

What is glyphosate?

Glyphosate is an herbicide. It is applied to the leaves of plants to kill both broad-leaf plants and grasses. The sodium salt form of glyphosate is used to regulate plant growth and ripen fruit.

Glyphosate was first registered for use in the U.S. in 1974. Glyphosate is one of the most widely used herbicides in the United States. People apply it in agriculture and forestry, on lawns and gardens, and for weeds in industrial areas. Some products containing glyphosate control aquatic plants.



What are some products that contain glyphosate?

Glyphosate comes in many forms, including an acid and several salts. These can be either solids or an amber-colored liquid. There are over 750 products containing glyphosate for sale in the U.S.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to report a pesticide problem, please call 1-800-858-7378.

How does glyphosate work?

Glyphosate is a non-selective herbicide, meaning it will kill most plants. It prevents the plants from making certain proteins that are needed for plant growth. Glyphosate stops a specific enzyme pathway, the shikimic acid pathway. The shikimic acid pathway is found only in plants and some microorganisms.



How might I be exposed to glyphosate?

You can be exposed to glyphosate if you get it on your skin, in your eyes or breathe it in when you are using it. You might swallow some glyphosate if you eat or smoke after applying it without washing your hands first. You may also be exposed if you touch plants that are still wet with spray. Glyphosate isn't likely to vaporize after it is sprayed.

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What are some symptoms from a brief exposure to glyphosate?

Pure glyphosate is low in toxicity, but products usually contain other ingredients that help the glyphosate get into the plants. The other ingredients in the product can make the product more toxic. Products containing glyphosate may cause eye or skin irritation. People who breathed in spray mist from products containing glyphosate felt irritation in their nose and throat. Swallowing products with glyphosate can cause increased saliva, burns in the mouth and throat, nausea, vomiting, and diarrhea.

Pets may be at risk if they touch or eat plants that are still wet with spray from products containing glyphosate. Animals exposed to products with glyphosate may drool, vomit, have diarrhea, lose their appetite, or seem sleepy.

What happens to glyphosate when it enters the body?

In humans, glyphosate does not easily pass through the skin. Glyphosate taken in through the skin or by mouth goes through the body in less than one day. Glyphosate leaves the body in urine and feces without being changed into another chemical.

Studies with rats showed that about one-third of a dose of glyphosate was absorbed by the rats' intestines. Half of the dose was found in the rats' stomachs and intestines 6 hours later, and all traces were gone within one week.



Is glyphosate likely to contribute to the development of cancer?

Animal studies have not shown evidence that glyphosate exposure is linked to cancer. Studies with people have also shown little evidence that exposure to glyphosate products is linked with cancer.

Has anyone studied non-cancer effects from long-term exposure to glyphosate?

Glyphosate exposure has not been linked to developmental or reproductive effects in rats except at very high doses that were repeated during pregnancy. These doses made the mother rats sick. The rat fetuses gained weight more slowly, and some fetuses had skeletal defects.

No information was found linking exposure to glyphosate with asthma or other diseases.

Are children more sensitive to glyphosate than adults?

There were no studies found showing that children are more sensitive to glyphosate than adults. While [children may be especially sensitive to pesticides](#) compared to adults, there are currently no data showing that children have increased sensitivity specifically to glyphosate.

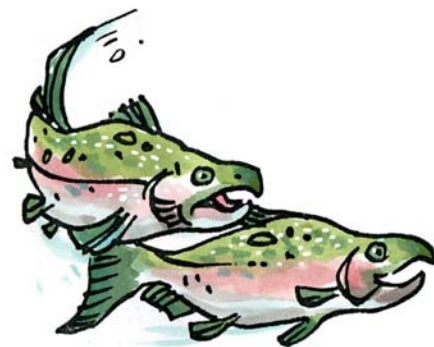
What happens to glyphosate in the environment?

Glyphosate binds tightly to soil. It can persist in soil for up to 6 months depending on the climate and the type of soil it is in. Glyphosate is broken down by bacteria in the soil.

Glyphosate is not likely to get into groundwater because it binds tightly to soil. In one study, half the glyphosate in dead leaves broke down in 8 or 9 days. Another study found that some glyphosate was taken up by carrots and lettuce after the soil was treated with it.

Can glyphosate affect birds, fish, or other wildlife?

Pure glyphosate is low in toxicity to fish and wildlife, but some products containing glyphosate may be toxic because of the other ingredients in them. Glyphosate may affect fish and wildlife indirectly because killing the plants alters the animals' habitat.



Where can I get more information?

For more detailed information see the [Glyphosate Technical Fact Sheet](#) or call the National Pesticide Information Center, Monday - Friday, between 7:30 AM and 3:30 PM Pacific Time (10:30 AM to 6:30 PM Eastern Time) at 1-800-858-7378 or visit us on the web at <http://npic.orst.edu>. NPIC provides objective, science-based answers to questions about pesticides.

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