



U.S. Environmental Protection Agency

Pesticides: Health and Safety

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Pesticides are designed to (in most cases) kill pests. Many pesticides can also pose risks to people. However, in many cases the amount of pesticide people are likely to be exposed to is too small to pose a risk. To determine risk, one must consider both the toxicity or hazard of the pesticide and the likelihood of exposure. A low level of exposure to a very toxic pesticide may be no more dangerous than a high level of exposure to a relatively low toxicity pesticide, for example.

What are the potential health effects of pesticides?

The health effects of pesticides depend on the type of pesticide. Some, such as the organophosphates and carbamates, affect the nervous system. Others may irritate the skin or eyes. Some pesticides may be [carcinogens](#). Others may affect the hormone or [endocrine](#) system in the body. [EPA's human health risk assessments](#) for many pesticides are available on the web.

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How does EPA determine what the effects of pesticides on humans are and whether they are acceptable?

A major consideration in approving pesticides for use is whether they pose an unreasonable risk to humans. EPA [assesses risks](#) associated with individual pesticide active ingredients, as well as with groups of pesticides that have a common toxic effect. This latter assessment is called [cumulative risk assessment](#) and is designed to evaluate the risk associated with exposure at one time to multiple pesticides that act the same way in the body.

Part of EPA's assessment of health risks of pesticides is a determination that there is "reasonable certainty of no harm" posed by pesticide [residues allowed](#) to remain [on food](#). Before approving a pesticide, EPA sets limits on how the pesticide may be used, how often it may be used, what protective clothing or equipment must be used, and so on. These limits are designed to protect public health and the environment.

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Where can I get information on health risks of pesticides I have in my home?

EPA has a cooperative agreement with Oregon State University, which operates The National Pesticide Information Center (NPIC). This center provides objective, science-based information about a variety of pesticide-related subjects, including pesticide products, recognition and management of pesticide poisonings, toxicology, and environmental chemistry. NPIC also lists state pesticide regulatory agencies, and provides links to their Web sites NPIC can be contacted at: 1-800-858-7378 or by email at npic@ace.orst.edu. For more information, read the [NPIC Fact Sheet](#).



How does EPA use information on toxicity and health effects of pesticides?

Beyond the basic approval process for pesticides, which requires pesticides to meet a standard for safety to humans and the environment, the degree of toxicity determines what precautions must appear on the pesticide label. These include, for example:

- the use of protective clothing
- the "signal word" (caution, warning, danger)
- the first aid statements, and
- whether the pesticide may be used only by specially trained and certified applicators (restricted use pesticides)

The pesticide [toxicity categories](#) are determined by the effects caused if the pesticide is consumed, inhaled, or placed in contact with the skin.



What other information is there?

EPA's Office of Research and Development is active in developing [methods for risk assessment](#) and conducting research projects into [potential human health effects](#).



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Last updated on Tuesday, May 2nd, 2006
URL: <http://www.epa.gov/pesticides/health/human.htm>