



## Facts Regarding Glyphosate and IARC Classification

**German Federal Institute for Risk Assessment (BfR) Statement on IARC Finding, 8 June 2015.** *"It is not possible to fully comprehend the indications for a genotoxic potential of glyphosate based on the short report published by IARC..."*

<http://www.bfr.bund.de/cm/349/does-glyphosate-cause-cancer-expert-group-to-address-diverging-assessments-within-the-who.pdf>

### I. Glyphosate and Its Global Uses

Glyphosate was developed in 1974 and has been in continual use since that time. Over the years, various formulations have been developed and these formulations are widely used in more than 160 countries around the world by homeowners, landowners, and farmers.

- Homeowners use glyphosate lawn and garden herbicides to kill weeds in, for example, sidewalks, driveways, or gardens.
- Landowners or municipalities can use the herbicide to eliminate weeds, for example, around fences, railways, public rights of way, or near utility lines.
- Farmers also use glyphosate-based herbicides as one option to control weeds on their cropland.
- Through modern technologies, crops have been genetically modified to be resistant to the active ingredient glyphosate and other herbicides. These crops include soy, corn, canola, alfalfa, cotton, and sorghum. As such, these herbicides can safely and effectively eliminate weeds without damaging these crops.

Glyphosate has been safely used for several decades. National regulatory authorities and independent experts around the world agree that there is **no evidence** that glyphosate cause's cancer, even at high dosage levels. Numerous studies from the last forty years assessing the carcinogenicity and genotoxicity of glyphosate support this conclusion.

### II. IARC Classification of Glyphosate as a Group-2A Probable Carcinogen

The first time glyphosate was reviewed by the International Agency for Research on Cancer (IARC), a specialized agency of World Health Organization (WHO), was in March 2015. IARC evaluates and disseminates information on cancer risks through publications, meetings, courses, and fellowships. This was the first time since 1991 that IARC reviewed any pesticide.

On the basis of its initial review, IARC assigned a classification of "probable human carcinogen" (Group 2A) to glyphosate—a category that also includes workers in barber shops, shift work and cell phones. IARC is one of four programs within the WHO that has reviewed glyphosate, and the only program to have made such a finding.

### III. Limitations of the IARC Classification

The 2A classification of “probable carcinogen” does not mean that glyphosate causes cancer in humans. As such, the classification by IARC is confusing and can cause substantial concern among the millions of glyphosate users globally. There are several additional limitations in

IARC’s classification:

- Unlike regulatory reviews that review all available data over an extended period of time, IARC makes its conclusion on a limited data review during a meeting lasting one week.
- The classification was not premised on any new or original research but rather on a survey of a limited number of publicly available articles.
- IARC’s methodology is based on a hazard analysis as opposed to a risk assessment and concomitant classification used by national regulatory bodies.
  - A cancer hazard refers to an agent that is capable of causing cancer under limited circumstances.
  - A cancer risk is an assessment or estimate of carcinogenic effects caused by exposure to an agent identified as a potential or probable cancer hazard.
  - IARC does not consider risk or likelihood of harm to humans. As such, an agent may be classified as a cancer hazard by IARC even though the cancer risk is low at current human exposures.
- IARC performs hazard classification independently of chemical mode of action and without exposure assessment whereas the WHO/FAO Joint Meeting on Pesticide Residues—which assesses the risk of pesticide residues in food and has repeatedly concluded glyphosate residues do not cause cancer—conducts risk assessment at exposure level in food commodities.
- As acknowledged by IARC, there is “limited evidence in humans for the carcinogenicity of glyphosate.”<sup>1</sup> In fact, by IARC’s own classification scheme, an agent may be classified in the “probable human carcinogen” category even when there is inadequate evidence of carcinogenicity in humans but sufficient evidence of carcinogenicity in experimental animals.

### IV. International Responses and Studies to Date

A number of international and national regulatory bodies evaluate glyphosate as part of mandated periodic reviews, and several have recently released preliminary conclusions finding glyphosate use to be safe.

- **U.S. Environmental Protection Agency.** The EPA has previously assigned glyphosate the lowest cancer classification - Group E – evidence of non-carcinogenicity for humans - indicating glyphosate **does not** pose a cancer risk to humans. The agency recently issued a desk statement in April 2015 recognizing that their prior assessments (from as recently as last year) concluded that glyphosate does not cause cancer and noting that the Agency will continue their work to finalize the current regulatory assessment of glyphosate.

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<sup>1</sup> Katherine Guyton, Dana Loomis, Yann Grosse et al, *Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate*, *Lancet Oncology* (Mar. 20, 2015), available at [http://dx.doi.org/10.1016/S1470-2045\(15\)70134-8](http://dx.doi.org/10.1016/S1470-2045(15)70134-8).

- **EU / German Federal Institute for Risk Assessment.** The European Union is currently conducting an assessment of glyphosate. Germany—as the Rapporteur Member State for the European Union (EU)—recently concluded in its 2015 health risk assessment report to the EU that the available data **does not** show carcinogenic or mutagenic properties of glyphosate and **does not** indicate that glyphosate is toxic to fertility, reproduction or embryonal/fetal development in laboratory animals.
- **WHO/Food & Agriculture Organization (FAO) Joint Meeting on Pesticide Residues (JMPR).** The WHO/FAO Joint Meeting on Pesticide Residues concluded in 2011 that the long-term and short-term intakes of glyphosate residues are unlikely to present a public health concern or risk to consumers. This conclusion supported its earlier findings from 2006 and 2003 that glyphosate was not toxic. Public media reports as well as member state comments at the recent Codex Committee on Pesticide Residues meeting indicate a lack of clarity stemming from the IARC classification of glyphosate. As such, the recently announced WHO expert task force to determine whether there is a need to update JMPR’s prior assessments may help provide some clarity to the situation.
- **Canadian Pest Management Regulatory Agency (PMRA).** In April 2015, PMRA published its Proposed Re-evaluation Decision document, noting that the overall weight of evidence indicates that glyphosate is **unlikely** to pose a human cancer risk and that it is finalizing its review. This supports PMRA’s prior findings.
- **Australian Pesticides and Veterinary Medicines Authority.** In 2013, Australian regulatory authority concluded that the weight and strength of evidence shows that glyphosate **is not** genotoxic, carcinogenic, or neurotoxic.
- **Argentine Interdisciplinary Scientific Council.** In 2009, the Argentinian regulatory authority determined that on the basis of epidemiological studies reviewed, there was **no correlation** between exposure to glyphosate and cancer incidence nor adverse effects on reproduction.

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