PESTICIDES AND WATER QUALITY

Evidence shows that a growing number of commonly purchased and applied pesticides can be harmful to both people and the environment. Part of the problem is the toxicity of the pesticides themselves, but an even greater factor is the sheer volume of pesticides people use, which ends up in our water, air, and soil.

Who applies all these chemicals? You might think that farmers are mainly responsible for pesticide problems, but more than half of the pesticides causing water quality problems are used in urban areas — by residents, home gardeners, and pest control professionals in and around homes, schools, and businesses.

The *Our Water, Our World* promotion was developed in 1997 by clean water agencies in response to pollution problems caused by two of the most commonly used residential pesticides, chlorpyrifos (Dursban) and diazinon. Both stormwater runoff and wastewater treatment plant discharge contain levels of these two pesticides high enough to kill organisms at the base of the aquatic food web. In fact, 85 waterbodies in California are "listed" by EPA as "impaired" due to diazinon. In the *Our Water, Our World* promotion, sponsoring agencies provide each participating store with fact sheets about managing common pests, along with an updated list of less-toxic pest control products recommended for sale. The fact sheets describe less-toxic pest control methods that are acceptable alternatives to the program's two "target" pesticides.

ORGANOPHOSPHATE PESTICIDES

Organophosphates are broad-spectrum pesticides, related to nerve gas. They act by compromising the nervous systems of exposed organisms. Chlorpyrifos and diazinon are used to kill a wide variety of insect pests, including ants, fleas, cockroaches, aphids, spiders, and wasps. They are also highly toxic to birds, honeybees and other beneficial insects, and mammals.

Research has shown that pesticide residues are detected on many foods purchased from grocery stores. For more information about pesticides in food, go to: www.foodnews.org (Environmental Working Group); or call the Natural Resources Defense Council at (415) 777-0220.

In June 2000, the U.S. Environmental Protection Agency (EPA) announced an agreement with pesticide manufacturers that removed most products containing **chlorpyrifos (Dursban)** from retail sale and most residential and professional uses by the end of 2001. EPA's action was based on recent scientific research indicating that chlorpyrifos is more toxic to infants, children, and women than was previously understood.

Diazinon is a major urban pollution problem. It is one of the most commonly found pesticides in air, rain, and fog, with the highest concentrations near major cities. Under terms of an agreement with pesticide manufacturers released in December 2000, residential outdoor and indoor uses and sales will be phased out by the end of 2004.

Water quality agencies urge the public not to use pesticides that contain chlorpyrifos (Dursban) or diazinon.

Choose less toxic products for your home and garden. Look for this symbol before you buy.

What should you do if you have diazinon or chlorpyrifos products around the house?

- If you have unwanted or leftover diazinon, chlorpyrifos, or other pesticides, do not pour them in ANY drain inside or outside your house. Do not put pesticides in the trash. Instead, take them to a household hazardous waste collection facility or event. Call 1-800-CLEANUP or visit: www.1800CLEANUP.org for times and locations in your community. Follow the guidelines in the "Use and Disposal of Pesticides" fact sheet. (Unfortunately, disposal information on many pesticide labels does not apply in California, where state regulations prohibit disposing of pesticides in the trash.)

What can you do to help protect the health of our creeks, the Bay, and the Delta?

- Follow the suggestions for less-toxic pest control and *pest prevention* in the other *Our Water, Our World* fact sheets.
- Try to keep your garden healthy and your home pest-free without resorting to chemical pesticides. Remember that when you apply pesticides, you are treating the *symptom*, rather than the *cause* of pest problems.

How can you control pests without diazinon or chlorpyrifos?

Physical barriers, soaps and oils, ***biological controls*** (introduction of pest predators or pest-targeting microbes), and ***cultural controls*** (good housekeeping and gardening practices) are always preferable to chemical pesticides. In situations where a pesticide is necessary, however, the best products for the environment are *less toxic* and *less persistent*.

Alternative chemical pesticides are available, but simply substituting another poison for diazinon or chlorpyrifos won't necessarily help the environment. Studies show that the most commonly used pesticides are the ones most likely to cause water quality problems. This is true for the heavily used organophosphates, and it may very well be true for these active ingredients in other common pesticides as well:

- **Malathion:** Many products formulated with diazinon or chlorpyrifos are being replaced by products formulated with malathion, which is already frequently detected in urban waterways.
- **Carbaryl:** According to a recent government report, the insecticide carbaryl is also frequently found in urban waterways.
- **Pyrethroids:** Many diazinon and chlorpyrifos trade-name products are now being formulated with members of this group of long-lived synthetic chemicals similar to pyrethrins. Ingredient names include permethrin, tetramethrin, cyfluthrin, bifenthrin, esfenvalerate, cypermethrin, lambda-cyhalothrin, and deltamethrin. Pyrethrins (short-lived pesticides made from chrysanthemum flowers) are less toxic than pyrethroids.
  - **Pyrethroids: Water quality agencies recommend against using pyrethroids.**
  - **Pyrethrins: If less toxic alternatives are not effective, we recommend using pyrethrins as a last resort. Make certain they will not run off to a street, gutter, or storm drain. Until they break down, pyrethrins are toxic to birds, fish, and beneficial insects.**

PESTICIDES AND WATER POLLUTION

Common household pesticides show up in treated wastewater and in local waterways, sometimes at levels that can harm sensitive aquatic life. So, water pollution prevention agencies have teamed up with participating retail stores, pesticide distributors, and manufacturers to reduce the risks associated with pesticide use. This fact sheet is part of a series of fact sheets and store displays aimed at educating residents about less-toxic pest management. For the rest of the series of fact sheets, visit www.ourwaterourworld.org. Also, look for the "**Our Water Our World**" logo next to products in participating stores and nurseries.

Pest control strategies and methods described in this publication are consistent with integrated pest management (IPM) concepts, and are based on scientific studies and tests in actual home and garden settings. **Use suggested products according to label directions and dispose of unwanted or leftover pesticides at a household hazardous waste collection facility or event.** For more information on pesticide disposal, call 1-800-CLEANUP or visit: www.1800CLEANUP.org. No endorsement of specific brand name products is intended, nor is criticism implied of similar products that are not mentioned.

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The Central Contra Costa Sanitary District originally developed this IPM outreach program.

FOR MORE INFORMATION

For more information, contact:

Bio-Integral Resource Center (BIRC)
(510) 524-2567; www.birc.org

University of California Cooperative Extension Master Gardeners in your area (in the phone book)

University of California IPM website:
www.ipm.ucdavis.edu

This fact sheet and more water pollution prevention information is online at:
www.centralsan.org

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