UN environment programme

GLYPHOSATE

Assessment Report on Issues of Concern

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1. Sources

Glyphosate is an organophosphorus herbicide for agricultural, forestry and residential weed control that kills or suppresses all plant types, with the exception of those genetically modified to be tolerant to it.

Since its introduction in 1974, glyphosate has become the most widely used herbicide worldwide. The largest use of glyphosate has been in agriculture, however glyphosate use in urban settings can also be a significant source of contamination.

2. Why is it relevant?

Recently, a number of countries have initiated or taken actions to address glyphosate due to growing public concern about human health risks. The scientific debates regarding adverse potential risks to human health are ongoing and a number of bodies have assessed glyphosate.

Glyphosate in agriculture is identified by the Global Chemicals Outlook II as an issue with emerging evidence of risks to human health and the environment.

In 2015, the International Agency for Research on Cancer classified glyphosate as "probably carcinogenic to humans". Some assessments and reassessments by other governmental institutions agree, whereas others concluded that glyphosate is not carcinogenic.

Assessments of the environmental impacts of glyphosate are in agreement, that glyphosate is toxic to aquatic life with long-lasting effects, and that there are potential risks from glyphosate to non-target terrestrial and aquatic plants (e.g. from off-field spray drift).

Once released in the environment, glyphosate may undergo complex distribution and transport processes among different environmental media.

Glyphosate-containing airborne particles can be transported by wind, with transport distances depending on particle size and weather conditions.

In soil, glyphosate is strongly adsorbed. The degradation half-life of glyphosate in soil can take up to several months and even years.

Once released to water, a small fraction of glyphosate may remain dissolved in water and be transported via currents. In salt water, glyphosate may persist for months to years.

Globally, glyphosate is ubiquitous in surface waters and croplands due to its widespread use; however, studies on human exposure are limited.

Wildlife and humans may be exposed to glyphosate and its metabolite, aminomethylphosphonic acid (AMPA), via contaminated air, water and soil, and by consuming contaminated crops.

Humans may additionally be exposed through drinking water and during the application and disposal of glyphosate-based herbicide formulations.

For more detailed information on glyphosate, please see Chapter 4.4 of the ***Assessment Report on Issues of Concern*** and Part B, Chapter 4 of the ***Annexes to the Assessment Report on Issues of Concern***. Available on the UNEP website.

3. Existing instruments and actions

Some countries have taken regulatory actions on glyphosate. As an herbicide, glyphosate is subject to pesticide regulations for placement on the market, use and related activities that lead to human exposure in many parts of the world.

For example, a number of national governments and intergovernmental institutions have set up maximum residual levels that are allowed for glyphosate in or on food and feed, and maximum contaminant levels in drinking water. These guideline values may vary considerably among countries and for different media.

Many countries have taken steps to legally ban or restrict glyphosate, for example, by banning a co-formulants of glyphosate from glyphosate-containing products or reducing the time limit on the approval of glyphosate as an active ingredient.

In some examples, while no legal bans or restrictions have been imposed, other instruments have been adopted or actions taken, e.g., requiring businesses to provide warnings to consumers about significant exposure to glyphosate.

See Annexes for more

In addition to legal bans or restrictions of glyphosate, voluntary phase-out has also taken place by some retailers in some countries.

4. Challenges and opportunities

While its carcinogenicity may still be under discussion and risks of consumer exposure through diet are low, significant risks for non-target terrestrial and aquatic plants may exist, particularly when officially designated risk mitigation measures on product labels are not properly implemented.

Reliance on glyphosate in many parts of the world has triggered the spread of glyphosate-resistant weeds resulting in increased application rates by farmers. This increased use has heightened environmental risks and human exposure.

Wide use of glyphosate promotes the adoption of genetically modified glyphosate-tolerant crops, which may significantly influence biodiversity, e.g., through reduced crop rotation, and weed management that is solely based on the use of herbicides.

The widespread nature of the use of glyphosate and glyphosate-tolerant crops and of glyphosate contamination in many parts of the world makes this an international issue. In particular, international action is warranted for assisting developing countries without the necessary capacity and means to address glyphosate contamination and related problems.

Efforts to address glyphosate need to look beyond chemical substitutions. Future efforts to manage glyphosate risks need to incorporate lessons learned from glyphosate and glyphosate-tolerant crops. A transition towards alternatives that minimise chemical use such as agroecological techniques and integrated pest management and other solutions could improve the sustainability of urban and agronomic systems while preserving human and environmental health.

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