WASHINGTON TOXICS COALITION

"Is This Pesticide Safe?"

How to Evaluate Your Risk of Harm from Using Pesticides

Trying to choose the least-toxic pesticide from among the wide array of products available is often a confusing process. While prevention and non-chemical means should always be the main methods of pest control, once in a while you may decide to consider a pesticide for a special situation. This fact sheet can help you to understand the toxicity and exposure pathways of pesticides so that you can reduce the risk to you and your family.

Your risk of harm from using a pesticide is determined by three things: the toxicity of the chemicals, your exposure to the chemicals, and your susceptibility to the chemicals. It's important to keep in mind that toxicity in itself does not determine your level of risk, but is one part of this equation:

Risk = Toxicity x Exposure x Susceptibility

It is not possible to calculate an exact level of risk, but choosing less-toxic pesticides and reducing exposure will allow you to reduce your risk. Bear in mind that the only way to eliminate your risk is to avoid using pesticides.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS & DOMESTIC ANIMALS

DANGER: Causes irreversible eye damage. Do not get in eyes. Wear goggles or face shield when handling concentrate. Harmful if swallowed or inhaled. Avoid contact with skin or clothing. Avoid breathing spray mist. Wash thoroughly after handling. Do not graze animals around treated trees or feed foliage or fruit to animals. **FIRST AID:** In case of eye contact, flush eyes immediately with fresh water for at least 15 minutes and see a doctor. If on Skin – Wash with plenty of soap and water. If Swallowed – Give water or milk to drink and telephone for medical advice. **DO NOT** make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then take person and product container to the nearest medical emergency treatment center or hospital. **Note to Physicians:** Emergency Information call 1-800-454-
. **ENVIRONMENTAL HAZARDS:** Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes. **PHYSICAL OR CHEMICAL HAZARDS: FLAMMABLE.** Keep away from heat and open flame.
NOTICE: Buyer assumes all responsibility for safety and use not in accordance with directions.

An example of a health-hazards warning from a pesticide label.

How toxic are the chemicals?

The first step in starting to assess the toxicity of a pesticide is to look at the information on the pesticide label. A signal word of CAUTION, WARNING, or DANGER is included on all labels and indicates the short-term (acute) toxicity of the product, including the possibility of skin or eye damage. Products with the DANGER label are the most acutely hazardous, while those with the CAUTION label are the least acutely hazardous. However, it is important to note that these signal words do not indicate the level of risk that may be posed from long-term use. These signal words are followed by precautionary statements warning against possible immediate health effects due to eating, drinking, or inhaling the product, or getting it on your skin or in your eyes.

Pesticides can also cause harmful health effects long after exposure to a toxic ingredient. Some pesticide ingredients are listed as known or suspected carcinogens (cancer-causing agents) by government agencies. Others have been found to cause neurological, hormonal (endocrine), reproductive, or developmental effects. To search for information on potential long-term health effects, you will need to find the pesticide's ingredients. The pesticide label will list the active ingredients in the product and their percentage. Active ingredients are the chemicals in the pesticide that actually kill the pest. Pesticides also contain "inert" or "other" ingredients such as surfactants, baits, detergents, and propellants that allow the product to work better. *Inert ingredients are not listed on the label.* To find additional information on the pesticide's ingredients, look for the product's Material Safety Data Sheet (MSDS)*. The MSDS may list additional hazardous ingredients but these are often withheld as trade secrets. Both active and inert ingredients can be toxic; in fact, some inert ingredients are more toxic than active ingredients. Also, the percentage of active ingredients in home pesticides is usually quite small, often 1% or less, meaning that most of the product ingredients are not listed.

Even looking at both the label and the MSDS, you probably will not be able to compile a full list of ingredients. This, combined with the lack of complete toxicity

information on many chemicals, makes it impossible to put together a complete toxicological profile for most chemicals. However, you should still search for information on the ingredients you have been able to identify. If any of the ingredients are listed as being linked with long-term health effects, we suggest that pesticides containing those ingredients be avoided. However, even if an ingredient is not listed, do not assume that it is "safe." Pesticides are designed to kill pests and can pose a risk to children, adults, pets, and beneficial creatures and plants. Not using pesticides is the only sure way to eliminate the risk of harm.

For information on pesticides and their ingredients, try these sites: www.pesticideinfo.org and www.beyondpesticides.org. For additional information on locating MSDSs and toxicity information, please read our fact sheet, *Researching Household Products*, which can be downloaded from our website. You can also call us if you would like more help.

What is your exposure to the chemicals?

If you use pesticides, you can be exposed to them through direct skin or eye contact, inhalation of dust or mist, or accidental ingestion. The amount of pesticide that you are exposed to during application will vary depending on a number of factors: the type of formulation, how it is applied, how much is applied, what personal protective equipment is used, and how many applications are made. You can also be exposed to pesticides long after they have been applied. You may directly contact previously treated areas, and pesticides applied to the ground, such as lawn herbicides and insecticides, may later be tracked indoors. Pesticides can persist in soil long after they are applied. The half-life of a pesticide, which is the time it takes for half of it to break down, can range from days to weeks, and some have half-lives of up to a year or more. Some residues will be present even after many half-lives have passed. Pesticides applied indoors or tracked indoors from outside persist for longer periods of time because light, moisture, and microorganisms are less plentiful indoors than they are outdoors. Pesticides accumulate in dust and carpeting, posing a special risk to children. If you do choose to use a less-toxic pesticide, we still suggest taking measures to reduce exposure. Read the label before using, and wear gloves, a long-sleeved shirt, long pants, and a dust mask if the label advises it. Using a good floor mat or removing shoes at the door will reduce the amount of pesticide tracked into the home from outside.

How susceptible are you to the chemicals?

Children are generally more susceptible than adults to the toxic effects of pesticides due to their smaller size, higher metabolism, and developing body systems. They are also far more likely to accidentally ingest pesticides, either out of curiosity or through hand-to-mouth contact. Pregnant women and people who are ill or chemically sensitive may also be more susceptible, though we all differ in our reactions to pesticides. While you cannot control your susceptibility, if you or someone around you is especially susceptible, avoid using pesticides and other hazardous chemicals.

Putting It All Together

Given that many uncertain and unknown factors are involved in answering each of these three questions, *it is impossible to determine your exact level of risk from using a pesticide*. The EPA prohibits manufacturers from claiming that pesticide products are "safe." However, choosing less-toxic products and reducing exposure, both during and after application, can reduce your risk. Families with small children should make a special effort to avoid pesticides, and take extra care that children are not present during application or have access to treated landscapes. If you do use a pesticide, always make sure to read and follow label directions, store it safely, and dispose of it properly if you are not able to use it up. You can find information on household hazardous waste collection sites in Washington state by calling 1-800-RECYCLE or visiting 1800recycle.wa.gov.

Resources

For more information on pesticides and their alternatives, explore our website at www.watoxics.org or call our Toxics Hotline at 1-800-844-SAFE. Our book *Grow Smart, Grow Safe, A Consumer Guide to Lawn and Garden Products* ranks home pesticides based on health and environmental hazards, and our *Home Safe Home* fact sheets explore solutions for common household pest problems such as weeds, aphids, slugs, and carpenter ants. We also can answer questions on our Hotline and give referrals to pest control operators and landscapers that use less-toxic pesticides.

*For information on locating MSDSs, see our fact sheet "Researching Household Products," which can be downloaded from the Publications page of our website at www.watoxics.org.

Written by Maria Mergel, 2004.

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