



Glyphosate, the environment and wildlife - FAQs

What is the environmental fate and behaviour of glyphosate?

The behaviour of glyphosate and its impact on the environment and wildlife has been studied extensively. Glyphosate binds tightly to clay and organic matter in soils and sediments, such that it is not available for uptake by roots of non-target plants. In addition, glyphosate degrades rapidly into AMPA (aminomethylphosphonic acid) and then into naturally occurring substances such as carbon dioxide and phosphate. The fact that glyphosate binds strongly to soil and that it degrades rapidly are significant factors that contribute to its favourable environmental safety profile.

What effect does glyphosate have on groundwater and surface water?

With its combination of degradability and ability to bind strongly to soil, glyphosate does not leach through soil to groundwater. Although glyphosate and AMPA have occasionally been found in groundwater, extensive monitoring data from 14 countries has provided no evidence of any persistent contamination. Intensive use and wide application means that there is potential for glyphosate to reach surface water as a result of spray drift, run off or lack of good agricultural practices. Studies have demonstrated that higher levels of AMPA rather than of glyphosate are found in surface water. Other sources of AMPA in surface water are detergent additives and sequestering agents. These agents are discharged directly into the environment through drains and effluent and contribute significantly to the presence of AMPA in surface water. The risks to the aquatic environment as a consequence of the observed levels found in surface water monitoring programmes are negligible.

Can glyphosate impair the quality of drinking water?

Numerous studies have demonstrated that the traces of glyphosate and AMPA that can occur are reliably removed by standard water treatment processes used for water drinking production. Moreover, available monitoring data demonstrates that glyphosate and AMPA are generally not a problem for drinking water producers. A study of nine European countries showed that in most samples analysed, the 0.1µg/L drinking water limit was not exceeded. While a few results exceeded that limit, these were attributed to analytical errors or localised short-term contamination.



Is glyphosate harmful to frog populations?

The effects of a dozen different glyphosate based formulations have been evaluated on almost 30 species of amphibians in both acute and chronic toxicity studies. Several chronic exposure studies have been conducted to investigate the impact of formulated glyphosate on growth development and survival of frog species using testing methods that have been validated by means of an internationally agreed testing procedure involving laboratories around the world, to verify the reliability of the test methods used. No adverse effects at predicted environmental concentrations were found. The absence of chronic effects is believed to reflect the rapid dissipation of glyphosate from the water column. Studies linking glyphosate usage to a decline in amphibian populations have been largely discredited.

Are bees at risk from glyphosate?

Glyphosate and glyphosate-based formulations have been extensively tested in both the laboratory and in the field to evaluate their potential toxicity to honeybees. When glyphosate was sprayed on large areas of vegetation directly adjacent to beehives it was found to have neither acute nor chronic effects on adult honeybees or on brood production, even at concentrations three times higher than normal application rates. Despite considerable media speculation, it must be concluded that glyphosate based formulations do not harm bees and other beneficial insect populations at field exposure levels.

Are insects and soil dwelling organisms at risk from glyphosate?

Extensive tests have been conducted to assess the toxicity of glyphosate on beneficial insects - such as spiders, beetles, springtails and mites. A study in which the organisms were forced to remain in contact with the pesticide film for several days showed that glyphosate was harmless for most species and moderately harmful to one species, the carabid beetle. When testing was conducted under more realistic field conditions, there were no adverse effects on carabid beetles.

What about fish and aquatic organisms?

Some recent studies have indicated that polyethoxylated tallow amine surfactants (which are contained in some glyphosate based herbicides) could be harmful to aquatic organisms by impairing the integrity of cellular membranes. It is widely accepted that the potential risks are mild or negligible if glyphosate is used in accordance with label instructions and good agricultural practices



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are observed. Since glyphosate does not bio-accumulate in fish or in other animals, it does not pose a risk to the food chain. Because of its favourable safety profile, glyphosate products have been used in protected habitats such as the Galapagos Islands and the Florida Everglades to protect the native flora from invasive weed species.

Please refer to www.glyphosate.eu for further information