cancer, Buying Science: How industry strategized (and regulators colluded) in an attempt to save the world's most widely used herbicide from a ban, Friends of the Earth Austria. http://www.pan-germany.org/download/Glyphosate_buying_science-EN.pdf
130. Nelsen, A. (2019, January 15). EU glyphosate approval was based on plagiarised Monsanto text, report finds. *The Guardian*. <https://www.theguardian.com/environment/2019/jan/15/eu-glyphosate-approval-was-based-on-plagiarised-monsanto-text-report-finds>; Greens/EFA European Parliament (2019, January 15). Glyphosate renewal rife with chemical industry influence, new findings. [Press Release]. <https://www.greens-efa.eu/en/article/press/glyphosate-renewal-rife-with-chemical-industry-influence-new-findings>

131. Nelsen, Arthur. (2016, May 17). UN/who panel in conflict of interest row over glyphosate cancer risk. *The Guardian*. <https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk>
132. Malkan, Stacy. (2022, March 22). ILSI is a food industry lobby group. *U.S. Right to Know*. <https://usrtk.org/our-investigations/ilsi-is-a-food-industry-lobby-group/>
133. ILSI 2012 Donors. Document obtained by *U.S. Right to Know* via FOIA. <https://usrtk.org/wp-content/uploads/2016/05/ILSI2012donors.pdf>
134. Nelsen, Arthur. (2016, May 17). UN/who panel in conflict of interest row over glyphosate cancer risk. *The Guardian*. <https://www.theguardian.com/environment/2016/may/17/unwho-panel-in-conflict-of-interest-row-over-glyphosates-cancer-risk>
135. Ibid.
136. Gillam, Carey. (2020, February 18). Science shouldn't be for sale – we need reform to industry-funded studies to keep people safe. *The Guardian*. <https://www.theguardian.com/commentisfree/2020/feb/18/science-shouldnt-be-for-sale-we-need-reform-industry-funded-studies-monsanto>
137. United States Environmental Protection Agency. (1983). Summary of the IBT Review Program: Office of Pesticides Program. <https://nepis.epa.gov>
138. The New York Times. (1983, October 22). 3-EX officials of major laboratory convicted of falsifying drug tests. <https://www.nytimes.com/1983/10/22/us/3-ex-officials-of-major-laboratory-convicted-of-falsifying-drug-tests.html>
139. Vicini, John L. (2013, September 11). RE: Animal performance trends. [Email]. *Baum Hedlund Law*. <https://www.baumhedlundlaw.com/documents/pdf/monsanto-documents-2/monsanto-scientist-john-vicini-contemplates-submitting-draft-manuscript-as-a-ghostwriter.pdf>
140. Ibid.
141. Van Eenennaam, A. L., & Young, A. E. (2014). Prevalence and impacts of genetically engineered feedstuffs on livestock populations. *Journal of Animal Science*, 92(10). <https://doi.org/10.2527/jas.2014-8124>.
142. Malkan, S. (2022, April 12). Alison Van Eenennaam: Key outside spokesperson and lobbyist for keeping us in the dark about GMO animals. *U.S. Right to Know*. <https://usrtk.org/gmo/alison-van-eenennaam-key-outside-spokesperson-and-lobbyist-for-the-agricultural-and-gmo-industries/>
143. Entine, J. (2014, September 18). The debate about GMO safety is over, thanks to a new trillion-meal study. *Forbes*. Retrieved July 17, 2022. <https://www.forbes.com/sites/jonentine/2014/09/17/the-debate-about-gmo-safety-is-over-thanks-to-a-new-trillion-meal-study/?sh=3ddb55f58a63>
144. See for example: Lynas, Mark. (2016, May 23). GMO Safety Debate is Over. Cornell Alliance for Science. <https://allianceforscience.cornell.edu/blog/2016/05/gmo-safety-debate-is-over/>; and, The Scientific Consensus on GMOs (Online). *GMO Answers*. <https://gmoanswers.com/scientific-consensus-and-gmos>.
145. Hilbeck, A., Binimelis, R., Defarge, N. *et al.* (2015), No scientific consensus on GMO safety. *Environ Sci Eur* 27, 4. <https://doi.org/10.1186/s12302-014-0034-1>
146. Ibid.
147. Martinau, B. (2015, October 30). When food is genetically modified. *The New York Times*. <https://www.nytimes.com/2015/10/31/opinion/when-food-is-genetically-modified.html>
148. World Health Organization. (2014, May 1). Food, genetically modified. <https://www.who.int/news-room/questions-and-answers/item/food-genetically-modified>
149. *Scientific American*. (2009, August 01). Do Seed Companies Control GM crop research? <https://www.scientificamerican.com/article/do-seed-companies-control-gm-crop-research/>
150. ETC Group. (2019, April 06). New report: Putting the cartel before the horse...and farm, seeds, soil, peasants. <https://www.etc-group.org/content/new-report-putting-cartel-horse%E2%80%A6and-farm-seeds-soil-peasants>
151. Ilbeck, A., Binimelis, R., Defarge, N. *et al.* (2015), No scientific consensus on GMO safety. *Environ Sci Eur* 27, 4. <https://doi.org/10.1186/s12302-014-0034-1>
152. Buchanan, M. (2019, June 28). Modern Science Couldn't Hit Roundup Maker Monsanto Where it Hurts. *Bloomberg*. <https://www.bloomberg.com/opinion/articles/2019-06-28/modern-science-could-hit-roundup-maker-monsanto-where-it-hurts>
153. Nersesyan, Armen & Knasmueller, Siegfried. (2021, March 25). Evaluation of the scientific quality of studies concerning genotoxic properties of glyphosate. Institute of Cancer Research, Department of Medicine I, Medical University of Vienna, Vienna. https://usrtk.org/wp-content/uploads/2021/06/Evaluation_25.03.21-with-signatures.pdf
154. Gillam, C. (2021, July 14). New analysis of glyphosate industry studies finds them outdated, flawed. *U.S. Right to Know*. <https://usrtk.org/pesticides/new-analysis-glyphosate-studies/>
155. Giddings, Val. (2014, October 23). RE: Colorado and Oregon Labeling Campaign. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/09/scientists-poll-well-.pdf>
156. Ibid.
157. 21st Annual Edelman Trust Barometer. Online survey in 28 countries. (2021). <https://www.edelman.com/sites/g/files/aatuss191/files/2021-03/2021%20Edelman%20Trust%20Barometer.pdf>
158. Schaffer, H. D., & Ray, D. E. (2018, November 30). Questionable changes in how AG Research in land-grant universities is funded. Agricultural Policy Analysis Center. <http://www.agpolicy.org/weekcol/2018/952.html>
159. University of Minnesota. (Online). Cargill Building - microbial and Plant Genomics. <http://www1.umn.edu/twincities/maps/CargillB/>
160. Food and Water Watch. (2012, March). Public Research, Private Gain: Corporate Influence over University Agricultural Research. <https://foodandwaterwatch.org/wp-content/uploads/2021/03/Public-Research-Private-Gain-Report-April-2012.pdf>. See also: Hettinger, J. (2021, November 15). Corporate money keeps university ag schools 'relevant,' and makes them targets of donor criticism. *Harvest Public Media*. https://www.stltoday.com/news/local/education/corporate-money-keeps-university-ag-schools-relevant-and-makes-them-targets-of-donor-criticism/article_b8afe11a-46e0-567b-97a5-b752c1a1a934.html
161. Ruskin, G. (2021, June 11). UCSF Chemical Industry Documents Library now hosts USRTK Collection. *U.S. Right to Know*. <https://usrtk.org/our-investigations/ucsf-industry-documents-library-to-hold-key-agricultural-industry-papers/>
162. Monsanto Company Confidential Document. (2019, July 25). U.S. Right to Know FOIA Communications Plan. <https://usrtk.org/wp-content/uploads/2019/08/2019-Monsanto-USRTK-FOIA-Communications-Plan.pdf>
163. Ibid.
164. *New York Times*. (2015, September 05). Biotech Industry's Big Gifts to the University of Florida <https://www.documentcloud.org/documents/2303691-kevin-folta-uoffloridadocs.html>
165. Lipton, E. (2015, September 05). Food Industry enlisted academics in G.M.O. lobbying war, emails show. *New York Times*. <https://www.nytimes.com/2015/09/06/us/food-industry-enlisted-academics-in-gmo-lobbying-war-emails-show.html>
166. Ibid.
167. *New York Times*. (2015, September 05). A Florida professor works with the Biotech Industry. [Email]. <https://www.nytimes.com/interactive/2015/09/06/us/document-folta.html>

168. Folta, K. (Online). University of Florida deep Monsanto Ties. [Response to Reddit Thread]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2015/09/No-formal-connection-to-Monsanto.png>
169. Folta, K. (2015, September). Bingo! *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2015/09/Not-my-work.png>
170. Biofortified Board. (2019, January 28). Statement on Kevin Folta and conflicts of interest. *Biofortified*. <https://biofortified.org/2018/08/kevin-folta-coi/>
171. *New York Times*. (2015, September 05). A Florida professor works with the Biotech Industry. [Email]. <https://www.nytimes.com/interactive/2015/09/06/us/document-folta.html>
172. Belluz, J. (2016, April 05). The truth about WebMD, a hypochondriac's nightmare and big pharma's dream. *Vox*. <https://www.vox.com/2016/4/5/11358268/webmd-accuracy-trustworthy>
173. Anderson, Liz; Folta, Kevin; Spurgat, Jennifer; Bayer Crop Science. (2015). [Email]. UCSF Chemical Industry Documents. <https://www.industrydocuments.ucsf.edu/docs/xlbm0226>
174. *New York Times*. (2015, September 05). A Florida professor works with the Biotech Industry. <https://www.nytimes.com/interactive/2015/09/06/us/document-folta.html>
175. Payne, Jack M. (2014, July 21). RE: ASPB Follow-up. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/10/University-of-Florida-stance-on-GMOs.pdf>
176. Florida Trend. (2014, July 17). Jack Payne of UF on GMOs and climate change. <https://www.floridatrend.com/article/17361/jack-payne-of-uf-on-gmos-and-climate-change>
177. Payne, Jack M. (2021, July 21). RE: ASPB Follow-up. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/10/University-of-Florida-stance-on-GMOs.pdf>
178. Malkan, Stacy. (2021, October 26). The misleading and deceitful ways of Dr. Kevin Folta. *U.S. Right to Know*. <https://usrtk.org/our-investigations/kevin-folta/>
179. Monsanto Internal Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Documents-Details-Monsantos-Strategy-Regarding-IARC.pdf>
180. Folta, Kevin M. (2015, February 16). RE: Points Against Labeling. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2018/05/AgBioChatter-Academics-emails.pdf>
181. Maluafili, Alicia. (2013, July 24). Breakfast with Kauai Business Council. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2018/10/Biofortified-boys-messaging.pdf>
182. Ibid.
183. Digital, G. (2018, January 12). Hawaii science 'SWAT team' engages public fears fanned by anti-GMO activists. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2013/07/29/hawaii-science-swat-team-engages-public-fears-fanned-by-anti-gmo-activists/>
184. Kolpack, D. (2016, May 12). Opponents of GMO law find friendly audience in Fargo. *Associated Press*. <https://eu.desmoinesregister.com/story/money/agriculture/2016/05/12/opponents-gmo-law-find-friendly-audience-fargo/84299424/>; Borenstein, S. (2016, May 17) National Academy of Science report says there's no evidence that eating genetically modified food will hurt you or harm the environment. *Associated Press*. <https://www.usnews.com/news/science/articles/2016-05-17/report-genetically-altered-food-safe-but-not-curing-hunger>
185. Eng, M. (2016, April 01). Why didn't an Illinois professor have to disclose GMO funding? *WBEZ Chicago*. <https://www.wbez.org/stories/why-didnt-an-illinois-professor-have-to-disclose-gmo-funding/eb99bdd2-683d-4108-9528-de1375c3e9fb>
186. *New York Times* (2015, September 05). A University of Illinois professor joins the fight. [Emails]. <https://www.nytimes.com/interactive/2015/09/05/us/document-chassy.html?mtrref=www.google.com&qwh=5DC20C892C493561A0497F-4770CE2DDF&gwt=regi&assetType=REGIWALL>
187. Chassy, Bruce. (2011). Re: Need help. [Email]. *UCSF Chemical Industry Documents*. <https://www.industrydocuments.ucsf.edu/chemical/docs/#id=fpvm0226>
188. 188Chassy, Bruce. (2011, September 12). Re: Response to proposed EPA Rule Making -- possible next steps. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/04/Chassy-notes-from-Sept.-2011-lobby-call-.pdf>
189. 189AAAS (2011, March 3). (Online) <https://www.aaas.org/news/aaas-president-nina-v-fedoroff-expanding-sciences-role-across-international-borders>
190. Chassy, Bruce. (2011, July 5). RE: EPA letter. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/02/Federoff-role-in-EPA-reg-opposition-.pdf>
191. Nina Fedoroff et. al. (2011, July 5). Letter to US EPA. *National Academy of Sciences*. <https://drive.google.com/file/d/0B7hhP5Qa-sNtsNzk2YTczODktZmQxMi00ZWELTjIjNWETyTdjZmUzNGMxNGU1/view?resourcekey=0-ZupO8FTOGJReuMpzuVwhA>
192. Chassy, Bruce. (2011, October 17). RE: Question. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/02/meeting-with-EPA-Federoff-Chassy.pdf>
193. Chassy, Bruce. (2011, July 5). RE: EPA letter. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/02/Federoff-role-in-EPA-reg-opposition-.pdf>
194. BLP 2014 Schedule. (2014). University of Florida, Gainesville. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2015/09/TamarHaspell.pdf>
195. BLP11: 2nd Annual Biotechnology Literacy Project Bootcamp Flyer. (2015). University of California, Davis. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2016/09/BLP-Davis-Flyer-2015.pdf>
196. Malkan, S. (2018, May 31). Academics Review: The making of a Monsanto front group (see Academics Review tax records). *U.S. Right to Know* <https://usrtk.org/gmo/academics-review-the-making-of-a-monsanto-front-group/>
197. Malkan, S. (2017, December 07). Monsanto fingerprints found all over attack on organic food. *Huffpost*. https://www.huffpost.com/entry/monsanto-fingerprints-fou_b_10757524
198. BLP11: 2nd Annual Biotechnology Literacy Project Bootcamp Flyer. (2015). University of California, Davis. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2016/09/BLP-Davis-Flyer-2015.pdf>
199. Academics Review (2014, April 7). Why consumers pay more for organic foods: Fear sells and marketers know it. <https://web.archive.org/web/20140410181250/http://academicsreview.org/2014/04/why-consumers-pay-more-for-organic-foods-fear-sells-and-marketers-know-it/>
200. Kroll, A., & Schulman, J. (2013, October 28). Leaked documents reveal the secret finances of a pro-industry science group. *Mother Jones*. <https://www.motherjones.com/politics/2013/10/american-council-science-health-leaked-documents-fundraising/>
201. Malkan, S. (2020, April 29). Scibabe says eat your pesticides. But who is paying her? *U.S. Right to Know*. <https://usrtk.org/gmo/sci-babe-yvette-dentremont/>
202. Talking Biotech podcast (2015, Oct. 3). 019 The SciBabe Talks Toxins; Your Questions Answered, <https://web.archive.org/web/20201119022952/https://www.talkingbiotechpodcast.com/tag/scibabe/>
203. About SciBabe. (2021, March 16). <https://scibabe.com/about-scibabe/>
204. Yvette d'Entremont - Researchgate. (Online). <https://www.researchgate.net/profile/Yvette-Dentremont-2>

205. Miller, T. C. (2007, April 08). Pesticide maker sees profit when others see risk. *Los Angeles Times*. <https://www.latimes.com/archives/la-xpm-2007-apr-08-me-amvac8-story.html>
206. Brooke Borel (2015, June 26). Q&A with SciBabe on GMOs, swearing, and more. *Popular Science*. <https://www.popsci.com/ga-sci-babe/>
207. Gunther, M. (2014, July 16). Why NGOs can't be trusted on GMOs. *The Guardian*. <https://www.theguardian.com/sustainable-business/2014/jul/16/ngos-nonprofits-gmos-genetically-modified-foods-biotech>
208. Gunther, M. (2014, July 16). A deeper dive into NGO's claims on biotech foods. *The Guardian*. <https://www.theguardian.com/sustainable-business/2014/jul/16/ngo-claims-biotech-foods-gmos-emails>
209. Folta, Kevin. (2014, May 27). RE: Your presentation at BLP 2014 - GMO Labelling - What Works? [Email]. *U.S. Right to Know*. https://usrtk.org/wp-content/uploads/2020/04/Marc-Gunther_Biotech-Literacy-Project.pdf
210. Ibid.
211. Hansen, M. (2014, May 29). CU response to Cornell Study on cost of GE labeling. *Consumer Reports*. <https://advocacy.consumerreports.org/research/cu-response-to-cornell-study-on-cost-of-ge-labeling/>
212. Haspel, T. (2015, Oct. 4). It's the chemical Monsanto depends on. How dangerous is it? *Washington Post* https://www.washingtonpost.com/lifestyle/food/its-the-chemical-monsanto-depends-on-how-dangerous-is-it/2015/10/04/2b8f58ee-67a0-11e5-9ef3-fde-182507eac_story.html. See also Ropeik & Associates. (Online). Clients. <https://www.dropeik.com/dropeik/clients.html>
213. Shackford, S. (2014, August 21). New Cornell Alliance for Science gets \$5.6 million grant. *Cornell Chronicle*. <https://news.cornell.edu/stories/2014/08/new-cornell-alliance-science-gets-56-million-grant>
214. Alliance for Food Sovereignty in Africa. (2020, January 25). Seeds of Neo-Colonialism – Why the GMO Promoters Get It So Wrong About Africa. <https://afsafrica.org/seeds-of-neo-colonialism-why-the-gmo-promoters-get-it-so-wrong-about-africa/>
215. Cornell Alliance for Science. Our 2018 Global Fellows (online). <https://allianceforscience.cornell.edu/fellows/2018>
216. *Focus Countries*. AGRA. (Online). <https://agra.org/focus-countries/>
217. Bill & Melinda Gates Foundation. (2012). Helping poor farmers, changes needed to feed 1 billion hungry. <https://www.gatesfoundation.org/ideas/media-center/press-releases/2012/02/helping-poor-farmers-changes-needed-to-feed-1-billion-hungry>
218. Malkan, S. (2022, March 17). Gates Foundation agriculture project in Africa flunks review. *U.S. Right to Know*. <https://usrtk.org/bill-gates-food-tracker/gates-foundation-agriculture-project-in-africa-flunks-review/>
219. Secretariat. (2021, September 22). Press release: 200 organizations urge donors to scrap Agra. Alliance for Food Sovereignty in Africa. <https://afsafrica.org/press-release-200-organisations-urge-donors-to-scrap-agra/>
220. Southern African Faith Communities and Environment Institute (SAFCEI). (2018). Press release: African faith communities tell Gates Foundation, "big farming is no solution for Africa". <https://safcei.org/press-release-african-faith-communities-tell-gates-foundation-big-farming-is-no-solution-for-africa/>
221. Wise, Timothy. (2020) Failing Africa's Farmers: An Impact Assessment of the Alliance for a Green Revolution in Africa, Tufts University Global Development and Environment Institute. https://sites.tufts.edu/gdae/files/2020/07/20-01_Wise_FailureToYield.pdf; and Mkindi, Abdallah et al. (2020). False Promises: The Alliance for a Green Revolution in Africa (AGRA). https://www.rosalux.de/fileadmin/rls_uploads/pdfs/Studien/False_Promises_AGRA_en.pdf
222. Malkan, S. (2021, October 15). Critiques of Gates Foundation Agricultural Interventions in Africa. *U.S. Right to Know*. <https://usrtk.org/our-investigations/critiques-of-gates-foundation/>
223. Monsanto Internal Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Documents-Details-Monsantos-Strategy-Regarding-IARC.pdf>
224. Lynas, M. (2020, September 15). Europe still burns witches - if they're named Monsanto. *Alliance for Science*. <https://allianceforscience.cornell.edu/blog/2017/11/europe-still-burns-witches-if-theyre-named-monsanto/>
225. Alliance for Science. (2015, March 5). Stop the next Climategate: Stand with public sector scientists and show them your support against agenda-driven bullying. <https://web.archive.org/web/20150305065123/http://cas.nonprofitsoapbox.com/science14>
226. Monsanto Internal Document. (2019, July 25). U.S. Right to Know FOIA Communications Plan. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/08/2019-Monsanto-USRTK-FOIA-Communications-Plan.pdf>
227. Vidal, J. (2010, September 29). Why is the Gates Foundation investing in GM giant Monsanto? *The Guardian*. <https://www.theguardian.com/global-development/poverty-matters/2010/sep/29/gates-foundation-gm-monsanto>
228. Brennan, V. (2018, May 21). Buffett's Berkshire increases Monsanto stake as Bayer acquisition nears completion. *St. Louis Business Journal*. <https://www.bizjournals.com/stlouis/news/2018/05/21/buffetts-berkshire-increases-monsanto-stake-as.html>
229. Purdy, C. (2017, February 15). One of the food world's most controversial mergers just got a hell of a cheerleader: Warren Buffett. *Quartz*. <https://qz.com/911501/warren-buffett-buys-shares-in-monsanto-mon-lending-his-backing-to-the-controversial-merger-with-bayer-bayn/>
230. Bayer AG. (Online). Bayer in Hawaii. <https://www.bayer.com/en/us/bayer-in-hawaii>
231. Pala, C. (2015, August 23). Pesticides in Paradise: Hawaii's spike in birth defects puts focus on GM crops. *The Guardian*. <https://www.theguardian.com/us-news/2015/aug/23/hawaii-birth-defects-pesticides-gmo>
232. Holland, F. A. (2019, November 21). Guest room: Students should continue to question the ethics of the Cornell Alliance for Science. *The Cornell Daily Sun*. <https://cornellsun.com/2019/11/19/guest-room-students-should-continue-to-question-the-ethics-of-the-cornell-alliance-for-science/>
233. Conrow, J. (2020, September 15). Hawaii joins Alliance for Science Global Network. *Alliance for Science*. <https://allianceforscience.cornell.edu/blog/2016/12/hawaii-joins-alliance-for-science-global-network/>
234. Alliance for Science. (2021, October 11). Joan Conrow. <https://allianceforscience.cornell.edu/team/joan-conrow/>
235. Conrow, J. (2015, November 5). Undue outside influence. *Journalist Joan Conrow Original Reportage Prose*. <https://web.archive.org/web/20160826125226/http://www.journalistjoanconrow.com/undue-outside-influence/>
236. Conrow, J. (1970, January 1). Musings: Cowed by anti-science bullies. *Kauai Eclectic*. <http://kauaielectic.blogspot.com/2017/04/musings-cowed-by-anti-science-bullies.html>
237. Conrow, J. (1970, January 1). Musings: Christopher Pala's hit piece. *Kauai Eclectic*. <http://kauaielectic.blogspot.com/2015/08/musings-christopher-palas-hit-piece.html>
238. Holland, F. A. (2019, November 21). Guest room: Students should continue to question the ethics of the Cornell Alliance for Science. *The Cornell Daily Sun*. <https://cornellsun.com/2019/11/19/guest-room-students-should-continue-to-question-the-ethics-of-the-cornell-alliance-for-science/>
239. Malkan, S. (2021, October 28). Cornell Alliance for Science is a PR campaign for the agrichemical industry. *U.S. Right to Know*. <https://usrtk.org/our-investigations/cornell-alliance-for-science-is-campaign-for-agrchemical-industry/>
240. Malkan, S. (2021, June 11). Mark Lynas promotes the chemical industry's commercial agenda. *U.S. Right to Know*. <https://usrtk.org/our-investigations/mark-lynas/>

241. Malkan, S. (2021, March 26). Gates Foundation doubles down on misinformation campaign at Cornell as African leaders call for Agroecology. *U.S. Right to Know*. <https://usrtk.org/our-investigations/gates-foundation-cornell-misinformation-campaign-african-leaders-call-for-agroecology/>
242. Monsanto Internal Document. (2016, December). FH Glyphosate Campaign Weekly Intelligence Report. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2021/03/FreedomtoFarmMonsantoPR.pdf>
243. Boren, Z., & Neslen, A. (2018, October 31). How lobbyists for Monsanto led a 'grassroots farmers' movement against an EU glyphosate ban. *Unearthed*. <https://unearthed.greenpeace.org/2018/10/17/monsanto-red-flag-glyphosate-roundup-eu/>
244. TobaccoTactics. (2020, March 2). Red Flag Consulting. *University of Bath*. <https://tobaccotactics.org/wiki/red-flag-consulting/>
245. POLITICO. (2016, January 4). New CFPB attack, with Koch fingerprints? <https://www.politico.com/tipsheets/politico-influence/2016/01/new-koch-linked-group-attacks-cfpb-211982>
246. POLITICO. (2016, May 19). Pi exclusive: Uncovering the 'Astroturf' firm behind the CFPB attack ads. <https://www.politico.com/tipsheets/politico-influence/2016/05/pi-exclusive-unmasking-the-astroturf-firm-behind-the-cfpb-attack-ads-214391>. See also U.S. House Committee on Financial Services (2016, April 7). House Democrats Call for Investigation into anti-CFPB group. <https://financialservices.house.gov/news/documentsingle.aspx?DocumentID=399743>
247. Saul, S. (2012, October 4). G.O.P. operative long trailed by allegations of voter fraud. *The New York Times*. https://www.nytimes.com/2012/10/05/us/politics/nathan-sproul-a-republican-operative-long-trailed-by-voter-fraud-claims.html?_r=0
248. Hansen, R. J. and Sanchez, Y. W.. (2020, July 25). Report: Arizona Political Operative tied to ohio bribery case. *The Arizona Republic*. <https://eu.azcentral.com/story/news/politics/arizona/2020/07/24/meghan-cox-co-founder-lincoln-strategy-group-tied-ohio-bribery-case/5508266002/>
249. Dahm, J. (2022, May 11). EU agencies push back glyphosate assessment to mid-2023. *Euractiv*. <https://www.euractiv.com/section/agriculture-food/news/eu-agencies-push-back-glyphosate-assessment-to-mid-2023/>
250. Boren, Z., & Neslen, A. (2018, October 31). How lobbyists for Monsanto led a 'grassroots farmers' movement against an EU glyphosate ban. *Unearthed*. <https://unearthed.greenpeace.org/2018/10/17/monsanto-red-flag-glyphosate-roundup-eu/>
251. Ibid.
252. Brandt A. M. (2012). Inventing conflicts of interest: a history of tobacco industry tactics. *American journal of public health*, 102(1), 63-71. <https://doi.org/10.2105/AJPH.2011.300292>
253. Tobacco Tactics (2021, June 14). Background: What is the third party technique? *University of Bath*. <https://tobaccotactics.org/wiki/third-party-techniques/>
254. Sudhaman, A. (2013, July 24). Monsanto selects Fleishmanhillard to reshape reputation. *PRovoke Media*. <https://www.provokemedia.com/latest/article/monsanto-selects-fleishmanhillard-to-reshape-reputation>
255. Dickson, V. (2015, February 24). Bayer brings on Fleishman for Global Issues Account. *PR Week Global*. <https://www.prweek.com/article/1275012/bayer-brings-fleishman-global-issues-account>
256. Mintz, M. (1996, March 24). SECOND-HAND MONEY. *Washington Post*. <https://www.washingtonpost.com/archive/lifestyle/magazine/1996/03/24/second-hand-money/be084c1c-d396-4207-b1ad-8467f6eb9fb6/>
257. Ruth E. Malone. (2002). Tobacco Industry Surveillance of Public Health Groups: The Case of STAT and INFACT. *American Journal of Public Health*. 92, 955_960. <https://doi.org/10.2105/AJPH.92.6.955>
258. Ruskin, G. (2015, January). Seedy Business: What Big Food is hiding with its slick PR campaign on GMOs. *U.S. Right to Know*. <https://usrtk.org/seedybusiness.pdf>
259. Ridgeway, J. (2008, April 11). Black Ops, Green Groups. *Mother Jones*. <https://www.motherjones.com/environment/2008/04/exclusive-cops-and-former-secret-service-agents-ran-black-ops-green-groups/>
260. Beckett Brown International, Inc. (1999, August 25). Intelligence Analysis for Dow Global Trends Tracking TeamL Activists, Issues and Trends. *Mother Jones*. <https://www.motherjones.com/wp-content/uploads/legacy/news/feature/2008/04/Dow-Global-Trends-Tracking-Team.pdf>
261. Tabuchi, H. (2020, November 11). How One firm drove influence campaigns nationwide for Big Oil. *The New York Times*. <https://www.nytimes.com/2020/11/11/climate/fti-consulting.html>
262. Monsanto Internal Document. (2017, September 11). Project Spruce: Carey Gillam Book. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/08/Monsanto-Project-Spruce-Carey-Gillam-1.pdf>
263. France 24. (2019, May 18). Consultant poses as journalist in Monsanto trial. <https://www.france24.com/en/20190518-consultant-poses-journalist-monsanto-trial>
264. DeSmog Guest. (2021, August 3). Understanding Overlapping Corporate Disinformation Campaigns is Critical to Telling the Full Story About Science Denial. <https://www.desmog.com/2021/08/03/monsanto-fti-consulting-overlapping-corporate-disinformation-campaigns-science-denial/>
265. Thacker, P. D. (2019, October 29). Monsanto's Spies. *HuffPost*. https://www.huffpost.com/entry/monsantos-spies_n_5d-7ba20de4b03b5fc88233c4
266. Savage, K. (2019, January 21). Exxon reps pose as reporters to query opposing lawyer in climate lawsuit. *The Climate Docket*. <https://www.climatedocket.com/2019/01/21/exxon-reps-climate-lawsuit-colorado-earthrights/>
267. Tobacco Tactics. (2021, July 21). FTI Consulting. *University of Bath*. <https://tobaccotactics.org/wiki/fti-consulting/>
268. We based our third-party analysis on four primary sources:
- 1) Monsanto Internal Document. (2017, September 11). Project Spruce: Carey Gillam Book. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/08/Monsanto-Project-Spruce-Carey-Gillam-1.pdf>
 - 2) Monsanto Internal Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Document-Details-Monsantos-Strategy-Regarding-IARC.pdf>
 - 3) Ross, G. (2015, March 16). Re: Request for Monsanto Report for ACSH, 2015, with "impacts". [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2018/08/ACSH-email.pdf>
 - 4) Goldstein, D. (2015, February 2). ACSH [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2018/08/ACSH-email.pdf>
269. International Agency for Research on Cancer. (2015, March 20). IARC Monographs Volume 112: evaluation of five organophosphate insecticides and herbicides. *World Health Organization*. <https://www.iarc.who.int/wp-content/uploads/2018/07/MonographVolume112-1.pdf>
270. Monsanto Internal Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Document-Details-Monsantos-Strategy-Regarding-IARC.pdf>
271. Chassy, B. (2014, April 8). Academics Review Report: Why consumers pay more for organic foods? Fear sells and marketers know it. *PRWeb*. <https://www.prweb.com/releases/2014/04/prweb11743859.htm>
272. About. Academics Review RSS. (Online). <https://web.archive.org/web/20141212200429/http://academicsreview.org/about-academic-review/>

273. Chassy, B. (2014, April 8). Academics Review Report: Why consumers pay more for organic foods? Fear sells and marketers know it. *PRWeb*. <https://www.prweb.com/releases/2014/04/prweb11743859.htm>
274. IRS 990, Council for Biotechnology Information, 2014 & 2015. *U.S. Right to Know*. https://usrtk.org/wp-content/uploads/2018/05/CBI_2014-990.pdf https://usrtk.org/wp-content/uploads/2018/05/CBI_2015-990.pdf
275. IRS 990, Academics Review Org Co Bruce Chassy, 2013-2016. *U.S. Right to Know*. https://usrtk.org/wp-content/uploads/2018/05/Academics-Review_2013-990.pdf https://usrtk.org/wp-content/uploads/2018/05/Academics-Review_2014-990.pdf https://usrtk.org/wp-content/uploads/2018/05/Academics-Review_2015-990.pdf https://usrtk.org/wp-content/uploads/2018/05/Academics-Review_2016-990.pdf
276. Chassy, B. (2011, March 10). Re: domain available. [Email]. *U.S. Right to Know*. <http://usrtk.org/wp-content/uploads/2016/01/uploadBruceChassy3.pdf>
277. Graves, L. (2014, December 31). *Rick Berman Caught on Tape: Hear His 10 Tactics to Aid Dirty Energy Corps*. HuffPost. https://www.huffpost.com/entry/rick-berman-caught-on-tap_b_6082602?utm_hp_ref=tw
278. Chassy, B. (2011, March 10). Re: domain available. [Email]. *U.S. Right to Know*. <http://usrtk.org/wp-content/uploads/2016/01/uploadBruceChassy3.pdf>
279. Chassy, B. (2010, November 30). Re: Questions. [Email]. *U.S. Right to Know*. <http://usrtk.org/wp-content/uploads/2016/01/Sachs-AR.pdf>
280. Ibid.
281. Academics Review. (2015, March 23). IARC glyphosate cancer review fails on multiple fronts. <https://web.archive.org/web/20150803041530/http://academicsreview.org/2015/03/iarc-glyphosate-cancer-review-fails-on-multiple-fronts/>
282. Lipton, E. (2015, September 5). Food Industry enlisted academics in G.M.O. lobbying war, emails show. *The New York Times*. <https://www.nytimes.com/2015/09/06/us/food-industry-enlisted-academics-in-gmo-lobbying-war-emails-show.html>
283. *About*. Academics Review. (Online). (The original Academics Review URL is no longer operational and the archived website has moved to the BonusEventus.org domain owned by Jay Byrne.) <https://academics-review.bonuseventus.org/about-academic-review/>
284. Ruskin, G. (2021, March 25). The American Council on Science and Health is a Corporate Front Group. *U.S. Right to Know*. <https://usrtk.org/our-investigations/american-council-on-science-and-health/>
285. Wilce, R. (2019, Jan. 24). Corporate Front Group, American Council on Science and Health, Smears List of Its Enemies as “Deniers for Hire”. *Exposed by CMD*. <https://www.exposedbycmd.org/2019/01/24/corporate-front-group-american-council-on-science-and-health-smears-list-of-its-enemies-as-deniers-for-hire/>
286. ACSH. (2013). FY 2013 Financial Update. *U.S. Right Now*. <https://usrtk.org/wp-content/uploads/2017/06/acsh-financial-summary.pdf>
287. 287 Kroll, A., & Schulman, J. (2013, October 28). Leaked documents reveal the secret finances of a pro-industry science group. *Mother Jones*. <https://www.motherjones.com/politics/2013/10/american-council-science-health-leaked-documents-fundraising/>
288. 288 Goldstein, D. A. (2015, February 26). RE: ASCH. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2018/08/ACSH-email.pdf>
289. Ibid.
290. Ross, G. (2015, March 16). Re: Request for Monsanto Support ACSH, 2015, with “impacts”. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/bsk-pdf-manager/2019/04/Monsanto-money-for-ACSH-and-discussion-of-what-ACSH-does-for-Monsanto-and-glyphosate.pdf>
291. Ibid.
292. Berezow, A. (2017, Oct. 24). Glyphosate-Gate: IARC’s Scientific Fraud. *American Council on Science and Health* <https://www.acsh.org/news/2017/10/24/glyphosate-gate-iarcs-scientific-fraud-12014>
293. News Staff. (2018, August 6). Congress pulls funding for IARC statistics organization. *Science 2.0* <https://www.science20.com/news-staff/congress-pulls-funding-for-iarc-statistics-organization-233610>
294. Campbell, H. (2019, January 3). My EPA Comment On IARC Monograph Leader Kurt Straif Being Nominated To The Science Advisory Committee On Chemicals. *Science 2.0*. https://www.science20.com/hank_campbell/my_epa_comment_on_iarc_monograph_leader_kurt_straif_being_nominated_to_the_science_advisory_committee_on_chemicals
295. Campbell, H. (2019b, April 30). IARC Alone: EPA Confirms Again That Glyphosate Does Not Cause Cancer. *Science 2.0*. https://www.science20.com/hank_campbell/iarc_alone_epa_confirms_again_that_glyphosate_does_not_cause_cancer-237811
296. Gross, L. (2016, November 15). How Self-Appointed Guardians of “Sound Science” Tip the Scales Toward Industry. *The Intercept*. <https://theintercept.com/2016/11/15/how-self-appointed-guardians-of-sound-science-tip-the-scales-toward-industry/>
297. Malkan, S. (2020, November 17). Science Media Centre Promotes Corporate Views of Science. *U.S. Right to Know*. <https://usrtk.org/our-investigations/science-media-centre/>
298. Ruskin, G. (2021, October 7). Genetic Literacy Project: PR Front for Monsanto, Bayer and the Chemical Industry. *U.S. Right to Know*. <https://usrtk.org/our-investigations/jon-entine-genetic-literacy-project/>
299. Ross, Gilbert. (2009, Aug. 28) ACSH proposal, “Pesticides and Health.” [Email.] *Sourcewatch*. https://www.sourcewatch.org/images/5/55/Syn_email_ACSH_Whelan_Say_Syngenta_Is_Financial_Lifeblood.pdf
300. Philpott, T. (2012, Feb. 24) The making of an agribusiness apologist. *Mother Jones*. <https://www.motherjones.com/food/2012/02/atrazine-syngenta-tyrone-hayes-jon-entine/>
301. Malkan, S. (2022, July 14) Genetic Literacy Project: PR front for Monsanto, Bayer and the chemical industry. *U.S. Right to Know*. <https://usrtk.org/our-investigations/jon-entine-genetic-literacy-project/>
302. ACSH staff. (2017, June 29) Little Black Book of Junk Science. *American Council on Science and Health*. <https://www.acsh.org/news/2017/06/29/little-black-book-junk-science-11507>
303. Root, T. (2019, July 10). Following the money that undermines climate science. *The New York Times*. <https://www.nytimes.com/2019/07/10/climate/nyt-climate-newsletter-cei.html> and The Advancement of Sound Science Background. *DeSmog* (online). <https://www.desmog.com/advancement-sound-science-coalition/>
304. Internal Monsanto Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Documents-Details-Monsantos-Strategy-Regarding-IARC.pdf>
305. Martin, J. (2018, October 10). Cutting Through the Clutter on Glyphosate. *Food Insight*. <https://foodinsight.org/cutting-through-the-clutter-on-glyphosate/>
306. Food Insight. (2020, August 27). 8 Crazy Ways They’re Trying to Scare You About Fruits and Vegetables [UPDATED]. <https://foodinsight.org/8-crazy-ways-theyre-trying-to-scare-you-about-fruits-and-vegetables-updated/>
307. Navarro, A. (2015, December 8). Scientists Hired by Monsanto Say Weed Killer Glyphosate Does Not Cause Cancer. *Tech Times*. <https://www.techtimes.com/articles/114226/20151208/scientists-hired-by-monsanto-say-weed-killer-glyphosate-does-not-cause-cancer.htm>

- 308 Malkan, S. (2022, April 12). IFIC: How Big Food Spins Bad News. *U.S. Right to Know*. <https://usrtk.org/our-investigations/how-big-food-spins-bad-news/>
309. Steele, S. Sarcevic, L. Ruskin, G. Stuckler, D. (2022, March 8). Confronting potential food industry ‘front groups’: case study of the international food information Council’s nutrition communications using the UCSF food industry documents archive. *BioMed Central*. <https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-022-00806-8>
- 310 Sims, T., PhD. (2020, June 30). Glyphosate 101: Gaining Food Safety Insights. *Food Insight*. <https://foodinsight.org/glyphosate-101-gaining-food-safety-insights/>
- 311 Safe Fruits and Veggies Calculator <https://www.safefruitsandveggies.com/calculator-faq/>
312. Environmental Working Group (2010, Sept. 28). Taxpayers funding pro-pesticide PR campaign. <https://www.ewg.org/news-insights/news/taxpayers-funding-pro-pesticide-pr-campaign>
313. Gillam, C. (2021, March 8). Chemicals on our food: When “safe” may not really be safe. *EHN*. <https://www.ehn.org/when-safe-may-not-really-be-safe-2621578745.html>
314. President’s Cancer Panel. (2009). Reducing Environmental Cancer Risk: What We Can Do Now. U.S. Department of Health and Human Services. https://deainfo.nci.nih.gov/advisory/pcp/annualreports/pcp08-09rpt/pcp_report_08-09_508.pdf
315. International Food Information Council (IFC) and IFC Foundation. (2017). Partners and Supporters. *Food Insight*. <https://web.archive.org/web/20171021194723/http://www.foodinsight.org/sites/default/files/Partners-and-Supporters.pdf>
316. Ayres, R. (2014, April 28). UPDATE: IFIC Foundation’s Understanding Our Food Initiative. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2016/09/IFIC-Foundation-fundraising-from-corporations.pdf>
317. Food Insight. (2017, May 1). 2017 Food and Health Survey: “A healthy perspective: Understanding american food values”. <https://foodinsight.org/2017-food-and-health-survey-a-healthy-perspective-understanding-american-food-values-2/>
318. Ayres, R. (2014, April 28). UPDATE: IFIC Foundation’s Understanding Our Food Initiative. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2016/09/IFIC-Foundation-fundraising-from-corporations.pdf>
- 319 USDA ERS. (Online). Recent Trends in GE Adoption. <https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption.aspx>
- 320 Monsanto Internal Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Documents-Details-Monsantos-Strategy-Regarding-IARC.pdf>
321. Monsanto Internal Document. (2017, September 11). Project Spruce: Carey Gillam Book. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/08/Monsanto-Project-Spruce-Carey-Gillam-1.pdf>
322. Grassi, M. (2015, June 8). ASA, NCGA: IARC Pesticide Findings Create Confusion. *CropLife*. <https://www.croplife.com/crop-inputs/herbicides/asa-ncga-iarc-pesticide-findings-create-confusion/>
323. WHO Internal Agency for Research on Cancer. (2015, June 23). IARC Monographs evaluate DDT, lindane, and 2,4-D. Press Release. https://www.iarc.who.int/wp-content/uploads/2018/07/pr236_E.pdf
324. Dimadis, T. (2018, June 26). FPA-FPF Board meeting at 4.30 pm. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/11/June-Email-laying-out-all-details-of-agreement-with-BAYER.pdf>
325. Ibid.
326. Dimadis, T. (2018, July 11). Pictures- Secretary Johnson FPA event. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/11/Chris-on-board-other-terms.-2018.pdf>
327. Fedoroff, N. Raven, P. & Sharp, P. (2015, March 09). The anti-GM lobby appears to be taking a page out of the Climategate Playbook. *The Guardian*. <https://web.archive.org/web/20150310032613/https://www.theguardian.com/environment/2015/mar/09/gm-opponents-are-science-deniers>
328. Kloor, K. (2018, December 31). Mimicking climategate, anti-GMO activists fund legal attack on Biotech Academics. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2015/02/11/mimicking-climategate-organic-and-anti-gmo-activists-fund-legal-attack-on-biotech/>
329. *Nina Fedoroff*. OFW Law. (2021, January 15). <https://ofwlaw.com/attorneys/dr-nina-v-fedoroff/>
330. Fedoroff, N. Raven, P. & Sharp, P. (2015, March 09). The anti-GM lobby appears to be taking a page out of the Climategate Playbook. *The Guardian*. <https://web.archive.org/web/20150310032613/https://www.theguardian.com/environment/2015/mar/09/gm-opponents-are-science-deniers>
331. Missouri Botanical Garden (2012, June 5) Missouri Botanical Garden receives \$3 million gift from Monsanto Company toward development of a world flora online. <https://web.archive.org/web/20160309034808/http://www.missouribotanicalgarden.org/media/news-releases/article/327/missouri-botanical-garden-receives-3-million-gift-from-monsanto-company-toward-development-of-a-world-flora-online>
332. Plant science. (Online). Missouri Botanical. Garden. <https://www.missouribotanicalgarden.org/plant-science/plant-science/resources/raven-library.aspx>
333. Blanding, M. (2020, February 11). The Man Who Helped Launch Biotech. *MIT Technology Review*. <https://www.technologyreview.com/2015/08/18/166642/the-man-who-helped-launch-biotech/>
334. American Association for the Advancement of Science. (2020, October 12). Statement by the AAAS Board of Directors On Labeling of Genetically Modified Foods. https://www.aaas.org/sites/default/files/AAAS_GM_statement.pdf
335. Gurian-Sherman, D. (2012, November 2). A contrary perspective on the AAAS Board statement against labeling of Engineered Foods. *The Equation*. <https://blog.ucsusa.org/doug-gurian-sherman/a-contrary-perspective-on-the-aaas-board-statement-against-labeling-of-engineered-foods/>
336. Hunt, P. (2012). Yes: Food labels would let consumers make informed choices. *Environmental Health News*. <https://web.archive.org/web/20121202114418/http://www.environmentalhealthnews.org/ehs/news/2012/yes-labels-on-gm-foods>
- 337 Priest, S. H. et al. (2013, February 15). AAAS position on GM Foods could backfire. *Science*. <https://www.science.org/doi/10.1126/science.339.6121.756-a>
338. Malkan, S. (2022, March 22). ILSI is a food industry lobby group. *U.S. Right to Know* <https://usrtk.org/our-investigations/ilsi-is-a-food-industry-lobby-group/>
339. @NYTScience (2019, September 16) [Tweet]. <https://twitter.com/USRightToKnow/status/1173794825356763136>
- 340 Malkan, S. (2017, July 20). Science Media Centre Promotes Corporate Views of Science. *U.S. Right to Know*. <https://usrtk.org/our-investigations/science-media-centre/>
341. Callaway, E. (2013) Science media: Centre of attention. *Nature*. <https://www.nature.com/articles/499142a>
342. Kenner, Robert. (2014). Merchants of Doubt. Sony Pictures Classics.
343. Graham Jr. , F. (2012, June 21). Fifty years after Silent spring, attacks on science continue. *Yale Environment 360*. https://e360.yale.edu/features/fifty_years_after_rachel_carsons_silent_spring_assault_on_science_continues
344. Samet, J. M. (2019). Expert review under attack: glyphosate, talc, and cancer. *American Journal of Public Health*, 109(7), 976-978. <https://ajph.aphapublications.org/doi/10.2105/AJPH.2019.305131>
345. Horel, S., & Foucart, S. (2017, November 20). The Monsanto Papers, part 1 - operation: Intoxication. *Environmental Health News*. <https://www.ehn.org/monsanto-glyphosate-cancer-smear-campaign-2509710888.html>

346. Monsanto Internal Document. (2015, February 23). Glyphosate: IARC. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/08/72-Document-Details-Monsantos-Strategy-Regarding-IARC.pdf>
347. IRS 990, Science Literacy Project, 2019. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2022/08/SLP-IRS-990-2017.pdf>
348. *Jon's biography*. (Online). Jon Entine. <https://jonentine.com/biography/>
349. Malkan, S. (2022, July 22). Genetic literacy project: PR front for Monsanto, Bayer and the Chemical Industry. *U.S. Right to Know*. <https://usrtk.org/our-investigations/jon-entine-genetic-literacy-project/>
350. Entine, J. (2013, November 5). University of Texas-Environmental Defense Fund Shale Gas study unmasks politics of anti-fracking activist Cornell scientists. *Forbes*. <https://www.forbes.com/sites/jonentine/2013/09/18/university-of-texas-environmental-defense-fund-shale-gas-study-unmasks-politics-of-anti-fracking-activist-cornell-scientists/?sh=6a62ba8469a0#2715e4857a0b23a3fb0e7880>
351. Entine, J. (2012, October 12). New York Times blunders into advocacy role on the fracking debate -- children are the victims. *Forbes*. <https://www.forbes.com/sites/jonentine/2012/10/03/new-york-times-blunders-into-advocacy-role-on-the-fracking-debate-children-are-the-victims/?sh=23e1eca9160a>
352. Entine, J. (2012, November 1). Bisphenol A (BPA) found not harmful, yet again -- so why did so many reporters and ngos botch coverage, yet again? *Forbes*. <https://www.forbes.com/sites/jonentine/2012/10/31/bisphenol-a-bpa-found-not-harmful-yet-again-so-why-did-so-many-reporters-and-ngos-botch-coverage-yet-again/?sh=38132d3e4e95>
353. *Glyphosate Archives*. Genetic Literacy Project. (Online). <https://geneticliteracyproject.org/tag/glyphosate/>
354. *David Zaruk archives*. Genetic Literacy Project. (Online). <https://geneticliteracyproject.org/writer/david-zaruk/>
355. *David Zaruk CV*. U.S. Right to Know. (2019, April). <https://usrtk.org/wp-content/uploads/2019/04/CV.David.Zaruk.pdf>
356. *Paul Driessen archives*. Genetic Literacy Project. (Online). <https://geneticliteracyproject.org/writer/paul-driessen/>
357. Fisher, M. (2021, July 9). Paul Driessen. *DeSmog*. <https://www.desmog.com/paul-driessen/>
358. *Monsanto Client ESG Media Metrics*. [Screenshot.] *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2016/02/entine-client-monsanto.jpg>
359. *Mission, financial transparency, governorship*. Genetic Literacy Project. (2016). <https://web.archive.org/web/20160909002518/https://geneticliteracyproject.org/mission-financials-governorship/>
360. Malkan, S. (2019, November 18). Academics review: The making of a Monsanto Front Group. *U.S. Right to Know*. <https://usrtk.org/gmo/academics-review-the-making-of-a-monsanto-front-group/>
361. *Mission, financial transparency, governorship*. Genetic Literacy Project. (2016). <https://web.archive.org/web/20160909002518/https://geneticliteracyproject.org/mission-financials-governorship/>
362. Phillips, P. (2019, September 9). RE: URGENT Request. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/05/urgentrequest.pdf>
363. Krantz, L. (2015, October 1). Harvard professor failed to disclose connection. *The Boston Globe*. <https://www.bostonglobe.com/metro/2015/10/01/harvard-professor-failed-to-disclose-monsanto-connection-paper-touting-gmos/1LJipJQmI5WKS6RAgQbnrN/story.html>
364. Kaskey, J. (2015, October 2). How Monsanto Mobilized Academics to Pen Articles Supporting GMOs. *Bloomberg*. <https://www.bloomberg.com/news/articles/2015-10-02/how-monsanto-mobilized-academics-to-pen-articles-supporting-gmos>
365. IRS 990, Science Literacy Project, 2020. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2022/07/SLP-990-for-2020-2021.pdf>
366. Driessen, P. (2018, March 12). Viewpoint: Congress should reign in IARC Cancer Agency's 'corruption, distortion and fraud'. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2018/03/13/viewpoint-congress-reign-iarc-cancer-agencys-corruption-distortion-fraud/>
367. Heitz, A. (2019, January 10). Viewpoint: North American scientists, IARC officials conspired to misrepresent glyphosate health risks. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2018/05/08/viewpoint-north-american-scientists-iarc-officials-conspired-to-misrepresent-glyphosate-health-risks/>
368. Entine, J. (2019, January 9). Viewpoint: 6 ways IARC Director Christopher Wild lied to Congress about cancer agency's glyphosate debacle. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2018/01/22/viewpoint-6-ways-iarc-director-christopher-wild-lied-congress-cancer-agencys-glyphosate-debacle/>
369. Digital, G. (2018, January 12). Jon Entine podcast: Corruption and secrecy behind IARC's glyphosate cancer designation? *Genetic Literacy Project*. <https://geneticliteracyproject.org/2017/10/25/jon-entine-podcast-corruption-secrecy-behind-iarcs-glyphosate-cancer-designation/>
370. Entine, J. (2019b, March 4). Predatort Part II: How predatory lawyers, activist scientists hijacked IARC — International Agency for Research on Cancer — for personal profit and ideological vanity. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2019/03/01/predatort-part-ii-how-predatory-lawyers-activist-scientists-hijacked-iarc-international-agency-for-research-on-cancer-for-personal-profit-and-ideological-vanity/>
371. Zhang, L., Rana, I., Shaffer, R. M., Taioli, E., & Sheppard, L. (2019, February 10). Exposure to glyphosate-based herbicides and risk for non-Hodgkin Lymphoma: A Meta-analysis and supporting evidence. *Mutation Research/Reviews in Mutation Research*. <https://www.sciencedirect.com/science/article/abs/pii/S1383574218300887>
372. Entine, J. [@JonEntine]. (2019, February 6). Epidemiologist geokabat@twitter.com takes careful look at (ridiculous) study that claims glyphosate can increase cancer rates by 41%: Did authors commit deliberate fraud? [Link attached.] [Tweet]. *Twitter*. <https://twitter.com/JonEntine/status/1100431041871953920>
373. Enstrom J. E. Kabat G. C. Smith D. (2003, March 7). Environmental tobacco smoke and tobacco related mortality in a prospective study of Californians. *BMJ*. 326 :1057. <https://www.bmj.com/content/326/7398/1057>
374. Bero L.A. Glantz S. Hong M. (2005). The limits of competing interest disclosures. *Tobacco Control*. 14:118-126. <https://tobaccocontrol.bmj.com/content/14/2/118.citation-tools>
375. Grandia, K. (2021, December 14). Marc Morano. *DeSmog*. <https://www.desmog.com/marc-morano/>
376. Genetic Literacy Project. (2022, April 26). *Mission, Financial Transparency and Governance*. <https://geneticliteracyproject.org/mission-financials-governance/>
377. Kroll, A. (2013, February 5). Exposed: The Dark-Money ATM of the Conservative Movement. *Mother Jones*. <https://www.motherjones.com/politics/2013/02/donors-trust-donor-capital-fund-dark-money-koch-bradley-devos/>
378. McKechnie, A. (2013, December 20). Not Just the Koch Brothers: New Drexel Study Reveals Funders Behind the Climate Change Denial Effort. *Drexel News*. <https://drexel.edu/news/archive/2013/december/climate-change>
379. *David Zaruk archives*. Genetic Literacy Project. (Online). <https://geneticliteracyproject.org/writer/david-zaruk/>
380. *David Zaruk CV*. U.S. Right to Know. (n.d.). <https://usrtk.org/wp-content/uploads/2019/04/CV.David.Zaruk.pdf>
381. Fisher, M. (2021, July 9). Paul Driessen. *DeSmog*. <https://www.desmog.com/paul-driessen/>
382. Logomasini, A. (2018, September 18). Report: Congress should stop funding international junk science agency. *Competitive Enterprise Institute*. <https://cei.org/content/report-congress-should-stop-funding-international-junk-science-agency>

383. Root, T., Friedman, L., & Tabuchi, H. (2019, July 10). Following the Money That Undermines Climate Science. *New York Times*. <https://www.nytimes.com/2019/07/10/climate/nyt-climate-newsletter-cei.html>
384. Driessen, P. (2019, February 4). Keep Fraudulent Science Out of Our Courtrooms. *The Heartland Institute*. <https://www.heartland.org/news-opinion/news/keep-fraudulent-science-out-of-our-courtrooms?source=policybot>
385. Olson, W. (2018, August 20). Roundup, the Usual Suspects. *Cato.org*. <https://www.cato.org/commentary/roundup-usual-suspects>
386. Driessen, P. (2019, August 6). Fraud and corruption bring big payoffs. *CFACT*. <https://www.cfact.org/2019/08/06/fraud-and-corruption-bring-big-payoffs/>
387. Monsanto internal document. (2016, March 2). RE: Reuters looking to speak to IARC observer. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/bsk-pdf-manager/2019/04/Monsanto-email-regarding-Red-Flag-connection-to-Reuters-reporter.pdf>
388. Ibid.
399. Murphey, S. (2017, March 27). FW: Your Voicemail. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/02/Kelland-Monsanto-email.pdf>
390. Murphey, S. (2017, March 12). Reuters Inquiry. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/bsk-pdf-manager/2019/04/Kate-Kelland-sends-draft-of-story-to-Monsanto.pdf>
391. Kelland, K. (2017, June 14). The WHO's cancer agency left in the dark over glyphosate evidence. *Reuters*. <https://www.reuters.com/investigates/special-report/glyphosate-cancer-data/>
392. Butler, K. (2017, June 15). A scientist didn't disclose important data-and let everyone believe a popular weedkiller causes cancer. *Mother Jones*. <https://www.motherjones.com/environment/2017/06/monsanto-roundup-glyphosate-cancer-who/>
393. Malkan, S. (2019, May 24). Reuters' Kate Kelland IARC story promotes false narrative. *U.S. Right to Know*. <https://usrtk.org/pesticides/reuters-kate-kelland-iarc-story-promotes-false-narrative/>
394. Monsanto Internal Document. (2019, February). Summary. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/bsk-pdf-manager/2019/02/Monsanto-suggested-storyline-for-Kate-Kelland.pdf>
395. Murphey, S. (2017, April 27). FW: Your Voicemail. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/02/Kland-Monsanto-email.pdf>
396. Kelland, K. (2017, June 14). The WHO's cancer agency left in the dark over glyphosate evidence. *Reuters*. <https://www.reuters.com/investigates/special-report/glyphosate-cancer-data/>
397. WHO International Agency for Research on Cancer. (2017, June 16). IARC Responds to Reuters on 14 June 2017. *Wayback Machine*. https://web.archive.org/web/20211105200235/https://governance.iarc.fr/ENG/Docs/IARC_responds_to_Reuters_15_June_2017.pdf
398. Reynolds, T.L. Fwd: US Government Outreach- WHO IARC Clarification on Glyphosate. [Email]. *The Intercept*. <https://www.documentcloud.org/documents/6306322-69-Internal-Email-Monsanto-Lobbying-Efforts-in.html>
399. Anonymous. (n.d.). Letter to Dr. Francis S. Collins. *The Intercept*. <https://www.documentcloud.org/documents/6304316-MONG-LY07577415.html>
400. Fang, L. (2019, August 23). Emails show Monsanto orchestrated GOP effort to intimidate cancer researchers. *The Intercept*. <https://theintercept.com/2019/08/23/monsanto-republicans-cancer-research/>
401. *Funding - IARC*. (Online). International Agency for Research on Cancer. <https://www.iarc.who.int/about-iarc-funding-assessed-contributions>
402. Lerner, S. (2017, May 20). Congressman Lamar Smith of Texas has a problem with science - and with voters. *The Intercept*. <https://theintercept.com/2017/05/20/congressman-lamar-smith-of-texas-has-a-problem-with-science-and-with-voters/>
403. Berezow, A. (2017, March 15). Glyphosate: NYT's Danny Hakim Is Lying To You. American Council on Science and Health. <https://www.acsh.org/news/2017/03/15/glyphosate-nyts-danny-hakim-lying-you-11001>
404. Hakim, D. (2016, October 29). Doubts about the promised bounty of genetically modified crops. *The New York Times*. <https://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html>
405. Hakim, D. (2016, December 31). Scientists loved and loathed by an agrochemical giant. *The New York Times*. <https://www.nytimes.com/2016/12/31/business/scientists-loved-and-loathed-by-syngenta-an-agrochemical-giant.html>
406. Hakim, D. (2017, August 2). Monsanto emails raise issue of influencing research on Roundup Weed Killer. *The New York Times*. <https://www.nytimes.com/2017/08/01/business/monsantos-sway-over-research-is-seen-in-disclosed-emails.html>
407. Gross, L. (2021, June 30). Bees face yet another lethal threat in dicamba, a drift-prone pesticide. *Reveal News*. <https://revealnews.org/article/bees-face-yet-another-lethal-threat-in-dicamba-a-drift-prone-pesticide/>
408. Gross, L. (2017, November 16). Smoke screen. *The Verge*. <https://www.theverge.com/2017/11/16/16658358/vape-lobby-vaping-health-risks-nicotine-big-tobacco-marketing?source=acsh.org>
409. Gross, L. (2016, November 15). How self-appointed guardians of "Sound science" tip the scales toward industry. *The Intercept*. <https://theintercept.com/2016/11/15/how-self-appointed-guardians-of-sound-science-tip-the-scales-toward-industry/>
410. Berezow, A. (2017, November 21). PLoS Biology Senior Editor Liza Gross: An Activist With No Biology Education. *American Council on Science and Health*. <https://www.acsh.org/news/2017/11/21/plos-biology-senior-editor-liza-gross-activist-no-biology-education-12175>
411. Campbell, H. (2017, November 20). Science Is A Vast Corporate Conspiracy And More Media Links. *American Council on Science and Health*. <https://www.acsh.org/news/2017/11/20/science-vast-corporate-conspiracy-and-more-media-links-12163>
412. Deniers for Hire. (Online). *Wayback Machine*. <https://web.archive.org/web/20180609195837/https://www.deniersforhire.com/>
413. Gillam, C. (2019, June 2). How Monsanto manipulates journalists and academics. *The Guardian*. <https://www.theguardian.com/commentisfree/2019/jun/02/monsanto-manipulates-journalists-academics>
414. Thacker, P. D. (2017, July 21). Flacking for gmos: How the biotech industry cultivates positive media-and discourages criticism. *Progressive.org*. <https://progressive.org/magazine/how-the-biotech-industry-cultivates-positive-media/>
415. Monsanto Internal Document. (2017, September 11). Project Spruce: Carey Gillam Book. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/08/Monsanto-Project-Spruce-Carey-Gillam-1.pdf>
416. Amazon.com. (Online). Whitewash Customer Reviews. https://www.amazon.com/product-reviews/1610918320/ref=acr_dpProduct-Detail_hist_1??ie=UTF8&filterByStar=one_star&showViewpoints=0
417. Gillam, C. (2019, August 9). I'm a journalist. Monsanto built a step-by-step strategy to destroy my reputation. *The Guardian*. <https://www.theguardian.com/commentisfree/2019/aug/08/monsanto-roundup-journalist-documents>
418. Legal documents posted here (2018, August 1). *U.S. Right to Know*. <https://usrtk.org/our-investigations/kevin-folta/>
419. Schaeffer, K. (2020, September 10). Among U.S. couples, women do more cooking and grocery shopping than men. *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2019/09/24/among-u-s-couples-women-do-more-cooking-and-grocery-shopping-than-men/>
420. Redman 1, R. (2021, June 10). Organic food sales jump nearly 13% to record high in 2020. *Supermarket News*. <https://www.supermarketnews.com/produce-floral/organic-food-sales-jump-nearly-13-record-high-2020>
421. Kowitz, B. (2015, May 21). Special Report: The war on big food. *Fortune*. <https://fortune.com/2015/05/21/the-war-on-big-food/>

422. Marinova, P. (2021, April 24). Millennials are driving an \$18 billion food revolution. *Fortune*. <https://fortune.com/2015/10/13/food-revolution-millennials/>
423. Gunlock, J. (2017). IWF -Podcast #56 Reasonable Mom's Pushing Back On Food Alarmism. *Independent Women's Forum*. <https://web.archive.org/web/20170616113325/http://www.iwf.org/media/2801796/Podcast->
424. Independent Women's Forum. (2016, April 21). Proposal to Monsanto: Culture of Alarmism Event. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2020/02/IWF-proposal-to-Monsanto-.pdf>
425. Nonprofit Explorer. (Online). *Independent Womens Forum. ProPublica*. <https://projects.propublica.org/nonprofits/organizations/541670627>
426. Waldman, S. (2021, December 8). Meet the 'dead industrialists' funding climate denialism. *E&E News*. <https://www.eenews.net/articles/meet-the-dead-industrialists-funding-climate-denialism/>
427. Rosenbloom, C. (2018, February 6). Perspective | these skeptics are using science to fight a wave of bad nutrition advice on the internet. *The Washington Post*. https://www.washingtonpost.com/lifestyle/wellness/these-skeptics-are-using-science-to-fight-a-wave-of-bad-nutrition-advice-on-the-internet/2018/02/02/c739e4ca-ff98-11e7-9d31-d72cf78dbee_story.html
428. Dentrement, Y. (2018, October 10). Should You Worry About Herbicides in Your Food? Self. <https://www.self.com/story/herbicides-in-your-food>
429. Malkan, S. (2018, March 31). SciBabe says eat your pesticides. But who is paying her? U.S. Right to Know. <https://usrtk.org/gmo/sci-babe-yvette-dentrement/>
430. Food Science Babe. (2019, February 19). This just in...Glyphosate STILL not found to cause cancer. [Link attached] [Status Update]. Facebook. <https://www.facebook.com/foodsciencebabe/posts/this-just-inglyphosate-still-not-found-to-cause-cancerthe-bottom-line-even-in-th/408505769974171/>
431. Amanda N. Zaluckyj | Team. (Online). Jones Obenchain, LLP. <https://jonesobenchain.com/team/amanda-n-zaluckyj/> and Zaluckyj, A. (2019, January 22). *Glyphosate isn't scary. the movement to demonize it is, though*. AGDAILY. Retrieved August 21, 2022, from <https://www.agdaily.com/insights/farmers-daughter-glyphosate-isnt-scary-the-movement-to-demonize-it-is-though/>
432. Blum, M. (2020, March 21). Ag a hot topic: Farm Babe's message reaches millions on social media. *AgriNews*. <https://www.agrinews-pubs.com/2020/03/20/ag-a-hot-topic-farm-babes-message-reaches-millions-on-social-media/agk1ly1/> and Miller, M. (2017, July 6). Farm babe: Glyphosate is a carcinogen? says who? *AGDAILY*. <https://www.agdaily.com/insights/farm-babe-glyphosate-is-a-carcinogen-says-who/>
433. The Foodie Farmer. (Online). [Blog]. *Blogspot*. <https://thefoodiefarmer.blogspot.com/>
434. HawaiiFarmersDaughter. (2019, June 27). Knee jerk reactions. *HawaiiFarmersDaughter*. <https://hawaiifarmersdaughter.com/2019/06/27/knee-jerk-reactions/>
435. Chakraborty, R. (2019, September 5). Torches of Freedom: How the world's first PR campaign came to be. *YourStory.Com*. <https://yourstory.com/2014/08/torches-of-freedom/amp>
436. Payne, M. (2019). *Food Bullying: How to Avoid Buying Bs*. Morgan James Publishing.
437. Payne, M. (Online). Food Bullying How to Avoid Buying B.S. Cause Matters. <https://causmatters.com/foodbullying/>
438. Folta, K. [@KevinFolta]. (2019, November 5). And my interview with Michele goes live on Saturday morning, 11/9. We laughed a lot. I always appreciate time with Michele," [Link Attached]. [Tweet]. *Twitter*. <https://twitter.com/kevinfolta/status/1191789424708898823>
439. Giddings, V.[@prometheusgreen]. (2019, August 14). Tired of food shaming and guilt over eating choices? "Food Bullying: How to Avoid Buying B.S." helps uncover the mind games... [Tweet]. *Twitter*. [https://twitter.com/search?lang=en&q=\(from%3Aprometheusgreen\)%20\(%40mpaynspeaker\)&src=typed_query](https://twitter.com/search?lang=en&q=(from%3Aprometheusgreen)%20(%40mpaynspeaker)&src=typed_query)
440. Ryan, C. [@CamiDRyan]. (2019, November 5). How time flies ... @mpaynspeaker. [Tweet]. *Twitter*. <https://twitter.com/kevinfolta/status/1191789424708898823>
441. Fraley, R. [@RobbFraley]. Really like the #GMO crops analogy from @mpaynspeaker in MACA newsletter: If you add or remove an app from your... [Tweet]. [Image Attached]. [https://twitter.com/search?lang=en&q=\(from%3ARobbFraley\)%20\(%40mpaynspeaker\)&src=typed_query](https://twitter.com/search?lang=en&q=(from%3ARobbFraley)%20(%40mpaynspeaker)&src=typed_query)
442. Entine, J. (2020, February 12). Podcast: 'There's no safe level of pesticides'? 'Don't eat what you can't pronounce'? Food Science Babe takes on popular nutrition tropes. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2020/02/13/podcast-theres-no-safe-level-of-pesticides-dont-eat-what-you-cant-pronounce-food-science-babe-takes-on-popular-nutrition-tropes/>
443. Payne, M. (2022, March 21). Looking for a speaker who will leave your audience thinking? *Cause Matters*. <https://causmatters.com/speaking-and-training/>
444. Science Moms. (2018, May 12). Science Moms: Full Film! [Film]. *Youtube*. <https://www.youtube.com/watch?v=eEUAUHkHMYE>
445. SciMoms. (Online). <https://scimoms.com/>
446. Ibid.
447. Hakim, D. (2017, August 1). Monsanto Emails Raise Issue of Influencing Research on Roundup Weed Killer. *New York Times*. <https://www.nytimes.com/2017/08/01/business/monsantos-sway-over-research-is-seen-in-disclosed-emails.html>
448. Ruskin, G. (2021, March 26). Henry Miller Dropped by Forbes for Monsanto Ghostwriting Scandal. *U.S. Right to Know*. <https://usrtk.org/our-investigations/henry-i-miller/>
449. Senapathy, K. (2019, September 30). I Was Lured Into Monsanto's GMO Crusade. Here's What I Learned. *Undark Magazine*. <https://undark.org/2019/06/27/monsanto-gmo-crusade/>
450. Bernstein, A. (2018, February 22). Risk In Perspective. *SciMoms*. <https://scimoms.com/risk-perspective-series-intro/>
451. Foucart, S., & Horel, S. (2019, June 19). « Fichier Monsanto » : des dizaines de personnalités classées illégalement selon leur position sur le glyphosate. *Le Monde.fr*. https://www.lemonde.fr/planete/article/2019/05/09/fichier-monsanto-des-dizaines-de-personnalites-classées-illegalement-selon-leur-position-sur-le-glyphosate_5460190_3244.html
452. CBS News. (2019, May 21). Monsanto kept "watch lists" of European agrochemical friends and foes, Bayer says, as Roundup legal battles continue. <https://www.cbsnews.com/news/monsanto-watch-lists-europe-bayer-pesticide-roundup-gmo-journalists-public-figures/>
453. Bronner, L. (2019, May 10). « Fichier Monsanto » : « Le Monde » porte plainte. *Le Monde.fr*. https://www.lemonde.fr/planete/article/2019/05/09/fichier-monsanto-le-monde-porte-plainte_5460196_3244.html
454. Picard, F., & Xenos, A. (2019, May 14). The debate - ticking time bomb? cancer lawsuits mount for Monsanto over glyphosate. *France 24*. <https://www.france24.com/en/20191405-debate-monsanto-glyphosate-weed-killer-trial-farming-cancer>
455. Bayer Global. (2019, May 12). Bayer commissions external law firm to investigate Monsanto's stakeholder mapping project and reaffirms its commitment to transparency and fair dealings with all stakeholders. <https://media.bayer.com/baynews/baynews.nsf/id/Bayer-commissions-external-investigate-Monsantos-stakeholder-mapping-project-reaffirms-commitment>
456. Bayer Global. (2019, September 5). Monsanto stakeholder lists: No evidence of illegal behaviour. <https://media.bayer.com/baynews/baynews.nsf/id/Monsanto-stakeholder-lists-No-evidence-of-illegal-behaviour>

457. Rfi. (2021, July 28). France fines Monsanto for illegally running 'watch lists'. <https://www.rfi.fr/en/business-and-tech/20210728-france-fines-monsanto-for-illegally-running-watch-lists>
458. Owen, J. (2019, September 5). Bayer's reputational issues continue as 'watch list' scandal deepens. *PR Week*. <https://www.prweek.com/article/1588274/bayers-reputational-issues-continue-watch-list-scandal-deepens>
459. Malkan, S. (2021, March 16). Monsanto's Campaign Against U.S. Right To Know: Read the Documents. *U.S. Right to Know*. <https://usrtk.org/our-investigations/monsanto-usrtk-foia/>
460. Cowley, S. (2018, May 20). Banks adopt military-style tactics to fight cybercrime. *The New York Times*. <https://www.nytimes.com/2018/05/20/business/banks-cyber-security-military.html>
461. Levin, S. (2019, August 8). Revealed: how Monsanto's 'intelligence center' targeted journalists and activists. *The Guardian*. <https://www.theguardian.com/business/2019/aug/07/monsanto-fusion-center-journalists-roundup-neil-young>
462. Murphey, S. (2016, January 28). RE: Shareholder 2016 Backrounders. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2020/02/Monsanto-Fusion-Center-Rachel-Parent-and-Moms-Across-America.pdf>
463. Byrne, J. (2001). Protecting Your Assets: An Inside Look at the Perils and Power of the Internet. [Internal Monsanto Document]. *U.S. Right to Know*. https://www.google.com/url?q=https://usrtk.org/wp-content/uploads/2021/12/Byrne-Ragan.ppt&sa=D&source=docs&ust=1652785501578872&usq=AOvVawIdH79CxUq_UeVxTfaVNoHg
464. Monbiot, G. (2002, November 19). The Covert Biotech War. *The Guardian*. <https://www.theguardian.com/science/2002/nov/19/gm.food>
465. Byrne, J. (2001). Protecting Your Assets: An Inside Look at the Perils and Power of the Internet. [Internal Monsanto Document]. *U.S. Right to Know*. https://www.google.com/url?q=https://usrtk.org/wp-content/uploads/2021/12/Byrne-Ragan.ppt&sa=D&source=docs&ust=1652785501578872&usq=AOvVawIdH79CxUq_UeVxTfaVNoHg
466. Monbiot, G. (2002, May 14). The Fake Persuaders. *The Guardian*. <https://www.theguardian.com/politics/2002/may/14/greenpolitics.digitalmedia>
467. Goldhaber, S. (2021, June 14). The Emperor - IARC - Has No Clothes. *American Council on Science and Health*. <https://www.acsh.org/news/2021/06/14/emperor-iarc-has-no-clothes-15600>
468. English, C. (2021, June 17). Glyphosate Doesn't Cause Cancer: New EU Report Confirms What We Already Knew. *American Council on Science and Health*. <https://www.acsh.org/news/2021/06/17/glyphosate-doesnt-cause-cancer-new-eu-report-confirms-what-we-already-knew-15612>
469. Seife, C. [@cgseife]. (2018). Thread: Mapping a @monsanto-loving octopus. Let's start with @scienceblogs. [Tweet]. *Twitter*. <https://threadreaderapp.com/thread/1063135263835217920.html>
470. IRS 990, American Council on Science and Health, 2016. <https://pdf.guidestar.org/PDF/Images/2017/132/911/2017-132911127-0ee0fcc1-9.pdf>
471. R, Gilbert. (2015, March 16). Re: Request for Monsanto Support for ACSH, 2015, with "impacts". [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/bsk-pdf-manager/2019/04/Monsanto-money-for-ACSH-and-discussion-of-what-ACSH-does-for-Monsanto-and-glyphosate.pdf>
472. A note on methodology: These searches were conducted using a new computer, incognito function, or newly downloaded browsers to avoid the influence of search history on the results.
473. IRS 990, Science Literacy Project, 2020. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2022/07/SLP-990-for-2020-2021.pdf> (see Schedule B.)
474. Entine, J. (2020, February 6). With Roundup-cancer settlement looming, activists revive conspiracy claim that glyphosate surfactants threaten human health. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2020/02/06/with-roundup-cancer-settlement-looming-activists-revive-conspiracy-claim-that-glyphosate-surfactants-threaten-human-health/>
475. English, C. (Online). Cameron English. *American Council on Science and Health*. <https://www.acsh.org/profile/cameron-english>
476. Bayer Global. (Online). Roundup litigation - five-point plan. <https://www.bayer.com/en/roundup-litigation-five-point-plan>
477. Google. (Online). Products - how news works. <https://newsinitiative.withgoogle.com/hownewsworks/products/>
478. SISTRIX. (2021, January 18). Why (almost) everything you knew about google CTR is no longer valid. <https://www.sistrix.com/blog/why-almost-everything-you-knew-about-google-ctr-is-no-longer-valid/>
479. Lahey, C. (2021, May 26). 15 Keys to Improve Your SEO Ranking. *Semrush Blog*. <https://www.semrush.com/blog/seo-ranking/>
480. Gardner, S. (2020, January 31). Four Pesticides Could Show U.K.'s Post-Brexit Regulation Plans. *Bloomberglaw*. <https://news.bloomberglaw.com/environment-and-energy/brexit-in-four-pesticides>
481. Entine, J. (2020, February 4). Post-Brexit rules on glyphosate, neonicotinoid pesticides may reveal UK's willingness to break from EU regulations. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2020/02/05/post-brexit-rules-on-glyphosate-neonicotinoid-pesticides-may-reveal-uks-willingness-to-break-from-eu-regulations/>
482. Genetic Literacy Project. (2022, May 16). GLP's aggregation of articles and use of images under the Fair Use copyright exception. <https://geneticliteracyproject.org/glps-aggregation-of-articles-and-use-of-images-under-the-fair-use-copyright-exception/>
483. *Attorney General Becerra Files Amicus Brief in Lawsuit Against*. (2020, February 12). State of California - Department of Justice - Office of the Attorney General. <https://oag.ca.gov/news/press-releases/attorney-general-becerra-files-amicus-brief-law-suit-against-monsanto-support>
484. Entine, J. (2020, February 13). California attorney general sides with Bayer glyphosate cancer plaintiffs, challenges appeal of \$78.5 million verdict. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2020/02/13/california-attorney-general-sides-with-bayer-glyphosate-cancer-plaintiffs-files-brief-challenging-appeal-of-78-5-million-verdict/>
485. Woollacott, B. E. (2020, January 28). Zap! How microwaves and electricity are killing weeds. *BBC News*. <https://www.bbc.com/news/business-50711566>
486. Entine, J. (2020a, January 28). Glyphosate herbicide cancer fears could turn electricity, microwaves into viable weed-killing tools. *Genetic Literacy Project*. <https://geneticliteracyproject.org/2020/01/29/glyphosate-herbicide-cancer-fears-could-turn-electricity-microwaves-into-viable-weed-killing-tools/>
487. PLAINTIFFS' REPLY IN SUPPORT OF MOTION TO STRIKE CONFIDENTIALITY OF HEYDENS DEPOSITION (UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA April 24, 2017). *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2017/04/MDLLetNothingGomotion.pdf>
488. Ibid.
489. Ibid.
490. Fleishman Hillard. (2017, March 24). Let Nothing Go Weekly Report. [Internal Monsanto Document]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2020/02/Let-Nothing-Go-report-2017-.pdf>
491. Gillam, C. (2013, July 29). GMO companies launch website to fight anti-biotech movement. *Reuters*. <https://www.reuters.com/article/gmo-campaign/gmo-companies-launch-website-to-fight-anti-biotech-movement-idUSL1N0FZ0RE20130729>
492. GMO Answers. (Online). GMO Answers Stands by Our Commitment to Answering Questions with Transparency. <https://gmoanswers.com/gmo-answers-stands-our-commitment-answering-questions-transparency>

493. Malkan, S. (2020, September 2). Council for Biotechnology Information, GMO Answers, CropLife: pesticide industry PR initiatives. *U.S. Right to Know*. <https://usrtk.org/gmo/key-pesticide-industry-propaganda-group-cbi-closes-gmo-answers-moves-to-croplife/>
494. Ibid.
495. Gustin, G. (2013, October 12). Monsanto, other biotech companies, launch website to answer GMO-related questions. *St. Louis Post-Dispatch*. https://www.stltoday.com/business/local/monsanto-other-biotech-companies-launch-website-to-answer-gmo-related-questions/article_3ddb6c9f-7655-58c9-81b5-806e44218ace.html
496. U.S. Right to Know FOIA Communications Plan. (2019, July 25). Monsanto Internal Document. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/08/2019-Monsanto-USRTK-FOIA-Communications-Plan.pdf>
497. Bruce M. Chassy. GMO Answers. (Online). <https://gmoanswers.com/experts/bruce-m-chassy>
498. Eng, M. (2016, April 1). Why didn't an Illinois professor have to disclose GMO funding? *WBEZ Chicago*. <https://www.wbez.org/stories/why-didnt-an-illinois-professor-have-to-disclose-gmo-funding/eb99bdd2-683d-4108-9528-de1375c3e9fb>
499. Schmidt, E. (2013, July 31). Additional GMO Answers Question- Assistance Requested. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2022/04/GMO-Answers-ghostwriting-examples.pdf>
500. Saltmiras, D. (n.d.). Does glyphosate cause cancer? *GMO Answers*. <https://gmoanswers.com/ask/does-glyphosate-cause-cancer>
501. GMO Answers. (Online). IARC's classification of glyphosate - what does it mean for you? <https://gmoanswers.com/iarc%25E2%2580%2599s-classification-glyphosate-%25E2%2580%2593-what-does-it-mean-you>
502. Ibid.
503. GMO Answers. (Online). GLP Staff and Contributors. <https://geneticliteracyproject.org/our-team/>
504. Ruskin, G. (2018, August 1). The GMO Industry Doesn't Want You to See This Video. *U.S. Right to Know*. <https://usrtk.org/gmo/gmo-industry-doesnt-want-you-to-see-this-video/>
505. *GMO Answers*. (2022). *Clios*. <https://clios.com/awards/winner/public-relations/gmo-answers-3573>
506. M. Nestle. (2017, June 20). GMO propaganda film: Food Evolution. *Food Politics by Marion Nestle*. <https://www.foodpolitics.com/2017/06/gmo-industry-propaganda-film-food-evolution/>
507. Nestle, M. (2017, June 27). A win for GMO trolls: This blog no longer accepts comments. *Food Politics by Marion Nestle*. <https://www.foodpolitics.com/2017/06/follow-up-to-gmo-propaganda-film-food-evolution/>
508. Taleb, N. et al. (2014, October 17). The Precautionary Principle (with Application to the Genetic Modification of Organisms). NYU School of Engineering. <https://arxiv.org/pdf/1410.5787.pdf>
509. Spitznagel, M., & Taleb, N. N. (2015, July 13). Another 'Too Big to Fail' System in G.M.O.s. *The New York Times*. <https://www.nytimes.com/2015/07/14/business/dealbook/another-too-big-to-fail-system-in-gmos.html>
510. Conko, G. (2015, July 16). More Unintelligible Gibberish on GMO Risks from Nassim Nicholas Taleb. *Competitive Enterprise Institute*. <https://cei.org/blog/more-unintelligible-gibberish-on-gmo-risks-from-nassim-nicholas-taleb/>
511. D. Ropeik [@dropeik]. Anti GMO advocacy masquerading as ostensibly rational argument. So many examples. Anti-Monsanto? [Tweet]. [Link attached]. *Twitter*. <https://twitter.com/dropeik/status/527799671688007680>
512. Ropeik, D. (2014, November 11). On Taleb et al.'s "The precautionary principle (with application to the genetic modification of... *Medium*. <https://medium.com/@dropeik.com/on-taleb-et-al-s-the-precautionary-principle-with-application-to-the-genetic-modification-of-dba21ccf94aa>
513. Entine, J. (2014, November 3). Is Nassim Taleb a "dangerous imbecile" or on the pay of anti-GMO activists? *Genetic Literacy Project*. <https://geneticliteracyproject.org/2014/11/03/is-nassim-taleb-a-dangerous-imbecile-or-just-on-the-pay-of-the-anti-gmo-mafia/>
514. Kloor, K. [@keithkloor]. Imbeciles on Twitter continue to distract @nntaleb Via @DiscoverMag. [Tweet]. [Link attached]. *Twitter*. <https://twitter.com/keithkloor/status/537656534822830080>. For more on Kloor's industry ties see, Malkan, S., (2018, November 1) Keith Kloor: How a science journalist worked behind the scenes with industry allies, *U.S. Right to Know* <https://usrtk.org/our-investigations/keith-kloor-the-agrichemical-industrys-favorite-writer/>
515. Lynas, M. [@mark_lynas]. "More unintelligible gibberish on GMO risks from @nntaleb" - great blog @ceidotorg <https://cei.org/blog/more-unintelligible-gibberish-gmo-risks-nassim-nicholas-taleb...> Naturalistic fallacy writ large.[Tweet]. [Link Attached]. *Twitter*. https://twitter.com/mark_lynas/status/622001750824853504
516. Monbiot, G. (2002, November 19). The Covert Biotech War. *The Guardian*. <https://www.theguardian.com/science/2002/nov/19/gm.food>
517. Bonus Eventus. (Online). https://community.bonuseventus.org/login/?redirect_to=%2F&reauth=1
518. Entine, J. (2015, July 10). Biotech Literacy Project 2015 - Summary Evaluation and Assessment. *UC Davis Institute for Food and Agricultural Literacy*. *U.S. Right to Know*. <https://www.industrydocuments.ucsf.edu/docs/ygfm0226>
519. Warrick, J. (2017, May 10). U of S defends Prof's Monsanto ties, but some faculty disagree. *CBC news*. <https://www.cbc.ca/news/canada/saskatoon/university-of-saskatoon-professor-monsanto-1.4107475>; Warrick, J. (2017, May 7). U of S professor says there's nothing unusual about his ties to Monsanto. *CBC News*. <https://www.cbc.ca/news/canada/saskatoon/u-of-s-professor-says-there-s-nothing-unusual-about-his-ties-to-monsanto-1.4100399>; Bluethner, A. (2016). Email communication between Peter Phillips and chemical industry organizations. *U.S. Right to Know*. <https://www.industrydocuments.ucsf.edu/docs/mxcm0226>;
520. Hakim, D. (2016, October 29). Doubts about the promised bounty of genetically modified crops. *The New York Times*. <https://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html>
521. Malkan, S. (2021, March 24). Julie Kelly cooks up propaganda for the agrichemical industry. *U.S. Right to Know*. <https://usrtk.org/food-for-thought/julie-kelly-writes-propaganda/>
522. Ruskin, G. (2021, March 26). Henry Miller's Monsanto Ties. *U.S. Right to Know*. <https://usrtk.org/our-investigations/henry-i-miller/>
523. Malkan, S. (2019, May 15). Why Forbes deleted some Kavin Senapathy articles. *U.S. Right to Know*. https://usrtk.org/food-for-thought/kavin_senapathy_henry_miller/
524. Malkan, S. (2021, March 8). Hank Campbell's Shady Maze of Monsanto-loving science blogs. *U.S. Right to Know*. <https://usrtk.org/our-investigations/hank-campbells-maze-of-monsanto-loving-science-blogs/>
525. Goldstein, D. A. (2015, February 6). ACSH. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2018/08/ACSH-email.pdf>.
526. Byrne, J. (Online). Jay Byrne LinkedIn Profile. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/01/Jay-Byrne-LinkedIn.pdf>
527. Byrne, J. (2013, May). Food & Agricultural Advocacy Background & Best Practices. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/01/v-fluence-jay-byrne-presentation.pdf>
528. Bill & Melinda Gates Foundation. (Online). African Agricultural Technology Foundation. <https://www.gatesfoundation.org/about/committed-grants/2018/04/opp1187061>
529. Byrne, J. (2013, May). Food & Agricultural Advocacy Background & Best Practices. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/01/v-fluence-jay-byrne-presentation.pdf>
530. N. Oreskes & E.M. Conway. (2011, May 31). *Merchants of Doubt*. Bloomsbury Press. <https://www.merchantsofdoubt.org/>
531. Kenner, Robert. (2014, August 30). *Merchants of Doubt*. [Film]. *Participant Media*. <https://www.amazon.com/Merchants-Doubt-Patricia-Callahan/dp/B00Y02IC3W>

532. M. Holtzman. (2013, December 13). Re: anti-GMO crop biotech challenges with GLP and Jay Byrne. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/01/USDA-Entine-Byrne.pdf>
533. Ibid.
534. B.M. Chassy. (2012, April 27). RE: U-Tube Videos. [Email]. *U.S. Right to Know*. <https://usrtk.org/wp-content/uploads/2019/01/Byrne-Chassy-GMO-videos.pdf>
535. Ibid.
536. Solomon, Gina (2012, Feb. 24) Agent Orange in Your Backyard: The Harmful Pesticide 2,4-D. *The Atlantic* <https://www.theatlantic.com/health/archive/2012/02/agent-orange-in-your-backyard-the-harmful-pesticide-2-4-d/253506/>
537. U.S. Environmental Protection Agency. (2017, Jan). Pesticide Industry Sales and Usage 2008 – 2012. Washington D.C. <https://www.epa.gov/pesticides/pesticides-industry-sales-and-usage-2008-2012-market-estimates>
538. University of Nebraska-Lincoln. (2015, January 20). Weed and Insect Resistance a Growing Problem. Institute of Agriculture and Natural Resources. <https://cropwatch.unl.edu/weed-and-insect-resistance-growing-problem>.
539. LaCanne, C. E., & Lundgren, J. G. (2018). Regenerative agriculture: merging farming and natural resource conservation profitably. *PeerJ*, 6, e4428. <https://pubmed.ncbi.nlm.nih.gov/29503771/>
540. DiBartolomeis, M., Kegley, S., Mineau, P., Radford, R., & Klein, K. (2019). An assessment of acute insecticide toxicity loading (AITL) of chemical pesticides used on agricultural land in the United States. *PLoS one*, 14(8), e0220029.
541. Sánchez-Bayo, F., & Wyckhuys, K. A. (2019). Worldwide decline of the entomofauna: A review of its drivers. *Biological conservation*, 232, 8-27.
542. Gunstone, T., Cornelisse, T., Klein, K., Dubey, A., & Donley, N. (2021). Pesticides and soil invertebrates: A hazard assessment. *Frontiers in Environmental Science*, 9, 122.
543. IPBES. Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. <https://ipbes.net/global-assessment>
544. US Centers for Disease Control. (2021, March). Fourth National Report on Human Exposure to Environmental Chemicals. Washington, D.C. https://www.cdc.gov/exposurereport/pdf/FourthReport_UpdatedTables_Volume3_Mar2021-508.pdf
545. Gillam, Carey. (2017, December 21). Hold the Plum Pudding: U.S. Food Sampling Shows Troubling Pesticide Residues. *Environmental Health News*. <https://careygillam.com/articles/article/hold-the-plum-pudding-us-food-sampling-shows-troubling-pesticide-residues>
546. Gilden, R. C., Huffling, K., & Sattler, B. (2010). Pesticides and health risks. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 39(1), 103-110. [https://www.jognn.org/article/S0884-2175\(15\)30255-0/fulltext](https://www.jognn.org/article/S0884-2175(15)30255-0/fulltext)
547. Bassil, K. L., Vakil, C., Sanborn, M., Cole, D. C., Kaur, J. S., & Kerr, K. J. (2007). Cancer health effects of pesticides: systematic review. *Canadian Family Physician*, 53(10), 1704-1711. <https://pubmed.ncbi.nlm.nih.gov/17934034/>
548. Alavanja, M. C., Hoppin, J. A., & Kamel, F. (2004). Health effects of chronic pesticide exposure: cancer and neurotoxicity. *Annu. Rev. Public Health*, 25, 155-197. <https://pubmed.ncbi.nlm.nih.gov/15015917/>
549. Eskenazi, B., Marks, A. R., Bradman, A., Harley, K., Barr, D. B., Johnson, C., ... & Jewell, N. P. (2007). Organophosphate pesticide exposure and neurodevelopment in young Mexican-American children. *Environmental health perspectives*, 115(5), 792-798. <https://pubmed.ncbi.nlm.nih.gov/17520070/>
550. Mendola, P., Messer, L. C., & Rappazzo, K. (2008). Science linking environmental contaminant exposures with fertility and reproductive health impacts in the adult female. *Fertility and sterility*, 89(2), e81-e94. <https://pubmed.ncbi.nlm.nih.gov/18308071/>
551. Holtcamp, W. (2012). Obesogens: an environmental link to obesity. *Environmental Health Perspectives* <https://ehp.niehs.nih.gov/doi/10.1289/ehp.120-a62>
552. Beyond Pesticides. (Online). Pesticides that Disrupt Endocrine System Still Unregulated by EPA. <https://www.beyondpesticides.org/assets/media/documents/gateway/health%20effects/endocrine%20cited.pdf>
553. The Endocrine Disruption Exchange. (Online). EDC Factsheet. <https://endocrinedisruption.org/interactive-tools/endocrine-basics>
554. Farmworker Justice. (2013). Exposed and Ignored: How pesticides are endangering our nation's farmworkers. Washington DC. <https://www.farmworkerjustice.org/sites/default/files/aExposed%20and%20Ignored%20by%20Farmworker%20Justice%20ingles%20compressed.pdf>
555. Donley, N. (2019). The USA lags behind other agricultural nations in banning harmful pesticides. *Environmental Health*, 18(1), 1-12. <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-019-0488-0>
556. Gross, L., & Birnbaum, L. S. (2017). Regulating toxic chemicals for public and environmental health. *PLoS Biology*, 15(12), e2004814. <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2004814>
557. Payne-Sturges, D., Cohen, J., Castorina, R., Axelrad, D. A., & Woodruff, T. J. (2009). Evaluating cumulative organophosphorus pesticide body burden of children: a national case study. *Environmental science & technology*, 43(20), 7924-7930.
558. Reubens, Suzanne. (2010). *Reducing Environmental Cancer Risk: What we can do now*. President's Cancer Panel. National Cancer Institute. Washington, D.C. https://deainfo.nci.nih.gov/advisory/pcp/annualreports/pcp08-09rpt/pcp_report_08-09_508.pdf
559. Roberts, J. R., Karr, C. J., Paulson, J. A., Brock-Utne, A. C., Brumberg, H. L., Campbell, C. C., ... & Wright, R. O. (2012). Pesticide exposure in children. *Pediatrics*, 130(6), e1765-e1788.
560. United Nations Human Rights Office of the High Commissioner. (2017, March). Pesticides are “global human rights concern” say UN experts urging new treaty. <https://www.ohchr.org/en/press-releases/2017/03/pesticides-are-global-human-rights-concern-say-un-experts-urging-new-treaty>
561. Cook, Christopher, Kari Hamerschlag and Kendra Klein. (2016). *Farming for the Future: Organic and Agroecological Solutions to Feed the World*. Prepared for Friends of the Earth. Washington DC. <https://foe.org/resources/farming-for-the-future-organic-and-agroecological-solutions-to-feed-the-world>
562. Lappe, F.M., Collins, J. and Rosset P. (1998). *World Hunger: 12 Myths*. 2nd edition. New York: Grove Press.
563. USDA Economic Research Service. (Online). Trends in GE Adoption. Washington D.C. <https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption/>
564. Hakim, Danny. (2016, Oct 29). Uncertain Harvest: Doubts About the Promised Bounty of Genetically Modified Crops. *New York Times*. <https://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html?partner=rss&emc=rss>
565. United Nations Human Rights Office of the High Commissioner. (2017, March). Pesticides are “global human rights concern” say UN experts urging new treaty. <https://www.ohchr.org/en/press-releases/2015/10/using-death-penalty-fight-drug-crimes-violates-international-law-un-rights?>
566. Horrigan, L., Lawrence, R. S., & Walker, P. (2002). How sustainable agriculture can address the environmental and human health harms of industrial agriculture. *Environmental health perspectives*, 110(5), 445-456. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240832/>
567. United Nations Food and Agriculture Organization. (2015, June). *Natural Capital Impacts in Agriculture: Support Better Business-Making*. Rome, Italy. https://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Natural_Capital_Impacts_in_Agriculture_final.pdf

568. Cook, Christopher, Kari Hamerschlag and Kendra Klein. (2016). *Farming for the Future: Organic and Agroecological Solutions to Feed the World*. Prepared for Friends of the Earth. Washington DC. <https://foe.org/resources/farming-for-the-future-organic-and-agroecological-solutions-to-feed-the-world>
569. California Certified Organic Farmers. (2019). *Roadmap to an Organic California: Benefits Report*. Santa Cruz, CA. <https://www.ccof.org/page/roadmap-organic-california>
570. Ponisio, L. C., M'Gonigle, L. K., Mace, K. C., Palomino, J., De Valpine, P., & Kremen, C. (2015). Diversification practices reduce organic to conventional yield gap. *Proceedings of the Royal Society B: Biological Sciences*, 282(1799), 20141396. <https://royalsocietypublishing.org/doi/10.1098/rspb.2014.1396>
571. Catarino, R., Bretagnolle, V., Perrot, T., Vialloux, F., & Gaba, S. (2019). Bee pollination outperforms pesticides for oilseed crop production and profitability. *Proceedings of the Royal Society B*, 286(1912), 20191550. <https://royalsocietypublishing.org/doi/10.1098/rspb.2019.1550>
572. Lechenet, M., Dessaint, F., Py, G., Makowski, D., & Munier-Jolain, N. (2017). Reducing pesticide use while preserving crop productivity and profitability on arable farms. *Nature Plants*, 3(3), 1-6. <https://www.nature.com/articles/nplants20178>
573. Dainese, M., Martin, E. A., Aizen, M. A., Albrecht, M., Bartomeus, I., Bommarco, R., ... & Steffan-Dewenter, I. (2019). A global synthesis reveals biodiversity-mediated benefits for crop production. *Science advances*, 5(10), eaax0121. <https://www.science.org/doi/10.1126/sciadv.aax0121>
574. Blundell, R., Schmidt, J. E., Igwe, A., Cheung, A. L., Vannette, R. L., Gaudin, A., & Casteel, C. L. (2020). Organic management promotes natural pest control through altered plant resistance to insects. *Nature plants*, 6(5), 483-491. <https://www.biorxiv.org/content/10.1101/787549v1.full>
575. McIntyre, Beverly, H. Herren, J. Wakhungu, R. Watson. (2009). *International Assessment of Agriculture Knowledge, Science and Technology for Development*. Island Press: Washington D.C. https://www.gaiafoundation.org/app/uploads/2017/09/Agriculture-at-a-crossroads-Synthesis-report-2009Agriculture_at_Crossroads_Synthesis_Report.pdf
576. United Nations Human Rights Office of the High Commissioner. (2017, March). Pesticides are "global human rights concern" say UN experts urging new treaty. <https://www.ohchr.org/en/press-releases/2017/03/pesticides-are-global-human-rights-concern-say-un-experts-urging-new-treaty>
577. Daly, M. (2021, October 27). Watch: Oil executives testify over climate misinformation in house hearing. PBS. Retrieved August 24, 2022, from <https://www.pbs.org/newshour/economy/watch-live-oil-executives-testify-over-climate-misinformation-in-house-hearing>
578. Centers for Disease Control and Prevention. (2020, April 28). Tobacco-related mortality. Centers for Disease Control and Prevention.
579. WebMD. (2021, July 8). Climate change causes 5 million extra deaths per year. <https://www.webmd.com/a-to-z-guides/news/20210708/climate-change-already-causes-5-million-extra-deaths-per-year>

