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Glyphosate is being reviewed in the United States and Canada. Is it still safe to use?

31 August 2010

Yes. The current international consensus based on decades of research and evaluation is that glyphosate remains a safe and effective chemical when used according to label instructions.

The United States Environmental Protection Agency (USEPA) and the Canadian Pest Management Regulatory Agency (PMRA) have recently commenced routine re-registration reviews of glyphosate. Both these regulators have indicated that they will use these reviews to consider new research about glyphosate, including new studies relating to potential environment and health risks.

About glyphosate

Glyphosate is a broad spectrum, non-selective herbicide widely used for the control of annual, perennial, brush and woody weeds.

It is absorbed by plant foliage and green stems and moves through the plant from the point of contact to and into the root system.

The herbicide was developed in the 1970s and was registered for use in Australia by state and territory authorities not long afterwards.

In the mid 1990s it was reassessed by the National Registration Authority (the precursor to the Australian Pesticides and Veterinary Medicines Authority (APVMA)) and granted registration following the consideration of relevant scientific information.

Currently there are over 300 glyphosate products registered in Australia for use in croplands, industrial and commercial areas, aquatic areas, forests and plantations and in the home garden.

Glyphosate is used extensively around the world and has been reviewed by a number of international expert bodies and regulatory agencies since it was first registered.

How do we know it is still safe?

There have been many scientific assessments of glyphosate around the world since the first Australian registrations. In 1994, for example, [the U.S. EPA conducted a review of glyphosate](#) and found few issues of concern. The human risk assessment found that human dietary exposure and risk were minimal and that exposure to workers and other applicators were generally not expected to pose undue risks. Its ecological risk assessment concluded that the effects of glyphosate on birds, mammals, fish and invertebrates were minimal.

The USEPA did find, however, that an inert ingredient in some glyphosate formulations was toxic to some aquatic life and required changes to glyphosate product labels to protect aquatic organisms. Additional label changes to update worker protection requirements and establish entry restrictions were made.

Two years later in 1996, [the APVMA reviewed glyphosate products](#) because of evidence that it was toxic to frogs and tadpoles when applied in or adjacent to aquatic areas. Research subsequently determined that the toxicity was due to particular surfactants (members of the polyethoxylated amine family) in the glyphosate formulations that were registered at the time. These were some of the 'inert ingredients' identified by the USEPA in its review. The APVMA consequently prohibited the use of glyphosate on and near waterways until such time as new formulations with different surfactants that were not toxic to aquatic life could be developed and registered. Today, over a third of all registered glyphosate products contain these new surfactants and can be used in or adjacent to waterways.

From the 1980s to the 2000s various international bodies have carried out assessments on glyphosate and its metabolites. Organisations such as the [International Programme on Chemical Safety \(IPCS\)](#), the [World Health Organisation \(WHO\)](#) and the [FAO/WHO Joint Meeting on Pesticide Residues \(JMPR\)](#) conducted wide-ranging assessments on its toxicology, residues in food and effects on the environment. None of these evaluations identified that glyphosate presented any significant risk.

Thus when the [European Union](#) formally assessed glyphosate in 2002, it was consistent with the scientific literature of the time when it found that glyphosate is neither genotoxic or carcinogenic, and has no relevant

neurotoxic, reproductive or endocrine disruption effects. The review also contained an extensive assessment of its environmental fate. It notes that there was a comprehensive set of studies to support glyphosate registration in the EU.

New risks?

In the last few years a number of studies have emerged linking glyphosate and common surfactants in glyphosate products (such as polyethoxylated amines) and metabolites such as amino methyl phosphonic acid (AMPA) to human health and environmental issues. This research has recently been brought together in [a monograph by the Pesticide Action Network Asia and the Pacific](#). Researchers conducting *in vitro* (test tube) studies, for example, have argued that glyphosate affects progesterone production in mammalian cells and can increase the mortality of placental cells. Furthermore environmental groups have recently argued that a specific polyethoxylated amine surfactant (POEA) poses risks to aquatic animals.

Some national regulators have already considered some of these issues. In August 2009 the [Canadian PMRA assessed a number of *in vitro* studies](#) suggesting POEA formulants in certain glyphosate products represented a risk to human health. It found that these studies were not representative of what occurs with *in vivo* exposure of living organisms. It also concluded that data presented in a submitted epidemiology study purporting to show an important relationship between glyphosate exposure and spontaneous abortion was not valid due to unvalidated self reported exposure information, a lack of controls, and potentially confounding factors such as maternal age.

However, both the USEPA and the PMRA initiated routine scheduled re-registration reviews of glyphosate in mid 2009 and early 2010 and both will formally consider this and any other new evidence. An identified focus of the EPA review, for example, will be a consideration of the ecological risk posed by amino methyl phosphonic acid (AMPA), a degradation product of glyphosate. Another will be an assessment of the surfactant polyethoxylated tallow amine (POEA).

[The Canadian review](#), while more general in scope, will be closely aligned to the USEPA re-registration review. A specific focus is a health and an environmental risk assessment of the POEA/glyphosate combination.

The Australian position

The APVMA currently has no data before it suggesting that glyphosate products registered in Australia and used according to label instructions present any unacceptable risks to human health, the environment and trade. Accordingly, the APVMA will monitor the US and Canadian reviews of glyphosate and consider any new evidence that emerges.

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