
Chemical Hazards in the Home

PESTICIDES

by Elaine Andrews



Properly used, pesticides have proved beneficial to society. World food production and control of infectious diseases are dependent on pesticides. However, pesticides may pose dangers to people and the environment.

What Are Pesticides?

Any product used to kill or repel something you don't want is a pesticide. Examples include: herbicides, which kill plants; insecticides, which kill insects; fungicides, which kill fungi or molds; rodenticides, which kill mice and rats; and disinfectants, which kill bacteria and viruses.

Pesticide Dangers

Pesticides are poisons. They are designed to kill pests. However, some can harm other organisms, including humans. Improper use can lead to crippling and painful illnesses and death. Environmental contamination continues to be a threat from misuse of pesticides.

Some pesticides are so dangerous to people or the environment that they have either been cancelled (banned) or classified as "restricted-use" under the Federal Insecticide, Fungicide and Rodenticide Act. These pesticides are not included in home products produced recently, but may be present in old products or products manufactured for commercial use. If you find cancelled products such as DDT, dieldrin and endrin, or products that have since been reclassified as "restricted-use" in your home, contact your local solid waste authority for special disposal directions. Restricted-use pesticides are now clearly labeled and can not be purchased in an ordinary hardware or garden store.

To minimize the dangers of pesticides, use pesticide products only when necessary; use them properly and with the utmost caution and respect.

Precautions

Because pesticides are poisons,

- Be certain your pest problem warrants the use of a pesticide before making any application. If in doubt, ask a pesticide specialist for advice. Pesticide specialists include your county Extension agent, other pesticide educators and state agricultural specialists.
- Use the proper pesticide in the correct way and follow directions carefully every time you use it!

Read the Label and Follow the Directions

- Make sure that the pesticide is designated for use on the pest you want to control.
- Don't buy more pesticide than you need.
- Use the amount specified on the label. Too much is a waste and an environmental hazard. Too little may not work, causing you to repeat the application.

- Wear protective clothing as specified in label directions when mixing or applying pesticides to guard against splashes, spills and skin contact. At a minimum this should include goggles and unlined rubber or neoprene gloves.
- Avoid skin contact and inhalation of pesticide dust when using pesticides.
- When a room is treated with pesticides, leave the room for as long as the applicator or label recommend. On returning, open windows and air out the room well. As a safety precaution, clean all surfaces that were possibly contaminated with pesticides. Use a detergent, not just water.
- Avoid using pesticides outdoors on a windy day when they may drift indoors or onto other plants or people.
- Avoid using pesticides near children or pets.
- If you are pregnant or suspect being pregnant, try to minimize your exposure to pesticides. Some health professionals are concerned about possible dangers to unborn children.
- Don't drink alcoholic beverages while using pesticides or for 24 hours after you use them. Alcohol can impair the user's judgment and severely magnify the toxic effects of some pesticides.
- Don't mix different pesticides unless instructed by the product directions.
- Wash contaminated clothes separately from other clothes. Use hot water (140 degrees F) and line dry to avoid dryer contamination. Depending on the severity of contamination, several washings may be necessary. Discard clothes contaminated with pesticide concentrate. Contact your local county Extension office for more assistance.
- To remove pesticide residues from surface-treated vegetables and fruit, peel or wash with soapy water and rinse.
- Keep pesticides in their original containers.
- Keep pesticides separate from foods and water supplies. Keep them locked and out of the reach of children.
- When pesticide containers are empty, triple rinse them. Spray the rinse water onto original application area.
- Dispose of empty triple-rinsed pesticide containers as instructed on the label, or wrap small containers in layers of newspaper or in a plastic bag and place in garbage containers on the day of expected pick up.
- To dispose of large containers of unused pesticides, contact your District Office of the Department of Natural Resources for information.
- Consider giving leftover products to others who can use them if the product is still in the original labeled container and registered for use in Wisconsin.
- Encourage local authorities to initiate a household pesticide collection program to reduce problems arising from inappropriate disposal of banned pesticides such as DDT or chlordane.

A Word About Pesticides in Aerosol Sprays

Many pesticides, such as insecticides and disinfectants, are available in aerosol spray containers. Although convenient, remember that a mist of pesticide spray can linger in the air for a long time and may be deposited on house dust particles that people and pets can inhale easily. Both the pesticide and propellant might harm your skin, eyes and lungs, and enter your bloodstream, causing health problems. Accidents, injuries and deaths have occurred from exploding cans, fires and breathing the contents. See G3027 *Solvents—Chemical Hazards in the Home*, a publication in this series, for more information on health problems associated with aerosol sprays.

Environmental Problems

Inappropriate pesticide use or application procedures can lead to damaging health effects in both the indoor and outdoor environment. Although 94 percent (1980 estimate) of pesticide usage is agricultural, pesticides used in agriculture may become airborne and may attach themselves to airborne particulate matter or may contaminate water supplies.

Indoor exposure

The presence of DDT on house dust discovered in studies of DDT pollution indicate that house dust can be a principle source of air pollution. Indoor exposure is compounded by applications of dusts, aerosols and fumigants in enclosed spaces and can result in significant inhalation exposure.

Very little research is available on the risks associated with respiratory exposure to selected pesticides. Rates of emission of pesticides when applied to the home are known for only a few products. However, tests by the National Institute for Occupational Safety (NIOSH) indicate that pesticides may contribute to "sick building syndrome" in some cases. An EPA Nonoccupational Pesticides Exposure Study (NOPES) detected 22 out of 30 pesticides studied during a pilot study of single family dwellings.

Outdoor exposure

When you use a pesticide in a garden, it may kill or repel animals or plants other than the pest. If you use pesticides correctly and follow label directions, beneficial plants and animals will be exposed to a minimum of pesticide. If misused, however, severe consequences can result.

Pest populations may eventually develop an immunity or resistance to pesticides. When this occurs, other pesticides are substituted which can sometimes be more toxic than the original pesticide.

Some pesticides decompose slowly in the environment. With continued use they can accumulate in soils and plants and in the animals that feed on these materials. When large animals feed on small ones, the large animals may develop and retain particularly

high levels of pesticides in their bodies. Such biological magnification has harmed some species.

Inappropriate disposal of unwanted pesticides—down the drain, into the gutter or storm sewer or dumped in the back yard—allows these hazardous chemicals to move directly into ground and surface waters where they contaminate drinking water and damage fish and wildlife.

In the environment, pesticides eventually decompose to other chemicals. Usually these are less toxic, but in some cases the breakdown products are also harmful to people and animals or plants.

Health Problems from Pesticide Misuse

Acute Poisonings

Acute poisonings can occur soon after exposure if you absorb a toxic pesticide through the skin, breath it or ingest it. Some possible symptoms of poisoning are skin, eye and lung irritations, headache, dizziness, nausea, muscle cramps and coma. Permanent damage to skin, eyes, lungs, liver and kidney, nervous system impairment, internal bleeding and death can result, depending on the type of pesticide, the amount of exposure and the physical makeup of the person poisoned.

Certain pesticides, when combined with other pesticides or chemicals, become more toxic than each chemical alone. This is called a synergistic effect. For this reason, never mix pesticides unless their directions specifically allow it.

Give poisonings immediate medical attention. Poison Control Centers have the most current information regarding proper treatment of pesticide poisonings. In all cases have the label handy so that experts can provide the correct treatment for that pesticide formulation. The Poison Control Center's phone number is usually located on the inside front cover of your telephone directory, or you can get it from the operator.

Chronic or Long-Term Poisonings

These types of poisonings can result from repeated exposure to pesticides. For example, farmers, commercial applicators and gardeners are likely to be exposed each time they make an application. Lack of proper personal safety equipment and clothing, and improper applications increase the potential for chronic poisoning. Exposure can be through skin absorption, breathing or ingestion. Always wear waterproof gloves whenever handling pesticides—even empty containers. Symptoms and results may be similar to those described for acute poisonings. However, because some severe illnesses take months or years to appear, relating these to their causes is difficult.

The complete impact a pesticide or chemical has on a person's health is not known, especially the long-term

effects. Therefore, experts recommend that you use every pesticide product conservatively and properly. Pesticides known to cause unreasonable adverse effects in people or the environment are classified as "restricted-use" pesticides. These pesticides aren't available to the general public. Applicators must be trained and certified to purchase and apply "restricted-use" pesticides.

Public Input into Federal Regulation of Pesticides

The U.S. Environmental Protection Agency (EPA) encourages public input into their decisions on whether to restrict certain pesticides for which the health and environmental risks might outweigh the benefits of using them. For further information on which pesticides are undergoing review and where to send any evidence you have of hazards or benefits on a specific pesticide, contact the EPA at the address listed at the end of this brochure.

Additional Information

Assistance and Information

- Your county Extension office can provide information about pesticide use, appropriate laundering techniques for pesticide-contaminated clothing and how to organize a household pesticide collection program in your community.
- Wisconsin Department of Agriculture, Trade and Consumer Protection.
Consumer Protection Division toll-free number, 1-800-362-3020; specify that your call regards pesticides used in the home.
Agricultural Resource Management Division at 608-266-2295, for information about pesticides used in the yard or garden.
- U.S. Environmental Protection Agency Region V, Pesticide and Toxic Substances Enforcement Section, 230 S. Dearborn, Chicago, IL 60604. For questions about use and disposal of home and farm pesticides call 312-886-6012 or 312-353-2192.
- U.S. Environmental Protection Agency, Special Review Branch—Registration Division (T5-767c), 401 M Street S.W., Washington, D.C. 20460. Or call 202-577-7400.

Waste Disposal

- Local solid waste authority.
- District offices of the Wisconsin Department of Natural Resources (DNR) can provide information on hazardous waste disposal and any hazardous waste concerns.

Poison Information

You can contact Poison Centers about health effects of products and information about treating poisoning. Their telephone number appears on the inside cover of your telephone directory.

Other Sources of Information

- "Hazardous Waste from Homes:" by John Lord, 1986. Available from Enterprise for Education, 1320A Santa Monica Mall, Santa Monica, CA 90401.
- "Hazardous Waste in Your Home. Here's What You Should Do!" Wisconsin DNR publication number WW-003 86 REV.
- "Household Pollutants Guide," by the Center for Science in the Public Interest, 1978. Anchor Press/Doubleday, 501 Franklin, Garden City, NY, 11530.
- "Toxicants in Consumer Products," (Report B of the Household Hazardous Waste Disposal Project, Metro Toxicant Program #1) by Susan Ridgely, 1982. Available from David Galvin, Municipality of Metropolitan Seattle—Toxicant Control Planning Section, 821 2nd Ave., Seattle, WA 98104.
- "EPA Indoor Air Quality Implementation Plan Appendix A: Preliminary Indoor Air Pollution Information Assessment." June, 1987. EPA-600/8-87-014. Reproduced by National Technical Information Service, U.W. Department of Commerce, Springfield. VA 22161 (PB87-210738).
- See also: Indoor air quality fact sheet, "House Dust and Biological Contaminants."

This is part of a three-part series. Other UW-Extension publications in the series are G3027, *Solvents—Chemical Hazards in the Home*, and G3028, *Household Cleaners and Polishes—Chemical Hazards in the Home*.

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