MERCOLA
Take Control of Your Health

Glyphosate Use Rises: Be Careful How You Test for It

Analysis by Dr. Joseph Mercola ✔ Fact Checked | August 27, 2022

STORY AT-A-GLANCE

- Glyphosate, the active ingredient in Monsanto's Roundup herbicide — identified as a probable human carcinogen by the International Agency for Research on Cancer in 2015 — is the most heavily used agricultural chemical in history
- A 2016 study revealed use of glyphosate rose nearly fifteenfold between 1996 (when Roundup Ready crops were introduced) and 2014, and a recent data analysis by the Midwest Center for Investigative Reporting shows usage has dramatically increased across the Midwest in recent years
- In 2016, Midwest farmers used an estimated 188.7 million pounds of glyphosate, a fortyfold increase from 1992, and the Midwest accounts for 65% of the total glyphosate usage in the U.S.
- Some states have seen an even greater increase. In Nebraska, Indiana, Illinois, Minnesota and Iowa, glyphosate usage was about 80 times greater in 2016 than in 1992, and 15 times higher than in 2000
- The glyphosate market is predicted to continue growing, potentially doubling by 2021, from the current $5 billion per year to as much as $10 billion

This article was previously published June 12, 2019, and has been updated with new information.

According to polls, the No. 1 reason people choose organic food is to avoid pesticide exposure.[1] Not only do these chemicals threaten the environment, but they also pose a

very clear and direct risk to human health.

Glyphosate, the active ingredient in Monsanto's Roundup herbicide — identified as a probable human carcinogen by the International Agency for Research on Cancer (IARC)[2,3] in 2015 — is the most heavily used agricultural chemical in history.[4]

A 2016 study[5] published in Environmental Sciences Europe revealed use of glyphosate rose nearly fifteenfold between 1996 (when Roundup Ready crops were introduced) and 2014. Between 1974 and 2014, 1.8 million tons of glyphosate were applied to U.S. fields. The global total for that timeframe was 9.4 million tons.

Mounting evidence shows the weed killer is nowhere near as effective as it used to be, thanks to mounting resistance, and there are more than 13,000 pending lawsuits[6] charging Monsanto's (now Bayer's[7,8]) herbicide Roundup caused the plaintiffs' Non-Hodgkin lymphoma.

Despite that, a recent data analysis[9] by the Midwest Center for Investigative Reporting shows usage hasn't dropped off. On the contrary, glyphosate use has dramatically increased across the Midwest in recent years.

Glyphosate Use Shows No Signs of Decline in Midwest

Writing for the Midwest Center for Investigative Reporting, Christopher Walljasper and Ramiro Ferrando point out that "Nationwide, the use of glyphosate on crops increased from 13.9 million pounds in 1992 to 287 million pounds in 2016, according to estimates by the U.S. Geological Survey."[10]

In 2016, Midwest farmers used an estimated 188.7 million pounds of glyphosate, a fortyfold increase from 1992, and the Midwest accounts for 65% of the total glyphosate usage in the U.S. Some states have seen an even greater increase.

In Nebraska, Indiana, Illinois, Minnesota and Iowa, glyphosate usage was about 80 times greater in 2016 than in 1992, and 15 times higher than in 2000. According to an August

2022 glyphosate market report, the global glyphosate market is also predicted to continue growing, from $4.44 billion in 2020 to $5.24 billion by 2027.[11]

While this seems like a huge increase, actually it's substantially lower than the $8.8 billion predicted only five months earlier, in March 2022. The decrease is due to what Reuters called "off the charts" shortages of the chemical.[12]

GMOs Have Been a Primary Driver of Toxic Weed Killer Use

Despite a slower rise in sales, one of the reasons for any increase is that genetically engineered corn and soybeans dominate this agricultural area, and glyphosate is routinely used on these crops as they are designed to survive direct application. Walljasper and Ferrando write:[13]

> *"Once thought of as a miracle product, overreliance on glyphosate has caused weeds to grow resistant to the chemical and led to diminished research and development for new weed management solutions, according to Bill Curran, president-elect of the Weed Science Society of America and emeritus professor of weed science at Penn State University.*
>
> *'We're way overreliant on roundup,' Curran said. 'Nobody thought we were going to be dealing with the problems we are dealing with today' … James Benham has been farming in Southeast Indiana for nearly 50 years. Benham said, as resistance grew, Roundup went from a cure-all to a crutch. 'Sometimes if you timed it just right, you could get away with just one spraying. Now we're spraying as often as three or four times a year,' he said.*
>
> *Benham said farmers continue to spend more on seed and chemicals but aren't seeing more profit. 'That puts the farmer in that much more of a crisis mode. Can't do without it, can't hardly live with it,' he said. As glyphosate became less effective, farmers also turned to even more pesticides to try and grow successful crops each year."*

Be Very Careful How You Measure Your Glyphosate Levels

There are only a few companies that test not only for glyphosate but its breakdown product AMPA. I have had many tests for glyphosate from HRI Labs. It is my absolute most preferred lab to use for this toxin. They use state of the art mass spectroscopy and have incredibly accurate results.

In every HRI test I have done, both glyphosate levels were either undetectable or were trace. HRI is in the process of doing hair testing for glyphosate, which is a better test for long-term exposure. I was surprised when mine came back higher than trace as I eat only organic.

But the really important point of this section is to warn you that if you use a lab other than HRI, you need to be really careful. Just for grins, I sent a sample to a popular lab for glyphosate and was shocked when I received my results in the absolutely nonstandard cryptic units of micrograms/gram of creatinine.

What was even more surprising was that it was seriously higher than any test I had done at HRI. So, I dug deeper and called the owner of the lab and conference called in with the director of the HRI lab and we found out the problem. They are using a vastly inferior RIA test for glyphosate. The test is very accurate in water, but when testing for glyphosate in urine like they do, it comes back falsely high.

So, the bottom line is be careful out there. If you are using a lab other than HRI for testing for glyphosate, look at the units that your test results are reported in. It needs to be in parts per billion (ppb). If it is in micrograms/gram of creatinine, please realize that your results are seriously misleading. I have encouraged the owner of the lab to switch but, sadly, he refused. So, your best approach right now is to avoid using labs that don't measure in ppb.

Will Billions in Legal Damages Taper Glyphosate Sales?

As noted by Walljasper and Ferrando, a number of lawsuits against Monsanto/Bayer have resulted in high damages, but while Bayer's stock price dropped by more than 44% after its takeover of Monsanto in 2018,[14] there wasn't a noticeable slowdown in Roundup sales until mid-2022, when the COVID pandemic created supply-chain issues.[15]

Not surprisingly, since IARC linked glyphosate to an increased risk for Non-Hodgkin lymphoma in 2015,[16,17] the number of cancer victims suing for damages has skyrocketed, and the link between glyphosate and Non-Hodgkin lymphoma has only grown stronger.

More recently, a meta-analysis[18,19,20,21] of six epidemiological studies published between 2001 and 2018 found glyphosate increases the risk of Non-Hodgkin lymphoma by 41% in highly exposed subjects. Of the six studies included in this new analysis, five showed a positive correlation.

One of the studies, known as the Agricultural Health Study,[22] published in 2018, found no effect. However, the researchers point out that results were watered down in that study due to the inclusion of people with very low exposure. It's only when you look at high-exposure groups independently that a clear link between exposure and Non-Hodgkin lymphoma emerges. The following are three examples:

The first case against Monsanto to go to court resulted in 46-year-old Dewayne Johnson, who is terminally ill with Non-Hodgkin lymphoma, being awarded $289 million in damages. The judge reduced the total award to $78 million.[23,24,25] and then again to just $20.5 million on an appeal by Monsanto/Bayer. The case is now closed.[26]

In the second case to be heard, the jury awarded 70-year-old plaintiff Edwin Hardeman $80 million in damages.[27,28] Although Monsanto/Bayer appealed Hardeman's award all the way to the U.S. Supreme Court, the court denied to hear the appeal in June 2022.[29] In a summary of the case, AgriPulse noted that the ag company had settled more than 100,000 cases so far, with 30,000 still waiting.[30]

The third case, brought before the Alameda County Superior Court of California, involved a married couple, Alva and Alberta Pilliod, both of whom claimed they

developed Non-Hodgkin lymphoma after regular, long-term use of Roundup.

As in the previous two court cases, the jury found Monsanto acted with negligence as they chose not to warn consumers about cancer risks, and the Pilliods were awarded $2.055 billion in combined damages.[31,32,33]

Monsanto/Bayer appealed in this case, too, and a judge reduced the verdict to $86.7 million, a number which stayed after the ag company lost in a District Court of Appeal in San Francisco in 2021.[34] These three cases have all involved patients with Non-Hodgkin lymphoma, but glyphosate-based herbicides have also been linked to several other types of lymphatic cancers and blood cancers.[35]

As reported by Bloomberg,[36] a class-action lawsuit filed against Monsanto February 13, 2019, specifically focuses on glyphosate's effect on gut bacteria, which we now know play vital roles in human health and can influence everything from mood to chronic diseases of all kinds.

According to this lawsuit, Roundup's label falsely assures consumers that the product works by targeting an enzyme not found in people or animals. Research has proven this false, as this enzyme does exist in human and some animal gut bacteria.[37]

As mentioned, as of August 2022, more than 100,000 individuals harmed by Roundup had settled with the company, to the tune of $11 billion, with tens of thousands more cases pending.[38]

The Many Ways in Which Glyphosate Harms Your Health

Were the full ramifications of glyphosate fully understood, there's no doubt it would be banned. The question is, just how much evidence do we need? There's already ample research showing glyphosate can harm health in a wide variety of ways. For example:

Research[39] published in 2007 found that aerial spraying of glyphosate in combination with a surfactant solution resulted in DNA damage in those exposed.

Research[40] published in 2015 found that glyphosate in combination with aluminum synergistically induced pineal gland pathology, which in turn was linked to gut dysbiosis and neurological diseases such as autism, depression, dementia, anxiety disorder and Parkinson's disease. According to the authors:

> *"The pineal gland is highly susceptible to environmental toxicants. Two pervasive substances in modern industrialized nations are aluminum and glyphosate … In this paper, we show how these two toxicants work synergistically to induce neurological damage.*
>
> *Glyphosate disrupts gut bacteria, leading to an overgrowth of Clostridium difficile. Its toxic product, p-cresol, is linked to autism in both human and mouse models. p-Cresol enhances uptake of aluminum via transferrin.*
>
> *Anemia, a result of both aluminum disruption of heme and impaired heme synthesis by glyphosate, leads to hypoxia, which induces increased pineal gland transferrin synthesis. Premature birth is associated with hypoxic stress and with substantial increased risk to the subsequent development of autism, linking hypoxia to autism.*
>
> *Glyphosate chelates aluminum, allowing ingested aluminum to bypass the gut barrier. This leads to anemia-induced hypoxia, promoting neurotoxicity and damaging the pineal gland.*
>
> *Both glyphosate and aluminum disrupt cytochrome P450 enzymes, which are involved in melatonin metabolism. Furthermore, melatonin is derived from tryptophan, whose synthesis in plants and microbes is blocked by glyphosate.*
>
> *We also demonstrate a plausible role for vitamin D3 dysbiosis in impaired gut function and impaired serotonin synthesis. This paper proposes that impaired sulfate supply to the brain mediates the damage induced by the synergistic action of aluminum and glyphosate on the pineal gland and related midbrain nuclei."*

Glyphosate also inhibits pituitary release of thyroid stimulating hormone, which can lead to hypothyroidism.[41]

Glyphosate mimics glycine (the "gly" in glyphosate stands for glycine), an amino acid your body uses to make proteins. By acting as a substitute for glycine in your body, glyphosate can cause damaged proteins to be produced. As noted in the 2017 paper,[42] "Glyphosate Pathways to Modern Diseases VI: Prions, Amyloidoses and Autoimmune Neurological Diseases":

> *"In this paper we explain how glyphosate, acting as a non-coding amino acid analogue of glycine, could erroneously be integrated with or incorporated into protein synthesis in place of glycine, producing a defective product that resists proteolysis. Whether produced by a microbe or present in a food source, such a peptide could lead to autoimmune disease through molecular mimicry."*

Glycine also plays a role in quenching inflammation, and is used up in the detoxification process. As a result of glyphosate toxicity, many of us may not have enough glycine for efficient detoxification.

Glyphosate chelates important minerals, including iron, cobalt and manganese. Manganese deficiency, in turn, impairs mitochondrial function and can lead to glutamate toxicity in the brain.[43]

By impairing serotonin transport and killing beneficial gut bacteria (glyphosate is in fact an antibiotic), glyphosate may also contribute to a wide range of mood disorders, including major depression.[44]

By interfering with the function of cytochrome P450 enzymes, glyphosate also interferes with the activation of vitamin D in the liver and the creation of both nitric oxide and cholesterol sulfate, the latter of which is needed for red blood cell integrity.[45]

According to research[46] presented at a 2017 Children's Environmental Health Network conference in Washington, D.C., women exposed to higher glyphosate levels during pregnancy had babies born earlier and with lower adjusted birth weights. What's more, the chemical was detected in more than 90% of the mothers in the study.

A thorough **review of published studies**[47] showing human and animal health effects has been compiled by Drs. Alex Vasquez and Eva Sirinathsinghji, and can be accessed on I-SIS.org, hyperlinked above. It contains 220-pages' worth of research — more than enough to satisfy most critical thinkers.

Another illuminating and heavily referenced 80-page report[48] is "**Banishing Glyphosate**," written Eva Sirinathsinghji and the late Mae-Wan Ho, with cooperation from six other researchers, including Don Huber and Nancy Swanson.

(Huber has also written a 42-page report[49] titled "Ag Chemicals and Crop Nutrient Interactions," in which he explains how extensive use of glyphosate and the adoption of glyphosate-tolerant GE crops have resulted in essential micro- and macronutrient deficiencies in plants, and the increased need for micronutrient remediation in the soil.)

In the 2015 paper[50] "The High Cost of Pesticides: Human and Animal Diseases," Judy Hoy, an expert on Montana wildlife, along with Swanson and Stephanie Seneff, Ph.D., poured through data from the Centers for Disease Control and Prevention's database, looking for correspondences between animal- and human disease, and correlations with pesticide usage.

Several of the plotted charts show animal- and human diseases rising in step with glyphosate usage on corn and soy crops. This includes conditions such as failure to thrive, congenital heart defects, enlarged right ventricle, liver cancer, and in newborns: lung problems, metabolic disorders and genitourinary disorders.

Testing Reveals Widespread Contamination of Food Supply

All of this evidence raises serious questions about the safety of glyphosate-contaminated foods. Testing has revealed more than 70% of Americans have detectable levels of glyphosate in their bodies,[51] and food testing shows surprisingly widespread contamination of the food supply. For example:

A limited food testing program by the U.S. Food and Drug Administration in 2016 revealed virtually all foods tested were contaminated with Roundup.[52]

Test results[53] published in August 2018 by the Environmental Working Group (EWG) showed 43 out of 45 food products made with conventionally grown oats tested positive for glyphosate, 31 of which had glyphosate levels higher than EWG scientists believe would be safe for children.

A second round of EWG testing[54,55] revealed glyphosate is a staple contaminant in Cheerios breakfast cereals and Quaker oats products. All 28 samples contained glyphosate; 26 at levels suspected to be harmful to children's health. Five of 16 organic oat foods also contained low amounts of glyphosate, even though glyphosate is prohibited in the U.S. organic standards.

Testing[56] done by Friends of the Earth found glyphosate in 100% of the 28 oat cereals sampled.

Testing by the Health Research Institute Labs (HRI Labs), an independent laboratory that tests both micronutrients and toxins found in food, confirms reports of severe contamination, showing that people who eat oats on a regular basis have twice as much glyphosate in their system as people who don't, and people who eat organic food on a regular basis have an 80% lower level of glyphosate than those who rarely eat organic.

Testing[57] by Moms Across America found glyphosate in PediaSure Enteral Formula nutritional drink, which is given to infants and children via feeding tubes; 30% of the

samples tested contained levels of glyphosate over 75 ppb — far higher levels than have been found to destroy gut bacteria in chickens (0.1 ppb).[58]

Testing by The Detox Project shows glyphosate contamination is rampant in organic plant-based protein supplements as well.[59,60] When testing eight of the most popular pea protein brands sold on Amazon.com as of March 2019, one organic brand was found to contain as much or more glyphosate than conventional brands.

Two conventional (nonorganic) brands, Naked Pea and Anthony's Pea Protein, had 39 ppb and 80 ppb respectively, while two separate batches of a top-selling organic brand, Orgain Organic Plant-Based Protein Powder, contained 83 ppb and 281 ppb. According to The Detox Project,[61] zero to 9 parts per billion (ppb) of glyphosate is a nondetectable level of no concern; 10 to 79 ppb is trace amounts of slight concern; anything above 80 ppb is of high concern.

Why Such Widespread Contamination?

One of the reasons so many processed foods are contaminated with glyphosate has to do with the fact that most contain GMO ingredients. Roundup Ready GMO crops are designed to survive direct dousing of Roundup, which gets incorporated into every cell of the plant. Since the glyphosate cannot be washed off, and every part of the final grain is contaminated, it ends up in the final food product as well.

However, it has now become clear that the problem is not restricted to GMO ingredients. Farmers are also using glyphosate as a desiccant or drying agent to speed up harvesting and increase yield of non-GMO grains and legumes.[62,63] This is why we find glyphosate even in non-GMO products.

It's still unclear how the chemical is ending up in some organic products. Possible causes include drift from nearby conventional and/or GE crop fields, contamination during processing, and fraud (where a nonorganic crop is sold as organic).

While glyphosate is commonly used as a preharvest drying agent,[64,65] it's not a registered (i.e., approved) desiccant.[66] Farmers who use glyphosate anyway, and douse their crops at the wrong time, can cause their crop to be heavily contaminated.

As explained in "Clarification of Preharvest Uses of Glyphosate,"[67] if glyphosate is applied too early (while the grain has a moisture rate higher than 30%), the glyphosate is absorbed through the leaves and stems and translocates throughout the plant.

How Much Glyphosate Do You Have in Your Body?

Considering how pervasive glyphosate is in the U.S. food supply, chances are you and your children have been exposed. The only way to determine to what degree your diet is exposing you to this toxic contaminant is to get tested. HRI Labs has developed home test kits for both water and urine, available in my online store. I do not make a profit from the sale of these kits. I only provide them as a service of convenience.

If your glyphosate levels are high, you would be wise to address your diet and consider buying more organic foods. Studies[68,69,70,71] have demonstrated organic foods significantly lower your exposure to toxic pesticides and lower your overall toxic burden.

The most recent of these studies[72,73] was published in the journal Environmental Research, February 12, 2019, showing just how rapidly you can lower your pesticide load by switching to organic.

On average, pesticide and pesticide metabolite level for neonicotinoids, organophosphate pesticides, pyrethroid, 2,4-D and others (14 compounds in all, representing about 40 different pesticides) were reduced by more than 60%, on average, in just six days of eating an all-organic diet. As a group, organophosphate pesticides (such as glyphosate) were reduced the most, dropping by 70% overall.

Many studies[74,75,76,77,78,79,80,81] also show organic foods contain higher amounts of valuable nutrients, so going organic makes for a more nutritious diet overall. You may also want to consider some form of detoxification protocol, and take steps to repair the damage to your gut caused by glyphosate and other agrochemicals.

Chances are, if your glyphosate levels are high, you probably have a number of other pesticides in your system as well. Fermented foods, particularly kimchi, are potent chelators of these kinds of chemicals. Taking activated charcoal after a questionable meal can help bind and excrete chemicals as well. Remember to stay well-hydrated to facilitate the removal of toxins through your liver, kidneys and skin.

Glycine is an important detox aid for glyphosate in particular. Dr. Dietrich Klinghardt, recognized as an international authority on metal toxicity and its connection with chronic infections, recommends taking 1 teaspoon (4 grams) of glycine powder twice a day for a few weeks and then lower the dose to one-fourth teaspoon (1 gram) twice a day.

The least expensive way to do this is purchase glycine bulk powder,[82] which is very inexpensive. This forces the glyphosate out of your system, allowing it to be eliminated through your urine. Using a sauna on a regular basis is also recommended to help eliminate both pesticides and heavy metals you may have accumulated.

Organic Food Resources

While most people tend to think of organics only in terms of produce (fruits and vegetables), it's important to remember to buy organic, grass fed beef, poultry and dairy, as well, as conventionally raised animals are routinely fed a diet of genetically engineered grains that are loaded with glyphosate and other potentially hazardous ingredients. If you live in the U.S., the following organizations can help you locate farm-fresh foods:

Demeter USA — Demeter-USA.org provides a directory of certified Biodynamic farms and brands.

American Grassfed Association (AGA) — The goal of the American Grassfed Association is to promote the grass fed industry through government relations, research, concept marketing and public education.

Their website also allows you to search for AGA approved producers certified according to strict standards that include being raised on a diet of 100% forage; raised on pasture and never confined to a feedlot; never treated with antibiotics or hormones; and born and raised on American family farms.

EatWild.com — EatWild.com provides lists of farmers known to produce raw dairy products as well as grass fed beef and other farm-fresh produce (although not all are certified organic). Here you can also find information about local farmers markets, as well as local stores and restaurants that sell grass fed products.

Grassfed Exchange — The Grassfed Exchange has a listing of producers selling organic and grass fed meats across the U.S.

Local Harvest — This website will help you find farmers markets, family farms and other sources of sustainably grown food in your area where you can buy produce, grass fed meats and many other goodies.

Farmers Markets — A national listing of farmers markets.

Eat Well Guide: Wholesome Food from Healthy Animals — The Eat Well Guide is a free online directory of sustainably raised meat, poultry, dairy and eggs from farms, stores, restaurants, inns, hotels and online outlets in the United States and Canada.

Community Involved in Sustaining Agriculture (CISA) — CISA is dedicated to sustaining agriculture and promoting the products of small farms.

The Cornucopia Institute — The Cornucopia Institute maintains web-based tools rating all certified organic brands of eggs, dairy products and other commodities, based on their ethical sourcing and authentic farming practices separating CAFO "organic" production from authentic organic practices.

RealMilk.com — If you're still unsure of where to find raw milk, check out Raw-Milk-Facts.com and RealMilk.com. They can tell you what the status is for legality in your

state, and provide a listing of raw dairy farms in your area. The Farm to Consumer Legal Defense Fund[83] also provides a state-by-state review of raw milk laws.[84] California residents can also find raw milk retailers using the store locator available at www.OrganicPastures.com.

Sources and References

- [1] Organic Consumers Association May 24, 2017
- [2, 16] The Lancet Oncology March 20, 2015
- [3, 17] Institute of Science in Society March 24, 2015
- [4] Newsweek February 2, 2016
- [5] Environmental Sciences Europe February 2, 2016; 28:3
- [6] USRTK Monsanto Papers
- [7] Fortune April 10, 2018
- [8] Justice.gov May 29, 2018
- [9, 10, 13] Investigatemidwest.org May 26, 2019
- [11] MarketWatch. August 10, 2022
- [12] Reuters June 27, 2022
- [14] Fortune.com May 14, 2019
- [15] Discover March 29, 2022
- [18] Mutation Research/Reviews in Mutation Research February 10 2019 [Epub ahead of print]
- [19] The Guardian February 14, 2019
- [20] Sustainable Pulse February 14, 2019
- [21] GM Watch February 12, 2019
- [22] J Natl Cancer Inst. 2018 May 1;110(5):509-516
- [23] Washington Times October 22, 2018
- [24] Reuters October 22, 2018
- [25] GM Watch October 23, 2018
- [26] Law.com March 19, 2021
- [27] Reuters March 19, 2019
- [28] CNN March 20, 2019
- [29, 30] AgriPulse June 21, 2022
- [31, 35] Consumer Safety Watch Compensation for Non-Hodgkin Lymphoma Victims
- [32] USRTK.org April 4, 2017
- [33] New York Times May 13, 2019
- [34] PR Newswire. November 18, 2021
- [36] Bloomberg February 13, 2019
- [37, 44, 45] Entropy 2013; 15(4): 1416-1463
- [38] Lawsuit Information Center. August 10, 2022

- [39] Genetics and Molecular Biology 2007: 30(2); 456-460 (PDF)
- [40] Agricultural Sciences 2015: 6; 42-70 (PDF)
- [41, 43] Glyphosate Pretending to Be Glycine: Devastating Consequences, Stephanie Seneff
- [42] Journal of Biological Physics and Chemistry March 2017, DOI: 10.4024/25SA16A.jbpc.17.01
- [46] Environmental Working Group April 12, 2017
- [47] I-sis.org Glyphosate Studies
- [48] Banishing Glyphosate Report (PDF)
- [49] AG Chemicals and Crop Nutrient Interactions, Current Update by DM Huber
- [50] Poultry, Fisheries & Wildlife Sciences May 30, 2015; 3:132
- [51] GM Watch October 24, 2017
- [52] The Guardian April 30, 2018
- [53] EWG.org August 15, 2018
- [54] EWG.org October 24, 2018
- [55] EWG.org October 24, 2018 Press Release
- [56] Friends of the Earth, Toxic Secret
- [57] Moms Across America January 5, 2015
- [58] Natural Society January 13, 2015
- [59, 61] Detox Project, What's Really in Our Food and Supplements?
- [60] Mamavation, Hidden Ingredient in Organic Pea Protein
- [62] JAMA 2017;318(16):1610-1611
- [63] Field Crop News August 25, 2016
- [64] Environmental Sciences Europe 2016; 28(1): 3
- [65] Producer.com August 1, 2015
- [66] Roundup.ca, Preharvest Staging Guide
- [67] Swedish University of Agricultural Sciences, Glyphosate Residues in Pre-harvest Glyphosate Treated Cereal Grains
- [68] Environmental Health Perspectives 2006 Feb; 114(2): 260–263
- [69] Environmental Research 2014 Jul;132:105-11
- [70] Environmental Health Perspectives 2015 Oct; 123(10): 1086–1093
- [71] European Parliament, Human Health Implications of Organic Food and Organic Agriculture (PDF)
- [72] Environmental Research February 12, 2019 [Epub ahead of print]
- [73] Civil Eats February 11, 2019
- [74] Orv Hetil. 2006 Oct 29;147(43):2081-90
- [75] Nutrition Journal 2010; 9:10
- [76] PLOS One December 9, 2013
- [77] Br J Nutr. 2014 Sep 14;112(5):794-811
- [78] British Journal of Nutrition 2014 Sep 14;112(5):794-811
- [79] Research Institute of Organic Agriculture
- [80] PLOS One September 1, 2010; 5(9): e12346
- [81] Mother Jones November 2007
- [82] Amazon.com, Glycine Powder

- [83] The Farm to Consumer Legal Defense Fund
- [84] The Farm to Consumer Legal Defense Fund, State by State Review of Raw Milk Laws