Review of Whitewash (or Hogwash?): Carey Gillam’s glyphosate book betrays science, undermines our understanding of cancer

Last fall a new book hit the shelves, timed to coincide with public hearings on the European Union’s re-authorization of glyphosate, the active ingredient in the herbicide Roundup. The book was *Whitewash*, by Carey Gillam, and came with quite a bit of fanfare from a chorus of organizations who are actively campaigning to ban the herbicide. Glowing reviews were posted by colleagues and friends of the author, while critical reviews penned by those who read the book and were familiar with the arguments being made were being deleted or accused of being fake.

The book promised to educate us on how glyphosate causes cancer, but that the industry knew this and used “strategic deception” to sow doubt about science and mislead the public about its relative safety. Does the book measure up against the hype, and does it carefully address inconvenient data that runs contrary to its thesis? I waited in the queue at my local library so I could read the book for myself. I read the book from cover to cover, and I took notes. Here is my review.

**Whitewash, or Hogwash?**

Carey Gillam starts her book “Whitewash” with a *lofty quote about agriculture, penned by Thomas Jefferson*. But as we know today, Jefferson’s rhetorical skills are not matched by the reality of his slave-owning lifestyle, and in fact his *debt was astonishing*.

> Although Jefferson was wealthy in land and slaves, farming proved to be an unreliable and inadequate source of income.

Similarly, Carey’s crafty rhetorical skill is not matched by the realities of science or farming. This unfortunate parallel is probably the largest theme in this book. Nor is she doing the planting of anything — except doubt. Doubt is her product. You should be very afraid. And you might be, based on this book. She presented the things that she wanted you to see, not the full body of evidence that we have about the target of her ire. Some people would call that cherry-picking. But she wants you to be afraid of cherries, too.

Or, maybe you’d care to hear from a scientist: “But she does not understand that the reason it is used in these contexts is because it is not taken up. If it was, the plants would die. Ugh.” (*Kevin Folta*, PhD). She could explain many features of farming better—she admits in the book that nearly half of the crops that encounter glyphosate are not genetically engineered for herbicide tolerance. But she can’t be bothered to help you really to grasp that fact. It’s much more important for her that you think glyphosate = GMOs.

The book is mostly a quick read, as Carey is not bogged down by statistics, farming context nor scientific details. Her emphasis is certainly spending time on what she claims are nefarious connections and hidden evidence. It is an extended conspiracy theory designed to create fog, with cherry-picked anecdotes, unsupported and unchallenged science claims, and dubious sources. In short, it’s crafty and dishonest on
many fronts. I’d like to offer up the author’s own words: “This is strategic deception. It’s not accidental or ambiguous. It’s intentional”. Academics would call it Agnogenesis. I’d call it Hogwash.

To be fair, there are some actual facts in the book. Glyphosate is a chemical. And Monsanto was founded in 1901 by JF Queeny. There are other items that are technically true – papers have been published that claim some of the things that she suggests. But one of two things happened on the way to the book: her science training was inadequate, or she chose not to provide the context you need to understand the issues. Well, ok, maybe she’s two-for-two there. Hopefully, a book called Fearmonger will be written someday, maybe by another Reuters reporter (Kate Kelland, I’m looking at you), and we’ll get an independent examination of the agnogenesis she employs.

Until such time, here’s my summary of the main problems with this book.

- Claims glyphosate causes Non-Hodgkins Lymphoma, except the data shows it doesn’t.
- Claims Non-Hodgkins Lymphoma rates went up over the last 20 years when they have actually remained the same.
- Reports that Glyphosate is found in breast milk when the peer-reviewed literature shows it is not.
- Sets up a cartoonishly false dichotomy between heroes and villains that reveals a systematic, underlying bias.
- Blames the retraction of Séralini’s study on Richard Goodman, when he was not involved in its review.
- Throws a defense of a retired consultant to the IARC glyphosate review panel claiming his independence of financial influence (which we now know to be false), while chastising a retired consultant whose views differ from hers.
- Falsely smears independent groups like Science Moms and March Against Myths as being run by industry (they’re not).
- Systematically omits industry funding and affiliations for her own organization and those who she quotes favorably.
- Entirely ignores the extensive, important, detailed, 2-year long key review of the GMO arena done by the National Academy of Sciences, #GECropStudy http://nap.edu/gecrops.
- Fails to engage in a reality-based discussion of farming issues faced by growers in the real world.

For those who feel the need to bash their heads against the wall, I’ll take you through these issues step by step, of course, doused and drenched with snark. Who’s ready for some hogwash?

Non-Hodgkins Lymphoma is the foundation of fear
The book begins Carey laying out her premise: in the mid-1990s everything changed as GMOs were introduced. “But shadowing the controversy over genetically modified organisms (GMOs) is what I believe to be the true health and environmental calamity of modern-day agriculture—the flood across our landscape of the pesticide known by chemists as glyphosate and by the rest of us simply as Roundup.”[emphasis hers] She tells you the sad tale of a farmer who died of Non-Hodgkins Lymphoma (NHL) at age 69. Also, *Monsanto killed their dog*. Certainly it is sad to lose loved ones to cancer—it’s happened to all of us. And it would help to have someone to blame.

After the anecdote of a farmer’s illness, I expected her to make the case about the true calamity with some very obvious statistics. If the last two decades of the “flood” was causing massive spikes in NHL, of course we’d be presented with the chart of that data, from a reputable source like SEER, the cancer epidemiology database of the National Cancer Institute. What does that look like? Carey doesn’t want to bother your pretty little head about that. But I’ll show you. I’ve highlighted when the flood began. Hmm.

**SEER data for NHL, mid-90s highlighted. The rate of Non-Hodgkins Lymphoma remains constant after the introduction of glyphosate-tolerant GMO crops.**

You should think about her claims of how much a flood of glyphosate would be represented by the data in the last couple of decades. That is, *if* they were true.

**Glyphosate Testing (well, not all of it)**

Carey Gillam goes into the issue of testing for glyphosate with a number of stories. She sources information from the *Alliance for Natural Health*’s exposé of breakfast cereals. Alliance for Natural Health
is an anti-vaccine lobbying group for the alternative medicine and supplement industry, and they keep an “FDA Death Meter” on their site to make you afraid of conventional medicines and vaccines. They report that glyphosate was found in a variety of breakfast foods that they tested. Using a test called ELISA (enzyme-linked immunosorbent assay) for detection, they provide a non-peer-reviewed report on their site with their findings.

For another example, she describes the heroic Henry Rowlands’ Detox Project effort to get testing of glyphosate done that others weren’t doing. Although she references that his “family heritage is rooted in farming”, she neglects to mention it was “a family run organic sheep farm” – so they have had financial interests in the organic industry. A curious omission. She describes how so many labs turned him down (but she never talks to the labs about why this might have been). Those of us who understand testing protocols are aware of how carefully designed testing protocols need to be – and they vary by substance being tested. This would be expensive and time-consuming to establish, with proper controls. FOIA (Freedom of Information Act) documents of organic researchers and activists, though, reveal Henry’s real goal with testing. These documents were obtained by Stephan Neidenbach via MuckRock.com.

HenryRowlands thinstall

But his Detox Project can now sell you a test kit if you are worried. Don’t sweat the scientific accuracy. I’m sure the level of fear that the activists are aiming at will be sufficient.

She also talks about Moms Across America who valiantly exposed the hidden glyphosate in breast milk with the Inotech ELISA tests. But FOIA discovery reveals that even Michael Hansen of the Consumers Union said that “they are very dangerous because significant portions of the grassroots activists buy into their nonsense” and dissed the testing they had done. Carey Gillam further neglects to mention the PhD-carrying mom and breast milk expert who led a study (with proper protocols and appropriate controls) who found that was untrue, there is no glyphosate in breast milk. A German group found the same thing with proper testing. This should be welcomed by moms to help them allay their fears, and someone looking for the truth should tell you this. But that’s not the point of Carey’s book and you are not even told that these studies exist. Remember: be afraid.
Glyphosate “heroes” and “villains”

To help craft her tales of fear, Carey offers up a variety of heroes and villains. Charles Benbrook, an apparent hero, is quoted selectively. Richard Goodman, apparent villain, not quoted, is falsely blamed for the retraction of the Séralini paper (by Séralini, quoted at length). (Séralini even specified Goodman’s non-involvement as a condition of him sharing his data with the journal editors.) Some of the nefarious connections Carey details include media training provided by industry revealed by FOIA requests. Scientists typically don’t get media training in their careers, and they really are no match for slick activists, detox peddlers, and allied (sometimes unwitting) reporters who are always seeking media attention. In fact, in one case we find that FOIA documents reveal that Richard Goodman, a scientist at the University of Nebraska, was offered media training by agribusiness to speak to issues of GMO labeling.

Benbrook media

We do need more scientists speaking out on issues in the public sphere, it’s not something I think is that nefarious. But let’s look at FOIA documents about media training here on the right.

Oh, I’m sorry – wait, that’s Carey’s source Charles Benbrook’s media training provided by the organic industry. I’m sure she just forgot to mention that. We are not told whether Goodman actually got media training or how much money it involved, or if had anything near the success rate of Benbrook’s media strategy.

Speaking of media manipulation, Carey covers the publication of Gilles-Eric Séralini’s rat study publication event at length, and how “news outlets around the world published stories about the study findings, and regulators in many countries were understandably rattled.” Carey neglects to mention that Séralini’s team manipulated the media coverage, raising outrage among qualified journalists: From Darwinius to GMOs: Journalists Should Not Let Themselves Be Played. (BTW, Séralini’s team also coordinated with the folks on the California GMO labeling campaign, Michael Pollan noted in a lecture he had been invited to the launch call that was described to him as a “game changer”.) This well-timed but ultimately bad science and media drama had real consequences on trade and regulations, and that is a very unfortunate outcome that we see over and over in this arena.
IARC and Portier

The International Agency for Research on Cancer (IARC) is an organization that reviews various substances and situations for potential cancer-causing hazards. Items on their lists include wine, hot beverages, bacon, hairdressing, shift work, the sun, and other such scary topics. People have been critical of the often misleading ways the IARC conclusions are hyped. In 2015 they reviewed some farming chemicals, including glyphosate, and returned with a determination that it was a class 2A probable carcinogen. This was in contrast to every other agency around the world, but was a cause of much rejoicing among people peddling fear and lawsuits against Monsanto.

This case of dubious science is covered in the book. But not how you might expect from someone who claims to be a warrior for truth – with fairness and accuracy. Instead, Carey describes the IARC’s famous assessment at some length while omitting certain details.

One of the players in the IARC story is Christopher Portier, a toxicologist (left, with Carey). Reportedly he had no background in glyphosate when he became an “invited specialist” to the IARC group reviewing glyphosate. Portier is portrayed as a credentialed former scientist who had retired to a remote Swiss village (can’t you just smell the fresh mountain air?). Carey is dismayed that people used his consulting work with an environmental activist group to suggest that he was biased in his IARC role. Eight pages later, Carey impugns a retired credentialed former government scientist, Jess Rowland, and his influence on an EPA report and invokes nefarious and unknown retirement consulting work.
We don’t know if Carey could have known the extent of Portier’s influence on the IARC report at the time, it’s not described in the book. Since that time, though, it has come to light that someone in this group altered the original documents in a consistent manner to make the conclusions lean towards one direction: *In glyphosate review, WHO cancer agency edited out “non-carcinogenic” findings*. We have also since learned that Portier has, in fact, been working for law firms who are suing Monsanto right now, on the basis that Roundup caused that farmer’s NHL cancer. He signed a contract the same week IARC released their glyphosate monograph. Since Carey’s organization – *USRTK* – also works closely with these law firms, it seems surprising that an intrepid investigator and researcher seeking truth wouldn’t have been aware of this, and neglected to mention it.

As one weed science researcher noted about the IARC document editing revelations: “I’m not one for conspiracy theories, but that is a pretty odd set of choices to make, if the goal is really to figure out the truth.”

**Lies on Ties**

It clearly is a matter of consternation to Carey Gillam and her colleagues that public scientists and some moms disagree with her truth about GMOs and glyphosate. She spends time on many stories everyone has already heard, attacking public researchers who have exchanged emails with corporations. She never provides you with the context that many public scientists are required by their jobs and grants to work with a variety of stakeholders including farming groups and industry. But the emails are used as evidence of collusion, which should make you discount all of them. (Except her experts and the warrior moms she courts.)

Carey implies that the *Science Moms* are tied to Monsanto. They are not. This is a flat-out lie. These are women who are frustrated that nonsense peddlers using bad science and fear campaigns are causing parents to make bad choices on food and vaccines. And this is why your can’t let your conspiracy-fogged brain trample over the facts – Carey cannot distinguish between the science and her conspiracy theories. (Full disclosure: I gave money to the SciMoms crowdsourced film project, and I got a t-shirt and a copy of the film in return. Apparently they shill for me?) In another case of omission, Carey pretends that her own industry team is not having mommy bloggers and her scientist sources influencing people with social media. Be sure to see the photo and caption: “Harvard Researcher Chensheng (Alex) Lu, PhD Speaking to Bloggers at Stonyfield Organic Breakfast”. Carey cites Lu’s work in her book.

dear friend carey

And, of course, Carey writes very differently about Vani Hari, the Food Babe, who calls Carey “my dear friend”. The Food Babe profits off products she sells from her fear-mongering website.
grassroots March Against Myths about Modification (MAMyths) group is an industry front group, claiming it was founded, funded, or backed by industry. Like the SciMoms, they are not, and she again presents no evidence of this dark association. (Editor’s note: MAMyths is a project of Biology Fortified, Inc., which is supported by individual donors and not by the industry, as is clearly noted on both sites.)

She includes the story of a retired scientist, now wellness farmer, Thierry Vrain, who was slated to present a talk at a Houston science museum about “The Poison in our Food Supply”. Carey had earlier described Vrain’s conversion based on “obscure studies”. (Mm hmm. I’m sure they high-quality studies.) She reports that “Kevin Folta and other industry supporters” were responsible for shining a spotlight on Vrain’s unsuitable talk for a science museum. The talk was booted. The group that actually sounded the alarm to alert the science museum about Vrain’s talk was MAMyths – a decent investigative researcher might have figured this out, especially since his relocated talk was debunked live by them on Twitter (#JustAThierry). Kevin Folta was very involved as well. But in her complaint she also neglected to tell you the story of a science panel that Folta was part of, booted out of a food coop by a member of Carey’s activist circle, Jonathan Latham.

The irony of Carey’s claims is beyond astonishing, over and over. She cites Michele Simon on industry groups this way: “The idea is to fool the media, policymakers, and the general public into trusting these sources, despite their corporate-funded PR agenda.” Michele Simon is the executive director for an industry PR and lobbying group, and previously worked on the GMO labeling policy issue in California, which was run by Carey’s current bosses: Gary Ruskin and Stacy Malkan. She neglects to inform the reader that her current job at USRTK is funded largely by money funneled via the Organic Consumer’s Association from industries that stand to benefit by raising fear and doubt about their competitors’ products. I’m sure these are just accidental omissions.

</sarcasm>

It would be one thing if Carey Gillam reported about actual cases of the biotech industry having financial ties to organizations that speak favorably about their products (to be fair there are some) and forgot to do the same on the other side. But to just make up lies about independent groups while falsely portraying members of competing industries as independent means that she’s not even trying to look intellectually consistent or honest.
Facts about GMOs and Glyphosate

There are so many errors of omission, and repetition of common activist tropes (SEED SAVING!1!!), uncited and unsourced insinuations, conflations of pesticides, serial abuse of cell culture models without context, and flat out falsehoods that dissecting them would take pages and have no value at all to her fans, and would be unnecessary for those of us who have been following the science. I’ll just wrap up with a few more observations on her strategies.

Carey spends chapters 7-8 conflating all pesticide use with GMOs and glyphosate – without any tinge of awareness that her glypho-hate fixation may actually be harming the discourse by causing people to fixate on the wrong thing. And absolutely no comment about what happens if they did manage to ban glyphosate. Even one of her favorite sources – Charles Benbrook – advises against a ban because it would cause increases in more harmful compounds. (From FOIA documents):

“I do want to share one thing. In many countries, especially abroad, rapid action to ban GLY will lead to increased use of paraquat. While I am glad to see pressure building for more judicious use of GLY, I personally do not support a total ban, not even close. The chemical alternatives are almost certainly orders of magnitude worse, both in terms of environmental and human health risks.”

But there’s no evidence that Carey wants you to understand that context.

In Chapter 9, Carey works very hard to convince you that the fact of German and European-wide food and chemical agency assessments finding that glyphosate studies were flawed, and expressing their disagreement, it’s all because Monsanto told them to do so. Look away from the scientific agencies, she wants, and look to the activist groups and organic farmers for your answers. Because conspiracy. ¯_(?)_/¯

In chapter 10 she talks to some actual weed scientists about the issues of resistance, and tells us about how much weed impacts on yield can really hurt farmers (this is another actual fact in this book). She talks about how awful and expensive hand weeding is. But she provided no evaluation of alternatives. She talks to someone who says, “When you spray glyphosate on a plant it’s like giving it AIDS.” And she prints that uncritically and unchallenged. Soon after she attempts to blame glyphosate for citrus greening disease. This is utter nonsense. In fact, it’s worse than nonsense—it’s like blaming vaccines for autism. Blaming the wrong thing is really harmful if you want to find solutions. It’s really pure idiocy.

In addition to the long list of evil things that glyphosate supposedly does, several times she hinted at endocrine disruption. This has been repeatedly flogged by glypho-haters every time their other theories fail. And this came too late for her book, but I’m sure she’ll be relieved to know that glyphosate “does not have endocrine disrupting properties”. Damn those government scientists and their demands for the weight of evidence!

In her focus on the conspiracies and cranks, Carey apparently didn’t have room for what the actual
scientific bodies have to say about GMOs and herbicides. During the writing of this book, an important study came out from the US National Academy of Sciences about “Genetically Engineered Crops: Experiences and Prospects”. There is not a word about the findings of this highly respected body in this book. It’s probably wise for her to avoid this, because they observed that the “pounds” metric for pesticides was not a helpful descriptor and a more sophisticated assessment was recommended.

RECOMMENDATION: Researchers should be discouraged from publishing data that simply compares total kilograms of herbicide used per hectare per year because such data can mislead readers.

Oh, the respected scientists at the National Academy of Sciences say that weight of herbicide may “mislead readers”? Yet Carey constantly drops pounds of fear on readers.

Additionally, the National Academy report looked at health issues related to genetically engineered crops and the long list of concerns that people claim are related to them, such as “cancer, obesity, gastrointestinal tract illnesses, kidney disease, and disorders such as autism spectrum and allergies”. They compared countries with widespread use of GMO crops and those without. In brief, their conclusion on the health issues:

No pattern of differences was found among countries in specific health problems after the introduction of GE foods in the 1990s.

It is utterly–UTTERLY–irresponsible to ignore the multi-year National Academy of Sciences’ investigation into these issues. In the book preface Carey says, “As you’ll see in this book, the only bias I hold is for the truth.” No, you won’t see that in the book because she omits this key major document. It’s like talking about climate without mentioning an IPCC report. It is peak bias and ultimate dishonesty. She does note that a German federal “Renewal Assessment Report” in 2013 concluded that “glyphosate was unlikely to pose a cancer risk”, but claims that this report was based on an industry dossier. Carey’s source for this? A non-peer-reviewed screed that Nancy Swanson has posted to Academia.edu. Nancy Swanson has no visible training or experience in this field.

She does refer to a government study that she did appear to favor. The Agricultural Health Study (AHS) is a long-term study of many thousands of pesticide applicators and their spouses. She admits that the study “thus far found little or no connection between glyphosate and disease, including NHL”. She does attempt to sow some doubt on this, though, saying they haven’t followed the farmers long enough. Well, just recently a new publication came out on this study. The conclusion?

In this large, prospective cohort study, no association was apparent between glyphosate and any solid tumors or lymphoid malignancies overall, including NHL and its subtypes.

Let the handwaving ensue.
The decision by the European Union to renew the license for glyphosate was looming as Carey was writing this book. Her *Whitewash* was perfectly timed to influence that decision. Carey took her book and presentation to the EU to testify before legislators (you can see an awful animated version of her presentation hosted at Chuck Benbrook’s site), and it almost worked. But glyphosate has been renewed for now. Unsurprisingly, Carey seemed irked that the actual science from the Agricultural Health Study that demonstrated no link to Non-Hodgkin’s Lymphoma was published in time before the vote. Or was it timed to undermine the lawsuit? Conspiracy theorizing is hard. Also unsurprisingly, of course she thinks this is nefarious. Alas.

**Conclusion and the way forward**

Farming is a hard job, as it had been before Jefferson’s time and it will continue to be in the future. A real look at the challenges and tradeoffs that are made, with serious discussion about the alternatives, and their features and bugs, is warranted. But that’s not what we get in this Whitewash.

Carey closes the book with a chapter called “Seeking Solutions”. It begins with a quote from Rachel Carson—but not the one where Carson implores us to use biology instead of chemistry—as we do with Bt crops and GMO mosquitoes. And not the fact that we tweak a gene enabling us to use safer chemistry to battle weeds. She talks about biological seed treatments that are being worked on—which may be great, we’ll have to see. She has no apparent concern about introducing new microbes into a system. Of course, she wants it all to become organic, despite the higher costs and lower yields that she admits. She flogs the Rodale report. She does not tell you that her sources Francis Moore Lappé and Chuck Benbrook found the Rodale study “disappointing and shallow”, while adding that no one takes Rodale seriously anymore.

She describes agroecology as a way forward. She does not acknowledge that agroecology means “proper use of technology is an indispensable part of achieving sustainability”. This may include GMOs and herbicides. She does cite Hilal Elver, UN Special Rapporteur, a lawyer. Elver’s UN report on agroecology actually cited the fake Monsanto Tribunal as evidence. This may not be someone with a good grasp of quality sources.

This book, overall, is a large exercise in doubt—attempting to mislead you with selected information, while fogging the field with suggestions that so much is being hidden from you by people with black helicopters. In fact, much is being hidden from you in this book. It’s a perfect example of what was recently described as “agnogenesis’ — the intentional manufacture of ignorance”. Carey has attempted to manufacture readers’ ignorance by leaving out very important scientific facts and using unsupported claims and insinuations as her shoddy foundation.
I understand that people with cancer and their loved ones want to have someone to blame. It would be satisfying to be able to point to a villain and say: YOU–you are responsible for my cousin’s death from leukemia! Because cancer being something random that kills a 15-year-old is hard to take. But you can’t just blame the wrong thing. If you do that, you cannot get to the real sources and solutions to the actual issues.

Conspiracy theories and mavericky lone scientists are appealing to some. Yet they are typically ultimately unproductive and often harmful. This case is very much like that of the vaccine dramas, where blaming the corrupt feds and Big Pharma, and championing the underdog doctor, may be the story you’d rather believe. But we need to look to the body of evidence on a topic, we need to look to qualified scientists and sources, and we need to resist the lure of filling in the gaps between the realities of the data with the outcomes you prefer. This book is about whitewashing. But you need to look at what Carey painted over. And you need to ask why.

We all want our government agencies and careful journalists to be our protectors and arbiters of facts. We need them to stand in the middle between greedy corporations and people who prefer to run the system based on their personal beliefs that are not grounded in science. Mostly, government scientists do a decent job—we have safe and abundant food, we have new medications from methods including gene editing, and we have technological innovations that changed our lives, like the internet, because they helped us to get there. Painting them as corrupt people who want to inflict you with cancer is really unhelpful in many ways. And letting activists with loose tethers to facts establish policy is a very risky strategy. Skip this hogwash, and instead look at what reputable scientific agencies have to say. Walking away from fearmongers may add years to your life, and is good exercise.

PS: The Organic Consumer’s Association, the main funding channel for Carey Gillam’s employer, USRTK, just happens to be an organization that ran a project to mislead the Somali community in Minnesota about vaccines, leading to a measles outbreak that harmed vulnerable children.

Editor’s Note: A request for clarifications of claims in this book was issued to the author, editors, and publisher, and the publisher declined to comment on fabrications or omissions in the book. The editors and author did not respond to repeated requests to comment.

Mary Mangan, Ph.D., received her education in microbiology, immunology, plant cell biology, and mammalian cell, developmental, and molecular biology. She co-founded OpenHelix, a company providing training on open source software associated with the burgeoning genomics arena, over a decade ago. All comments here are her own, and do not represent OpenHelix. Follow her on Twitter @mem_somerville

This article was originally published at Biofortified as “Hogwash! A review of Whitewash by Carey Gillam” and has been republished here with permission.