



THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401

Testimony in Support of HB0472

Agriculture - Use of Glyphosate - Prohibition

Delegate Sheila Ruth

February 3, 2021

Glyphosate is an herbicide and crop desiccant for killing broadleaf plants and grasses. You may know it as the active ingredient in Monsanto's popular RoundUp weedkiller, which was acquired by Bayer in 2018. In agriculture, glyphosate works in conjunction with Monsanto's "RoundUp Ready" crops, which have been genetically engineered to be resistant to RoundUp so that the herbicide kills the weeds and not the crops. In addition to agricultural use, Glyphosate is used by individuals, businesses and governments to control weeds in a variety of settings, including fields, parks, schools, roadsides, residences, and forests.

There is increasing evidence that Glyphosate may be harmful to public health and the environment:

- In 2015, the World Health Organization's International Agency for Research on Cancer (IARC) issued a [report stating that Glyphosate is a probable human carcinogen.](#)
- A 2019 meta-analysis found that [high exposure to Glyphosate increases the risk of developing non-Hodgkin lymphoma by 41%.](#)
- In November, 2020, the EPA issued a draft Biological Evaluation of the impact of Glyphosate on species listed as endangered or threatened, and found ["Likely Adverse Impact" from Glyphosate for 93% of listed species and 96% of listed species' critical habitats.](#)
- A 2018 study found that [Glyphosate decreases the beneficial gut biota in bees at concentrations documented in the environment.](#) This decrease makes the bees more susceptible to harmful pathogens, leading to increased mortality.
- An August, 2020 study found that [loss of milkweed due to glyphosate use is the primary factor in the decline of the monarch butterfly population.](#) The U.S. Fish and Wildlife Service just announced in December that [monarch butterflies will be placed on the candidate waiting list for endangered species protection.](#)

Opposition Cited Research

Opponents of this bill cite several sources to indicate that there are no health risks from Glyphosate.

- In 2017 the EPA issued a risk assessment based on data review and concluded that “glyphosate is not likely to be carcinogenic to humans.” This contradicts the 2015 finding by the WHO IARC that concluded that Glyphosate is a probable human carcinogen. In a January, 2019 paper, [“How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?”](#), Dr. Charles M. Benbrook concluded that “the EPA relied mostly on registrant-commissioned, unpublished regulatory studies, 99% of which were negative, while IARC relied mostly on peer-reviewed studies of which 70% were positive (83 of 118).” Dr. Benbrook’s paper was [peer reviewed with a more stringent review process](#) than is usual due to the toxic nature of the controversy over this research.

[Dr. Lianne Sheppard, one of the co-authors of the 2019 meta-analysis cited above, says of the EPA study that the EPA didn’t follow proper scientific protocols.](#) Dr. Sheppard is a professor in the Environmental and Occupational Health Sciences department at the University of Washington and was one of the scientific advisers to the EPA on glyphosate.

- The Agricultural Health Study (AHS), conducted by the National Cancer Institute along with investigators from other agencies, is a study of cancer and other health outcomes in licensed pesticide applicators and their spouses from Iowa and North Carolina. The study included 52,394 licensed pesticide applicators and 32,345 spouses. [AHS Research updated in 2018 found no statistically significant association between Glyphosate exposure and solid cancers.](#) However, it did find an increased risk of acute myeloid leukemia among those with the highest exposure, which was not statistically significant but which the AHS felt merits further study.

Data from the AHS research was included in the [2019 meta-analysis](#) listed above. That study found that high exposure to Glyphosate increases the risk of developing non-Hodgkin lymphoma by 41%, even when data from the AHS study was included. Data from an earlier version of the AHS research was included in the [2015 WHO IARC study](#). That study concluded Glyphosate was probably carcinogenic to humans, even with the AHS data included. The IARC found that “The data from all of the studies combined show a statistically significant association between non-Hodgkin lymphoma and exposure to glyphosate.” Those two analyses that included the AHS data would seem to indicate that there is enough evidence from other studies that there is cause for concern in spite of the lack of results from AHS research.

A different research paper from the Agricultural Health Study did find a [statistically significant link between the autoimmune disease Rheumatoid Arthritis and Glyphosate](#)

[exposure in women](#). The AHS plans to follow up with additional research on RA and other autoimmune diseases.

Conclusion

Opponents of the bill will claim that the science shows no clear health impact from glyphosate. However, while some studies did not find a link between glyphosate use and certain specific health conditions, that's a far cry from being able to conclude that glyphosate has no health impact. The references I cited above show enough emerging evidence of glyphosate impact on health and the environment to be concerned. We must act now to protect the workers who apply it, others who are exposed inadvertently through drift or contact, the pollinators we rely on for our food, and other plants and animals including 93% of endangered species. I urge a favorable report for HB472.

Sources

IARC Monograph on Glyphosate

<https://www.iarc.who.int/featured-news/media-centre-iarc-news-glyphosate/>

Weedkiller 'raises risk of non-Hodgkin lymphoma by 41%'

<https://www.theguardian.com/business/2019/feb/14/weed-killing-products-increase-cancer-risk-of-cancer>

Exposure to glyphosate-based herbicides and risk for non-Hodgkin lymphoma: A meta-analysis and supporting evidence

<https://www.sciencedirect.com/science/article/abs/pii/S1383574218300887>

EPA Draft National Level Listed Species Biological Evaluation for Glyphosate

<https://www.epa.gov/endangered-species/draft-national-level-listed-species-biological-evaluation-glyphosate#executive-summary>

Glyphosate perturbs the gut microbiota of honey bees

<https://www.pnas.org/content/115/41/10305>

Evaluating the Migration Mortality Hypothesis Using Monarch Tagging Data

<https://www.frontiersin.org/articles/10.3389/fevo.2020.00264/full>

Questions and Answers: 12-month finding on a petition to list the monarch butterfly

<https://www.fws.gov/savethemonarch/FAQ.html#FAQ12>

EPA Releases Draft Risk Assessments for Glyphosate

<https://www.epa.gov/pesticides/epa-releases-draft-risk-assessments-glyphosate>

How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?

<https://enveurope.springeropen.com/articles/10.1186/s12302-018-0184-7>

Some food for thought: a short comment on Charles Benbrook's paper "How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?" and its implications

<https://enveurope.springeropen.com/articles/10.1186/s12302-019-0187-z>

Glyphosate Use and Cancer Incidence in the Agricultural Health Study

<https://pubmed.ncbi.nlm.nih.gov/29136183/>

Rheumatoid Arthritis in Agricultural Health Study Spouses: Associations with Pesticides and Other Farm Exposures

<https://pubmed.ncbi.nlm.nih.gov/27285288/>