

No Spray

Coalition

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Pyrethroid pesticides are health hazards

Scientific studies of sumithrin, resmethrin reveal serious safety concerns

For seven years, government officials soothingly told us that malathion, sumithrin (Anvil), resmethrin (Scourge) and other pesticides used in repeated rounds of mass spraying are harmless. But almost every product brought to us by the highly profitable chemical industry is said to be harmless until, the hard way, we frequently find out otherwise. During the 1960s, even deadly DDT was said to be harmless!

This is not to say that every human-made product is dangerous. Raising unnecessary alarms should not be the goal of any environmental organization. But neither should we blindly accept assurances that every chemical put to wide use is safe. Government officials blandly assure us these pesticides are safe (while telling us to hide indoors!) and the newspapers, radio and television seek to incite hysteria without finding the space or time to report pertinent facts.

The health effects of these pesticides have been studied in sufficient detail to draw the conclusion that they are not safe. Worse, what research has been conducted on them raises serious concerns. A thorough investigation into the pesticides being used in New York aerial and ground pesticide-spraying programs can result in only one conclusion they cause serious harm to human, animal and marine health.

People naively assume that pesticides undergo lengthy testing by the government before being cleared for use. But that is not so. Instead the government accepts the minimal testing done by the manufacturers themselves until sufficient evidence of injury accumulates.

Another common misconception: Pesticides such as sumithrin are not natural and are not made from chrysanthemum flowers as is often claimed. Sumithrin, resmethrin and permethrin belong to a class of pesticides known as pyrethroids, which are synthetic *analogs* of chrysanthemums (Anvil) and dandelions (Scourge). Pyrethroids are not natural! **These pesticides are often promoted as "safer" than malathion, an unrelated organophosphate, but this is not true.**

Pyrethroids are toxic to the thyroid and immune system, among other concerns. No safe exposure level has been scientifically established for avoiding hormonal and other adverse effects, nor has the Occupational Safety and Health Administration (OSHA) set an exposure limit.

Sumithrin/Anvil could lead to breast cancer

The link between sumithrin and breast cancer is not proven - much more research is needed in this area. But a study conducted by a scientist at the Mount Sinai School of Medicine is troubling. This study, published in the peer-reviewed *Environmental Health Perspectives* [Vol. 107, No. 3, March 1999], concludes "These findings suggest that **pyrethroids should be considered to be hormone disruptors, and their potential to affect endocrine function in humans and wildlife should be investigated.**" This study indicates pyrethroids disrupt the endocrine system by mimicking the effects of the female hormone estrogen. This in turn can cause breast cancer in women and lowered sperm counts in men. When estrogen levels are

elevated, old cells are not removed from the body and cell proliferation occurs, whether benign or malignant.

The Roger Williams General Hospital, Brown University in Providence, R.I., conducted a study on pyrethroids, which concluded: "chronic exposure of humans or animals to pesticides containing these compounds may result in disturbances in endocrine effects." [*Steroid Biochem*, March 1990; 35(3-4):409-14.]

A report issued in June 2000 by the Royal Society in England and written by a group from Cambridge University called for international cooperation to deal with the dangers posed by endocrine-disrupting chemicals, including pyrethroids, and recommends reducing human exposure to these chemicals. Due to concern in this area, Health Canada is currently conducting a retrospective study of around 2,000 Ontario farm families related to the risk of various reproductive outcomes, such as time to pregnancy, spontaneous abortion and pre-term delivery.

Other health dangers of Sumithrin

There are several other health concerns associated with sumithrin, and still more health concerns with other chemicals used with sumithrin in the product known as Anvil. Don't take our word for it -- the United States government and the manufacturer of Anvil give plenty of evidence of these dangers. The U.S. Environmental Protection Agency lists sumithrin as a suspected gastrointestinal or liver toxicant. The National Institute for Occupational Safety and Health's Registry of Toxic Effects of Chemical Substances lists sumithrin as a suspected kidney toxicant and suspected neurotoxicant.

Sumithrin is on the Toxic Release Inventory (TRI) list. The TRI listing requires manufacturers to report the release of sumithrin. TRI-listed chemicals require such information due to their exceptionally hazardous status under the Emergency Planning and Community Right-to-Know Act.

The International Chemical Safety Card, produced by the International Programme on Chemical Safety and the Commission of the European Communities, writes about sumithrin: "prevent generation of mists. This substance may be hazardous to the environment; special attention should be given to fish." It also states that no tolerable levels have been established for this substance. [This report is available from <http://www.cdc.gov/niosh/ipcsneng/neng0313.html>, the Centers for Disease Control's web site.]

There are many effects that can result from exposure to sumithrin. Inhaling can cause coughing, wheezing, shortness of breath, nausea, vomiting, runny or stuffy nose, chest pain or difficulty breathing, as well as delayed long-term neurotoxic effects, including optic and peripheral neuropathy. Skin contact can cause rashes, itching or blisters. Young children, seniors and people with asthma are the most at risk from sumithrin exposure. The Pesticide Management Education Program at Cornell University reports: "Asthmatic wheezing may be precipitated by exposure of predisposed individuals." Additionally, according to the second edition of the book "The Best Control" by Steve Tvedten, people with multiple sclerosis are in danger because they may be on medication that affects sodium and potassium ion diffusion through neuron axons.

Sumithrin is highly toxic to bees and fish. The label on Anvil, the brand of sumithrin used, states "This product is toxic to fish. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark." It can also remain in the environment -- the half-life (the length of time for 50 percent of a substance to disintegrate or to decay into another substance) of sumithrin in

soil has been calculated to be as long as 16 weeks (although it can be less than this).

Health problems with other chemicals in Anvil

The full name of the sumithrin product being used in the mass-spraying operations is Anvil 10 + 10 ULV. It has this name because the product is comprised of 10% sumithrin and 10% piperonyl butoxide (PBO). PBI is itself a hazardous chemical. These are the two "active" ingredients. The remaining 80% consists of white mineral oil and polyethylbenzene.

PBO is added to make the sumithrin more effective. It acts by inhibiting naturally occurring enzymes that would otherwise degrade the insecticide. PBO breaks through the insect's defense, making the insecticide more powerful.

PBO is suspected of being a carcinogen by the EPA's Office of Pesticide Programs. It is also listed as a suspected gastrointestinal or liver toxicant, and a suspected neurotoxicant, by the National Institute for Occupational Safety and Health's *Registry of Toxic Effects of Chemical Substances*. And it was reported as a suspected reproductive toxicant by J. Jankovic in "A Screening Method for Occupational Reproductive Health Risk," published in *American Industrial Hygiene Association Journal*. [57: 641-649. 1996.] Another test that indicates that PBO may be carcinogenic is reported by a California environmental products company, Safe2Use, which cited a study by Environmental Chemistry Inc., a Texas environmental laboratory that primarily serves the chemical industry.

Piperonyl butoxide is ranked more hazardous than most chemicals in two out of three ranking systems, and is also on the federal government's TRI list. Both piperonyl butoxide and sumithrin are dangerous chemicals of and by themselves. Put them together and the dangers exponentiate far more than the sum of the individual parts. This is known as a "synergistic effect." Synergistic effects have barely begun to be studied.

Polyethylbenzene (PEB), also known as heavy aromatic solvent naphtha (petroleum), is widely used in pesticides. PEB is listed on the EPA Office of Pesticide Programs' Inert Pesticide Ingredients List No 2, which is a list of 64 substances the EPA "believes are potentially toxic and should be assessed for effects of concern. Many of these inert ingredients are structurally similar to chemicals known to be toxic; some have data suggesting a basis for concern about the toxicity of chemical." PEB is related to ethylbenzene, which is listed as a suspected reproductive toxicant and a suspected respiratory toxicant by the EPA.

The white mineral oil, also known as hydrotreated light paraffinic petroleum distillate, is also listed on the EPA's Inert Pesticide Ingredients List No 2 of potentially toxic chemicals.

According to Cornell's Pesticide Management Education Program, hydrocarbons used as solvents in spray products are likely to result in coughing, fever and chest pain (hydrocarbon pneumonitis) if these liquid mists are breathed in.

The 80% of Anvil that is not sumithrin or PBO are referred to as "inert" ingredients, a common labeling technique. But the term "inert" can be misleading; the EPA's Pesticide Regulation Notice 97-6 actually encourages manufacturers to voluntarily refrain from the use of the word "inert," preferring "other ingredients," due to consumers incorrectly assuming inert means "safe."

Resmethrin/Scourge a developmental toxicant

Resmethrin is listed as a developmental toxicant on California's Proposition 65 list, which catalogs chemicals known for reproductive toxicity. According to Environmental Defense's <scorecard.org> service, a chemical makes this list "if an independent science advisory board has concluded they possess sufficient evidence of such toxicity in animals or humans, or if an authoritative organization such as the National Toxicology Program have reached a similar conclusion, or if a federal regulatory agency requires a reproductive toxicity warning label." Resmethrin is also listed by the EPA as a suspected gastrointestinal or liver toxicant.

Even the Centers for Disease Control says resmethrin "may

given to fish and honey bees." The CDC acknowledges the pesticide has short-term effects of irritating the eyes and the skin, while it does not know what the long-term effects might be. <<http://www.cdc.gov/niosh/ipcs/ipcs0324.html>>

The International Programme on Chemical Safety says that some liquid formulations of resmethrin are "highly flammable" and/or explosive. The IPCS is a joint activity of the United Nations Environment Program, the International Labor Office and the World Health Organization.

The brand of resmethrin being used for spraying in the New York area is Scourge. The formulation of Scourge includes piperonyl butoxide.

Multiple dangers associated with malathion

The organophosphate malathion a derivative of nerve gas received most of the attention in late 1999, when the City of New York launched a massive aerial spraying of it. Malathion is rightly regarded as a hazardous substance. The City of New York's *Chem-Bio Handbook* says that exposure to malathion can cause "headache, nausea, vomiting, cramps, weakness, blurred vision, pin-point pupils, tightness in chest, labored breathing, nervousness, sweating, watering eyes, drooling or frothing of the mouth and nose, muscle spasms and coma."

The handbook goes on to say that "other acute effects can include mental confusion, frequent urination, stomach cramps, diarrhea and seizures. Chronic effects of malathion exposure include delayed neurological effects including pain, numbness and weakness in the extremities, which may persist for months or years. Also, central nervous system damage (memory, mood, motor coordination, etc.)."

Malathion is a suspected toxicant in these areas: cardiovascular or blood, endocrine, gastrointestinal or liver, neurologic, respiratory, and skin or sense organ by various governmental agencies. It is also reported to be among the top 10% of chemicals in terms of hazards to the ecosystem, by Environmental Defense, a nonprofit conservation group.

The International Chemical Safety Card gives this blunt warning about malathion: "Prevent generation of mists! Strict hygiene. Avoid exposure of adolescents and children!" But young people, and others, were repeatedly exposed to large doses of the pesticide in late 1999. The Safety Card goes on to say that short-term health effects of malathion exposure "may cause effects on the nervous system, resulting in convulsions, respiratory failure."

Humans are not the only beings in danger from malathion. The manufacturer's label says it is "toxic to fish, aquatic invertebrates and aquatic life stages of amphibians ... This product is highly toxic to bees exposed to direct treatment." During the late 1999 spraying, more than 2,000 fish were killed in a Staten Island lake, a mass dying that the New York state Department of Environmental Conservation admitted was due to malathion. Staten Island residents also reported that bees had disappeared from areas where they were normally present in large numbers. It is also feared that significant damage was done to monarch butterflies, which were migrating through the New York area during the fall 1999 spraying. _

No Spray Coalition, Inc.

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The No Spray Coalition is the lead plaintiff in a lawsuit filed in Federal Court against the City of New York seeking a permanent halt to mass pesticide spraying. We are in serious need of funds to support the lawsuit and the organizing work we are doing. Please make a donation and mail to the address above. For more information, email us at: mitchelcohen@mindspring.com.