CHAPTER 12
VOLATILE, SYNTHETIC PESTICIDE POISONS

In the 1990s the world spent over a billion dollars yearly just for public "health" pesticide poisons (including rodent control); in 1995 the U.S. EPA estimated pesticide sales increased to a staggering $11.3 billion,and the world spends over $30.5 billion (US) on pesticide poisons.

"Junk" science -The poison "industry" likes to pretend that all health and/or environmental data they have not hidden, paid for, falsified, corrupted, adjusted, ignored, covered up and/or "created" is "junk" science! Real "junk" science is to call toxic poisons that may have a half-life of over 880 years "inert" and pretend they have any way to calculate all of the possible health and/or environmental risks inherent to their volatile, synthetic pesticide poisons which first became available after World War II when they were used to kill people.

When used as directed pesticides kill.

If you can read this section and the chapters **"Pesti*cides* are not Pestis*afes*®"** and **"Who is who in the poison 'industry'"?** and **still** decide you want to **continue** using "registered," volatile, synthetic pesticide poisons, there is only one logical explanation: you, obviously, are making your living applying or selling these toxic materials or you are getting a "kick-back" or a great deal of PAC money!

What are volatile, "registered" synthetic pesticide poisons? - The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) describes anything that kills or controls any pest as a "pesticide"; that is because they wanted to finally regulate toxic economic poisons; today the Author's research has come up with a lot of non-toxic food items or Generally Recognized as Safe (GRAS) alternatives that control or kill pests better, quicker, safer and at less cost than *registered* poisons - he calls these materials Pestisafes®. Pesticides originally were prepared from arsenic, boron, e.g., arsenic green and boric acid. These are inorganic chemicals and can be located on the periodic table. Today, synthetic pesticides mostly are volatile, organic chemicals, that is carbon is the building block for the chemical molecule. The Benzene hexagon is the beginning chemistry behind the synthetic carbamate, chlororganic, chlorophenoxy and organophosphates insecticide poisons and herbicide poisons and we know benzene causes cancer! Most modern, "registered," synthetic, pesticide poisons are toxic because of their ability to attack the nervous system - one of the most susceptible and vulnerable portions of the body in highly developed organisms. The problem is - volatile poisons are not species specific and are more correctly labeled biocides that attack and harm and/or kill all living things, including the beneficials, and contaminate everything. The active ingredients and/or the *inerts* can have a repellency that can greatly negate the ability of these synthetic poisons to *control* the targeted pest; in addition, pest resistance or avoidance develops quickly and basically makes any pesticide poison useless. Poisons "registered" before 1984 were grandfathered in accordance with old standards and are routinely "re-registered" or extended today.

How are volatile, synthetic pesticide poison exposures established? - Pesticide poisons create exposure problems to people and pets because of their active or *inerts'* volatile chemistry as contaminates of our buildings, food and water through misapplications and as metabolites or decomposition products or through synergistic effects and through inherent defects in the poison mixture. There virtually is no such thing as zero or *safe* residues or contamination even with the labeled use of any volatile, synthetic pesticide poisons! The July 27, 1991 Vol. 338 issue of The Lancet noted: "Recent estimates suggest that each year worldwide there are 3 million acute (one-time) severe pesticide poisonings with 220,000 deaths . . . the estimated incidence of pesticide related illnesses in the U.S.A. is between 150,000 and 300,000 per year! World production and use of pesticide poisons continue to rise, with a 10-fold increase in production between 1955 and 1985. One class of pesticides, the organophosphate insecticides, has become increasingly common and responsible for human toxicity." The article on pages 223-226 concludes "We conclude that even single episodes of clinically significant organophosphate intoxication are associated with a persistent decline in neuropsychological functioning.

- Most "registered" pesticide poisons are complex mixtures of volatile organic chemicals that include the pesticide's active ingredient and the volatile, *inert* solvent matrix (xylene, deodorized kerosene, etc.) used to dissolve the pesticide poison in its concentrated form. Volatility's as low as 10-5 mm (as was found with chlordane) cause large vapor (contamination) sources that provide air levels that lead to inhalation exposure. Most "regulatory airborne guidelines" have no relevance to actual exposure, especially to the *inerts*.
- Air contamination levels lead to airborne deposition of volatile pesticide poisons onto carpets, walls, ceilings, toys, etc., to create an exposure source that provides for chronic inhalation and dermal absorption and contamination of food, cooking utensils, dishes, clothing, furniture, etc.
- Solvent vapors, 100 to 1,000 times more volatile and/or toxic than the pesticide itself, last hours or days or even for thousands of years to increase the potential for exposure and toxicity of pesticide contamination.

- PCO's are poorly trained and regulated for the most part. Very few PCO's understand the label, MSDS, and the mixing of "registered" pesticides, and very few understand the chemistry of the pesticide mixture. PCO's often use the same applicator tank, without cleanup or with only a water wash, to mix the next pesticide or herbicide mixture. When PCO's state only a (single) pesticide poison has been used it is probable that a mixture of poisons has been applied. PCO's often over treat, rarely assess the structural components of the house, and do not localize their treatments to affected house locations. No one in "regulation" ever checked my hundreds of thousands of poison applications! These facts make the analysis of environmental samples a critical step in the true extent of exposure evaluation.
- Procedures used by PCO's often enhance the capability of the "registered" pesticide poison to enter into the air space below the house (crawl space or basement) and then into the occupied space and/or create deadly synergistic effects. The injection of volatile pesticide poison mixtures into voids of block or brick leads to toxic vapors that rise in the void space to seek cracks through which they can emerge inside. Spraying of volatile pesticide poisons onto carpet or baseboards ensures a chronic airborne and dermal exposure for months, at least! Drilling into cement pads or garage floors and pressure injecting foams often leads to emergence of the pesticide poison at cracks or fissures in the same pad elsewhere. Treat ment of wet basements and/or soils, a label violation, is often practiced. These toxic exposures can last for many generations!
- Most label information about the "registered" pesticide poison's active ingredient is cursory chemistry at best. MSDSs provide only limited additional data only on the active ingredient. Toxic intermediates are not usually listed and "inert adjuvants", are frequently not *inert,* e.g., dangerous *s*olvents such as chloroform and carbon tetrachloride are never even listed on the label. The actual purity of the product (poison) is often stated in misleading terms. These inherent defects in application techniques and products and in the labels make any poison exposure assessment more necessary and more complex and virtually impossible to correctly determine or assess. Synergistic effects of other pesticides, medications and cleaning compounds are not considered.
- Whenever a poison applicator applies two or more volatile, *(registered)* synthetic pesticide *treatments*, the various chemicals, *inerts,* actives, solvents, metabolites, contaminants, impurities, transformation and decomposition products produce several totally different unregistered poison formulations with unknown toxic synergistic health and environmental problems. The Federal Statutes 7 USC 136J clearly shows all such *treatments* are unlawful acts because the composition is totally different; it is adulterated and/or mis branded, etc. **Yet this routine, unlawful act has never been prosecuted by any "regulator" to my knowledge.**

How does the body become exposed and what does dose mean? - Most volatile pesticide poisons have some fat or lipid solubility. Volatile pesticide poisons are absorbed through the lungs, skin, eyes and/or GI tract. Pesticide poisons are stored intact and/or changed (metabolized by the liver, gut, etc.) into metabolites or chemicals that are usually more toxic than the parent pesticide poison. Excretion of fat soluble compounds may take years or may never be fully accomplished (e.g., chlordane, heptachlor, aldrin, DDE from DDT, etc.).

- The body absorbs pesticide poisons which are "oil or fat" soluble through the lungs, skin and by ingestion. The greatest dose is usually through the skin for "fat soluble" pesticide poisons. Contaminated clothing can provide 10 to 100 times the contaminated levels or the dose of the air. Fat soluble pesticide poisons are stored in fat, particularly breast tissue in women. Fatty tissues such as the brain may also absorb signifi cant doses. Water soluble or highly metabolized pesticide poisons may show less storage and a higher turnover rate, but they also may damage liver enzymes, brain cholinesterase or neurotoxic esterases during their brief presence in the body.
- Elimination of metabolized pesticide poisons by the kidney occurs in some cases, but more frequently volatile pesticide poisons and/or their metabolites remain stored in the body fat. Women mobilize chlorinated pesticide poisons and herbicides when breast feeding. Thus, the newborn may receive a poison dose that can be toxic to the baby while the mother's "fat levels" may appear abnormally low.
- Dose calculations from airborne levels is simple (multiply the air level by the respiration rate by the time of exposure). Dermal doses are harder to calculate but surface area measurements of contact areas, estimates of contaminated clothing and orders of magnitude can provide reasonable assessments. The lack of "regulatory guidelines for dermal dose" (what industrial hygienists call "skin notation") is not a deterrent to reasonable predictions of dermal dose. The total body burden (dose + + synergism + distribution + metabolite toxicity) is the key element that must be determined, if possible.

HISTORY OF "REGISTERED" PESTICIDE "CONTROL" - In 1987, Michael Hansen, Ph.D. wrote *Escape From The Pesticide Treadmill* and he clearly wrote on page one: "Pesticides are environmentally hazardous and can be dangerous to the health of workers. But in a number of developing countries, some commercial farmers have abandoned pesticides, or drastically reduced their use not for these extremely important reasons, but because pesticides weren't doing the job. One of the earliest warnings of the dangers of an over reliance on pesticides occurred in the mid-1950's in the Canete Valley of Peru (van den Bosch; 1978). Cotton production for export dominated the Valley. Synthetic organic insecticides (first DDT, BHC, toxaphene, then aldrin, dieldrin, endrin, and finally parathion) were introduced in 1949. By 1955, various scientific studies showed that many pests had developed resistance to these insecticides, requiring heavier dosages and more frequent applications. In addition, six new species, all secondary pests, had appeared, raising the number of serious pests from 7 to 13. At the same time, government statistics showed that cotton yields were dropping sharply: by 1956, the average yield per hectare was the lowest in over a decade (Boza-Barducci, 1972).

In response to the crisis, the Peruvian Ministry of Agriculture issued an integrated pest control plan in July, 1956, which dictated a number of changes in pest control practices, including banning the use of synthetic organic pesticides and reintroducing beneficial insects. The plan also mandated the adoption of certain cultural practices, such as planting early maturing varieties, planting by established deadlines, and destroying crop residues.

With the introduction of this program, pest problems declined dramatically and pest control costs were reduced (Boza-Barducci, 1972). The secondary pests quickly dropped to their former innocuous levels, primary pest outbreaks decreased in intensity, and cotton yields reached an all-time high.
This is far from the only such case. Although withdrawals from pesticide use tend not to be well-documented (commercial farmers, unlike scientists, do not depend for their future on publishing in scientific journals) a few have been reported.

One of the most intriguing cases involves control of banana pests, described in Chapter 6 (Stephens, 1984). During the 1940-50s, the United Fruit Company cleared a large area of virgin lowland rain forest in southwest Costa Rica and planted monocultural banana plantations. According to a report by United Fruit's Experimental Director for the region, before the mid-1950s only two insect species - a thrips and a weevil - were considered economically important.

Mass application of an organochlorine insecticide, dieldrin, to control these pests began in 1954. Within the next 5 years six species of lepidoptera (butterflies and moths) also became severe pests while insecticide use increased rapidly. A number of entomologists studied the pest outbreaks and natural and chemical control of these pests. Natural enemies were found in the banana farms, but their numbers were constantly suppressed by pesticides. The enemies were particularly abundant in the unsprayed zone between the forest and the plantation. Finally, by 1973, the entomologists convinced the company to stop all insecticide sprays. Within two years, most of the previous pest species had nearly disappeared as their natural enemies reestablished themselves in the balanced banana ecosystem. Thrips remained a pest, but their damage was prevented by covering the fruits with plastic bags. Since 1973 no insecticides have been sprayed on these plantations; natural enemies have taken their place."

Remember most of our "pesticides" were developed about 60 years ago to kill man as "peoplecides" or nerve gases - not insects - no wonder that volatile, synthetic pesticide poisons have never truly "controlled" pests, but are truly harming/killing us. In the 1980s, it was estimated we lost 13% of our preharvest crop to insects using 600 million pounds of poison than only the 7% we did over 30 years ago using "only" 50 million pounds! More of our crops are lost with pesticide poison spraying than were lost to pests before pesticide poisons were invented and we all were basically organic farmers! In the 1980s worldwide pesticide poison use increased 12-fold since the 1950's and costs paid by U. S. farmers for pesticide poisons increased 6-fold between 1951 - 1976 (Eichers 1981). Monthly or weekly pest/roach *control* is the *standard* for the pest *control* industry. When will people wake up to the fact that these "registered" poisons do not kill insects, but they do kill and/or harm people and pets?

Defenders of volatile, synthetic pesticide poisons routinely say these toxic poisons are "safe" when used as directed, but *they* ignore the fact it is against the federal law to state that any pesticide poisons are "safe", and

according to opthamologist, James Wangberg, most people can't even read the directions on these poisons. Wangberg and his associates at the University of Wyoming examined the application labels on a variety of pesticide poisons that are sold for home use. One of the researchers, an optometrist, assessed type size and found that on average the print required better than 20/35 vision - an obstacle for the more than 10 million Americans whose eyesight, even with glasses, isn't that good. Others on the team used widely accepted reading scales to determine the language difficulty on the labels. The average pesticide poison label was written at an 11th-grade level, which literacy studies have shown would pose difficulties for more than 40% of Americans! By comparison, over-the-counter drug labels are usually written only at a 9th-grade level. The researchers also looked at pesticide poisons restricted to farm use and found similar problems with those labels. No wonder that study after study proves most pesticide poison users never read the label or directions. Laura Dye of the EPA's Office of Prevention, Pesticides and Toxic Substances said in January, 1997, that five different surveys in the past 15 years prove this fact again and again. Even if they read the "registered" label, it does not begin to tell you of the total toxicity/risk/danger. Too much is hidden, e.g., the "inerts," metabolites, contaminants, synergistic effects, data gaps, fraudulent or misleading testing, etc. On 4/7/99 CNN ran a factoid from FDA which stated that 100,000 Americans die and 1.5 million of us are hospitalized each year caused by adverse drug reactions.

COMMON SYMPTOMS OF NEUROTOXICITY*

General Intellection Impairments
- Intelligence (I.Q.)
- Attention
- Concentration
- Abstract Reasoning
- School learned skills (including arithmetic, spelling, writing)
- Cognitive efficiency and flexibility
- Global impairments (dementias)

Motor Impairments
- Fine motor speed
- Fine motor coordination
- Gross motor coordination
- Gross motor strength

Sensory Impairments
- Visual disturbances
- Hearing disturbances
- Pins, needles and numbness
- Disturbances in feeling of touch (PNS or CNS disorders)

Memory and Learning Impairments
- Short-term memory (verbal and non-verbal information)
- Learning (encoding of new information - verbal and non-verbal)
- Long-term memory (verbal and non-verbal)

Visuospatial Impairments
- An inability to draw or build simple constructions

Personality Impairments
- Anxiety, depression, delirium, organic brain syndrome, organic affective disorder, other psychotic disorders, anger, tension, fatigue, irritability, other symptoms

*Hartman, 1988, Neuropsychological Toxicology, p. 24

Pesticide Poison Tolerances - There are literally thousands of government "registered" pesticide (poison) "tolerances" that are now "acceptable" contaminants in our food, water, and/or air, yet apparently there are no acceptable tolerances of even one alternative or live insect on our food, in our homes, in our schools, in our offices, in our hospitals, and/or in our places of worship! We must learn to have pest, not pesticide poison, tolerances. If a pest is on our food, it can be simply rinsed off with water and actually indicates that the food is truly safe (free from poison residues). If a pest is in an indoor area, it can be easily vacuumed up or simply stepped on. Learn to tolerate a few *pests* - they, at a minimum, show that area is not too contaminated.

We must stop thinking there are "acceptable levels" of "registered" poisons, carcinogens, neurotoxic (nerve gases), mutagens, or any other health destroyers! We must truly develop a reverence for life! Of all the fossil insects that have ever been discovered, even with all the climatic changes, pollution, etc. about 4 out of the 5 ancient families or genera were still alive and in business in the 1990s.

On 3/11/99, Rachel's Environment and Health Weekly #641 noted that, "in a 1990 cancer prevention booklet titled EVERYTHING DOESN'T CAUSE CANCER, the National Cancer Institute (NCI) says, 'many cancers could be prevented by reducing our exposure to carcinogens.' The NCI identified 30 chemicals or industrial processes that are known to cause cancer in animals. Furthermore, NCI says "of the several hundred other chemicals that cause cancer in animals, it is not known how many are also human carcinogens. Nevertheless, materials that cause cancer in one type of animal usually are found to cause cancer in others...For these and other reasons, we should expect animal carcinogens to be capable of causing cancer in humans.'

The NCI goes on to explain why weak cancer-causing chemicals cannot be reliably identified among the 70,000 chemicals now in industrial use. In a typical test of a chemical for carcinogenicity, 'groups of about 50 mice or rats of each sex are exposed to the test substance at different dosages for about two years.' At the end of the experiment, the animals are killed and examined for cancer.

NCI goes on: 'In the human population, large numbers of people are exposed to low doses of chemicals, but the total impact may not be small at all. For example,' NCI says, 'a carcinogen might cause one tumor in every 10,000 people exposed to it, which may not seem great. But exposure of 230 million Americans would result in 23,000 cancers -- a public health disaster.'

NCI goes on: 'We obviously could not identify a carcinogen that causes one cancer in every 10,000 exposed mice by running the test on only 50 mice. To detect such a low cancer rate, we would need tens of thousands of mice. This would cost many millions of dollars per test. Testing more than a few chemicals in such a fashion would be too expensive and time-consuming,' NCI says.

NCI also points out that it is difficult to identify which carcinogens cause which cancers because, 'A chemical that causes cancer of the liver in mice, for example, might cause cancer of the breast in rats and cancer of the bladder in humans.'

Is there a safe level of exposure to a cancer-causing chemical? NCI says no: 'There is no adequate evidence that there is a safe level of exposure for any carcinogen.' And 'Low exposure that might be safe for one person might cause cancer in another...Unfortunately, scientists have not yet developed any way to measure a person's individual risk. Exposure to a low level of a carcinogen thus has to be considered a risk for everyone,' NCI says."

All of the billions of tons of "registered," volatile, synthetic pesticide poisons we have ever sprayed have never controlled much less eliminated even one pest! The insect's capacity for reproduction and multiplication and developing resistance or tolerances to all of our synthetic pesticide poisons is incredibly great and proven. Volatile, synthetic pesticide poisons have never and never will ever *control* insects, much less eliminate them. One hibernating or resistant female fly could easily provide Washington, D.C. with more than 5-1/2 trillion flies from 4/15 to 9/30! The 1952 Year Book of the Department of Agriculture estimates the potential descendants of one pair of house flies at 191 quintillion from April to August! A Cornell University entomologist, Glenn W. Herrick, estimated that one female cabbage aphid could produce 41 offspring per average female between 3/31 and 10/2 and even under New York State weather conditions could therefore produce in just one season a posterity numbering 1,560 sectillion or a theoretical maximum population that would outweigh the earth's entire human population at the end of one season! In the entire history of the world B.C. (Before Chemicals), or even A.D. (After Dursban), this *potential* pest infestation or explosion has never happened! There really is a natural balance that quickly stops, prevents, or corrects these *potential* large scale pest problems or explosions from ever developing. Continually spraying poisons actually creates greater pest problems, because these toxins negatively effect the natural balances and protections by destroying the beneficial organisms, predators and parasites that normally keep resistant pest insect populations in check.

If each plant and animal did not have its own built-in defenses against pests - we would have all long ago perished and/or life as we know it would never have developed in the first place. Pest insects normally only attack specific/sick/dying plants and animals; make the proper plant choices, reduce moisture problems, make the plants and animals and/or their environment healthier and you will safely reduce or even eliminate pest populations. You can not create healthy conditions with economic poisons. Poisons contaminate and poison everything and everyone!

There really are no safe or protective "registered" poisons!

We “use” ever-increasing tons of “registered,” volatile, synthetic pesticide poisons and suffer ever-increasing losses! Thousands of farmers are going bankrupt or selling out every year! The world’s farmers production fell further behind the growth in world population in 1995, with the smallest grain harvest since 1988! Grain production per person dropped to 293 kilograms - the lowest since 1965! **The use of “registered” poisons to control pests is, obviously, not working.** We have found school after school weekly spraying poisons for decades with no real reduction in ants or other pests, yet using only our common sense alternative pest controls we have virtually eliminated all pests inside and outside in over 300 schools by 1996 without ever using any volatile, synthetic pesticide poisons! There is no “quick (poison) fix;” only common sense (which, obviously is not common) will solve pest problems. My mother first taught me common sense or true Integrated (Intelligent) Pest Control as a very young man. She said, “Close the door, Stephen, you are letting in the flies!” Prevent the pests from entering, change the conditions that are conducive to their growth, find out their natural enemies and/or weak points and use them to your advantage. **Learn** to use more than one tool to actually eliminate pest problems or you will be forced into “treating” the symptoms with “registered” poisons forever and **learning** to “live” with ever-increasing pesticide (poison) tolerances (contaminations) and more and more resistant pest populations. **Schools should be places of learning, not of poisoning!**

Pesticide Use in Europe - Pesticide News, 1998

PANUPS noted on April 13, 1998 that the European pesticide poison industry grew for the third straight year in 1996, according to the European Crop Protection Association’s 1996/97 annual report. The Association said that Western Europe’s pesticide poison market value amounted to approximately US $8.2 billion in 1996, up 8.3% since 1995. Volume sales of pesticide active ingredients climbed 6%, reaching 265,000 tonnes and reversing the trend of declining sales since 1992. A combination of higher global grain prices, increased plantings and favorable rainfall contributed to higher demand for pesticide poisons in the region.

Europe represented 29.5% of the US $30.5 billion world pesticide poison market. The European Union exported 1,944 tonnes of pesticide poisons in 1996, worth approximately US $2.1 billion. EU countries imported 618 tonnes of pesticide poisons, worth US $680 million.

Sales within individual European nations varies widely. According to The Pesticides Trust (UK) , Finland, Ireland, Luxembourg and Sweden all purchase relatively small quantities of pesticides - less than 5,000 tonnes per year. France and Italy, on the other hand, purchased approximately 88,000 and 79,000 tonnes respectively in 1997. In addition, some countries have actively worked to reduce pesticide poison reliance. Since the late 1980s, Sweden, Holland and Denmark have pursued national pesticide use reduction policies that have decreased the volume of pesticide poisons applied in those countries.

Following are country pesticide use reports from Italy, Norway and Sweden.

Italy - Italy is the third biggest buyer of pesticide poisons in Europe, accounting for 13.4% of total purchases - behind France (32.9%) and Germany (15.4%). When measured by volume, however, Italy is the second largest user behind France. The most commonly used pesticide poisons include methyl bromide, mancozeb, ziram, thiram and chlorpyrifos.

Between 1987 and 1992, the Ministry of Agriculture financed regional programs for promoting integrated pest management (IPM) among farmers. However, once national-level support for the effort ended, only a few regions have pursued the objective of implementing IPM.

Norway - Since 1985 pesticide poison sales in Norway have declined from 1,529 to 800 tonnes of active ingredient. Although the Ministry of Agriculture launched a five-year pesticide reduction plan in 1990, there is no one clear reason for the decline, according to Trond Hofsvang or the Norwegian Crop Research Institute. The adoption of new low dosage compounds may also have played a part.

Insect pests are less significant in Norway than in middle and southern Europe, but weeds thrive. Consequently, herbicides are the dominant pesticides, accounting for approximately 71% of total use in 1996.

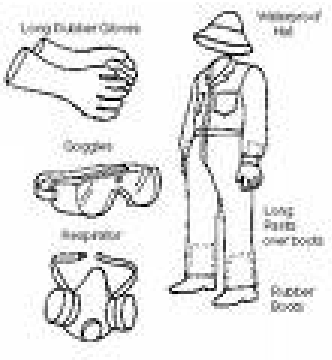
Norway has banned several pesticide poisons that are widely used in other countries. In 1997, Norway banned endosulfan due to its high toxicity, and vinclozolin was withdrawn due to evidence of its high reproductive toxicity.

Mancozeb will be phased out by 2000, also due to reproductive toxicity.

Sweden - Sweden has relatively less intensive agriculture than other European countries, and is not a big pesticide market. However, Sweden has implemented a national pesticide poison reduction policy that has been touted as a possible model for other national reduction schemes. Sweden cut pesticide poison use 64% between 1986 and 1996. Usage levels are reported to be flattening out, however, with little likelihood of additional reductions.

Sweden's top five pesticide poisons by sale in 1996 were glyphosate, MCPA, metamitron, isoproturon and mecoprop. Since 1991, sales of glyphosate have nearly doubled, from 223 to 416 tonnes. The Swedish government has banned 36 pesticide poisons since implementing its pesticide reduction program in 1986, including aldicarb, atrazine, bromoxynil, endosulfan, simazine and vinclozolin.

In the 1990s more than 60,000 U. S. pesticide-related poisonings occurred every year. Even though the U. S. government supposedly requires that pesticide poison labels be easily read and understood; they are not; they constantly change and proper "enforcement" is another matter. Wangberg stated, "It's like handing somebody a loaded gun; without telling them how to use it." Note: Any label or labeling that shows a dead pest with its feet up generally indicates the product is a volatile, neuro-toxic cholinesterase inhibitor (a nerve gas), e.g., an organophosphate or carbamate pesticide poison, and should never be used. Even though synthetic pesticide poisons by law must warn they may inhibit cholinesterase - no one (but a scientist) knows what that means - it would be better to say this poison's active ingredient is basically a nerve gas! **If you still insist on using "registered," synthetic pesticide poisons:** Mix them with sodium borate, which will encapsulate the volatile poison and keep it effective for many years; doing this and then only monitoring will reduce your use of these poisons on pest control routes up to 75% the first year and up to 90% the second year. This technique alone should being the U. S. Department of Defense (DOD) into compliance with their goal to reduce pesticide use 50% of 1995 levels by the year 2000. In the 1990s the DOD used about a million pounds of active pesticide ingredients per year.



PROTECTIVE CLOTHING - never handle, mix or apply pesticides without at least some minimal protective clothing to prevent chemicals from contacting your skin. Minimal protection required under low-hazard circumstances includes full-length pants and a long-sleeved shirt made from tightly woven cotton fabric. Coveralls worn over regular clothing provide additional protection from pesticide poisons, and have the advantage of being able to be easily removed if they become contaminated or when you finish working. **Concentrates and bulk pesticides should be handled very carefully. If you need a poison label and/or MSDS, log on to http://www.cdms.net and click on "Services, Labels/MSDS"; users can obtain instant product information from 70 manufacturers serving the U. S. market.**

Cotton fabric should never be worn without additional waterproof clothing, especially when there is a chance of contacting wet spray or concentrated liquid pesticide poison, or whenever highly toxic pesticides are used. Tightly woven fabrics act as a wick and efficiently carry liquids to the inside of the garment, increasing your potential for dermal exposure. Disposable fabrics made from non-woven, bonded fiber materials are superior to woven fabrics because they do not promote wicking and are more resistant to liquid penetration. Some non-woven fabrics are laminated or bonded to other materials to further enhance their waterproofing. Disposables have the major advantage of not requiring cleaning or decontamination after use. They can be thrown away when soiled. To prevent environmental hazards, dispose of pesticide contaminated clothing in an approved disposal site, the same as any other hazardous waste. Aprons protect part of your body during handling and mixing of pesticides, but should not be used instead of other protective clothing during pesticide application. Aprons must be made of waterproof materials and be long enough to protect your groin area and outer clothing. If a hat is worn, it should be either water resistant and wide-brimmed or made out of a waterproof material such as plastic; headbands and sweatbands must also be waterproof. An alternative to protective headwear is a hooded, waterproof jacket. Waterproof and chemical-resistant gloves are an essential part of your safety equipment and must be worn whenever you handle pesticide poisons. **Leather or fabric gloves should never be used because they absorb water and pesticide poison may actually increase your dermal exposure.** The thickness of the glove material also

HEAD PROTECTION

determines the amount of protection; thicker materials are better. Choose materials that resist puncturing and abrasion. Gloves must not be lined since fabrics used for linings may absorb pesticides, making them dangerous to use and difficult to clean. Be careful when lowering your arm to prevent splashed pesticides from entering your glove.

Leather or fabric shoes should also never be worn while handling, applying or mixing pesticide poisons because they also absorb most pesticide poisons. Fabric is difficult to clean and it is impossible to remove pesticide poisons from leather. If leather boots or shoes accidentally become contaminated with a pesticide poison, properly dispose of them. Protective footwear should be made of rubber or synthetic materials such as PVC, nitrile, neoprene or butyl. Waterproof rubber or synthetic materials also provide good protection against electrocution. Electrocution is the greatest acute danger an applicator can face. Make sure boot seams are well sealed to prevent pesticide entry. Choose a sole design that protects against slipping on wet surfaces and is easy to clean. Waterproof boots do not *breathe* like leather or fabric shoes, so wear clean cotton or wool socks to absorb your perspiration.

Eye protection must always be worn. We recommend you use a full face shield with a respirator already attached.

Goggles are the most common form of eye protection; they are held in place either by elastic or synthetic rubber straps. Because elastic straps contain fabric, they can absorb pesticide poisons and will increase the dermal contamination to the back of your head, an area that is highly sensitive to pesticide poison absorption. Avoid this problem by using a hood or protective headwear over the strap. Replace or thoroughly wash the elastic band if it becomes contaminated. Straps made of neoprene or other synthetic materials are “safer” because they are nonabsorbent and easy to clean.

A RESPIRATOR is a device that offers protection to the lungs and respiratory tract from airborne pesticide poisons. Select respiratory equipment based on the type and toxicity of pesticides you are using, the recommendation or requirement listed on the pesticide label, and the nature of the area where you are working. Respiratory equipment should be approved for use with pesticide poisons by the Mine Safety and Health Administration (MSHA). Cartridge respirators need to fit properly to be effective and safe. They should be in good working condition and be cleaned after each use. Safety regulations prevent pesticide applicators with beards or long sideburns from wearing cartridge respirators, they need to shave or get a proper mask. **A respirator that does not seal properly is more dangerous than no respirator at all because you not only receive inadequate protection but you develop a false sense of security and become poisoned as the applicator of the poison.**

Speaking of a false sense of security . . . In 1973, the National Pest Control Association (NPCA) produced the Approved Reference Procedures (ARP) for Subterranean Termite Control. This was the *bible* of the termite control industry. On September 5, 1986 the NPCA sent out a Statement of Disclaimer for the ARP. **“NO CLAIM OR WARRANTY WHATEVER IS MADE OR IMPLIED THAT THE RECOMMENDATIONS, METHODS OR PROCEDURES CONTAINED IN THIS PUBLICATION ENSURE SAFETY OR PREVENT INJURY OR PROPERTY DAMAGE.” TODAY, AT LEAST 75% OF ALL U. S. HOMES BUILT BEFORE APRIL OF 1988 ARE NOW (PERMANENTLY) CONTAMINATED WITH THE *REGISTERED,* CARCINOGENIC TERMITICIDE, CHLORDANE, AT SIGNIFICANT LEVELS! AMAZING!**

The Author firmly believes that if any "registered," volatile, synthetic pesticide poison label requires a respirator, legally the applicator of that volatile poison must also use a device to detect and accurately measure the poison contamination of the ambient air to assure a safe re-entry time. Without the device, the respirator mask will protect the poison applicator who then can only "guess" when the volatile poison will be at a safe (no-risk) level in the ambient air for the occupants to re-enter!

Note: It is interesting to note the robber's and executioner's faces have historically always been hidden behind a mask (respirator).

Always keep protective safety equipment in proper working condition. Protective equipment is effective only as long as it is free from pesticide poison contamination and works properly; therefore, frequent cleaning and inspection is required. Replace or repair equipment as soon as you spot a problem. Before cleaning your respirator at the end of each day, inspect it for wear and damage and replace whatever is necessary. After removing filters and cartridges, soak the respirator, gaskets and valve parts in a solution of warm water and mild liquid detergent. Rinse the respirator and valve parts in clean water. Air dry rather than using applied heat. After it is completely dry, reassemble the respirator and store it in a clean plastic bag to protect it from dirt and environmental deterioration.

Rubber boots and gloves should be triple rinsed of all pesticide poison contamination under running water **before you take them off.** Use a detergent solution and soft brush for washing, then rise with clean water. Inspect them for holes while washing; discard if any are found. Turn gloves inside out for drying. Store dry boots and gloves in plastic bags to keep them clean and prevent deterioration.

Use care when washing face shields and goggles to prevent scratching the lenses. Rinse well with clear water and air dry. Store goggles and face shields in paper or plastic bags to keep them clean.

CONTAMINATED PROTECTIVE CLOTHING must not be worn until it has been properly washed. Discard clothing that has had large quantities of pesticide poisons spilled on it and do so in a site approved for pesticide contamination. Moderately or lightly contaminated clothing can be cleaned by washing. Do not combine contaminated clothing with any other laundry before, during or after washing or drying. **Run an empty cycle on hot (with soap) before putting in other laundry.**

Technique for Properly Fitting Cartridge Respirators

ISOAMYL ACETATE
(banana oil) FIT TEST*

The chemical isoamyl acetate, commonly referred to as “banana oil”, is available from major chemical suppliers and is widely used to check respirator fit. Its odor is easy to detect and the chemical can be used with any pesticide respirator equipped with organic vapor cartridges or canister.

When conducting a fit test, it is important to know that some brands of respirators are available in small, medium and large sizes. If possible, have several different sized available during the test to ensure proper fit. Try respirators from different manufacturers since one brand may fit better than others.

If a respirator does not fit properly, the applicator will not be adequately protected. Therefore, be sure to follow the test procedures outlined below:

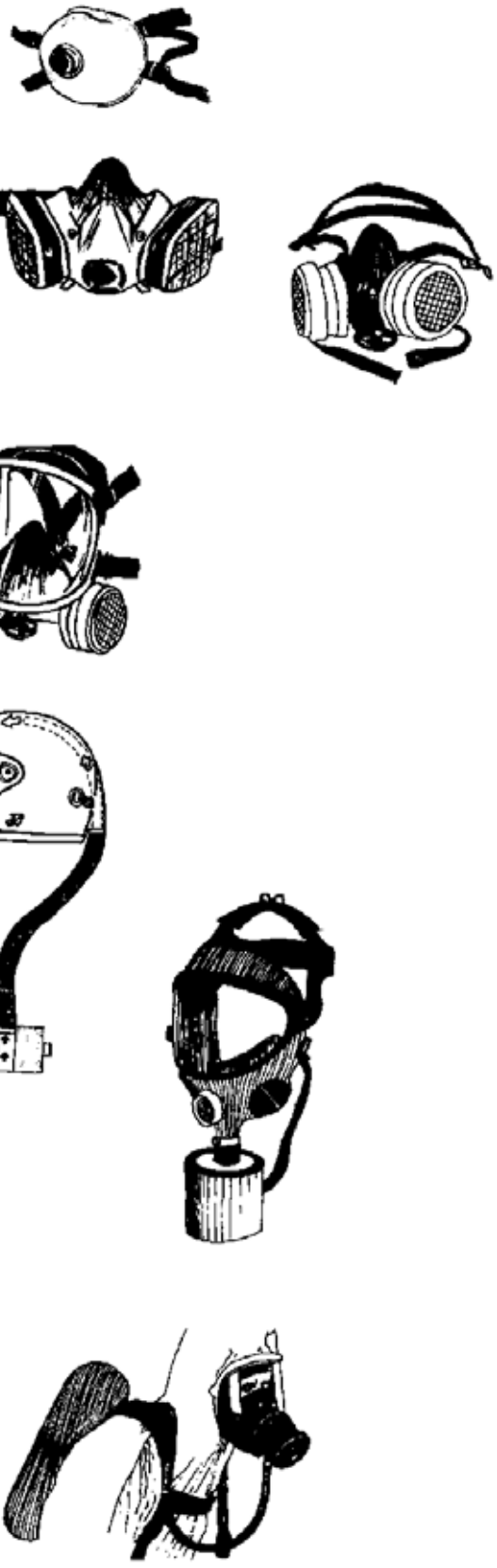
1. Be sure there is no banana oil odor in the test area that may influence the wearer’s ability to detect its presence. Once a respirator is selected, have the wearer adjust it until there is a good face-to-mask seal.

2. Saturate a piece of cotton cloth with banana oil. The person performing the test should wear rubber gloves and avoid skin contact with the wearer and oil.

3. Pass the saturated material close to the respirator in a clockwise and counterclockwise motion. Have the wearer stand still and breathe normally and then deeply. If the wearer smells banana oil, readjust the respirator or select a different size or style before starting again.

4. If the odor cannot be detected while the wearer is standing still, have them perform side-to-side and up-and-down head movements. Also have the wearer talk loudly enough to be heard by someone standing nearby. Then have the person make other movements, such as bending over, that may occur during spray application.

5. If the banana oil odor cannot be detected during the above movements, it indicates a satisfactory fit. Seal the respirator in a plastic bag marked with the wearer’s name. name. Keep a record of when the fit test was conducted, along with the size and brand of respirator selected for each user.

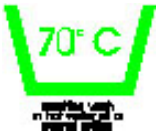


*Adapted from *A Guide to the Proper Selection and Use of Respirators*, Zoecon Corporation

All protective clothing, e.g. long-sleeved shirts, full length pants, coveralls, socks and underwear, should first be soaked in hot, soapy water for at least 1/2 hour. Then launder in a standard washing machine, using hot water and liquid laundry detergent (liquid detergent removes oil-based pesticides better than powdered detergent); use the maximum amount recommended in the detergent instructions. Set the washing machine to its longest cycle (at least 12 minutes) and use the hottest and highest water level. **Wash pesticide-contaminated clothing separately from all other laundry to prevent transferring toxic contamination.** Clothing contaminated with different types of pesticides should be washed separately, not combined with another pesticide poison contaminated article(s). Wear gloves or use some other means to prevent skin contact when handling contaminated clothing and while putting it into the washing machine.

TECHNIQUES TO WASHING PESTICIDE POISON CONTAMINATED CLOTHING:

1. Keep "registered" pesticide poison contaminated clothing separate from all other laundry.
2. Do not handle contaminated clothing with bare hands; wear rubber gloves or shake clothing from plastic bag into washer.
3. Wash only small amounts of clothing at a time. Do not combine clothing contaminated with **different** "registered" pesticide poisons - wash these in separate loads.
4. Before washing, presoak clothing:
   a. Soak in tub, automatic washer, or spray garments out of doors with a garden hose.
   b. Use a commercial solvent soak product, or apply rewash spray or liquid laundry detergent to soiled spots.
5. Wash garments in washing machine, using hottest water temperature, full water level, and normal (12 minute) wash cycle. Use the **maximum** recommended amount of **liquid** laundry detergent. Neither bleach or ammonia seem to significantly affect the removal of most "registered" pesticide poisons on clothing. **Never use both.**
6. If garments still have "registered" pesticide poison odor, prespot all visible spots or stains before washing; rewash one or two more times as in step 5 or properly dispose of them.
7. Clean washing machine before using for other laundry by repeating step 5, using full amount of hot water, normal wash cycle, laundry detergent, **but no clothing.**
8. Hang laundry outdoors on clothesline to dry in the sunshine to avoid contaminating the automatic dryer and inside air with "registered" pesticide poisons.



Do not attempt to wash heavily contaminated clothing; destroy it by burning in an incinerator or by transporting to an approved "registered" pesticide poison disposal site. Follow these suggestions for reducing chances of contaminating the family laundry and endangering family members:

1. Whenever possible, wear disposable protective clothing which can be destroyed after use.
2. Always wear all of the required protective clothing the label directs you to use when working with "registered" pesticide poisons.
3. Wear clean protective clothing daily when working with "registered" pesticides. Properly wash contaminated clothing **daily.**
4. Remove contaminated clothing at work site and empty pockets and cuffs. Place clothing in a sealed, clean plastic bag until it can be laundered. Keep contaminated clothing separated from all other laundry.
5. Remove clothing immediately, especially if a "registered" pesticide poison concentrate was spilled on it.

After washing is completed, run the washer through another complete cycle using hot water and detergent, but without any laundry. This step helps to remove most pesticide contamination left in the washer which may grossly contaminate subsequent loads of laundry. Whenever possible, hang washed clothing outdoors for drying since the ultraviolet light in sunlight helps break down many pesticide poisons and air drying avoids contaminating the automatic dryer and ambient air.

Remove as much "registered" pesticide poison contamination as possible from waterproof clothing by washing with a hose and scrub brush out of doors in an area where the runoff can be caught and will not cause environmental or personal contamination. Do this before removing these garments, if possible. After removal, store the protective clothing in a clean plastic bag until it can be properly laundered. To decontaminate the protective clothing, first soak garments in warm, soapy water for ½ hour; then wash in a washing machine using

warm (not hot) water and liquid laundry detergent. Keep these garments separate from all other clothing to prevent contamination. Hang up waterproof clothing to dry. If the clothing is being hung in the direct sunlight, turn it inside out to prevent deterioration of the waterproofing material by the sun and to help deactivate any pesticide poison contamination remaining on the inside lining.

Never use personal safety equipment for any other purpose. When not in use, keep it stored in a clean, dry place and protect from temperature extremes and bright light. If possible, store these items in sealable plastic bags. **Never store protective clothing or equipment in an area where volatile "registered" pesticide poisons are kept.**

Under SARA, the Superfund Amendments and Reauthorization Act of 1986, Title III, the Emergency Planning and Community Right-to-Know provisions, there are now "threshold quantities" of certain stored pesticide poisons that must be reported to the governor or state emergency planning commission.

Under common sense and often state laws you should notify all of the occupants of a building several days in advance of any "registered," volatile pesticide poison application and you should post signs that the yard, property and/or interior were treated, with what poison and when a *safe* reentry time is permitted. Note: It is against the federal law to say any pesticide is *safe* or to compare its toxicity with any food product.

"REGISTERED" PESTICIDE POISONS ARE NOW GROUPED INTO FOUR CATEGORIES. Category I pesticides are the most toxic or hazardous and their use is normally restricted. Category IV pesticides are least toxic to people and are generally less hazardous. Different label and regulatory requirements apply to each category, such as the requirement for use of closed mixing systems and other safety equipment, permits for the use and possession of some pesticides, and set-back distances between the application site and nontarget areas.

The Federal Department of Transportation (DOT) also has a classification system for hazardous materials which includes many pesticide poisons. Check DOT for your poison's classification.

Category I Pesticide Poisons - Have an oral LD_{50} up to 50 mg/kg or a dermal LD_{50} up to 200 mg/kg. The signal word ***Danger*** appears on labels of pesticides in this category, along with the word ***Poison*** and a skull and crossbones. Category I pesticide poisons are often the most acutely hazardous because they are the most toxic. A few drops to a teaspoonful of a pesticide in this category could cause your death if taken orally.

Category II Pesticide Poisons - Have an oral LD_{50} between 50 and 500 mg/kg or a dermal LD_{50} between 200 and 2000 mg/kg. The signal word ***Warning*** is used on labels of Category II poisons, indicating they are moderately hazardous. Between 1 teaspoonful to 1 ounce (6 teaspoons) of chemical in this group would probably kill a human adult.

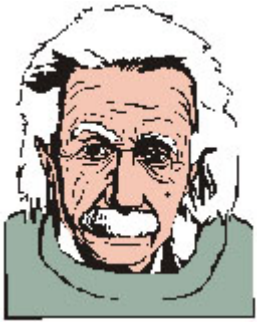
Category III Pesticide Poisons - Have an oral LD_{50} over 500 mg/kg and a dermal LD_{50} greater than 2000 mg/kg. These pesticide poisons have the signal word ***Caution*** printed on their labels, which indicates they may be slightly hazardous. Taken orally, over 1 ounce of pesticide in this category would probably be required to cause death in a human adult.

Category IV Pesticide Poisons - which include active ingredients that have an oral LD_{50} greater than 5000 mg/kg and a dermal LD_{50} greater than 20,000 mg/kg; these must be labeled with the signal word ***Caution***, so are often still grouped with pesticide poisons in Category III. **We only recommend the use of Category IV (non-volatile) pesticide poisons and then only as a last resort.**

Only the active ingredient in pesticide poisons are *tested* on living plants and animals to determine their acute toxicity and predict hazards to people and nontarget plants and animals. These tests also try to help establish acute exposure levels and provide information on mode of action. In some rare cases, animals are fed small doses of pesticide poison on a daily basis. Lower than the LD_{50} they are known as *sublethal* doses. Such studies are used to establish *no observable effect levels* (NOEL) and to give information on the long-term, or *chronic*, effects of the entire pesticide formulation including *inerts*, contaminants, metabolites, etc. Studies also should be done to assess the potential for causing sterility, birth defects, neurological problems, cancer or other health and/or emotional problems in people. In 1993, researchers at the N. Y. University School of

Medicine noted environmental exposures to chemicals (poisons) that inhibit cholinesterase can also produce aggressive and violent behavior. **Note: The LD_{50} value only considers the death of 50% of the test population by acute poison ingestion. Chronic tests or acute tests of the lethal doses for dermal or inhalation are not routinely made. No one bothers to consider or can ask the "survivors" how sick they are from sublethal exposures to these "registered" poisons! Why would any sane persons want these volatile toxins (that do not even control pests) sprayed routinely in their homes, schools, offices or hospitals?**

TOXICITY CATEGORIES				
	I	II	III	IV
HAZARD INDICATORS	DANGER	WARNING	CAUTION	CAUTION
Oral LD_{50}	Up to and including 50/ mg/kg	From 50 through 500 mg/kg	From 500 through 5,000 mg/kg	Greater than 5,000 mg/ kg
$Inhalation_{50}$	Up to and including 0.2/ mg/liter (0-2,000 ppm}	From 0.2 through 2 mg/ liter	From 2 through 20 mg/liter (Greater than 20,000 ppm)	Greater than 20 mg/liter
$Dermal_{50}$	Up to and including 200 mg/kg	From 200 through 2,000 mg/kg	From 2,000 through 20,000 mg/kg	Greater than 20,000 mg/kg
Eye effects	Corrosive; corneal opacity not reversivle within 7 days	Corneal opacit reversible within 7 days; irritation persisting for 7 days	No corneal opacity; Irritation reversible within 7 days	No irritation
Skin effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation at 72 hours



Fear and stupidity has always been the basis of most human actions.

Albert Einstein

n 1945, National Geographic ran an item entitled, "Your New World of Tomorrow." It had a photo of two boys running toward a white cloud of DDT being sprayed over a New York City playground. The sign on the side of the spray rig stated, "Powerful Insecticide, Harmless to Humans." Those who refuse to learn from the past are destined to make the same mistakes.

NO POISON IS SAFE!

Pesticide poisons are grouped by what they kill or do.

"Registered" synthetic pesticide poisons are also grouped according to CHEMICAL ORIGIN. The Author does not recommend the use of any volatile "registered" pesticide poisons. Read the section "Pesti-*cides* are not Pestis*afes*®.

PESTICIDE TYPE	PESTS CONTROLLED OR FUNCTION	EXAMPLES OF PESTICIDES
acaricide	mites	propargite (Omite, Comite) fenbutatin-oxide (Vendex)
attractant	attracts pests	pheromones baits miscellaneous chemicals
avicide	birds	aminopyride (Avitrol) starlicide Omitrol
bactericide	bacteria	oxytetracycline (Mycoshield)
fungicide	fungi	copper compounds benomyl (Benlate) copper sulfate captan sodium borate
growth regulator	regulates plant or animal growth	gibberellic acid (Pro-Gibb) chlorocarbanilate (Spout Nip) methoprene (Precor)
insecticide	insects	petroleum oils, organophosphates, pyrethroids, carbamates, etc.
mulluscicide	snails or slugs	Snarol mesurol triphenmorph (Frescon) clonitralid (Bayluscide)
repellent	repels animals or invertebrates	deet mesurol (methocarb) Avitrol thiram
rodenticide	rodents	chlorophacinone strychnine hydroxycoumarin (Warfin) diphacinone (Diphacin) brodifacoum (Talon) bromadiolone (Maki)

Organochlorines - Organochlorines (also known as cyclodiene chlorinated hydrocarbons) were once frequently used for virtually all insect and mite control, although most forms of these compounds have now been banned due to their inherent dangers, environmental persistence or other problems. DDT, chlordane, toxaphene and dieldrin are some of the banned organochlorines. Most organochlorines do not break down or decompose quickly in the environment, and many are stored in fatty tissues. Some of these materials are quite poisonous to mammals, including you and the Author. **It is now *normal* to find them in your blood and fat.**

Organophosphates - These dangerous pesticide poisons are derivatives of phosphorous compounds and are among the most acutely toxic chemicals known. Many organophosphates are easily absorbed through a person's skin, lungs or digestive tract. They interfere with animal and human nervous systems, similar to carbamates. **Tabun and sarin were first used by Hitler as nerve gases in WWII.**

Carbamates - Are derivatives of carbamic acid, and include the sulfur-containing subgroups of dithiocarbamates and thiocarbamates. Besides being used as insecticides, carbamates have uses as fungicides, herbicides, molluscicides and nematocides. In animals, carbamates impair nerve function and are highly toxic to mammals, including you and me. **The origins of carbamates began with West African witchcraft.**

A few pesticide poisons or alternatives are specialized types of materials that occur naturally, are produced by living organisms, or are unique in other ways, but do not belong to specific chemical groups; **some of these are what we recommend you use as a last resort.** They include antibiotics, anticoagulants, botanicals,enzymes, inert dusts, insect growth regulators, microbials, monoterpenoids, moth balls, petroleum oils and pheromones.

Antibiotics - An antibiotic is a material produced by one by one organisms that kills or inhibits another. The antibiotic penicillin, used for control of bacterial infections in people and animals , is derived from a fungus, Streptomycin, used to treat bacterial diseases in people, animals and plants, is both a naturally- and synthetically-produced antibiotic. Terramycin and other similar synthetic antibiotics resemble naturally-occurring antibiotics and are used to control several plant diseases caused by fungi, viruses and bacteria and termites.

Anticoagulants - Anticoagulants interfere with the blood-clotting mechanism of mammals, causing them to die of blood loss after sustaining an injury. Anticoagulants are used to control rodents such as rats and mice. Rodents must feed on some anticoagulants over a period of several days before accumulating enough toxic material to cause their death. Other anticoagulants will kill even after a single feeding.

Botanicals - Some plants contain substances that are naturally poisonous to insects and other animals. These include certain species of chrysanthemum flowers from which pyrethrum is extracted, the roots of the cube plant that supply rotenone, and species of lily plants that provide sabadilla and hellebore. Ryania is derived from a tropical South American plant. Nicotine, extracted from tobacco, was once used extensively as an insecticide and repellent, but its use has declined at least in part due to its dangerous toxicity to man. Strychnine is obtained from the dried seed of a small tree found in India, Ceylon, Australia and French Indochina; it is not recommended for use by us either. **See "Some Botanical Insecticides".**

Enzymes - are alternatives that are naturally occurring organisms that quickly destroy insects, fungus, mold, mildew, and bacteria naturally and can not cause resistance nor will they leave any dangerous residue or contamination once dry. Stephen L. Tvedten has U.S.A. and Australian patents and several patents pending on their use with surfactants as Pestisafes® to control various pests.

Inorganic Insecticides or Dusts - Inert dusts, also called desiccants or sorptive dusts, are fine (non-volatile) powders, often low in mammalian toxicity, that are used for control of insects and other invertebrates. These dusts kill pests through a physical rather than chemical action; some are abrasive and scratch off the pest's waxy exterior body covering, causing them to lose water, while others remove (or absorb) the protective waxy coating. Inert dusts are sometimes combined with aluminum fluosilicate to give the mixture an electrostatic charge and cause it to cling to surfaces, including the pest's exoskeleton. Because some inert dusts are low in toxicity, they are applied in locations where other pesticide poisons cannot be safely used. The killing action is physical rather than chemical, so these dusts do not lose their effectiveness over time due to environmental degradation. Inert dusts are not effective once they become wet, however. Diatomaceous earth (DE), silica gel and boric acid powder are some of the materials used as desiccants. These pesticides leave a highly visible residue on all treated surfaces, Boric acid powder is toxic if ingested, so should not be used by dishes, food or in areas accessible to young children. Some Pestisafe® dusts include food-grade DE, corn starch and/or baking soda. Although most inert dusts are low in toxicity, avoid inhaling them because they can cause serious lung irritation. **Use a properly-fitting respirator.**

SOME BOTANICAL INSECTICIDES	SOURCE	USES/COMMENTS
garlic oil	Derived from garlic; a member of the lily family.	Can be used to kill and repel insects and microbes.
hellebore	Made from dried rhozomes of several species of lily plants, many of which occur naturally in the U.S.	Used against several types of insects. Helle-bore is rapidly broken down by sunlight. Does not have high insecticidal activity.
limonene and linaloo	Citrus oils derived from peels	Can be used to kill flies, ants, aphids, wasps, etc.
neem	From neem trees.	Wide use as an insecticide.
pyrethrum	Extract from dried flowers of certain chrysanthemum.	Has contact, stomach and fumigant poisoning action on insects. Is also toxic to cold blooded animals. Kills aphids, mosquitoes, flies, fleas, mealy bugs, cabbageworms, thrips, beetles, leafhoppers, lice, loopers and many others. Insecticidal action is degraded rapidly by sunlight. Insecticidal action is often enhanced by addition of piperonyl butoxide, a synergist.
pyrethrins	Chemical extracts of naturally-occur-ing pyrethrum.	Similar uses as for pyrethrum. Many different pyrethrins are derived from pyrethrum. Some may have more specific action to certain inspects pests and be safer to non-target insects.
rotenone	Derived by grinding roots of cetin legume plants (68 different species). U.S. supplies come primarily from roots of the cube plant. This product is toxic to mammals. (It is used in Sumatra to poison arrows.)	Contact and stomach poison. Used for control of beetles, weevils, slugs, loopers, mosquitoes, thrips, fleas, lice and flies. Also used for control of unwanted fish. Also acts as a repellent and acaricide. Rotenone is slow-acting and has a short residual life. It is non-toxic to honey bees.
ryania	Ryania insecticide is the powdered roots, leavs and stems of a native South American plant. A synergist is often used to enhance its activity.	This compound is effective against corn earworm, codling moth, German cockroach, house fly, mosquitoes, European corn borer, Oriental fruit moth and imported cabbage-worm. Ryania has low toxicity to mammals.
sabadilla	Obtained from the dried, ripe seed of a South American lily plant.	Has contact and stomach poison action against cockroaches, several species of bug, potato leafhopper, imported cabbageworm, house fly, thrips and cattle lice. Is also toxic to honey bees. Used on many types of tree and vine fruits, forage crops and vegetables. Not highly toxic to mammals.

INSECT GROWTH REGULATORS - Are chemicals used to control insects by modifying normal development. Hormones produced by insects control how long an insect will remain in each of its larval or nymphal stages and when it become a reproductive adult. IGR's are synthetically-produced chemicals that either mimic or interrupt the action of natural growth hormones. They block the insect's ability to change from a juvenile to an adult, or force it to change into an adult before it is physically able to reproduce. They may cause tumors in people and do not be surprised if twisted wing "sterile" adults can still reproduce viable eggs/offspring. Their future looks dim. Diflubenzuron inhibits chitin synthesis and may act as an ovicide is not specific to insect pests (Eisler, 1992). **We do not recommend their use.**

MICROBIAL PESTICIDES are microorganisms that have been combined with other ingredients to form pest control products. Strains of the bacterium *Bacillus thuringiensis* (Berliner) are used to control species of moth larvae, mosquito larvae, and black fly larvae. There is an increasing interest in the use of microbial pesticides because of their extremely low hazard to people and non-target organisms other than tepidopteran larvae and their specificity to target pests. Besides naturally occurring microbial organisms, genetically altered organisms are part of a new group of materials showing promise as pest control products. The Journal of Economic Entomology, Volume 90, noted a strain of *Spodoptera litloralis* (Boisduval) was used to analyze the inheritance of resistance to *Bt*; at generation 12, resistance was >500 times the resistance ratio of the control.

MONOTERPENOIDS - e.g., *d*-limonene, are 10 carbon compounds that occur naturally in many higher plants (e.g., mint, pine, cedar, citrus and eucalyptus). These compounds are the principal components of essential oils of many higher plants (Harborne, et al 1991). Monoterpenoids are primarily lipophilic compounds; they act as toxins, feeding deterrents and oviposition deterrents (Gershenzon, et al 1991). Pyrethroids are a group of monoterpene esters found in the leaves and flowers of *chrysanthemum,* spp. Certain others are recognized as safe by the FDA and are used as artificial flavorings and/or perfumes (Coats 1994). Arthroprods can also product monoterpenoids that act as repellents, toxicants and/or as alarm pheromones.

MOTH BALLS - Napthalene is most commonly used in homes for the control and repelling of fabric insect pests. Unfortunately, the concentrations required to repel insects, much less kill them, are so high that humans will suffer ill effects first. High concentrations or dangerous levels of poison may be encountered during initial placement of the poison. Paradichlorobenzene (PDB) should not be used as a pesticide and is no longer for sale in the U. S. as such. From a health hazard standpoint, PDB is very dangerous to use, and long-term exposure may cause serious health problems. **We do not recommend their use.**

PETROLEUM OILS - Some highly refined petroleum oils are used as insecticides and acaricides. These are often used to control aphids, scales, mealybugs, eggs of these insects, and mites and mite eggs. Petroleum oils destroy plant-feeding pests through a suffocating action. Less refined petroleum oils are used as non-selective herbicides; they destroy plants by injuring cell membranes. Insecticidal and herbicidal oils are usually formulated with emulsifiers and other inert ingredients to improve mixing in water. Oils are usually mixtures of different types of hydrocarbon molecules, including paraffin, napthenes, aromatics, and unsaturates. Effectiveness and safety to plants are influenced by the percentages of these hydrocarbons in the oil. The most suitable oils for use as insecticides and acaricides are the paraffin-based oils, since they are more toxic to pests but least phytotoxic. **We do not recommend their use.**

PHEROMONES - Pheromones are unique chemicals produced by animals to stimulate behavior in other animals of the same species. Many insects depend on pheromones to locate mates. Artificial insect pheromones are used in pest control as tools for monitoring insect activity, for timing insecticide applications, or to attract insects to poisoned sprays or to traps. Synthetic pheromones are commonly used with sticky insect traps and play an important role in the monitoring of insect activity in intelligent pest management® programs and for monitoring insecticide resistance.

DISPOSAL OF LEFTOVER "REGISTERED" PESTICIDE POISONS. To avoid problems associated with leftover pesticide poison mixtures (especially volatile, synthetic pesticide poisons), first correctly calculate the exact size of the treatment area and mix only enough pesticide poison for the job. If you have some leftover spray mixture, find another appropriate location where it can be used as it was intended, otherwise it must be transported to a Class 1 disposal site. **Excess pesticide poison must never be indiscriminately dumped;** such dumping is a potential source of environmental and groundwater contamination and is an illegal practice. **Persons convicted of dumping are subject to large fines and jail terms. Never mix poisons!**

Pesticide Container Disposal. Regulations concerning the disposal of pesticide poison containers vary from state to state and from county to county. Specific disposal information can be obtained from local Water Quality Control Boards, the Department of Health Services, and local agricultural commissioners or other regulators.

Cleaning Application Equipment. Application equipment must be cleaned and decontaminated. "Registered" poison residues remaining in tanks may contaminate a subsequent pesticide poison mixture and might possibly alter its toxicity; there is also the problem of causing phytotoxicity to plants or other types of damage to sprayed surfaces. Volatile pesticide residues on the outside of application equipment can be hazardous to people who

must operate or service this equipment.

Personal Cleanup - After using "registered" pesticide poisons, you must clean your personal protective equipment, shower thoroughly, and change into clean, uncontaminated clothing. When showering, take special care to wash your hair and clean your fingernails. Clothing that was worn during the pesticide poison application should be immediately placed in a plastic bag until it can be laundered. **Never eat, drink, smoke, or use the bathroom until you have thoroughly washed.**

Notification. Imagine a toxic cloud creeping into your backyard, invisibly coating your children's toys, your car, pool, garden, contaminating your dog's water and food bowls and then drifting in through your window screens. For thousands of Americans this isn't a plot from the *X-Files* - it's the reality we face every Spring when "registered" pesticide poisons are prophylactically and routinely sprayed in our neighborhoods.

Far more than a mere nuisance, "registered," volatile pesticide poisons are linked to childhood leukemia, breast cancer, birth defects, wildlife poisoning, and water contamination. At the very least, citizens should have the right to know when pesticide poisons will be applied on neighboring property, what poisons will be used, and how they can best protect their families and property from potential exposure. Ideally, notice should include:

- the application location and date
- the applicator's name, certification number, address and phone number
- the identity of all the pesticide poisons, including EPA registration numbers, product names and at least
  the active ingredients, inerts, contaminants, impurities and transformation products
- a legible copy of the complete pesticide label and MSDS
- the method and time of application
- the intended treatment target (e.g., lawn, tree, shrub) and pest (e.g., grubs, weeds)
- a statement that "This notice is to inform you of a pending pesticide application to a neighboring property. Pesticide registration by the United States Environmental Protection Agency (EPA) and the State does not guarantee your safety. You may wish to take precautions to protect your family, pets, and property from exposure to these poisons. Further information about the poison(s) being used can be obtained by calling the US EPA National Pesticides Telecommunications Network, or your State Department of Agriculture or Department of Pesticide Regulation.

RECORD KEEPING

Maintain records of **every** "registered" pesticide application you make. Write down pertinent information such as the type, per cent and amount of pesticide used, amount of water used, calibration adjustments, adjuvants added to the mixture, type of equipment used, severity of pest infestation, and, if applied to crops or animals, the stage of development of the host. Temperature and general weather information at the time of application should also be noted. Write down any other conditions that might also have an influence on the effectiveness and/or increased toxicity of the pesticide poisons. Keep a record of the names of persons you spoke to regarding each pesticide application. Any follow-up information and notes of application results should also be included.

Application records will be helpful as a history of "registered" pesticide poison use. Good records may also be important to your defense in any legal action.

Any accident or spill involving "registered" pesticide poisons must be treated as an emergency because of the great potential for causing harm to people.

Whenever using volatile pesticide poisons, always have in your possession the names and locations of nearby medical facilities capable of treating pesticide poison-related injuries. If an emergency situation arises, always check first for possible injuries. Be prepared to offer first aid if necessary.

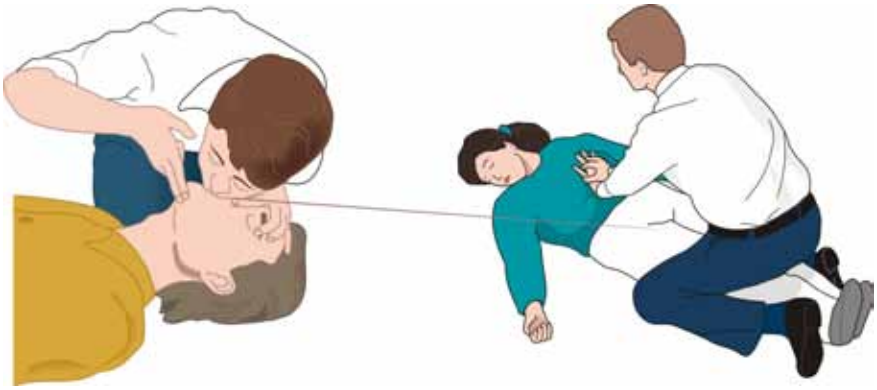
Disclosure and Duty to Warn

On 12/30/83 the National Pest Control Association (NPCA) sent out a legal opinion: **Duty to Warn and Authorization for Treatment** - In the Author's opinion at least, **before you apply any "registered," volatile, synthetic pesticide poison**, you should have a record you provided all occupants with the Material Safety Data Sheet (MSDS) and a complete poison label and have them sign a statement they are authorizing you to use the poison.

FIRST AID

First Aid is not a substitute for professional medical care. Pesticide poison labels provide specific first aid information that sometimes changes.

Poisoning or exposure can occur when pesticides are splashed onto skin or into eyes, are swallowed, or whenever vapors, dusts, or fumes, are inhaled. The type of exposure determines what first aid and subsequent medical treatment is required. Serious pesticide poisoning can arrest breathing or cause convulsions, paralysis, skin burns, or blindness and death. **Applying the proper first aid treatment for "registered" pesticide exposure may reduce the extent of injury and even save lives.**



It is vital that you know how to administer artificial respiration or cardio-pulmonary resuscitation (CPR). If you are unfamiliar with these techniques, contact the American Red Cross chapter in your area for proper training. Prepare yourself **before** an emergency arises.

Protect yourself from personal contamination when administering first aid to a person suffering from "registered" pesticide poison exposure. Avoid getting pesticide poisons on your clothes or skin and do not inhale vapors. Do not enter a confined area to rescue a person overcome by toxic pesticide fumes unless you have the proper respiratory equipment. Remember, the "registered" pesticide poison that affected the injured person can also injure you.

Professional medical care must be obtained at once when a person is accidentally exposed to a highly toxic pesticide poison or shows any signs of pesticide poisoning. A "registered" pesticide label or clean container with a label attached should be sent to the medical center with the injured or exposed person.

Pesticides Poisons on the Skin or Clothing - Concentrated "registered" pesticide poisons spilled on the skin or clothing can cause serious injury. Follow the sequence of first aid steps listed below:

1. Remove the victim from the contaminated area. Get the exposed person away from the fumes, spilled "registered" pesticide poison, and further contamination. **Do this quickly.**

2. Restore breathing. If the exposed victim has stopped breathing, begin artificial respiration or cardio-pulmonary resuscitation (CPR) at once and continue until breathing resumes or until professional help arrives.

3. Prevent further exposure. Once breathing has been restored, remove contaminated clothing. Thoroughly wash the affected skin and hair areas of the persons body, using soap or detergent and large amounts of warm water. Washing in this manner will prevent other parts of the person's body from becoming contaminated. Remember, different areas of the body do not absorb pesticide poisons in the same way; poisoning will usually increase in severity as more skin area is involved. Remove the pesticide "registered" poison as rapidly as possible, then dry the washed area and cover the person with a blanket if available. **Keep the person warm.**

4. Chemical burns cause the skin to become red and painful like other burns. If this happens, use extreme care in washing, and use large amounts of water. Cover the burned area with a clean cloth. Do not put any ointment, spray, powder, or other medications on the injured areas.

5. Get medical care. Call an ambulance or transport the person to the nearest medical facility as quickly as possible. Choose the method that will provide medical care in the shortest amount of time. Be sure to send a copy of the "registered" pesticide poison label and the MSDS with the injured person so that medical personnel will know what pesticide they are dealing with. If a label and MSDS is not available, write the brand name, chemical name, and manufacturer of the pesticide poison on a piece of paper.

Pesticide Poisons in the Eye - Pesticide poisons can cause serious damage to eyes. Prompt first aid, followed by medical care, helps to reduce damage.

1. Wash the eyes. Immediately wash the victim's eyes with a gentle stream of clean, running water. Any delay, even of a few seconds, may greatly increase the possibility of permanent eye injury and blindness. Hold eyelids open to assure thorough washing. Do not use any chemicals or drugs in the wash water, since this may increase the extent of injury. Continue flushing the eyes for at least 15 minutes. If running water is not available, slowly pour clean water from a glass or other container onto the bridge of the nose, rather than directly onto the eyes.

2. Obtain medical care immediately. If pain or irritation persists, transport the person to the nearest medical facility as soon as the flushing has been completed. Protect the eyes with a clean, wet cloth. Be sure to send along a pesticide poison label and MSDS, container, or written identification of the pesticide poison.

Inhaled "Registered" Pesticide Poisons - Inhaled poisons cause serious injury to lungs and can be absorbed into other parts of the body through the lungs. Immediate first aid measures must be taken to reduce injury or prevent death.

1. Remove the victim from the contaminated area. A person overcome by "registered" pesticide poison fumes must be moved to fresh air immediately. If at all possible, carry or drag the exposure victim out of the contaminated area; physical exertion places an extra strain on the heart and lungs of a person suffering from inhalation injury and could prove fatal.

2. Wear a supplied air respirator when entering an enclosed area to rescue a person who has been overcome by a "registered" pesticide poison. If you do not have this equipment, call for emergency help. You can be of more assistance to the injured person by seeking proper emergency help than you can be if you are overcome by the "registered" pesticide poison yourself.

3. Loosen clothing. Once the victim has been brought out into fresh air, loosen all tight or restrictive clothing. This will help make breathing easier and also removes "registered" pesticide poison vapors trapped between clothing and the skin.

4. Restore breathing. If breathing has stopped, or is irregular or labored, begin artificial respiration or CPR. Continue assisting until breathing has improved or until medical help has arrives.

5. Treat for shock. Inhalation injury often causes a person to go into shock. Keep the injured person calm and lying down; prevent chilling by wrapping the person in a blanket after removing contaminated clothing. Do not administer any type of alcoholic beverage.

6. Watch for convulsions. Convulsions can occur as a result of some types of "registered" pesticide poisoning, so protect the victim from falls or injury and keep air passages clear by making sure their head is tilted back.

7. Get immediate medical care. Call an ambulance or transport the person to the nearest medical facility. Be sure to provide information on the type of pesticide poison inhaled, if known.

Swallowed "Registered" Pesticide Poisons - Two immediate dangers are associated with swallowed pesticide poisons. The first is related to the acute toxicity of the pesticide poison and the poisoning effect it will have on a person's nervous system or other internal organs. The second involves physical injury that the swallowed pesticide causes to the linings of the mouth, throat, and lungs. Corrosive materials, those which are strongly acid or alkaline, can seriously burn these sensitive tissues. Petroleum-based pesticides can cause lung and respiratory system damage, especially during vomiting. **Never induce vomiting if you suspect that the swallowed pesticide is corrosive or petroleum-based.** Some of the early labels told us to induce vomiting and people were seriously hurt.

1. Dilute the swallowed "registered" pesticide poison. If the person is conscious and alert, give large amounts (1 quart for an adult or a large glass for a child under 7) of water or milk to dilute the swallowed pesticide poison. **Do not give any liquids to an unconscious or convulsing person.**

2. Induce vomiting. If you are certain that neither a corrosive or petroleum-based "registered" pesticide poison has been swallowed (check the pesticide poison label), induce vomiting by placing a blunt object at the back of the victim's throat. Have the person kneel or lie face down or to their right side. **Never induce vomiting if the victim is unconscious or having convulsions. Do not administer salt solutions or any other compounds to induce vomiting since these may cause further injury.** If you are in doubt regarding the type of "registered" pesticide poison swallowed and are unable to get this information from the pesticide label, **do not** induce vomiting. Do not spend valuable time trying to induce vomiting if this time can be used to transport the person to a hospital or other medical facility.

3. Obtain medical care. Call an ambulance or transport the poisoning victim to the nearest medical facility. Provide as much information as possible about the swallowed "registered" pesticide poison. If the person has vomited, collect some of the vomitus in a clean jar for analysis.

4. Multiple Chemical Sensitivity (MCS) - is not psychosomatic or an allergy - but a true sensitivity produced by the damage and imbalance secondary to environmental chemical exposure. Virtually everyone suffers from some degree of chemical sensitivity (there are many odors we all do not like or that make us sick). Once our

"barrel" is full, our immune system can collapse. The chemical burden must first be reduced and avoided before you even begin to test for allergies. Antigens against the chemical(s) the individual is sensitized to - only creates "sicker" patients. If their temperature is subnormal, endocrine damage is evident. This person needs energy and detoxification before any medical "therapy". Hyperthermic detoxification is the only known methodology evidenced in medical and scientific literature of safely reducing toxic levels. The regimen must be structured such that circulating toxins are flushed out of the body to avoid "redepositing" into storage sites. Improperly administrated, the exiting toxins stored for 30 years or more can elicit more damage than initially occurred when they entered the body! Hippocrates said, "Give me the power to create a fever and I shall cure every illness". An old Finnish saying goes, "If the sauna can not cure it - nothing can". Heat-stress can remove toxins from the adipose tissue (fat) and from blood vessels. The sauna was called the "Medicine" or "Hospital" of Finland. The sauna decontaminated the Author who was so poisoned by these *safe* pesticides he could not add up 2 quarters, a dime, a nickel and a penny. The Author still suffers from MCS, no matter if it is a *recognized* disease by the poison *industry* or not.

"REGISTERED" PESTICIDE LEAKS AND SPILLS

All "registered" pesticide poison leaks or spills should be treated as emergencies. Concentrated "registered" pesticide poison spills are much more dangerous than "registered" pesticide poisons diluted with water, but both types should be treated seriously and immediately. All leaks or spills of pesticides, no matter where they occur, must be reported to the local agricultural commissioner or regulator as soon as possible.

1. Clear the area. Immediately clear people and animals from the contaminated area and administer first aid to anyone who has been injured or contaminated. Send for medical help if needed. Spilled liquids often have toxic fumes, while dusts are easily blown around in the air, so rope off the area or use some other means to prevent anyone from getting near the contamination.

2. Prevent Fires. Do not allow any smoking near a "registered" pesticide poison spill. If the spill occurs in an enclosed area, shut off all electrical appliances and motors that could produce sparks and ignite a fire or explosion. **Open doors and windows to provide ample ventilation.**

3. Wear protective clothing. Before beginning any clean-up, put on rubber boots, gloves, waterproof protective clothing, goggles, and respiratory equipment. Check the "registered" pesticide poison label for additional precautions, but when uncertain what has been spilled, **wear the maximum protection**.

4. Contain the leak. Stop the leak by transferring the "registered" pesticide poison to another container or by patching the leaking container. Small liquid spills can be contained with special products that form gels as they absorb the pesticide poison. Once collected, this gel can be added to a spray tank and diluted with water; the resulting liquid is used in spray application, eliminating the need for disposal at a toxic landfill.

5. Clean up the "registered" pesticide poison immediately. As soon as the spill or leak has been contained, proceed to clean it up. Anything that was contaminated by the spilled material must be cleaned or disposed of. Remove uncontaminated items from the immediate area to prevent possibility of contamination.

Select a container that will securely hold the spilled "registered" pesticide poison and any items that cannot be cleaned. The container must be sealable and suitable for transporting. Containers must be labeled to indicate they contain hazardous pesticide poison waste; the name of the pesticide poison and the toxicity category must be included. Pick up liquid spills by using a special absorbent or cat litter, sand, soil, or sawdust; shovel the saturated absorbent into the holding container. Powdered or granular pesticide poisons should be swept up and placed into a suitable container. An industrial vacuum can be used to pick up spilled powder, but be certain the vacuum is equipped with proper filters to remove dust from discharged air; do not use an ordinary vacuum. Dispose of the vacuum bag and filters into the holding container. If the spill occurred outdoors, shovel all contaminated soil into a holding container.

Contact the "registered" pesticide poison manufacturer; contain and collect the spill using an absorbent material. Pick up the absorbed pesticide poison and put it into a holding container. Contact the agricultural commissioner or appropriate regulator.

PESTICIDE POISON FIRES - **Fighting "registered" pesticide poison fires requires special care because smoke and fumes generated by burning pesticide poisons cannot be contained; areas endangered by these fumes must be evacuated.** Toxic fumes hamper fire fighting efforts and require the use of supplied air respirators and protective clothing. Water must be used with caution when fighting pesticide poison fires. Use it primarily to cool containers and prevent overheated chemicals from exploding. Do not splash or spread toxic chemicals with high-pressure water.

Once the fire has been brought under control, all hoses and equipment, including personal protective clothing, must be decontaminated. Residue remaining at the fire site must be removed and disposal made.

Follow this sequence when a "registered" pesticide poison fire breaks out:

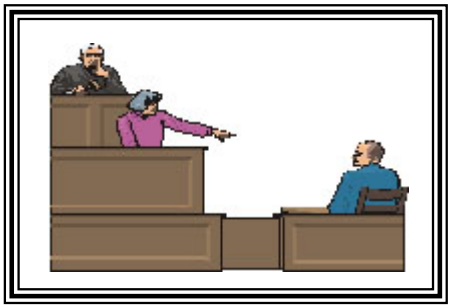
- **Call the fire department.** Contact the nearest fire department as quickly as possible **(call 911)**. Inform them that it is a fire involving pesticide poisons and provide them with the names of the poisons contained in the structure or vehicle. If possible, provide Material Safety Data Sheets to the arriving fire units. **It is best to give this information to them <u>now</u>, before you spray and/or store these toxins and a fire occurs later.**
- **Clear the area.** Get people out of the immediate areas of the fire; there is considerable risk of toxic fumes and explosion.
- **Evacuate and isolate the area around and downwind of the fire.** Protect animals and move equipment and vehicles that could be damaged by the fire or fumes, or that would impair fire fighting efforts. Keep spectators from being exposed to smoke from the fire and runoff from fire fighting. Contact police or sheriff department and have downwind residences, schools and buildings evacuated until the danger is passed.
- **Do not endanger your health by attempting to fight a large "registered" pesticide poison fire without help.** If you are involved in fighting a fire, wear protective clothing. Stay upwind and remain a safe distance from the smoke. Concentrate your efforts on cooling containers that could explode if overheated. Whenever possible, use foam or carbon dioxide extinguishers to fight the fire because they are less likely to disperse "registered" pesticide poisons than water.
- **After the fire has been extinguished, contain the runoff with earthen dams and rope off the contaminated area until it has been properly cleaned up.** If large amounts of pesticide poisons were involved in the fire, contact a professional decontamination and disposal company for assistance.
- **Consult with the county agricultural commissioner or pertinent regulator and manufacturer(s) for advice and information on proper disposal methods.**

PESTICIDE POISON THEFTS - Losing "registered" pesticide poisons through theft is a serious problem that warrants emergency action. Stolen "registered" pesticide poisons in the hands of potentially irresponsible people or terrorists can cause human poisoning and environmental damage. Contact the local police or sheriff. Provide information on the type and quantity of stolen pesticide poison and describe containers as accurately as possible. Also notify the agricultural commissioner or appropriate official located in the county where the theft took place.

MISAPPLICATION OF "REGISTERED" PESTICIDE POISONS - Once an improper application has been discovered, take immediate steps to notify and protect people in the area. Contact the pesticide poison manufacturer for help in determining what corrective measures can be taken. Notify the agricultural commissioner or appropriate regulator. Remember, speed is of utmost importance when trying to reduce damage and protect people and the environment.

LIABILITY - Whenever you apply any pesticide poison, you assume personal responsibility for all accidents

and injuries that arise as a result of each pesticide poison application. This liability may result in fines and jail sentences and you may also be held responsible in lawsuits for personal injury and/or damages. **No pest control company (that has any sense) will offer to treat your home with least toxic or non-toxic controls or Pestisafes® and then *treat* your neighbor's property with volatile, synthetic pesticides - if they did - how could they ever explain in court - why they poisoned your neighbor?**



Personal liability might be incurred if the volatile pesticide poison you are applying drifts away from the treatment area and causes damage to plants, animals, or someone's belongings, or causes human injury. Damage might result from improper mixing, use of the wrong adjuvants, improper application, applying the wrong pesticide poison, poor timing, or from using a pesticide poison that has been contaminated with impurities. **You could also be sued for destroying beneficial insects such as honey bees, and, if the bees are essential for pollinating a crop, you could be liable for the loss of the crop as well.** Pesticide poisons and pesticide poison application equipment are attractive nuisances; ***children*****,** fascinated with what you are doing, **may be injured or even killed by chemicals and equipment that has been left unattended. You may even be sued if you apply the poison exactly per the label directions.** For these and **many** reasons we do not recommend the use of any volatile, synthetic pesticide poison poisons. **Label Caution:** Remember, some states, e.g., California and New York, may not approve a pesticide label that is in general use elsewhere, even on beneficial organisms! Be sure to follow your state's label requirements, recommendations and the manufacturer's directions and labeling for each application, product and usage.

The label is the law - It is always the pesticide applicator's responsibility by federal law to read and carefully follow all current label directions for the specific *registered* pesticide being used. Due to the constantly changing labels and product re-registrations - "some" of the recommendations on the (old) label you are (now) reading may no longer even be legal by the time you read them! If any information or recommendations written in this manual, or the old label, or anywhere else disagrees with the (new) label - those "old" recommendations or information must all be disregarded! Confused? That is just another reason why the Author stopped using any *(registered)* pesticides, especially any volatile ones - there simply are no safe poisons or completely "legal" ways to apply these volatile poisons! That is why we use Intelligent Pest Management®.

RESISTANCE - Insecticide poison resistance is increasing in pests all over the world as evidence by all of the articles in the Journal of Economic Entomology. It is obvious the evolution of volatile, synthetic insecticide resistance has become a major problem in controlling pest problems, yet the poison *industry* constantly tries to *manage* this resistance by introducing susceptibility genes into resistant pest populations or using another volatile, synthetic pesticide poison or by using several volatile poisons (mixtures or rotations) or by developing strategies to conserve susceptibility to synthetic insecticides in pest populations. There has been some recognition of biological and/or genetic controls. In universities that test pesticides on pest populations, they have admitted to the Author that they must periodically protect their resident pest populations from natural enemies (e.g., insects and/or fungus) by spraying them with volatile, synthetic pesticides; the pests survive, but their natural enemies do not - are you paying attention? It is totally illogical to spray any volatile, synthetic pesticide poison again and again, especially when you got no real control the first time. To ignore your own results and to increase the amount of frequency of the toxin may give you temporary *control*, but at what price to people, pets and the environment? Most of the Author's Pestisafes® quickly control resistant pest populations.

CONCLUSION - The Education Weekly Article on MCS, 3/18/98, noted that the U. S. General Accounting Office reports at least 46% of American schools have problems with their indoor air quality or their ventilation systems. Many school administrators are beginning to pay more attention to the so-called sick building issue, if only to ward off potential lawsuits. Always remember to find and correct or remove the cause of your pest problem rather than *treat* the symptom with toxic poisons which will eventually can destroy you, your family and your pets, but the pests will **still** be there! Please read the chapter "Pesti*cides* are not Pesti*safes®".* **If you don't read and understand the label and these chapters - "accidents" can happen!** Note: There has never been one drop of water created since our world began. What the dinosaurs drank we drink. What poison you put in the water will poison you and future generations!

WHAT ARE "PESTS" ? Ken Ogwaro, an entomologist friend of the Author in California noted: As we move to pure and unadulterated food by eating organic foods, we should do so in a pure and unadulterated kitchens.

KEN OBSERVED:
1. Pesticide poisons are good for "business" because they don't solve problems;
2. IPM is an effective pesticide poison sales tool in sensitive public entities - schools , parks, etc;
3. The pesticide (poison) industry owns the National Center for IPM which uses "IPM" as pesticide poison sales tool;
4. Environmentalists have inadvertently assisted in pesticide poison ab/use through their "IPM" support.

"PEST" - / Pestis , means something that is in great numbers, plaque, that arises because of some imbalance in the system. Therefore, it is irrelevant in a balanced and sustainable system. So it would be irrelevant in any socially just and ecologically sustainable communities.

Integrated "Pest" Management (IPM, so over-sold), has become simply an image-promoting tool. WHAT PESTS" are we integrating management for? Chemical (poison) sales people and pest control operators like the term because it makes them look good in a society becoming environmentally conscious. It is not a new term or principle, and there is no other reason for it to became so popular, except for the fact that it sells. It has been a good selling tool for pest control operators, most of whom don't know what it means - beside the use of poison as the "last resort" piece often attached to it these days.

It is time now to get IPM out of "Urban System Management" where the target is the habitats, the structures, buildings, and landscape, not "pests". If we could control those situations that give rise to development of pest situations, we would stop pests. Starting at the building construction stage, one can make sure that there are no chances for rats, mice, bats, skunks crickets and other animals to enter or be confused about where they belong. Therefore, the responsible people, agronomists, entomologists, pathologists, plant breeders, architects, plumbers, janitors, carpenters, masons and others, could work together to build and monitor the balancing acts in an ideal urban system.

There is ample scientific data relating increased misconsumption of pesticide poisons to adverse health effects, yet we continue to consume large amounts of unnecessary pesticide poisons (misconsumption) that (sicken or) kill us. There is nobody we, the people can trust to care about our health or the health of our immediate environment - home, school and work place, because it is all about money - "jobs and survival". Our public university researchers need research funding from the pesticide (poison) industry. The returns on such investments (by the pesticide poison industry) are enormous as product (poison) recommendations begin to flow out; the regulators need to exercise business *fairness* and collect appropriate taxes; exterminators keep depositing the poison in the homes for regular fees; the home depot keeps selling large quantities of poison, doctors are busy treating hard-to-diagnose cases; and death businesses (mortuaries, cemeteries, crematoria) have a steady cash inflow.

IPM is sold widely, especially in sensitive areas such as schools and other public places. The neurotoxic organophosphates, Diazinon and Dursban are commonly recommended by university extensions of various states to control household insects in their state-wide so-called IPM Programs. It is in the interest of pest control advisors and operators to create imbalances in the farming and urban systems so as to secure a job base. **The continuous use of pesticide poisons keeps *professionals* in business.**

Is it an Insect or a Pest? Call it a "pest" so you can get into business of "controlling" it. Otherwise, when it remains an insect, you have no justification for killing it. **Son, why did you kill it?** I hate it, it might bite me. We develop our hateful attitude towards them (insects) very early in life due to the constant bigotry expressed against them, both by parents because they (the insects) are not understood, and the people who stand to gain, the pesticide poison industry and the operators. Hatred normally develops because of the misunderstanding we have about an object or individual. We need to learn more about those who share our environment with us and what positive role they play. Without realization that they share the same habitat - homes, schools, work places, and cities, we dump toxic pesticide poisons on them; it back fires and we get poisoned. However, they (the pests) mostly survive and breed better-suited generations that are able to adjust their internal systems to resist further poison abuses. That is our incentive to become "common sensible" and stop our hate crime. We get our children hurt in the process, while theirs (the "pests") prosper and multiply and become ever more powerful.

Are you asking me to live with the pests? Well, like it or not, the "pests" will remain somewhere in your neighborhood. Remember the neighbors that did not want an Islamic Institute built in their area? When they realized that the institute was not going to go away, some members started employing gestures of friendship and coexistence. If they were going to live together they must learn to understand, tolerate, or even enjoy each other's company. I am not asking you to love them and touch them, but you can actually benefit if you allow those"pests" like the scorpions, centipedes to thrive under rocks at the edges of your yard. Remember, our home (the house) is already modified and when properly managed it will prevent the "pests" from getting inside. You do not play outside in the dark when these hunters are busy controlling your pests anyway.

Urban Habitat Management. The Author understands the Urban Habitat Program, Founded in 1989, was dedicated to building urban environmental leadership for socially just and ecologically sustainable communities in the San Francisco Bay Area. He also understands that they recently completed ecological literacy projects in Southern California. He hopes these urban habitat programs and literacy projects will re-direct our attention to focus on appropriate preventive habitat management and away from pesticide misconsumption. The main contributing factors in urban emergence of pest situations are structural defaults and the poverty that disenables us to fix and appropriately manage our homes. When structures are fixed, modified and appropriately managed, they keep insects and rodents in their places and nobody becomes a "pest".

The Author also understands that Urban Habitat Program has the vision of ecological sustainability to face ecological challenges facing our urban communities. Realizing that the socio-economic and environmental problems are interrelated in their causes, effects, and solutions; we need to correctly identify these real problems, their causes, effects and solutions so we can appropriately deal with them. In that regard, **"pests" are not the problem, they are only symptoms of the real problem.**

In urban systems policy decisions are made on the basis of fear and hate of insects that call for pesticide poisons as a preventive measure. That means maintaining continuous pesticide poison levels in the environment for indefinite lengths of time, which is forever. Building managers in the Department of Correction and other government and private institutions, food establishments, convalescent hospitals require their service contractors to place a number of automatic aerosol machines in strategic places to saturate the air in the buildings with pesticide poisons. The supposed target is any flying insect and the "maintenance" of a "healthy" environment. I would have to be out of my mind to imagine that such poisoned air I breathe from eight to five is fresh, clean and safe for me and only bad for the insects. Stop for a minute and compare this absolute abuse of our fundamental right to breath clean air with second hand smoke that people have gone to court about. This absolute deliberate poisoning effort must be looked at as a disgrace.

Causes = Socio-economic / Ecological imbalance. The "Earth Summit," - in Rio de Janeiro in June 1992 recognized pesticide poison pollution as a major threat to human health and the environment and accordingly identified true IPM as a key element in sustainable agricultural development. That is contradictory and a mistake. When you focus on "pests", you lose the goal of sustainability. "Pest" is a result of adverse interaction within the system. Pest problems should not arise in any ideally managed and balanced system.

In urban systems we have regrouped and improved on the micro-environments enabling sustained breeding of "pests" within our structures. With no imagination by the construction personnel, we build ideal and easily accessible habitats for various "pest" species to thrive, then we heavily ab/use pesticide poisons to select and develop even more thriving individuals. We struggle to eliminate our "pests", but may only succeed in poisoning ourselves and restricting the predatory efficacy and the usefulness of those creatures who would freely help us such as scorpions, black widows, centipedes, lizards, etc.

If you believe that an actively jumping healthy cricket in your living room is a happy sign, because it shows your children are safe and healthy in a poison-free environment, you are my friend and possibly a client. Crickets don't belong there, but being found dead on the carpet in your home should make you curious about what killed it, human traffic or toxic air? If it was pesticide poisons, how can you be sure you and your child won't suffer the same fate, if not acutely, slowly later on? Something is terribly wrong whenever a child, a cat, a rat, an earwig or a cricket, dies in your home.

You may think your exterminators have done a good job because there are dead crickets on your living room carpet, meaning the pesticide poisons worked. What we may take years to realize is that the pesticide poisons

continued to work, especially on our children. We are not only paying initially for the chemical poisons deposited in our homes, we sooner or later will start getting increased medical bills or funerals.

Men wouldn't tolerate it (toxic pesticide poisons in the homes). If men were the ones that mostly worked at home with the children, there would be less toxic pesticide poison consumption in America. Since they are not the ones who are working hard all day in contaminated homes breathing in the poisons with their children, there is high consumption of pesticide poisons in the homes.

For decades poison sprays in our homes have done nothing else, but waste our money and kill ourselves and our children, but never solve our "pest" problems. That is why they are good for business and that is why we should stop spraying poisons, unless we want the economy to continue to flourish at the expense of our health and our children's health.

The Real Problems and the Real Solutions. We must first be able to identify the real problems and find the real solutions to them. Such problems could be any situations that cause /sustain "pest" infestation/populations:

1. Construction faults; Breeding sites; Entrance - doors and windows; Poor drainage and improper location of organic matter.
2. A hole into the attic. Fixing the real problem is the real solution, a permanent solution, but it is not good for business. Poison bait stations in an attic keeps the poison business going for years, until finally the established rat habitat becomes unbearable, the habitat is modified, eliminating the problem once and for all; the "business" is lost.
3. Cracks into the bathroom. The ants kept on coming in the cracks and the poison spray business continued for years. Simply fixing the base of the toilet seat stopped the ants and the poison spray "business".
4. Sewer line. The large, Oriental roaches, *Blatta orientalis,* kept coming into the kitchen and the "exterminator" kept a monthly poison spray "business" going in and around the home for several years. Roaches were breeding in the water meter box by the sidewalk and using the broken waste water line to enter into the kitchen. When the plumbing pipe finally got fixed and the trail to the kitchen was stopped. The poison spray "service" was canceled, and the "business" lost.

Such real problems and solutions don't get any attention because they are not good for business. While selling monthly pesticide poison "service" in homes may be a prosperous business now for pesters, it may be harder in the future as we get more educated about the uselessness and dangers of pesticide poisons in our homes. It is a pleasure to be happy about having no pests and pesticide poisons in our home because a real solution has been provided to prevent the "pest" problem.

A really satisfied customer is not a person who sees an exterminator with a poison spray tank every month and is happy that he or she has taken care of the problem by having sprayed something poisonous. A really satisfied customer is a person who doesn't expect to see an exterminator and is happy that the plumber has taken care of the real pest problem. In other words, the conventional poison solution re**lies** on poisonous materials and their continuous use. Because material (poison) sales are the best "business", many companies and environmentalists now promote "alternatives" materials that also must be bought over and over again. Hopefully the National Coalition for Alternatives to Pesticides (NCAP) is not simply promoting material replacements, but a comprehensive look at the systems that cause the "pest" problem.

A good example is where some chemically sensitive people live in a complex infested with roaches. Although these people are already sick from pesticide poisons, they still trust the use of more pesticide poisons as a "solution" for their roach problems. One of these people works very hard to convince the others of real solution. - one-time alterations to some faulty structures and then getting rid of the resident population of roaches by vacuuming, trapping and some other safe changes in behavior. Such an approach is unconventional; it is, therefore, unacceptable. It is too "common sensible" and low-tech, so the poison spraying continues and the pests increase.

The same hard-working resident brings another brilliant view point from a university biologist who came up with the idea of biological control. Release some tiny wasps (material that need replenishments) that will breed on the roaches and reduce the population. This is a very good and a sustainable business; but common sense would tell us that in order for the wasps to do their job, there must continue to be some population of roaches. If a live cricket isn't acceptable, a live roach shouldn't be either; then the structural modification and behavior change

is the only solution, but not good for the poison "business". It takes "business" away from the exterminator and gives business to the plumbers. But why can't an exterminator have a plumber on the team?

School / Home Pesticide Ab/use. The recent Cal-PIRG study showing rampant ab/use of pesticide poisons in California in schools demonstrates the need to focus attention on educating the public. However, there is no monetary support, for such public education as compared to fighting the bureaucrats and legislators. These regulators, such as the Department of Pesticide Regulation, are public servants with obligation to serve both the pesticide businesses and the pesticide consumers. They are right for asking the schools and parents what they think pesticide poison problems in schools are, and what the solutions should be.

Pesticide poison ab/uses in schools and homes have been obvious for years. The best tool to fight it is raising our awareness of all of the health problems associated with pesticide poisons. There is abundant body of independent scientific studies relating the toxic effects of pesticide poisons to both our lives and the environment. As things are, pesticide poisons are considered by many in the public as "clean and safe." That is why we should put our energies to educating the public to find out otherwise.

It is not the government's responsibility to regulate consumption. The government can only ensure that all pesticide poisons used in the state are *registered*. Limiting their ab/use wouldn't be *fair* to the pesticide poison industry, which spends bundles of money to go through the process of *registration*. They need to get their money's worth of usage and misuse (ab/use). The school districts and parents should have been educated enough by now, to limit their own pesticide poison ab/use by introducing real preventive measures.

Pesticide ab/use is a bad addiction that our society as a whole is stuck into. We the people must take actions to reduce poison consumption in our own lives, and therefore in our schools. The children shouldn't be safe in schools and then go back to pesticide poison contaminated homes. As far as I know, some homes are worse than pesticide dumps with little children directly exposed to them and poisoned by them. We treat our own homes as poison dumps, and go as far as paying someone *professional* to dump some more poison in them. The healing must begin in the family. Fathers dump more and more poisons to avoid having to fix the house. Mothers and the children end up with increased health problem and effects.

Our schools are, of course, not safe either. Most don't have real pest management policies that prevent pest problems. In one cafeteria and another kindergarten the cockroach situation got to a point where neurotoxic organophosphate poisons were being applied more than twice a week! In neither situation did the pesticide poison work, because the cockroaches had become resistant. That lead to more spraying of poisons with heavier doses of poisons, that caused more and more health and emotional and pest problems, including children getting poisoned.

Finally, modifying the roach habitats eradicated the (pest) population and prevented reinfestation. It was only the structural problems that needed to be fixed, and no amount of volatile poison would have solved the problem. Such toxic school environments are everywhere and the administrators don't even know or bother about it until something terrible happens, such as the four deaths in the Fontana Unified School District recently.

Most importantly, there is supposed to be the so-called "IPM policy " in many districts these days, but these policies only serve for public image because of the misperception the public have about IPM being a real solution. Honestly, IPM is nothing but a sales tool for the continued use of dangerous pesticide poisons. You will always hear " we apply pesticide poison as last resort". **The *last* resort is often the <u>only</u> resort.**

After all, the National Center for IPM (Integrated Pest Management) is owned by the pesticide (poison) industry ---- BASF, Dow AgroSciences, DuPont, Monsanto, Mycogen , Novartis Crop Protection, and to add its *credibility*, their "regulator" the USDA/ARS is full member.

"Credibility" unquestioned: With funds used for targeted IPM research in university extension and outreach (determined and publication of results controlled by the Industry Advisory Board), the Center's research results hopefully can be trusted as scientifically-based and unbiased information. The resultant supported research, provide key financial and educational support for undergraduate and graduate students in many diverse areas of agriculture. These students are the next generation of employees of the industry, thus creating the " truly sustainable agriculture" for indefinite future.

The definition of IPM as we originally knew it was “an ecologically - based pest management strategy that focuses on long-term prevention or suppression of “pests” through a combination of techniques such as biological control, cultural practices and use of resistant varieties” (California Agriculture); new convenient addition to it is “--- pesticide poisons are included, but only as last resort “. **REPEAT: The “last resort” comes quickly and in most cases is the only RESORT used.**

Therefore, proper structural modification and management should be budgeted for in all schools so as to prevent the *need* for pesticide poisons. All schools must eliminate all ab/uses of pesticide poisons and adopt appropriate preventive pest management to save the children’s environment.

Creating And Maintaining Pest And Pesticide-Free School Environment. Infants and children are particularly vulnerable to the harmful effects of pesticide poisons. As a school administrator, teacher or staff or parent, you should be aware and know how important it is to avoid pests and pesticides; we all must begin to want to maintain the best environmental qualities especially around our schools. Too often, however, we pay all our attention to our school’s academic programs, and leave the concern of how safe our school environment is to someone else, like the poison exterminators. While it is good to let someone take charge, we should be aware and make sure that they are working in the best interest of our health and the immediate environment. We need to shift our strategies from poison *extermination* to pest prevention.

Pests and pesticides are both detrimental to our health and to our environment, yet we can easily avoid both. We therefore, can begin to direct the attention of our Safety/Environmental Coordinator to the essentials of proper habitat creation and maintenance. If you are not sure if your school has those situations that create pest problems, you can consult with some urban entomologists or public heath officials. They are able to identify them and take care of them before pests arise and more pesticide poison is dumped on them.

Habitat Management Program aimed at preventing pests and pesticide poisons creates an alternative to chemical pesticide poison methods used by almost all pest control operators. This is the knowledge (tool) the pesticide poison consumers should look for as a way to obtaining good pest control and getting away from chemical pesticide poisons. It doesn’t matter if your business if food service, schools, manufacturing, information, high-tech or education; if you own or rent the home where you and your family live. **You need to be truly safe.**

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Foot note: When Ken and the Author tried to safely remove the “pests” in the Fontana Unified School District, Mr. Jim Mitchel from the California Department of Agriculture (DOA) on 6/4/98 told the school only “registered” pesticide poisons (an no alternatives) could be legally used to “control” the “pests” there, thus assuring the continued murder and/or needless pollution of the students, teachers and staff and unlimited profits to the poison sprayers and increased pest populations. **Amazing!**

On 8/24/98 the Pesticide Action Network North America Updates Service noted:

Millions of Californians May Be Exposed to Dangerous Pesticides (poisons) in Air

Nearly four million Californians live within a half mile of areas where potentially dangerous pesticides are used, according to a new report by California Public Interest Research Group (CALPIRG) and Californians for Pesticide Reform (CPR). These 152 pesticides have been identified by state regulators as those most likely to contaminate air and threaten human health. The report, Poisoning the Air: Airborne Pesticides in California, found that more than 30% of those chemicals are designated by state or federal regulatory agencies as carcinogens, reproductive toxins or acute nerve poisons.
“We are not talking about a few people living in remote areas,” said Jonathan Kaplan, CALPIRG Toxics Program Director. “A large number of us may be exposed to these pesticide air pollutants. With population levels and pesticide use increasing in California, this problem is only going to get worse if action isn’t taken.”

Both the scientific literature and available ambient air monitoring data done by state agencies indicate that

hazardous pesticides (poisons) can travel for miles and are detected in ambient air in and around California communities. Many pesticides commonly used in California have been detected miles from the site of application -- some as far away as 50 miles. In 1995 alone, California's Pesticide Illness Surveillance Program reported 300 drift-related acute poisonings. This figure is generally accepted as a gross underestimate of actual poisonings and does not address the risk of cancer, immune system suppression, birth defects, intelligence loss, asthma and a wide array of other injuries or chronic disease that may result from long-term pesticide exposure.

The report states that people are also at risk from airborne pesticides (poisons) in the urban environment. Structural fumigation, that involves covering a home or business with a plastic "tent" and filling the structure with a toxic gas, can contaminate neighboring homes, buildings and schools. According to studies by the California Department of Pesticide Regulation (DPR), airborne levels of methyl bromide (one of the two most commonly used structural fumigants) may exceed the safety levels 50 to 100 feet away and can penetrate into nearby houses even when doors and windows are closed.

"We should take a precautionary approach now and encourage farmers and urban residents to use non-toxic pest control," said Jonathan Parfrey, Executive Director of Los Angeles Physicians for Social Responsibility. "Air pollution is a serious health concern, and airborne pesticides are another burden our bodies shouldn't be forced to fend off."

CALPIRG's research also shows that state agencies have not implemented the law designed to regulate pesticides (poisons) in the air. The Toxic Air Contaminant Program requires the Department of Pesticide Regulation (DPR) to rank chemicals for their potential to contaminate the air and harm human health. The law then requires DPR to create a public, peer-reviewed health effects report for each high priority pesticide based on extensive air monitoring and literature review. Finally the agency is required to officially list and stringently regulate those pesticides (poisons) found to pose significant risk.

In the 15 years since the state legislature passed legislation creating the Program, DPR has completed the review process for just one pesticide, ethyl parathion which had already been banned for nearly all uses by the U.S. Environmental Protection Agency. In addition, state regulators have only monitored for 26 pesticides out of 152 pesticides prioritized as potential air contaminants. (In my opinion, having the Department of Agriculture be the IPM *leader* for California is a prime example of "the fox guarding the chicken coop.")

On 8/15/98 the Northwest Coalition for Alternatives to Pesticides wrote: **Pesticide manufacturers invest millions to protect their profit-making products (poisons).** In 1995, pesticide (poison) sales of over 21,000 products totaled more than $11.3 billion in the U. S. alone. With the enormous profits from the sale of these unnecessary poisons, chemical manufacturers spend millions on scientists, lawyers, public relation campaigns, campaign contributions and litigation. For them it's an excellent investment.

A recent report published by The Center for Public Integrity documents the problem. Between 1987 and 1996, a coalition organized by the pesticide industry contributed $84.7 million to Congressional campaigns. Between 1988 and 1995, more than 65 bills to tighten pesticide (poison) regulations were introduced in Congress. Not one of them passed. *Clearly, the economic interests of the chemical companies are well-represented at the expense of the health and safety of you and your family.*

The chemical industry conducts the tests that are the basis for product *registration* by the EPA. The very companies that profit from these products are responsible for providing the EPA with the data needed for *registration.* With billions of dollars in profits at stake, the inherent conflict between EPA's need for unbiased data and the manufacturers' need for data that show their products (active ingredients) are not hazardous is exacerbated.

EPA's record of policing the private laboratories that conduct vitally important safety tests is abysmal. EPA has never inspected three-quarters of the labs doing manufacturer-funded studies even though EPA relies on those data to evaluate pesticide hazards. Outright fraud has occurred. In 1994, Craven Laboratories was fined over $15 million and its president sentenced to five years in prison for falsifying residue data.

The chemical companies have made sure that pesticides (poisons) are innocent until proven "guilty" and that the industry is responsible for establishing "guilt!"

Pesticide *registration* is not a guarantee of safety. Most of us assume that pesticide *registration* is designed first and foremost to safeguard us from harmful substances. But by no means does pesticide *registration* mean that a product is safe. In fact, manufacturers are prohibited from claiming that their products (poisons) are "safe," harmless" or "non-toxic to humans and pets." *Registration* is not based on health and safety standards but instead on a risk-benefit analysis that weighs the benefits of the pesticide (active ingredient only), e.g., increased crop yield, against the hazards posed to humans and the environment.

In 1995, Americans applied about 74 million pounds of pesticides to their homes, lawns and gardens. According to the report by The Center for Public Integrity: **"Of the 36 pesticides most commonly used by Americans on their lawns, at least 13 can cause cancer, 14 can result in birth defects, 21 can damage the central nervous system, 15 can damage the liver or kidneys."** Although the law mandating their review went into effect in 1972, twenty-four of these pesticides (poisons) have never been fully tested by the EPA.

AGNET March 17, 1999, noted:

ENVIRONMENTAL TOXICOLOGY: PESTICIDE, FERTILIZER MIXES LINKED TO RANGE OF HEALTH PROBLEMS
March 15, 1999

University of Wisconsin-Madison Press Release The natural mix of chemical pesticides and fertilizers, such as occurs when agricultural chemicals seep into groundwater, may have a broad range of effects on human and animal health, a new study shows. The study, published in the current issue of the journal Toxicology and Industrial Health, suggests that combinations of commonly used agricultural chemicals, in concentrations that mirror levels found in groundwater, can significantly influence the immune and endocrine systems as well as neurological health.

Conducted over five years, the study of mice suggests that current methods used by the Environmental Protection Agency (EPA) and others for studying the toxic effects of low-levels of pesticides may be flawed. "The single most important finding of the study is that common mixtures, not the standard one-chemical-at-a-time experiments, can show biological effects at current concentrations in groundwater," said Warren P. Porter, the lead author of the study and a UW-Madison professor of zoology and environmental toxicology. Although used worldwide, "tests for these compounds in combination are very rare, although they frequently co-occur."

The experiments performed by Porter's group suggest that children and the developing fetus are most at risk from the pesticide-fertilizer mixtures. Their influence on developing neurological, endocrine and immune systems, said Porter, portend change in ability to learn and in patterns of aggression.

The privately funded Wisconsin study focused on three commonly used farm chemicals: aldicarb, an insecticide; atrazine, a herbicide; and nitrate, a chemical fertilizer. All three are in wide use worldwide and are the most ubiquitous contaminants of groundwater in the United States. In the series of experiments, when mice were given drinking water laced with combinations of pesticides and nitrate, they exhibited altered immune, endocrine and nervous system functions. Those changes, according to Porter, occurred at concentrations currently found in groundwater. Effects were most noticeable when a single pesticide was combined with nitrate fertilizer. This was true for herbicide as well as insecticide, said Porter, and chips away at the notion that herbicides have no significant influence on animals.

"Herbicides can have neurological impacts and hormonal impacts and immune impacts," he said. "They are not the harmless chemicals they are sometimes portrayed to be. They can be every bit as biologically active as insecticides or fungicides."

The apparent influence of pesticide and fertilizer mixtures on the endocrine system the system of glands such as the thyroid that secrete hormones into the bloodstream may have a cascade effect, spilling over to the immune system and affecting fetal brain development. "Thyroid disruption in humans has multiple consequences," Porter said. Some of these include effects on brain development, level of irritability, sensitivity to stimuli, ability or motivation to learn, and altered immune function.

A curious finding of the study is that animals may be more vulnerable to the influence of such chemicals depending on the time of year: "Our current working hypothesis is that animals are seasonally vulnerable because of

subtle modulation of natural seasonal variation in hormone levels," according to Porter. "For example, thyroid hormone level varies seasonally and we have now shown that two different chemical mixtures will modulate thyroid hormone levels."

The new study, Porter contends, adds to a growing body of evidence that current testing methods required for the registration and use of chemical pesticides are fundamentally flawed. In addition to a lack of testing of combinations of chemical compounds, Porter said there is a narrow focus on looking principally for carcinogenic effects or obvious cell mutations. Neurological, immune and endocrine tests for pesticides have been mandated by federal law for almost three years, but there has been no enforcement of these laws, Porter said.

"Toxicological testing so far has been extremely limited in scope and focused on mechanisms that require extensive mutations or cell damage to show any effects. They do not adequately assess the potential for biological effects under real world exposure scenarios." Co-authors of the paper include James W. Jaeger of the UW-Madison Department of Zoology, and Ian H. Carlson of the Endocrinology Laboratory, University of Wisconsin Hospital.

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The chemical companies have been dismayingly successful in ensuring that their right to market their profit-making products (poisons) supersedes your right to an environment free of dangerous pesticides (poisons).

Dramatic deficits in brain function, stamina and hand-to-eye coordination were seen in rural children with long-term exposures to pesticide poisons compared with children not similarly exposed, according to a recent study in Environmental Health Perspectives. The study compared two groups of four- and five-year-old children in the Yaqui Valley of Sonora, Mexico, a region and population that allowed researchers to compare groups of children who are very similar except in their levels of pesticide exposure. The children share a genetic and cultural background, eat the same foods and drink the same water. According to pediatrician Philip Landrigan of Mount Sinai Medical Center, the study raises "very important concerns about the toxic effects of pesticides on children's nervous systems." Bernard Weiss of the Department of Environmental Medicine at the University of Rochester School of Medicine and Dentistry stated that the study highlights the need for more research, "It doesn't seem a surprise that you would see an effect, knowing what we know about pesticides and the elevated vulnerability of the developing brain." Source: "An Anthropological Approach to the Evaluation of Preschool Children Exposed to Pesticides in Mexico" Environmental Health Perspectives, Volume 106, Number 6, June 1998.

Drift — While it may be possible to limit spray drift, it simply is impossible to limit vapor drift from the use/misuse of any/all volatile pesticide poisons! Vapor drift now covers the entire earth!

Insects are not like us; they have their skeletons on the outside; our skeletons are inside. The insect's spinal cord runs along the bellyside; ours runs along our back, making insects basically upside down and backward in design. Insects are different than us in many ways; crickets and katydids have their ears on their knees; some creatures taste with their feet. They all have smaller brains and if you use yours you will always win. If you continue to use dangerous pesticide poisons, you will always lose.

"But in the mud and scum of things there always, always something sings." — Ralph Waldo Emerson

locusts, moths and grasshoppers and cicadas have their ears on their sides. Butterflies hear with flat spots near the base of their wings. Flies, honeybees and butterflies taste with their feet. Mosquitoes and moths smell with their antennae. **Organophosphates were made to kill people, not insects - so why use them on creatures so different than people? S.L.T.**

The Archives of Environmental Health Jan/Feb 1998 [Vol. 53 (No. 1) 29-35]noted: Pesticides are responsible for 3 million cases of severe poisoning and 220,000 deaths each year.

The National Safety Council estimates that injuries and deaths on the job cost the Country $121 billion in 1996. That equals all of 1997's combined profits of the 20 largest corporations in America. Think!

The state is made for man, not man for the state...that is to say, the state should be our servant and not we its slaves." - Albert Einstein

"Kol Yisrael Arayvim Ze Be 'zeh ". . . All of us are responsible one for another.

General Joffre spoke to his soldiers at the First Battle at Marne, "Soldiers, we are attacking. Advance as long as you can! When you can no longer advance, hold your position. When you can no longer hold it, die!" I live in Marne. S.L.T.

The October 1998 issue of the Ag Retailer noted, "Under the Resource Conservation Recovery Act, the EPA allows recycling treated hazardous wastes as a fertilizer supplement." Yummy. To this statement I would only add the use of synthetic pesticide poisons kill beneficial organisms, create pest resistance, pollute water, land, air and food, and poison people, pets and wildlife.

Governments will eventually do the right thing...after they have exhausted all the other possibilities. S.L.T. http://www.getipm.com/personal/red_skelton.htm

"The life of the individual has meaning only insofar as it aids in the making the life of every living thing more nobler and more beautiful. Life is sacred, that is to say, it is the supreme value, to which all other values are subordinate." – Albert Einstein

"In any conflict between humanity and technology, humanity will win." – Albert Einstein

For science to be of any true value, science must solve today's social and ethical issues without creating disastrous consequences for succeeding generations.

EVERYTHING HAS SOME TOXICITY

Toxicity Categories (label signal words)	Material	Oral LD_{50}* (mg/kg)
IV Very Slight (Caution)	sugar	30,000
III Slight (Caution)	table salt	3,750
	aspirin	1,700
II Moderate	caffeine	95
I Severe (danger-poison)	nicotine	50

*The higher the LD_{50} value, the less toxic the substance.

On 5/29/99, Debora Mackenzie from New Scientist noted:

Red flag for green spray - Bacterial spores sprayed on organic crops as a pesticide may damage the health of people who inadvertently breathe them in. French researchers have found that inhaling the spores from certain strains of Bacillus thuringiensis can cause lung inflammation, internal bleeding and even death in laboratory mice.

BACTERIAL spores sprayed on organic crops as a pesticide may damage the health of people who inadvertently breathe them in. French researchers have found that inhaling the spores can cause lung inflammation, internal bleeding and death in laboratory mice.

Bacillus thuringiensis, or Bt, produces a toxin that kills insects. The dried spores of the bacteria have been used as a pesticide for more than 30 years and are one of the very few insecticides sanctioned for use on organic crops in Europe. Bt is also widely used to combat pest such as the spruce budworm, a caterpillar that attacks trees.

Last year, French scientists isolated a strain of Bt that destroyed tissue in the wounds of a French soldier in Bosnia. The strain, known as H34, also infected wounds in immunosuppressed mice (This Week, 30 May 1998, p 7). Now the same team has found that H34 can kill mice with intact immune systems if they inhale the spores.

Françoise Ramisse of le Bouchet army research laboratories near Paris and her colleagues found that healthy mice inhaling 108 spores of Bt H34 died within eight hours from internal bleeding and tissue damage. Spores from mutants of the same strain which did not produce the insecticide were equally lethal to mice, suggesting that it was not to blame. Ramisse and her colleagues presented their results at a conference in Paris last month.

The researchers think that the symptoms are caused by other toxins. The bacterium's close cousin, Bacillus cereus, produces a toxin that ruptures cell membranes. And in 1991, Japanese researchers showed that B. thuringiensis produces the same toxin. In fact, when the French researchers ran samples from the soldier from Bosnia through an automated medical analyser, it seemed to show that the bacterium was B. cereus. Ramisse suggest that companies producing Bt spores might make them safer by deleting the promoter sequence that activates the gene for the membrane-rupturing toxin.

Although H34 is not used as a pesticide, commercial strains of Bt tested by the researchers also killed some mice or caused lung inflammation when inhaled. The team obtained these strains from Abbott Laboratories, a major supplier of Bt based in Chicago. Ramisse points out that the strains are sprayed on forest pests at concentrations of 1011 spores per square metre--and so might pose a danger to people in the immediate vicinity. But Abbott maintains that Bt is safe. "We stand by our products," says Linda Gretton, a company spokeswoman. The French researchers have not yet tested strains made by other companies.

"I suspect Bt infection is more widespread than we realise," says Ramisse. Recorded infections by Bacillus pathogens are comparatively rare. Known pathogenic species can have very distinctive symptoms. Anthrax, for instance, is caused by B. anthracis. But where such tell-tale signs are absent, Ramisse suspects that doctors often fail to recognise that the bacteria are responsible, dismissing any Bacillus in patients' cultures as contamination. Consequently, the cultures are often discarded. "I wish they would start keeping them so we could check for Bt," she says.

When Bt was sprayed in towns in Oregon in 1991 to combat gypsy moths, the bacterium was found in clinical samples from 55 patients who had been admitted to hospital for a variety of other reasons.

Robert Haward of the Soil Association, which represents Britain's organic farmers, says that they may have to use masks and take more care when spraying the spores on crops.

Vacccination Caution: Mercury (Thimerosal) in required infant childhood vaccines is implicated in autism, ADD and ADHD..The presence of the mentally deranging element of mercury in childhood vaccines is driving our children crazy.

Long-term Pesticide Exposure Studies — Dr. Elizabeth Guillette from the University of Florida conducted a long-term study, first reported in 1998, providing strong and compelling evidence of the direct impacts of pesticide use on the physical and behavioral development of the Yaqui Indian community's children. The comparison of Yaqui children in the valley (where pesticide use is heavy) with Yaqui children in the foothills of the Sierra Madre Occidental mountains (where pesticide use is minimal) showed dramatic differences in motor skills—eye-hand coordination and balance—as well as cognitive skills which were observed in recall, simple problem solving and ability to draw simple stick figures -. to see these figures click on:
http://www.panna.org/files/summer2006.pdf

These drawings of a person by children living in the Yaqui Valley of Sonora, Mexico where pesticide use is intensive. Valley children had significantly less stamina and hand-eye coordination, poorer short-term memory and were less adept at drawing a person than were children in the foothills where traditional methods of inter-cropping control pests in the gardens and insecticides are rarely used indoors. Similar results were seen in a large scale study in Indian, released in 2004, which found the children living in regions of intensive pesticide use may be a higher risk for impaired mental development than other children. The study tested 899 children in Indian states were pesticides are used intensively in growing cotton. Using the methodology developed for studying the Yaquis, the research compared the results with a nearly equal number of children living where few agriculture pesticides are applied. In more than two-thirds of the cases, children living where pesticides were widely used performed significantly worse in the tests.

Clean Water Act — Pest Control Technology magazine of January 2007 noted: The Environmental Protection Agency (EPA) has issued a final rule clarifying two specific circumstances in which a clean water permit is not required before pesticides are applied. The two situations are when:

1. Pesticides are applied directly to water to control pests, including mosquito larvae, aquatic weeds and other pests in the water.

2. Pesticides are applied to control pests that are present over or near water where a portion of the pesticide will unavoidably be deposited to the water in order to target pests effectively. Note: thus the Bush administration simply destroyed the clean Water Act's ability to stop the contamination of our water with pesticides. These two "circumstances" can now be used to "justify" all chemical trespass incidents.

Posted June 15, 2007 - Lose The Lawn

http://www.huffingtonpost.com/alrie-middlebrook/lose-the-lawn_b_49533.html

As Americans, we spend $27 billion per year caring for our turf and lawns —that's 10 times than what we spend on school textbooks!

America has lost 30 percent of its songbirds. Amphibians are especially susceptible to pesticides and herbicides, which keep grass free of weeds and bugs. Without the bugs, there's no food for the toads. Bye! Bye!

In the West, most homeowners pour up to 60 percent of their household water on their lawns, trees and shrubs. Did you know that a 25' x 40' lawn needs 10,000 gallons of water each summer?

At most home product stores, nearly 25 percent of aisle space is devoted to lawn care products. Rows of chemicals, lawn mowers and other gas-powered devices abound. On the weekends, otherwise quiet neighborhoods are filled with the rancor of power mowers, edgers, power pruners and leaf blowers. The typical lawn mower spews out 20 times the amount of pollution than the average car on the road today.

Americans use 4.5 billion pounds of toxic pesticides a year in home gardens —more per acre than is used in agriculture.