

# 100% of Oat Products Tested Positive for Glyphosate

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › In testing done by Friends of the Earth (FOE), 100% of oat cereal samples tested positive for residues of glyphosate, the active ingredient in Roundup herbicide
- › The average level of glyphosate in cereal samples was 360 parts per billion (ppb), which FOE noted is more than twice the level set by Environmental Working Group (EWG) scientists for lifetime cancer risk in children
- › EWG tested another 28 samples of oat-based cereal and other oat-based foods marketed to children and found glyphosate in all the samples tested, with 26 of them coming in above EWG's health benchmark of 160 ppb
- › Glyphosate residues exist on oats primarily because farmers spray the plants with glyphosate shortly before harvest, killing the crops and accelerating their drying (a process known as desiccating)

**This article was previously published February 19, 2019, and has been updated with new information.**

Oat-based foods, such as oatmeal, cereals and bread, are considered by many to be a healthy dietary addition, but if you eat such foods know that you're probably getting herbicide residues along with them.

In testing done by Friends of the Earth (FOE), 100% of oat cereal samples tested positive for residues of glyphosate, the active ingredient in Roundup herbicide.<sup>1</sup> While there are multiple reasons to reconsider the health value of oats, including their lectin content, the

rampant use of glyphosate on this crop as a desiccant just prior to harvest, and the subsequent glyphosate contamination, is worthy of attention.

## **All Oat Cereals Tested Contained Glyphosate**

FOE, looking to uncover how many pesticides and herbicides residues are in commonly eaten foods, tested store-brand cereal, beans and produce from the top four food retailers in the U.S.: Walmart, Kroger, Costco and Albertsons/Safeway.

Altogether, 132 samples of house brand samples were tested, from more than 30 U.S. stores in 15 states. Residues of glyphosate and pesticides – neonicotinoids and organophosphates – were found, with glyphosate being detected in 100% of oat cereal and pinto bean samples tested.

The average level of glyphosate in cereal samples was 360 parts per billion (ppb), which FOE noted is more than twice the level set by Environmental Working Group (EWG) scientists for lifetime cancer risk in children. Some of the cereal samples contained residues as high as 931 ppb.

As for pinto beans, levels were found up to 1,128 ppb, although average glyphosate levels were 509 ppb – 4.5 times higher than EWG's benchmark for lifetime cancer risk in children. According to FOE:

*"EWG determined that a 1-in-a-million cancer risk would be posed by ingestion of 0.01 milligrams of glyphosate per day. To reach this maximum dose, one would have to eat a single 60-gram serving of oat cereal with a glyphosate level of 160 ppb or a 90-gram serving of pinto beans with a glyphosate level of 110 ppb."*

## **Oat-Based Foods Marketed to Children Contain Glyphosate**

EWG also commissioned independent laboratory tests to determine how much glyphosate is lurking in the U.S. food supply. Forty-three 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 protective of children's health.<sup>2</sup>

Examples of foods with detectable levels of glyphosate include Quaker Dinosaur Eggs instant oatmeal, Cheerios cereal, Nature Valley granola bars, Quaker steel cut oats and Back to Nature Classic Granola. Further, out of 16 organic oat foods tested, five contained glyphosate, although at levels below EWG's health benchmark of 160 ppb.

Follow-up testing of another 28 samples of oat-based cereal and other oat-based foods marketed to children found glyphosate in all the samples tested, with 26 of them coming in above EWG's health benchmark of 160 ppb.

Glyphosate was detected in General Mills' Cheerios and a host of Quaker brand products such as instant oatmeal, breakfast cereal and snack bars. The highest glyphosate level – 2,837 ppb – was found in Quaker Oatmeal Squares breakfast cereal. According to EWG:<sup>3</sup>

*"These test results fly in the face of claims by two companies, Quaker and General Mills, which have said there is no reason for concern. This is because, they say, their products meet the legal standards.*

*Yet almost all of the samples tested by EWG had residues of glyphosate at levels higher than what EWG scientists consider protective of children's health with an adequate margin of safety."*

## **Why Do Oats Have Glyphosate Residues?**

Nearly 300 million pounds of glyphosate are used in the U.S. each year, with usage being heaviest in the Midwest due to extensive production of genetically engineered (GE) corn and soy. In fact, more than 90% of corn and soy grown in the U.S. is genetically engineered, and these ingredients are common in processed foods.<sup>4</sup>

Oats, although not GE, are a common source of glyphosate residues because the chemical is used as a desiccant on many non-GMO crops. In northern, colder regions farmers of wheat, oats and barley must wait for their crops to dry out prior to harvest.

Rather than wait an additional two weeks or so for this to happen naturally, farmers realized they could spray the plants with glyphosate, killing the crops and accelerating their drying (a process known as desiccating).

In some cases, non-GMO foods may be even more contaminated with glyphosate than GMO crops, because they're being sprayed just weeks prior to being made into your cereal, bread, cookies and the like.

Researchers from University of California San Diego (UCSD) School of Medicine noted in JAMA that Roundup is "applied as a desiccant to most small nongenetically modified grains." So for both GE crops and non-GE grains, glyphosate "is found in these crops at harvest."<sup>5</sup> As an aside, beans are also desiccated using glyphosate, which is likely why FOE's testing found such residues in all the pinto bean samples tested.

Glyphosate is the only systemic herbicide registered for use prior to harvest of dry beans. When applied preharvest, glyphosate moves to both the growing points and storage structures (including roots and seeds) of plants to target EPSP synthase, which prevents production of certain amino acids and diverts energy from essential plant processes.

This process affects the entire plant causing death and necrosis of green material. In fact, it's the only systemic herbicide registered for use prior to the harvest of dry beans, and although it's not a true desiccant, it's the "product of choice for many dry bean growers," according to the Alliance of Crop, Soil, and Environmental Science Societies.<sup>6</sup>

However, the article stresses that the timing of application is crucial to prevent excessive residues of herbicide in the final product, stating:<sup>7</sup>

*"[W]hen relying on this herbicide alone or when using it with other desiccants, application timing should be delayed to limit glyphosate accumulation in bean*

*seed ... But desiccation is a science that requires finesse.*

*Regardless of the product(s) being used, agronomists and growers must ensure proper application to maximize desiccant efficacy while limiting negative impacts to quality, including unacceptable herbicide residue levels."*

## **Glyphosate Linked to Pregnancy Risks**

Herbicide use is on the rise in the U.S. Midwest, where corn and soy crops are prolific, and researchers are concerned exposure could be harming pregnant women and children in the area.

In a study of pregnant women in central Indiana, glyphosate was detected in the urine of 93 percent of the participants, with higher levels found in those living in rural areas and those who consumed 24 ounces or more of caffeinated beverages per day.<sup>8</sup>

Further, higher levels of glyphosate in women's urine was significantly associated with shortened pregnancy lengths. Study author Dr. Paul Winchester, medical director of the neonatal intensive care unit at the Franciscan St. Francis Health system and professor of clinical pediatrics at Riley Hospital for Children in Indiana, said in a news release:<sup>9</sup>

*"In our study, which is ongoing, mothers with relatively higher levels of glyphosate were more likely to have shorter pregnancies and deliver babies with lower birth-weight, outcomes that everyone should be concerned about. Shorter pregnancies with relatively lower birth weights have been linked to lower cognitive ability later in life and higher risk of metabolic syndrome."*

As for the higher glyphosate levels among rural residents, none of whom were farmers or directly involved in Roundup application, it's believed the exposure may have come from inhalation of contaminated air or dust.

It's also possible that consumption of caffeinated beverages may be associated with higher glyphosate levels because some caffeine-containing beverages, such as coffee,

tea and soft drinks, may contain glyphosate residues, although the study didn't test for this.<sup>10</sup>

## **Even Diapers Contain Glyphosate**

A French study of disposable diapers revealed glyphosate was found in the material, along with about 60 other chemicals. Although the levels of glyphosate were low, Anses, the French agency for food, environmental and occupational health and safety, said it and other chemicals "could migrate through urine, for example, and enter into prolonged contact with babies' skin."<sup>11</sup>

They gave diaper manufacturers 15 days to develop a plan of action to remove harmful substances from the products. Although the specific diaper brands weren't named, they're said to provide a representation of the market and include some that are sold in multiple countries. Anses, while suggesting that no immediate risk was present, said long-term health effects could exist:<sup>12</sup>

*"There is no epidemiological research allowing us to prove the health effects linked to the wearing of nappies. That said, dangerous chemical substances have been found in the nappies ... there is evidence the safety thresholds for several substances have been crossed.*

*At the current time and from what we know at the moment, it is not possible to exclude a health risk linked to the wearing of disposable nappies."*

## **Eating Organic Reduces Cancer Risk**

The International Agency for Research on Cancer (IARC) determined that glyphosate is a "probable carcinogen" in 2015. In August 2018, jurors ruled Monsanto (which was taken over by Bayer in June 2018) must pay \$289 million in damages to DeWayne "Lee" Johnson, a former school groundskeeper who claimed the company's herbicide Roundup caused his terminal cancer.<sup>13</sup>

The award was later slashed to \$78 million,<sup>14</sup> but it's not an isolated case. Thousands of people across the U.S. have filed lawsuits alleging that Monsanto's Roundup herbicide, and others containing the active ingredient glyphosate, caused them to develop cancer.

Despite the jury awards and in spite of the IARC's determination that glyphosate is a "probable carcinogen," the U.S. EPA in January 2020 released an "interim decision" determining that glyphosate not only is safe for use on agricultural crops, but is "unlikely" to be a carcinogen.<sup>15</sup> They even went a step further and said there are:

- No risks of concern to human health from current uses of glyphosate
- No indications that children are more sensitive to glyphosate
- No signs or evidence that glyphosate causes cancer in humans
- No indications that glyphosate is an endocrine disruptor

Considering the volumes of damning evidence presented in the lawsuits on this chemical, these statements are unconscionable coming from a governmental body that is supposed to be watching out for your health! Since the EPA has decided to ignore the lawsuit evidence and growing studies on glyphosate, it's up to you to make food choices that can you avoid it.

There are many routes of exposure to this likely carcinogen, including via your drinking water, but diet is among them. The EPA even listed the products that get sprayed with glyphosate, including:

Corn	Alfalfa	Cereal grains
Grain sorghum	Citrus crops	Fallow
Cotton	Berry crops	Herbs
Spices	Orchards	Pome fruits
Canola	Brassica vegetables	Bulb vegetables

Fruiting vegetables	Tropical and subtropical fruits	Stone fruits
Soybean	Nuts	Vine Crops
Oilseed crops	Sugar cane	Sugar beet

The featured EWG study also found residues of another potentially carcinogenic pesticide – organophosphates – were widespread in applesauce, apples and spinach samples they tested.<sup>16</sup> So, as you can see, almost every food you eat could possibly be contaminated with these dangerous chemicals.

Fortunately, eating organic is one simple way to avoid these toxins, and research shows that doing so could reduce your risk of cancer. In a study of nearly 70,000 adults, those who ate primarily organic foods had a lower risk of Non-Hodgkin lymphoma and postmenopausal breast cancer compared to those who rarely or never ate organic foods.<sup>17</sup>

## **EPA Petitioned to Prohibit Glyphosate's Use as a Desiccant**

Choosing organic oat products may be especially important to avoid glyphosate, as EWG's studies suggest that glyphosate levels may be higher in oat products than they are in even wheat and corn. Further, "real dietary exposure" is not limited to oat products. Children (and adults) are being exposed to glyphosate from a variety of sources, with potentially devastating effects.

EWG and other consumer groups have petitioned the U.S. Environmental Protection Agency (EPA) to reduce the amount of glyphosate residues allowed in oats from 30 parts per million (ppm) to 0.1 ppm, as well as prohibit the use of glyphosate as a preharvest desiccant.<sup>18</sup>

The 0.1 ppm limit for glyphosate on oats was actually the legal limit in 1993 – it has since been raised 300fold, in response to a petition from Monsanto around the time



farmers began to widely use glyphosate as a desiccant late in the season.<sup>19</sup>

If you're concerned about glyphosate residues in your food, you can help to prompt change by reaching out to the companies that make your food. Let them know that you prefer foods without glyphosate residues — and are prepared to switch brands if necessary to find them.

In addition to voicing your opinion to food companies, contact the EPA and encourage them to restrict preharvest applications of glyphosate in order to reduce the amount of this toxic chemical entering the food supply.

## Sources and References

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- <sup>2</sup> EWG August 15, 2018
- <sup>3</sup> EWG October 24, 2018
- <sup>4, 8, 10</sup> *Environmental Health* 2018;17:23
- <sup>5</sup> *JAMA*. 2017;318(16):1610-1611
- <sup>6, 7</sup> Alliance of Crop, Soil, and Environmental Science Societies, *The science and art of dry bean desiccation* August 2016
- <sup>9</sup> *The Organic & Non-GMO Report* April 5, 2017
- <sup>11, 12</sup> *The Guardian* January 23, 2019
- <sup>13</sup> *The Guardian* August 11, 2018
- <sup>14</sup> NPR November 1, 2018
- <sup>15</sup> U.S. EPA Glyphosate November 2021
- <sup>17</sup> *JAMA Intern Med*. 2018;178(12):1597-1606
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- <sup>19</sup> *Sustainable Pulse* September 28, 2018