

# MYTH-FACT: Glyphosate and Glyphosate-Based Products

Bayer takes the safety of our agricultural products, medicines and devices, and the well-being of the people who use them, very seriously. In particular, we want to be sure that the conversation around our products is accurate and reflects the strong body of science that supports them. In this piece, we address common misconceptions regarding the safety of glyphosate-based herbicides.

 <b>MYTH</b>	 <b>FACT</b>
<p>Glyphosate-based products are unsafe when used as directed.</p>	<p>The extensive body of science (800 studies over several decades), 40 years of real world experience and the conclusions of regulators and international agencies around the world (including the U.S. EPA, European Food Safety Authorities (EFSA), European Chemicals Agency (ECHA), German BfR, and Australian, Canadian, Korean, New Zealand and Japanese regulatory authorities, as well as the Joint FAO/WHO Meeting on Pesticide Residues (JMPR), support the safety of glyphosate-based products when used as directed. EPA's 2017 post-IARC cancer risk assessment examined more than 100 studies the agency considered relevant and concluded that glyphosate is 'not likely to be carcinogenic to humans,' its most favorable rating. The safety concerns regarding glyphosate stem overwhelmingly from one opinion published by IARC that is very much an outlier compared with other assessments by regulatory agencies and scientific bodies, as well as the extensive body of science. It also has significant limitations as IARC's classification decision does not take into account human exposure which is a critical factor in assessing risks to human health.</p>
<p>Glyphosate-based formulations haven't been extensively evaluated for real-world use.</p>	<p>The largest and most recent epidemiologic study – the National Cancer Institute-supported 2018 Agricultural Health Study that followed over 50,000 licensed pesticide applicators over more than 20 years – found no association between glyphosate-based herbicides and Non-Hodgkin's lymphoma (NHL), the cancer identified in IARC's opinion. In its 2017 Evaluation of Carcinogenic Potential, the EPA examined more than 100 studies the agency considered relevant, including 23 epidemiology studies which examine real world use of glyphosate-based formulations, before reaching its favorable conclusions.</p>
<p>IARC's glyphosate opinion is cause for concern.</p>	<p>IARC's opinion on glyphosate is an outlier. IARC's classification system does not reflect real world exposure levels which are essential to assess any risk to the human population. IARC puts common every day substances like red meat and hot beverages in the same category as glyphosate. Moreover, IARC does not do its own studies; it only reviews selective, existing science. The 2015 IARC assessment did not consider significant data available at the time and later published from the largest study examining real world exposure to glyphosate, the Agricultural Health Study, which found no connection between the herbicide and Non-Hodgkin's lymphoma (NHL). In addition, regulatory and international agency conclusions reached since IARC (including the U.S. EPA, European Food Safety Authorities (EFSA), European Chemicals Agency (ECHA), German BfR, and Australian, Canadian, Korean, New Zealand and Japanese regulatory authorities, as well as the Joint FAO/WHO Meeting on Pesticide Residues (JMPR)) support the safe use of glyphosate-based herbicides and that glyphosate is not carcinogenic.</p>

 **MYTH**

 **FACT**

The number of studies on Roundup means that there is something to be worried about.

Roundup has been in the market for more than 40 years and is the most widely used herbicide in the world. The number of studies is just a reflection of the longevity, popularity and reach of the product. It's also a reflection of multiple registrants – i.e., the number of manufacturers of glyphosate-based herbicides as these products have been off patent for more than 20 years.

Most scientific research on glyphosate was conducted by researchers with connection to Monsanto.

There are about 1700 studies in the EPA database related to glyphosate and glyphosate-based formulations that relate to human or mammalian health. Most of these were sponsored by parties other than Monsanto. Additionally, EPA's 2017 cancer risk assessment examined more than 100 studies the agency considered relevant and concluded that glyphosate is 'not likely to be carcinogenic to humans,' its most favorable rating. These included epidemiology, long-term animal carcinogenicity and genetic toxicity regulatory-required studies and peer-reviewed publications, approximately 90% of which were conducted by parties other than Monsanto.

The number of cases filed in the U.S. against Monsanto is evidence that Roundup is unsafe.

The number of cases in litigation like this can rise and fall over time and is not indicative of the merits of the litigation. Bayer remains confident in the reliability of all of our scientific experts and the science behind the safety of its glyphosate-based herbicides, and believes it will ultimately be determinative in this litigation.

Lots of countries are raising issues with glyphosate-based herbicides.

Independent regulatory authorities in more than 160 countries have approved glyphosate-based herbicides for use in their countries. Moreover, European and Canadian regulators have done recent reassessments to address issues raised by some critics, and both EFSA and Health Canada stood by their earlier conclusions that glyphosate can be used safely as directed and is not carcinogenic.

The use of crop protection products such as glyphosate is not conducive with sustainable agriculture.

Crop protection products, such as glyphosate-based herbicides, are an integral part of modern, sustainable farming. Weeds and other pests are among the toughest challenges farmers face every season. Farmers around the world count on glyphosate to help control their weeds safely and effectively. Glyphosate-based herbicides have also contributed to the widespread adoption of "no till" and "conservation tillage" practices, which reduce erosion and carbon emissions.

Trace amounts of glyphosate is cause for concern.

Regulatory authorities have strict rules when it comes to pesticide residues and human exposure. The U.S. Environmental Protection Agency sets daily exposure limits for dietary, drinking water, and home uses at levels 100 times lower than those shown to have no negative effect in safety studies. There is no reliable scientific evidence that glyphosate use results in levels of residue that pose health problems for consumers. In fact, at the highest level reported by a third party (1,300 ppb), an adult would have to eat 118 lbs of the same food item every day for the rest of his or her life in order to reach the limits set by the EPA. And again, that is still 100 times below the level at which no adverse effect is seen.