

Rachel's Environment & Health News

#469 - Many Pesticides, Little Knowledge

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About 85 percent of American homes maintain an average inventory of 3 to 4 pesticide products, including pest strips, bait boxes, bug bombs, flea collars, pesticidal pet shampoos, aerosols, granules, liquids and dusts.[1] Roughly 70 million households make more than 4 billion pesticide applications per year, an average of 57 applications per household per year. According to the National Home and Garden Pesticide Use Survey by U.S. Environmental Protection Agency (EPA), almost 39 percent of households use insecticides because they have a major insect problem. However, 37 percent of all U.S. households treat for insects even when there is not a major problem.

A 1994 study of pesticide labels published in the JOURNAL OF THE AMERICAN OPTOMETRIC ASSOCIATION found that it requires an 11th-grade cognitive reading level to understand a pesticide label, which means that 40 to 50 percent of the general population cannot read and understand the directions on a pesticide product label, even if all members of the public had the necessary 20/30 visual acuity to read the fine print.

Nationwide in 1993, 140,000 pesticide exposures, 93 percent of which involved home use, were reported to poison control centers. About 25 percent of these exposures involved pesticide poisoning symptoms. Over half of all reported exposures involved children under age 6.

According to toxicologist William Pease of the University of California-Berkeley School of Public Health, indoor use of pesticide products in the home is the main source of exposure for children. Furthermore, Pease says exposures from household use exceed (but of course are added to) those from pesticide residues in food.

There are over 20,000 different household pesticide products containing over 300 active ingredients and up to 1700 inert ingredients. Household pesticides may contain more than 99 percent inert ingredients. Active ingredients are the ingredients that are listed on the product label and are regulated by law. Inert ingredients are not listed on the label and are not regulated.

Section 2m of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) --the nation's pesticide control law --states, "The term 'inert ingredient' means an ingredient which is not active." In actual practice, pesticide manufacturers decide what to call inert and what to designate as an active ingredient subject to EPA regulation. This has produced a situation where ingredients considered active and regulated by the EPA in some pesticide products are, in other pesticide products, unregulated, inert ingredients, missing from the label.

In 1991, the Inspector General of the EPA issued a report on inerts in household pesticides [U.S. EPA Office of the Inspector General, INERT INGREDIENTS OF PESTICIDES (audit report No. E1EPF1-05-0117-1100378, September 27, 1991)]. The report identified 4 categories of inerts:

** 300 inerts are "generally recognized as safe." This category includes dextrose, ethanol, fish meal, lard, olive oil, water, and wintergreen oil.

** 68 inerts are "potentially toxic." Examples include petroleum hydrocarbons, toluene, xylene, and methyl bromide.

** 56 inerts are "toxic." These ingredients yield evidence of carcinogenicity, adverse reproductive effects, neurotoxicity, or other chronic effects, or birth defects in laboratory animals or humans. Examples: aniline, asbestos, benzene, carbon disulfide, chloroform, formaldehyde, hexachlorophene, lead, cadmium, and mercury oleate.

** 1300 inerts have "unknown toxicity." The EPA Office of Inspector General (the EPA's internal police force) says, "EPA knows little or nothing about the adverse effects of most of these

inert ingredients. Some data may exist for the inert ingredients of unknown toxicity, but EPA has not yet evaluated the data to determine the effects." Examples include barium sulfate; epoxy resin; styrene acrylic copolymer; sodium nitrite; thymol; lithium chloride; naphthalene; polyethylene terephthalate; D & C Red #37; malathion; kerosene; coal tar; asphalt; Freon 114; and sulfuric acid. Gathering information about the health effects of these inerts presently has low priority at EPA, receiving less than 1 percent of the Office of Pesticide Programs' budget. Furthermore, EPA has no specific procedures or time frames for ensuring that these inerts are reviewed, according to the EPA Office of Inspector General. "Until these reviews are completed, users are unaware of potentially toxic inert ingredients contained in certain pesticide products. The use of these pesticide products may be jeopardizing human health and the environment," the EPA Office of Inspector General states.

By law, inert ingredients are not listed on pesticide product labels. Only "active" ingredients are listed on labels. Furthermore, government officials are forbidden by law from revealing the inert ingredients in pesticide products. "Inert ingredients are confidential information. If we were to disclose that information we could be prosecuted for it and imprisoned," says Louise Mehler, a physician and program director of California EPA's Worker Pesticide Illness Surveillance Program. Mehler says some inert ingredients "are sometimes of real toxicological significance" whereas they "could also be just water." Although inert ingredients are secret by law, it is widely believed that pesticide companies know their competitors' inert ingredients. "The chemists here say that since the invention of the mass spectrometer anybody who wants can really find out," says Mehler.

U.S. government evaluation of pesticides has focused rather narrowly on cancer, and that there is evidence that pesticide exposures can cause other health effects besides cancer. Specifically, damage to the immune system (including, but not limited to, allergic reactions) and the central nervous system are known to result from pesticide exposures. For example, John Bucher, acting chief of the toxicology branch of the National Institute of Environmental Health Sciences, is quoted saying, "We have spent an enormous amount of time in pesticides with cancer assessments. [But] we could be missing the boat on the potential effects on the immune system." He goes on to note that subtle effects on the nervous system are almost never studied: "We almost never see anything on learning, memory, and potential psychological effects of exposures," says Bucher. "You can't ask a test animal for the kind of information that you can ask people. So you can't adequately study some of these things with animal models," he said.

The most sensitive creatures are human fetuses and infants, according to Dr. Sheila Zahm of the National Cancer Institute. She recommends that pregnant women should avoid exposure to any pesticides. The rapidly-growing fetus may be particularly susceptible to mutagenesis [genetic damage], chromosomal aberrations, and carcinogenesis, Zahm says. She points out that infants crawling on carpets may be exposed to lawn chemicals tracked indoors, and that such chemicals may endure much longer indoors than they would outdoors exposed to rain and sunlight.

William Pease from Berkeley asks whether some pesticides are worth the hazards: "Because of the difficulties in controlling how the end-user uses the product, and knowing that at least some will become ill, as we are currently seeing adverse effects, the question in our mind, since there are alternative means of treating many pests, is if we should even recommend some of these products when we know there are alternatives."

Federal pesticide authorities have far to go before they have fully evaluated the health effects of pesticide products currently on the market, and to which millions of American families, including children, are exposed routinely and repeatedly each year.

EPA knows little or nothing about the toxic characteristics of most of the 'inerts' that make up the bulk of most household pesticides. Furthermore, government officials are prohibited -- under penalty of prison sentence -- from revealing to the public what they DO know about inert ingredients. Meanwhile, this enforced secrecy about inerts does not prevent a pesticide producers' competitors from learning which inerts are being used. Only the public is prohibited from learning this information.

Pesticides can affect the immune system, the central nervous system, and other bodily systems as well, such as the endocrine (hormone) system and the genes. Damage to the genes may be inherited by the next generation, and then passed on to subsequent generations. These important non-cancer effects of pesticides have hardly been studied by government health authorities.

So little is known about the health effects of pesticides, and the "inerts" that are integral to them, that full health risk assessments for pesticides cannot be completed in any meaningful sense. At present rates of study, it will take centuries or longer before sufficient information has been gathered. Therefore, assurances of safety from most pesticide exposures cannot be based on sound scientific evidence, but more on wishful thinking, or guesswork.

Although the purpose of labeling is to allow consumers to protect themselves, this purpose is not served by present labeling practices because (a) much of the public hasn't the skills necessary to read a pesticide product label; and (b) so-called 'inert' ingredients, which may not be inert in the normal sense of that word, and which can make up more than 99 percent of a pesticide product, are not listed on the label.

Frankly, it appears that the U.S. government's current pesticide program was designed primarily to protect something other than the health and well being of the public.

Many pesticides now in use are simply not needed. For household pests, the first line of defense should be mechanical control of flying pests (screens, windows, nest removal, fly paper, and fly swatters). For crawling insects (such as roaches), baits and traps work well and can reduce the need for spraying whole areas.

To our way of thinking, William Pease asked the crucial question: since non-toxic alternatives exist for controlling many pests, should the government be licensing the use of toxic chemicals for controlling those pests, knowing that some members of the public will needlessly -- and inevitably -- be harmed? When non-toxic alternatives exist, should toxic alternatives receive a stamp of approval from the government? It is an important ethical question.

--Peter Montague

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[1] All information in this issue is from: Joel Grossman, "Dangers of Household Pesticides," ENVIRONMENTAL HEALTH PERSPECTIVES, Vol. 103, No. 6 (June 1995), pgs. 550-554.

Descriptor terms: pesticides; household use statistics; labeling; poisoning; active ingredients; inert ingredients; fifra; regulations; regulation; epa inspector general; niehs; neurological damage; neurotoxicity; immune system damage; immunotoxicity; children; developmental toxicity;