Viewpoint: Popular Science is the latest ‘mainstream’ news source to fall into the anti-glyphosate disinformation rabbit-hole

“This Roundup ingredient might cause cancer—but the EPA won’t ban it,” Popular Science told its readers in a terribly misleading January 13 story about the weedkiller glyphosate. After nearly 50 years on the market and thousands of studies investigating its health effects, most experts are convinced that the herbicide poses minimal risk to humans. That should be the end of the discussion, but a handful of ostensibly reputable publications, Popular Science being the latest, insist on amplifying the rhetoric of activist groups and trial lawyers when it comes to Bayer’s weedkiller.

POPULAR SCIENCE

This Roundup ingredient might cause cancer—but the EPA won't ban it

While glyphosate has been linked to various health issues, it has yet to be fully removed from the market.

BY ISOBEL WHITCOMB | PUBLISHED JAN 13, 2022 8:00 AM

SCIENCE ENVIRONMENT HEALTH

Glyphosate has been linked to cancer and miscarriages—why is it still on the market?. *Deposit Photos*

These outlets highlight only the studies that fit their desired conclusion, rely on carefully chosen experts, and report half-truths, leaving their readers with the impression that glyphosate is more harmful than it really is.

There is no excuse for such shoddy reporting. If PopSci's article were about climate change or COVID vaccines, it would have been censored by the social media platforms for containing "misinformation." Let's evaluate a few claims from the article — PopSci in quotes, followed by my commentary.

> *"[Glyphosate] inhibits the shikimate pathway, a system plant cells use to produce energy, by inhibiting an enzyme that helps them synthesize amino acids from carbohydrates … While human cells don't use the shikimate pathway, bacteria do. It's possible that glyphosate's apparent risk to human health is due in part to the chemical's effect on the good bacteria in our guts."*

There are two very well-documented problems with this hypothesis. First, studies that posit a link between glyphosate and gut health have to expose bacteria to massive amounts of the herbicide, doses that humans are never exposed to. For example, you'd have to eat more than 300 lbs of legumes to consume enough glyphosate to match the exposures in these cell-culture and animal studies. The paper PopSci cited acknowledged this very limitation:

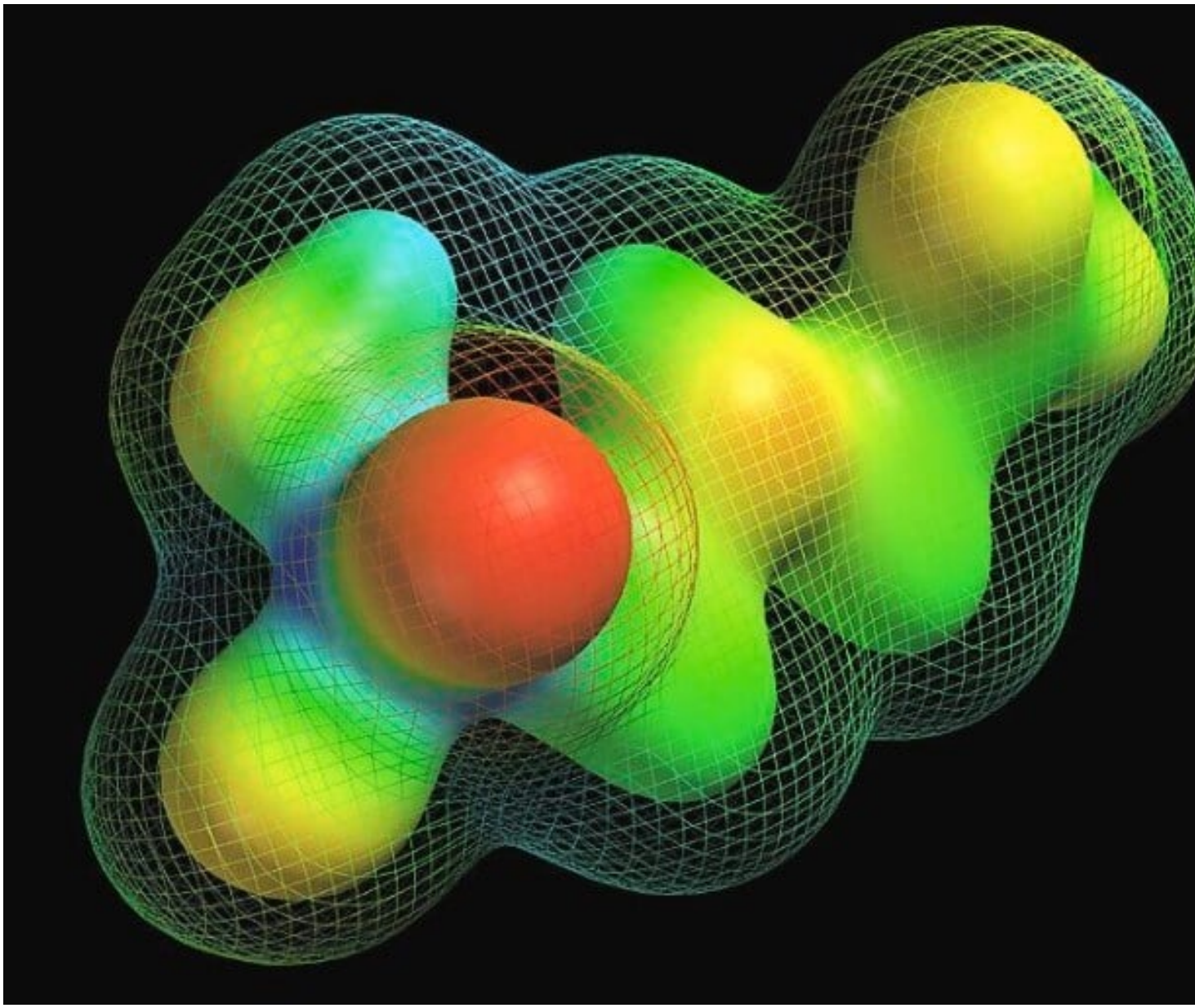
> *We found that glyphosate … administered* ***at up to fifty times the established European Acceptable Daily Intake*** *… had very limited effects on bacterial community composition in Sprague Dawley rats during a two-week exposure trial. [my emphasis].*

Next, while high doses of glyphosate can inhibit the enzyme gut bacteria need to synthesize aromatic amino acids, this isn't as troublesome as it appears. "Think for a moment about the human gut," writes cell biologist Iida Ruishal. "It is a protein-rich environment, where all the nutrition from our food is broken down into its constituents. It is basically a soup of amino acids." In such a context, microbes can simply absorb the nutrients they need, with no synthesis required.

Back to PopSci:

> *'Glyphosate is, by far, the most heavily used and most profitable herbicide ever discovered,' says Charles Benbrook, an agricultural economist at the Heartland Health Research Alliance and an expert witness in the ongoing Roundup litigation. As of 2014, 825,000 tons of the herbicide were used each year worldwide, according to an article published in the journal Environmental Health.*

The Conversation used the same scare tactic in a July 2021 article about glyphosate. The chemical is widely used in agriculture because it's effective, but 825,000 tons translates to a few ounces of active ingredient applied to an area the size of a football field. Thanks to analytical chemistry, we can find lots of chemicals in lots of places; that doesn't mean they're present in amounts that can cause harm.



Digital rendering of the controversial molecule, glyphosate. Credit: Alfred Pasieka

Had Popular Science contacted an independent expert instead of an organic-industry consultant like Benbrook, they would have acquired all this information. It's also worth noting that Benbrook has been widely criticized by agricultural scientists, who say he tends to start with a conclusion and then find data to support it. Of course, the Popular Science article excluded these awkward details.

> *"Much of the epidemiological data we do have comes directly from scientists employed by the companies producing herbicides—a potential conflict of interests. In that [2016] EPA report on glyphosate, 39 percent of the studies reviewed were produced by Monsanto scientists,*

according to an analysis published in Environmental Sciences Europe."

If 39 percent of the research came from Monsanto, that means 61 percent, the vast majority of the data EPA reviewed, came from independent scientists. It's not clear why these percentages are scandalous. In any case, PopSci has overlooked an important fact: EPA can require pesticide manufacturers to submit new evidence if "additional data or information are needed to conduct the review." The agency can also punish companies that don't comply during the registration review process. Given those stipulations, Monsanto's involvement shouldn't shock anybody. Pesticide companies are expected to show that their products are safe for commercial use.

During the 2018 court case Johnson v Monsanto, evidence presented included leaked internal emails in which Monsanto employees discussed ghostwriting studies to support the claim that glyphosate is safe for human health.

Ghostwriting is never acceptable, but the simple fact is that regulators in Europe and the US knew that Monsanto helped produce the research in question, as the European Food Safety Authority (EFSA) explained in 2017. And, as we just discussed above, this was but a fraction of the data reviewed. "This is because EU experts had access to, and relied primarily upon, the findings of the original studies and the underlying raw data to produce their own conclusions," the EFSA added.

This included discrediting the International Agency for Research of Cancer's report that "glyphosate was a probable human carcinogen," according to a 2021 review co-authored by Glenna and published in the journal Research Policy.

What Monsanto scientists said about IARC behind closed doors, other experts said very publicly. The company correctly noted, for instance, that the UN cancer agency ignored studies that would have reversed its "probably carcinogenic" finding for glyphosate. One of IARC's reviewers also went on to serve as an expert witness in litigation against Monsanto (and now Bayer) alleging that the weedkiller causes cancer. When Congress got curious about this arrangement in 2018, then-IARC chairman Christopher Wild politely told them to go pound sand.

IARC categories of cancer causing substances. Credit: GMO Answers

Like most news outlets, PopSci has lamented that “almost every social media channel is booby-trapped with misinformation.” Yet the magazine’s contributors and editors can’t be bothered to conduct basic research before publishing a story about what might be the most studied chemical in history. Why should anybody take their complaints about misinformation seriously when they can’t even police their own content?

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