

Health Policy Brief:  
Glyphosate

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## What is glyphosate?

Glyphosate is a chemical used in herbicides applied to the leaves of plants to kill both broadleaf plants and grasses in our homes, schools, and other public spaces.

## Where does it come from?

Glyphosate is a man-made chemical. It was first made in the 1970s and first brought to the market in 1974 under Monsanto's RoundUp brand name.

## Where is glyphosate found?

Glyphosate is found primarily in pesticide products. It can also be found in some products such as acid and several different kinds of salts which are typically either solids or an amber-colored liquid. In total, over 750 products in the United States contain glyphosate<sup>1</sup>.

Beyond herbicides, glyphosate has been found in consumer products and food, including tampons and cereals. In 2017, Honey Nut Cheerios Medley Crunch was found to have detectable levels of 830 part per billion (ppb) of glyphosate, which is more than five times over the Environmental Working Group's recommended level of 160 ppb<sup>2</sup>. Glyphosate also has been found in samples of surface water, ground water, and precipitation.



## How are people exposed to glyphosate?

Individuals can be exposed to glyphosate during pesticide application if the mist is absorbed through the skin or eyes or is inhaled into the lungs. Additionally, it may be ingested if an individual eats or smokes after applying it without washing their hands first. Individuals can also be exposed if they touch plants that are still wet with the pesticide.

## What happens to glyphosate in the environment?

Glyphosate can persist in soil for up to six months depending on the climate and the type of soil. It is broken down by bacteria in the soil and disrupts soil biology and composition, creating a greater risk of runoff and erosion. Glyphosate harms plant growth by trapping minerals in the soil. Lastly, glyphosate in water can be toxic to aquatic life and disrupt natural food chains.

## What are the health effects of exposure to glyphosate?

Products containing glyphosate may cause eye or skin irritation. People who breathe in spray mist from products containing glyphosate may feel irritation in their nose and throat. Swallowing products with glyphosate can cause increased saliva, burns in the mouth and throat, nausea, vomiting and diarrhea. Fatalities have been reported in cases of intentional ingestion. Glyphosate is a probable human carcinogen and studies have shown that long-term exposure affects the neurological, endocrine and reproductive systems. Non-alcoholic fatty liver disease which can lead to cirrhosis, cancer and liver failure can also result from exposure to this chemical<sup>3</sup>.

## Who is most at risk?

Those who apply glyphosate-containing pesticides—such as farmers, landscapers or school facility employees—are most at risk of exposure. Because glyphosate is still widely utilized on school grounds, college campuses, playgrounds, parks, child care facilities and residential areas, children have a greater likelihood of exposure.



### Is this especially unsafe for children?

Children are especially vulnerable to the impacts of this environmental toxin due to their relative size and weight. In a national study, children ages 6-11 had the highest levels of pesticides in their blood.<sup>4</sup> Children exposed to pesticides in or near their home, or via a caregiver's occupational use of these chemicals, may be at greater risk for developing leukemia, brain cancers, and childhood lymphomas.<sup>5</sup>

### Is glyphosate a carcinogen?

The International Agency for Research on Cancer has classified glyphosate as a probable carcinogen.<sup>6</sup> California has included it under its Prop 65 list of chemicals that are known to cause cancer, birth defects or reproductive harm.<sup>7</sup> Research has shown an increased risk associated with Non-Hodgkin's Lymphoma due to glyphosate exposure.<sup>8</sup> In a recent lawsuit, there were 13,400 claims about cancers that developed after the use of the common glyphosate product RoundUp.

### Is this disruptive to reproductive health?

Recent studies indicate that glyphosate has the potential to cause adverse effects in animal reproductive systems, including disruption of key regulatory enzymes in androgen synthesis, alteration of serum levels of estrogen and testosterone, damage to reproductive tissues and impairment of gametogenesis (the production of sperm and eggs).<sup>9</sup>

# Current Glyphosate Regulations

## Federal Glyphosate Laws

Glyphosate is a primary drinking water contaminant under the federal Safe Drinking Water Act and has a Maximum Contaminant Level (MCL) and Maximum Contaminant Level Goal (MCLG) of 700 ppb.<sup>10</sup> Public health researchers have criticized the current MCL for glyphosate, alleging that there is no safe level of glyphosate exposure and current standards are not health protective.<sup>11</sup>

## State Glyphosate Laws

Under the Pesticide Control Act of 1973, as amended in 1987, the Department of Agriculture is required to educate all pesticide applicators about Integrated Pest Management (IPM) control methods as a part of license recertification requirements.<sup>12</sup>

The IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism.

The commonwealth's Acts 35 and 36 of 2002 require school and child care centers to use IPM techniques and tools to reduce chemical exposure for students and staff. 48-hour notice must be given to school community members and surrounding neighbors, as well as residents on the Hypersensitivity Registry, prior to chemical pesticide application.<sup>13</sup> Despite these requirements, many schools struggle to manage pests on their grounds using IPM principles due to insufficient awareness and training, limited enforcement action and limited capacity to implement alternatives.

## Local Glyphosate Policy

Glyphosate has not been largely addressed in Allegheny County and local municipalities. The Pittsburgh Public School District's IPM program gives preference to non-chemical methods of pest control where least-toxic pesticides are used as a last resort.

Other localities across the nation have taken regional steps to mitigate the use of glyphosate. A brief list of other local actions is outlined below:

- **Seattle, Washington.**<sup>14</sup> In August of 2019, the Seattle Department of Parks and Recreation stopped using glyphosate through an executive order signed by the mayor. The order designates glyphosate as a last-resort option, only to be used when the city has exhausted all other methods of weed removal.
- **Miami, Florida.**<sup>15</sup> In February of 2019, Miami City Commissioners approved a resolution which prohibits the city and its contractors from using herbicides containing glyphosate.
- **Austin, Texas.**<sup>16</sup> In June of 2018, Austin City Council passed an ordinance banning glyphosate use on city-owned land.
- **Philadelphia, Pennsylvania.**<sup>17</sup> In December of 2020, Philadelphia City Council passed the "Healthy Outdoor Public Spaces Act" that banned the use of toxic herbicides on all city-owned or used public grounds.

## Good Riddance, RoundUp Campaign

Currently, Women for a Healthy Environment's Healthy Schools PA program is conducting a campaign called Good Riddance, RoundUp. The goal of the campaign is to end the purchasing of RoundUp and instead promote the use of safe, pesticide-free alternatives for managing pests and weeds. The campaign has collected pledges from private and public gardeners, school and municipal groundskeepers and early learning centers to reduce their use of pesticides.



## Policy Recommendations

### Federal

- The U.S. Environmental Protection Agency's action level for glyphosate in drinking water should be lowered in light of its carcinogenic effects.

### State

- Additionally, Pennsylvania should boost compliance with the IPM requirement for schools and child care centers by providing more extensive education and support for facility directors and groundskeepers on the implementation of alternative practices.

### Local

- Pennsylvania, Allegheny County, and/or local municipalities should ban the use of herbicides containing glyphosate for publicly owned land.

# Endnotes

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