CHAPTER 13
PESTI*CIDES* ARE NOT PESTI*SAFES*®

Everything that ends in “cide” means death (“-cide” is Latin for “to murder kill”.). It is obvious that if we continually apply death to our living soils and water and air and yards and food and pets and children, **death will start coming back to haunt us.**

Choose Life and not Death! Stop spraying Death!

Your potential contamination/health danger or risk is increased the more you use "registered" poisons. There is a corresponding decrease in risk or potential danger as you switch to using Pestisafes® or alternative non-toxic (Intelligent Pest Management®) pest control choices. Never use any volatile, synthetic pesticide poison twice (especially even more) to *treat any* infestation, when it has already failed to control the pests when you used it the first time, clearly indicating the pests are already immune/resistant to that poison - use a Pestisafe®.

What you should know before even considering using any *registered* pesticide/poison. None of these poisons are truly EPA *registered* or *approved*; only their active ingredient has been *registered* and virtually none of the currently *registered labels* are in agreement with the MSDS restrictions for their *inert* ingredients. Neither the government or poison "industry" have seen the necessity to discover whether these "registered" poisons and "inerts", contaminants, metabolites and synergistic health effects are harming innocent children.

"During the initial development of the chemical industry or at the time the use of pesticides (like DDT) was just beginning, little or no hazard existed for society...and no threat was posed to major natural ecosystems. But, as those technologies became more widely used and moved in new directions, the environmental and health problems became quite apparent." - Cornell University's Martin Alexander.

Since 1972, when the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) was amended by the Congress, the EPA has been required to look at the potential risks of all pesticide poisons. **No pesticide poison can be registered, the law mandates, until the agency determines that its use would not cause "unreasonable effects on the environment." (Yet they only "register" the active ingredient.)**

The approximately 50,000 "registered" pesticide poisons on the market at the time were "grandfathered in" and were allowed to remain in use until the agency was able to eventually re-register them. Later amendments to the law required the agency only to review the results of tests performed by the poison producer only on the pesticide's active ingredient--the chemical that kills or controls the pest--before a product could be *registered* or *re-registered or extended*. There were 600 such active ingredients in various pesticide poisons in 1988.

But this process, the critics claim and the agency acknowledges, has been painfully slow. By 1988 only 4 of the 600 had been fully reassessed, and many had not received even a preliminary evaluation. Even the most optimistic observers believe that the task will not be completed before the middle of the 21st century.

"When we *register* a product, we're not saying that it is safe," said Edward Tinsworth, director of the registration division of the EPA's office of pesticide programs at a 1988 forum held by the National Coalition Against the Misuse of Pesticides. "We're saying that there is no unreasonable risk, which means there may be a risk."

Rachel's Environment & Health Weekly #588, 3/5/98, "Children's Cancer and Pesticides" noted: Americans put an estimated 62.7 million pounds (28.5 million kilograms) of pesticides and 278.5 million pounds (126.6 million kilograms) of antimicrobials (disinfectants) into their homes each year. Recent studies estimate that between 78% and 97% of families in the midwestern U. S. use pesticides in and around the home. A study of indoor air in homes in Jacksonville, Florida detected pesticides in the air in 100% of the homes.

Advocates of the environment and agency officials are quick to list the pesticide law's deficiencies, such as the requirement that the EPA buy up the entire stock of any chemical it wants to ban. Such a budget-busting provision, both sides agree, makes the agency think twice before it takes that final regulatory step. But environmentalists maintain that the law is also fundamentally flawed because it: requires that only the chemical's (poison's active ingredient) be evaluated only through a cost-benefit analysis, instead of on any health-based standard; allows the manufacturer to perform the "tests"; does not require testing on the health effects of a pesticide's **full** formulation, which includes both the active ingredient and its secondary ingredients, known as "inert" ingredients. **So it is impossible for the agency to honestly evaluate or determine that any total poison formulation's use would not and will not cause "unreasonable effects on the environment"!**

"When most people hear about the inadequacies of the law for the first time," said Ms. O'Brien of the Northwest Coalition for Alternatives to Pesticides in 1988, "we say they go into FIFRA-shock."

Our ToxicTimes, 2/99, "Pesticide Safety Questioned" by James Huff, Ph.D. noted: "Unfortunately, pesticides also have been shown to cause varied toxicilogical effects and cancers in laboratory animals [Yang et al., 1986; Huff and Haseman, 1991] and to humans; about one-third of those commercially available pesticides tested by the National Toxicology Program, located in Research Triangle Park, have induced cancers in laboratory animals....Production of pesticides since 1986 has increased from under one billion pounds to nearly 1.4 billion pounds in 1996, an annual increase of 3% during this decade. Annual sales of pesticides exceed $5,000,000,000...To put these figures in some prespective, the amount of pesticides produced annually in the United States equals 5.3 pounds for every man, woman and child in the country. If only farmers and farm workers were allocated the total pesticide cache, then each would receive 125-150 pounds annually...In the year 1940, about 1.3 billion pounds of synthetic chemicals of all kinds were produced; in 1950 this increased 38-fold to 49 billion pounds; in 1960 the amount doubled to 97 billion; in 1970 production more than doubled to 233 billion; in 1980 the volume hit 320 billion, and in 1990 the combined production of all synthetic organic chemicals and primary products from petroleum and natural gas amounted to nearly 400 billion pounds, with sales of 217 billion of those pounds valued at close to $100,000,000,000 (USTIC, 1990). Thus in less than 50 years the production of organic chemicals has jumped to 310 times and continues to increase...Ironically, the extent of crop 'damage' and losses due to pests has increased right along with the increase in pesticide usage."

The same Our Toxic Times issue stated: "A new Danish study links 2 pesticides to increased risks for breast cancer. Out of 18 pesticides and 28 polychlorinated biphenyls tested, only beta-hexachlorocyclohexane (a component of lindane) and dieldrin emerged as independent risk factors. [Pesticides and breast cancer, |Science News, Jan. 23, 1999 155(4):56]

Conspiracy - I accuse the EPA and the poison *industry* of conspiracy in fraudulently *registering* and/or "extending" the *registry* of untested and/or falsely testing even the active ingredients and by creating a totally false impression regarding the **actual** risks and dangers of volatile, synthetic pesticide poisons. I accuse the EPA of totally ignoring the intent of FIFRA to register **all** dangerous economic poisons (in their entirety) and assign a caution statement and risk benefit to **all** of them. EPA knowingly and with malice aforethought has totally ignored the bulk of the poison compound by classifying everything other than the supposedly only *active* ingredient (or that has supposedly all of pesticidal activity) as an *inert*. Most of the inherent dangers of the *registered* pesticide poisons are in reality the *inerts*. Some *inerts* are banned or **still** being used as active ingredients! Some of the *inerts* are even restrictive-use active poison ingredients and/or have a MSDS so restrictive they legally can not be used where the *registered poison* is *registered* and/or allowed by EPA. Some of the *inerts* are more toxic, more carcinogenic, more destructive and contaminate far, far longer than the *active ingredient*. Most of the *inerts* in reality have far more pesticidal action than the *active* ingredient. Some of the *inerts* have a synergistic effect that can render the active ingredient far, far more deadly than the *registration* would seen to indicate. These *inerts* are polluting and killing the public and the world and EPA has knowingly (and in my conclusion with malice aforethought) hidden them from our view. These *inerts* must all be considered and tested and registered and used in strict accordance with their MSDS; adding poison to them does not make them *safer*.

Until such time as the entire or full pesticide poison formula is truly tested, evaluated, considered (for all acute and chronic exposures), and all synergistic and/or exponential dangers and all potential risks made known, there simply are no *registered* pesticide poisons. This conspiracy has not only ignored all of the *inerts*, it has ignored all of the contaminants, dilutents, emulsifiers, propellants, spreaders, stickers, surfactants, wetting agents, impurities, metabolites, transformation and decomposition products, drug and chemical interactions and all of their synergistic effects not only on the pests, but on the environment, public and pets. Until all of the endrocine disrupters, mutagens, teratogens, immunotoxins, fetotoxins, carcinogens, cholinesterase inhibitors, neurotoxins and all other deadly elements and all routes of exposure and length of contamination are known, tested, evaluated and considered, there simply is no way to legally **register** these pesticide poisons under FIFRA and to assign them any real risk/benefit assignment or to determine safe re-entry times. Add in the fact that EPA is well aware most active ingredients have simply been extended and not yet been adequately tested and/or were falsely *tested* to begin with, and do not actually control pests, and the fact totally new, untested compounds are created every time two *regulated* pesticides are applied together and you begin to see how this conspiracy is destroying us in order to make profits for the poison *industry*. Add to this the fact the "regulators" simply will not "legally" allow the use of any safe and far more effective (unregistered) alternatives. Couple this with the fact many people in EPA have been, or will be, a part of the same poison *industry* they supposedly now *regulate* and the reason for all of the piracy to con us (the *registration* conspiracy) becomes clearly evident. **There are no**

currently *registered* pesticide poisons in my opinion! Darkness and lies can not defeat light and truth; the greatest weapon against lies is the truth.

"The years teach us much the days never knew" – Emerson

I've always been 20 years ahead of the pest control *industry*. – S.L.T.

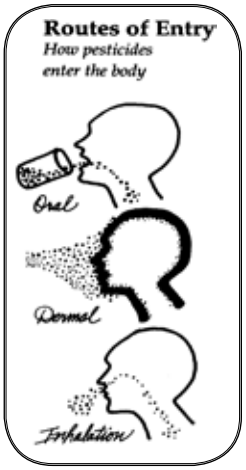
During the last 50+ years, hundreds of billions of pounds of virtually untested (but *registered)*, volatile, synthetic pesticide active ingredients and unregistered *inerts* have been released into the global environment. By 1969, nearly 60,000 separate pesticide poisons were *registered* for use by the U. S. Government, each with the manufacturer's *assurances* these poisons could all be used *safely*, that they quickly broke down into harmless substances, or that dangerous levels of exposure could be accurately predicted and/or somehow avoided. As experts began to evaluate the results of our naiveté, they found these toxins were persistent contaminants that bioaccumulated, had unbelievable movement, were contaminated, changed inside us, created different metabolites, had dangerous *inerts* and were synergistic, carcinogenic, mutagenic, tetragenic, adversely affected estrogen levels and did not even control the (quickly resistant) pests. The Toxics Release Inventory (TRI) latest report is about the size of a telephone book and notes that 2.26 billion pounds of toxic chemicals were released into the environment in 1994. Of these, 177 million pounds were known or suspected carcinogens! Ever wonder why people used to wave with the entire hand, but now they only use one finger (a digitally enhanced salute)? People are now intoxicated with "registered" poisons.

In February, 1988, then New York State Attorney General Robert Abrams filed a lawsuit against ChemLawn, a firm that services many schools, for advertising that its products are "practically nontoxic" and "do not present a health risk."

Trusting the Government's ability to predict the future for us based on "economic benefits" (or corporate profits) and to decide what contamination levels are *safe* without any adequate research has created a systematic neglect that now is clearly evident by the contamination levels clearly contaminating and polluting all living things on earth, in our air, food and water! Yet the Government **still** continues to *register* and demand only these dangerous, useless, basically untested toxins to be sold here and, once banned here as unsafe, *our government* allows these terrible poisons to be sold to our friends overseas! There is a 20-year delay from the time a substance is found to be dangerous and the time the *Government* finally takes action. Pesticide poisons are intentionally made to be toxic substances. The field of pesticide toxicology exemplifies the absurdity of a situation in which 200 million Americans are undergoing life-long exposure, yet our knowledge of what is happening is at best fragmentary and for the most part indirect and inferential–Mrak Commission 1969. **That is true "junk science".**

The word "pesticide" is not really accurate because many things other than the *pests* are killed and some pesticides do not kill the pests, they only repel, sterilize or act as a growth regulator.

THERE ARE THREE PRIMARY ROUTES OF ENTRY:



No matter what "registered," volatile, synthetic pesticide poison is used, many non-target organisms are also harmed or killed. Risk analysis and monitoring studies have often revealed unacceptably high contamination levels following indoor applications of pesticides/poisons even when label directions are followed exactly. There are three *usual* ways for pesticide poisons to enter your body and poison you. Knowing the route(s) of exposure is critical in assessing the acute toxicity of a pesticide poison. Laboratory tests reveal introduction of the poison into the brain is usually the most toxic, followed by introduction into the gut (intraperitoneal administration), oral exposure, inhalation and then dermal exposure. Pre-existing health problems and/or medications also can greatly exacerbate the toxic effect of a poison. Normally, the active ingredient, e.g., fenvalerate, is much less toxic than the formulated product, Pydrinll, yet only the active ingredient is usually *tested* and/or *registered.* Sometimes you can be poisoned without knowing it, especially if the poison/pesticide enters through your skin or lungs (these are the *normal* ways most of us are poisoned, however). **If you are in doubt whether or not poisoning has occurred, let your doctor decide - and if he/she does not know, find one that does!**

ORAL - "Registered" pesticide poisons can enter your body through the mouth (ingestion). This can occur if one tries to commit suicide with these toxins, or it can occur accidentally when your contaminated hands are not washed before eating or smoking. Pesticide poisons may be swallowed by mistake when improperly stored in food containers, or they may be ingested because they were sprayed or drifted or migrated onto your food or water. The ingested poisons can be absorbed anywhere along your gastrointestinal (GI) tract, but the major absorption site is the small intestine. Once absorbed, the poisons eventually enter your bloodstream by one of several means and then circulate throughout your body and attack you. Since 1947 the U. S. Government has *registered* or licensed over 865 different active ingredients of which about 325 are allowed to *legally* remain as *residues* (poisons) in your food. There are now about 9,500 *registered pesticide poison* tolerances for food and they can be combined, e.g., apples and milk are each allowed by law to contain *residues* (poisons) of nearly 100 different active ingredients in synthetic pesticide poisons! Nearly 50 different *registered* active poison ingredients in synthetic pesticide poisons known to inhibit human cholinesterase are permitted by law to persist as contaminants of the U. S. food supply! EPA admitted in 1992 that the complex network of tolerances was not health protective, especially for infants and children, but apparently nothing can be done to correct this terrible *system* which does not even look at **unregistered** *inerts* which also persist as food contaminants creating a significant (unknown and undisclosed) food hazard for all of us! In fact if you say anything is bad about our food supply in 12 (Republican) states, where they have, obviously, repealed our right of freedom of speech, you can be arrested and/or sued. Look what happened to Oprah Winfrey in Texas when she commented on "beef". Even though they stopped feeding cows dead cows subsequent to her show, wherein this practice that was and is thought to cause "Mad Cow Disease" was discussed, she was sued for $4.5 million; before the trial ended the Texans reduced their "claim" to about $4 million! When they lost they appealed.

In 1986 EPA reported 40 compounds among these 325 food use pesticide poisons demonstrated some degree of carcinogenicity. In 1987, EPA listed 50 of 289 *tested* compounds as carcinogenic. (These 53 carcinogenic compounds in the Nation's 1987 food supply were legally permitted by their 2,525 separate §408 *tolerances*!) In 1993 the (carcinogenic) number had *magically* risen to nearly 75. The *current* EPA toxicologist estimate is that at least 1/3 of the 325 are likely to demonstrate some tumorigenic evidence when tested at the maximum *tolerated* residue in lab animals. Despite the steadily expanding evidence that pesticide poisons cause cancer, EPA has moved at a snail's pace (or moved backward) in revoking poison *registration or re-registration* or in reducing food *tolerances* and has totally ignored the synergistic effect of all the other *registered* active ingredients and all of the other unregistered *inerts* and simply has extended their *registrations.* The Office of Pesticide Programs for 1997, 1998 noted there were 865 *registered* active ingredients, 9,500 allowable "tolerances" and U. S. sales were US$9 billion!

INHALATION - Whether as spray mists, dusts, or volatilized ("evaporated") fumes, "registered" pesticides/poisons can also be inhaled into your lungs as you breathe. Inhalation of pesticide poisons can occur during the mixing of wettable powders, or via the use of dusts and even granules. Poisoning can also occur after your home or yard has been fumigated, termited and or sprayed with volatile, synthetic *residual* pesticide poisons. The largest particles that are inhaled tend to stay on the surface of the throat and nasal passages and do not enter the lungs. The number of particles needed to poison (by inhalation) depends upon the size and concentration of the poison(s) in the particles, but even the inhalation of very dilute or *safe* pesticide poisons, e.g., pyrethrins, can result in poisoning and death. Once the poisons are absorbed through the surface of your lungs, the toxic chemicals enter your bloodstream and are distributed to the rest of your body to attack it. **(Most active ingredients are not tested to find out this toxic risk!)**

DERMAL - Last and certainly the most common route of poison exposure ... gaseous, wet or even dry forms of pesticide poisons can also be directly absorbed through your skin. This may occur while mixing or applying poisons, or from contacting pesticide-contaminated clothing or articles which were not removed promptly and properly cleaned, or from contacting the surface areas of a home chronically contaminated with termiticides and other poisons. Oil or paste forms of poison generally allow greater absorption of poison through an applicator's skin than water-based pesticides. Skin varies a great deal in its capacity to act as a *barrier* to stop pesticide poison absorption. Your eyes, ear canal, scalp, forehead and groin areas absorb pesticides more quickly than other areas on your body. Damaged or open skin can be penetrated by a pesticide poison much more

readily than healthy, intact skin. Once the poisons are absorbed through your skin, toxic pesticide poisons enter your bloodstream and are carried throughout your body and can be as dangerous as if the poisons were swallowed. (Under certain conditions absorption through the eyes can be particularly hazardous. Eyes can absorb surprisingly large amounts of poison either through splashes or spills, drift or by simply rubbing your eyes with pesticide poison contaminated hands or items.) The majority of farm worker (documented) poisonings have come from absorption through the skin **(yet no *inerts* and most active ingredients are not tested to find out this toxic risk!).** Remember, individual reactions **to any toxin can vary greatly! If you are in doubt whether or not poisoning has occurred, let your qualified doctor decide!** Remember, the ancient but very valid observation of Lucretius, "One man's meat is another's poison."

The EPA, in cooperation with Oregon State University, provides a hot line to field questions on the ecological and health effects (of the active ingredients in) pesticide poisons. The National Pesticide Telecommunications Network phone number is 1-800-858-7378. Its hours are 6:30 a.m. - 4:30 p.m. PST, 7 days a week.

Unfortunately, all "registered" pesticide poisoning symptoms are not the same, but all are dose and dose-interval dependent. In addition to the dose, synergistic effects, unknown and unregistered *inert* dangers, your health, medications, sex, age and emotional state will create different symptoms in different people, e.g., adrenaline pumping (anger or fear) will make the blood-brain barrier more permeable to pesticide poisoning. Some symptoms may appear immediately or be delayed for several hours. An onset of symptoms more than 12 hours after exposure to organophosphate poisons or may indicate chronic poisoning from repeated small doses. The long-term (chronic) toxicity of any poison may be quite different from its short-term (acute or one-time exposure) toxicity. Each chemical family, e.g., organophosphates, carbamates, chlorinated hydrocarbons, synthetic pyrethroids) can attack your body in a different way. However, you can watch out for the following *general* symptoms of "registered" pesticide poisoning:

MILD POISONING OR INITIAL SYMPTOMS OF ACUTE POISONING - Headache, visual impairment, fatigue, weakness, dizziness, restlessness, nervousness, perspiration, nausea, diarrhea, loss of appetite or weight, thirst, moodiness, soreness in joints, skin irritations, eye irritation, and/or irritation of the nose and throat.

MODERATE POISONING SYMPTOMS OF ACUTE POISONING - Nausea, diarrhea, excessive saliva, stomach cramps, excessive perspiration, trembling, no muscle coordination, muscle twitches, extreme weakness, mental confusion, blurred vision, difficulty in breathing, cough, rapid pulse, flushed or yellow skin and weeping.

SEVERE SYMPTOMS OF ACUTE POISONING - Fever, intense thirst, increased rate of breathing, vomiting, uncontrollable muscle twitches, pinpoint pupils, pulmonary edema, changes in heart rate, convulsions, respiratory paralysis, unconsciousness, coma and ultimately death.

Is *labeled* use safe? For many years now the environmental community and the news media have focused on many environmental and human tragedies involving volatile, synthetic pesticide poison use and misuse and accidents. The Armed Forces was mandated to reduce by 50% the amount of pesticide poison they currently use by the year 2000. A new study adopted in August, 1996 by the North Carolina Pesticide Board shows widespread pesticide poison contamination in the State's groundwater. Over 27% of the wells sampled in pesticide use areas were contaminated by legal, routine pesticide poison use. The report documents all of the contamination resulting from pesticide poisons that were applied according to directions on the *registered* poison labels.

The report states that a total of 36 chemicals (poisons) were found in the wells. Of those, 31 were pesticide poisons or pesticide poison breakdown products. According to the Agricultural Resource Center (ARC), a North Carolina-based non-profit organization, many of the pesticide poisons found cause cancer, birth defects, genetic damage or harm to the immune and endocrine systems. It is interesting that recent April, 1998 anti-tobacco ads financed as part of Florida's $11.3 billion dollar settlement with tobacco companies, the first demand was for a list of all ingredients in a pack of cigarettes - all 401 poisons and 43 carcinogens!

The results of the final ARC report may actually understate the extent of the problem in North Carolina since the most vulnerable sites were excluded from the study. The study was limited to identifying pesticide poison contamination only from pesticide poisons used in legal applications, and excluded sites used as pesticide poison mixing or loading areas and sites of known accidents, spills or container disposal.

The USDA Pesticide Data Program: Annual Summary Calendar Year 1996, 1998 noted that "registered" pesticide poison residue in 1996 monitoring tests of fruit and vegetables found 71.8% were contaminated with at least one pesticide poison *residue*.

Women: If you have had a miscarriage, or if you had menstral irregularities or hemorrhaging, possibly leading to hysterectomy, and you believe it was related to "registered" pesticide poison exposure, please send Norm Spurling, Officer of Pesticide Programs 7502C, U. S. EPA, 401 M Street, S.W., Washington, DC 20460-0001 the pesticide name, EPA number, amount used, frequency and include a copy of any spray records or call 1-800-858-7378.

No "registered" volatile, synthetic poisons, no matter how safe they are claimed to be or *professionally* applied, according to the label, are safe or can ever be **totally** non-toxic. No one in their right mind would attempt to fly an airplane without first learning how to do so...the same should (but does not) hold true with those who *use* pesticide poisons. The word is *pesti* -***CIDES*****,** not *pesti* - ***SAFES*®**. "Registered" pesticide poisons kill insects because they were specifully designed to adversely effect a life process like respiration, digestion, reproduction, circulation and/or nerve reactions...a person would have to be a member of the flat earth society or on a chemical company's payroll to **still** *think* that poisons *protect* and do not harm or even kill people and other *non-target* organisms. The *registered* active and unregistered and (unknown) *inert* ingredients in synthetic pesticide poisons are very biologically active substances that have profound adverse effects on all living organisms. Because they are not natural, nature is unprepared to deal with (decontaminate) them, so both the immediate and long-term reactions can be quite serious.

Body Burden - is the sum total of all toxic exposures and encompasses all routes of entry (oral, inhalation, dermal) and all sources of contamination (food, water, air, workplace, home, travel, etc.). In the case of fat-soluble, persistent chemicals and poisons, body burdens provide a measure of cumulative exposures. The average middle-aged American male now has at least 177 different organochlorine contaminants (poisons) in his body. Body burden is **still** not considered when the active ingredient of a pesticide poison is *registered*.

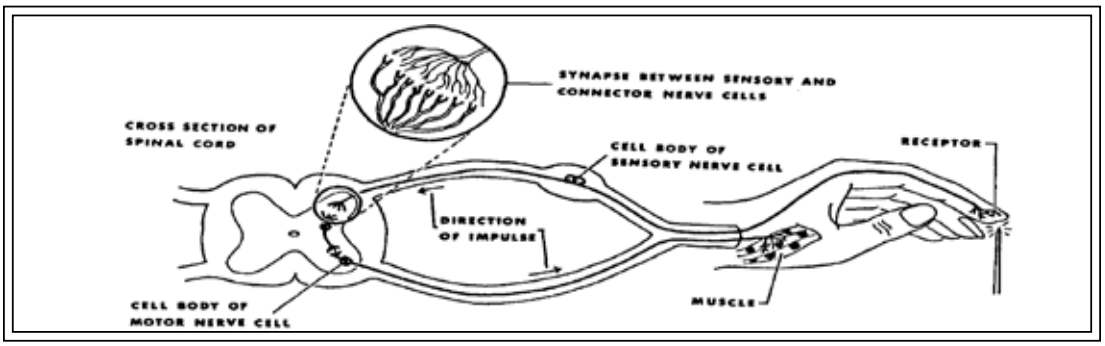
Because it is more *profitable* to produce and market "registered" pesticide poisons with many labeled uses, most volatile, synthetic pesticide poisons are specifically designed to be *broad spectrum killers* that can and do damage/kill non-target species (including plants, animals and man). As an example, the organophosphate and carbamate pesticide poisons are specifically designed to interfere with the nervous system by inhibiting or depressing the enzyme cholinesterase...so all living things with cholinesterase, e.g., insects, birds, animals and man, will all be poisoned by these toxins once they enter their bodies. To see how these (neuro-toxic) poisons affect the nervous system, we must understand how the nervous system works. The nervous system - which includes the brain - is the most complex system in the body. It consists of millions of cells which make up a message or communication system throughout the body. The messages (or stimuli) travel along this network in the form of an electrical impulse.

The nerve cells are *connected* at the synapse (see following drawing). The ends of the connecting nerve cells intertwine, but do not actually touch each other. Stimuli *spark* across the synapse in a chemical known as acetylcholine. After the stimulus is across the synapse, the acetylcholine is broken down by cholinesterase. Then the cholinesterase breaks down and synapse is back to ***normal*.**

In the following drawing, a stimulus (sticking your forefinger with a pin) begins at the skin. The stimulus or spark travels down thousands of nerve fibers and across the synapses. Some of the stimuli go to muscles to make you jerk back while others go to the brain where they are interpreted as the feeling of pain. This extremely simplified example serves to illustrate the basic components and workings of the nervous system. Organophosphate and carbamate insecticides each inhibit a type of cholinesterase. This results in an accumulation of acetylcholine so all stimuli or *sparks* continue to arc across the synapses stimulating continuous muscle contractions or tremors. These constant muscle twitching and weakness or tremors are also called fibrillations. If this action becomes intense, you will have fits or uncontrollable convulsions, because your nervous system is poisoned. Persons

with epilepsy have a naturally depressed cholinesterase, so you should never use organophosphate poisons and/or carbamate poisons around them. **Yet poison applicators seldom ask if anyone in a building, school, hospital or nursing home has epilepsy!**

The antidote, atropine sulfate, is given intravenously to counteract the effects of excessive acetylcholine in organophosphate and carbamate insecticide poisoning until adequate oxygen is again being absorbed by you and cyanosis is overcome. Afterwards, 2-PAM is used in organophosphate poisoning to reactivate the cholinesterase.



In carbamate insecticide poisoning, 2-PAM is ineffective and should not be used as an antidote. Because these antidotes (atropine and 2-PAM) also can adversely affect the nervous system and heart, they should never be self-administered. Atropine can also hide or delay the early symptoms of poisoning and should never be taken prophylactically or self-administered.

Paracelsus, a physician-alchemist living in Germany during the 16th century, wrote, specifically speaking about medicines of his time, "All substances are poisons; there is none which is not a poison. The right dose differentiates a poison from a remedy." Paracelsus wrote this in order to defend his use of chemicals (poisons) to treat illness, including mercury to *treat* syphilis. Unfortunately, most of our "registered" pesticide poison *tolerances* are based **only** on the amount of the poison's active ingredient needed to (orally) kill the *pest* rather than on the amount needed to protect against dangerous levels of human or pet exposure. Volatile, synthetic pesticide poisons were and are specifically designed to destroy life, and exposure to these pesticide poisons, whether accidental or on purpose, can be very destructive both chronically and acutely to the environment and the humans and all other life forms that are exposed to them. Initial genetic damage caused by chemical contamination can eventually lead to leukemia. The ending "cide" is from the Latin word "cida", meaning "to kill". Today poison applicators use Paracelsus' quote to defend their use of poisons. I would like to note that no one uses mercury to *treat* syphilis any longer; they lost too many patients to this *cure or treatment.*

Joel Paul, a spokesman for the National Pest Control Association, contended in 1988 that many people who claim they are *chemically sensitive* are actually allergic to the pests that the chemical (poison) is supposed to control. Others, he says, have "delusory parasitosis, a distinct fear of insects. It's a neurotic disorder of people that can never be controlled." (Where did Joel get his medical degree?) The poison industry also tries to *defend* the use of poisons because U. S. pests *may* kill 100 - 300 people a year, so they say people need to be *protected* from these dangerous pests by their volatile poisons. There are over 325,000 U. S. certified commercial poison applicators nationally in non-agricultural pest control. Congress recently banned assault weapons due to a loss of about 250 lives per year, but Congress continually ignores the National Academy of Science's estimate that pesticide poisons conservatively cause over 10,000 cancer deaths per year and that these toxins continue to create over 20,000 cancer cases based only on 53% of the known pesticide active ingredients that are known to be carcinogens. These figures obviously don't include neurological, heart disease, lung damages, birth defects, miscarriages, immune, genetic and endocrine damages or acute or chronic exposure deaths. Nor does this information include the tortured and/or miscarried encephalic babies attributed to pesticide poisons noted in the Texas Department of Health studies. **Want to ask *your* congressman why?** Check who sends him/her PAC money.

Rachel Carson's 1962 book, Silent Spring, was quickly followed by the rise of the environmentalists, and then in the early 1970's by the formation of the Environmental Protection Agency (EPA). the Author personally has helped remove some of the more persistent and deadly toxins, e.g., chlordane and heptachlor, but there are **still** many left that are misused and/or often applied simply "just to be sure" by some *professionals*. It is a very sad fact there usually is no maximum poison amount or minimum time interval between *applications* that can not or

must not be exceeded when a pest control company decides they must again apply volatile poisons to control pests, e.g., fleas, in your home. Often the *professional* literally and routinely soaks the carpets with gallons of the *registered* mix, as long as the *professional* uses the *proper* dilution rate, no matter how much volume of poison is applied (and how contaminated your home becomes because of these *labeled applications,* his or her poison *applications* are not considered to be misuse! It is very sad commentary that 30 years after Rachel Carson first warned the pest control industry of the dangers of using (and misusing) synthetic residual pesticide poisons, these professionals now use **many, many times more of these dangerous toxins than they did back then -** with no real reduction in insect pest problems! The poison *industry* downplays the danger of these toxins by claiming these poisons are heavily diluted, but does not bother to mention these diluted toxins are extremely dangerous and that no one knows the synergistic effects or the toxicity of the *inerts* and/or the fact these poisons are very persistent polluters even in very small amounts. Now the very rain and fog are contaminated with these toxins making it impossible to grow true organic foods! In 1965, 335 million pounds of synthetic pesticides were applied just to crops; in 1989, that amount increased to 806 million pounds applied just to crops. There are approximately 350 active insecticide poison ingredients *legally registered* just for use by the EPA on our **crops** - of this number approximately 20% are classified as *probable* or *possible* human carcinogens. In addition, there has been a tremendous increase in yard, home, governmental and commercial spraying of these toxins but no reduction in pests! Because of the increased spraying, there has also been a corresponding increased resistance of pests to the pesticide poisons. This has caused increased amounts and greater toxicity of pesticide poisons applied just to try to stay even with ever more pest resistance constantly being developed. Because of the excessive *registered* application of pesticide poisons and reduction of beneficial predators, several species, e.g., mites, that were never previously considered pests have now multiplied to serious pest status. Often there also is a resurgence of the primary pest in greater and more damaging numbers than before the poison *treatment*. There was a tenfold increase in insecticide poison usage in the U. S. from 1945 to 1989...even so total crop losses from insect damage had nearly doubled from 7% to 13%! (1991 Handbook on Pest Management in Agriculture). According to the EPA, the U. S. used about 1.2 billion pounds of active pesticide poison ingredient in 1994. One recent World Health Organization report estimates 3 million humans are acutely poisoned by pesticide poisons yearly with approximately 220,000 deaths worldwide! In 2001 it was estimated we now annually use 4.5 billion pounds of "registered" poison in just the U. S. A.!

The *Science* of Risk Assessment - First of all, risk assessment *science* defines what is and is not "acceptable" using arbitrary rules and numbers for only the *registered* active poison ingredient. For instance, in air quality control, an "acceptable risk" is one that permits one additional death per 100,000 individuals. But for water quality, the permissible risk is one in a million. And, for some (profitable) occupational exposures, risks as high as one in 10,000 are accepted. Risk assessment is defined by the National Academy of Sciences as a four-step process: hazard identification, dose-response assessment, exposure assessment and risk characterization. In addition to its arbitrary character, a major flaw in this model is its failure to recognize that persons in the real world are exposed to multiple chemicals containing a lot of unregistered and unlisted *inerts*, synergistic effects, contaminants, transformation and decomposition products, metabolites, etc. simultaneously. Studies that are conducted to ascertain risk typically test only the active poison ingredient in isolated situations. This method leads to the pretense of pretending to the real world the entire toxic brew has been *registered*, ignoring the fact it only indicates artificially "safe" levels of acute exposure to only the active ingredient in the poison mix. Risk assessment can also provide misleading assurances of *safety* while continuing to allow damage from misuse, synergistic effects, *inerts* and/or recurrent or chronic risks that continue to occur. The current model or "risk" assessment does not assess the benefit trade-off to the individuals at risk, nor does it carry the consent of all of its consignees. No public forums are set to define risk or agree on what limits are acceptable. Because risk assessment is measured through mathematical equations only concerned with one active ingredient and uses abstruse appearing formulas, the general public is isolated from the process. Nor is the public allowed to engage in discussions of alternatives, or choices. In a declaration of its deviancy from recognized ethical norms, the current method governing the risks to our health fails to utilize any method of informed consent or provide any meaningful choice on the part of the public participants. Most lab research begins only with healthy male animals in order to rule out the female reproductive cycle as a variable. Nearly all "safety standards" have been set for only a single active ingredient in the chemical/poison (ignoring the exponential effects of several poisons and their unregistered *inerts'* synergistic effect, contaminants, metabolites, decomposition products, etc.) allowing a minimum one-time "safe" dose for a 132 pound adult male! **EPA still does not require any studies of estrogenic or endocrine disrupting effects prior to *registering* even the active ingredient in pesticide poisons!** Dr.

John Goffman, Professor Emeritus of Molecular and Cell Biology, University of California at Berkeley refers to "The law of concentrated benefit over diffuse injury" - I would say "risk assessments" amount to well thought out murder of "some" innocent citizens, giving many of us terrible risks we do not want to take, so the powerful can "legally" get the financial benefits of this "rip-off" - The large agri-business corporations have enforced a virtual no-labeling policy. Products in the marketplace like milk produced from cows injected with bovine growth hormone, or potatoes containing transgenic Bt, a biopesticide poison, are not labeled as such or even identified!

Pesticide risk "assessments" are supposedly used to "scientifically" justify exposing humans and other animals to toxic pesticide poison contamination against their will or without their consent for profit. While the poison "industry" releases, sprays and dumps pesticide poisons into other people's food, air, water and bodies, certain "scientists" estimate just how much pesticide poison pollution is "safe" or "acceptable". But these "scientists" do not even bother to require the pesticide polluters to consider, much less implement, any safe and far more effective alternative techniques, controls or products to using their "registered" pesticide poisons. We all assess hundreds of risks every day. We decide when we will cross a street, whether we will pass a car or not; whether something is too hot to lift with our bare hands, but even if we do not get hurt, we don't pretrend these various activities are safe, and we continue to consider our options before taking on any risk, and we choose to to take these risks! In conclusion, the unknown threats to our lives and environment prsented by pesticide risk assessments arise from two sources. First, most pesticide poison risk assessments attempt to describe a "safe" or "acceptable level of harm" caused by unconsented exposure to only the active ingredients in the pesticide poisons and totally ignore all of the "inerts" and metabolites and transformation products and synergistic effects, and secondly, most decision-making processes employing pesticide risk assessments do not even consider, let alone assess, the many alternataives to pesticide poison use and make us take these unknown risks with no choice in the matter. (Adapted from the Global Pesticide Campaigner, Vol. 4, No. 1, 3/94, "Facing Down Pesticide Risk Assessment, Mary O'Brien) **For the record, there are no pest problems that our Pestisafes® or pesticide alternatives will not address or control safer, better, faster and cheaper than volatile, *registered* poisons!**

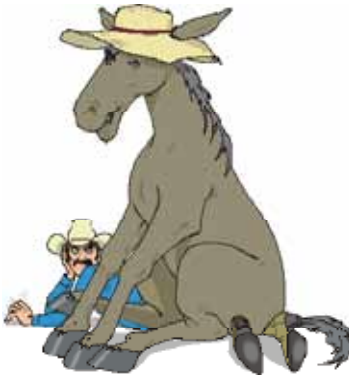
Risk Mitigation measures sought for other indoor pesticide poisons. EPA OPPTS Assistant Administrator Lynn Goldman confirmed in a January 14, 1997 letter to DowElanco CEO John Hagaman that the agency will seek risk mitigation measures for other indoor/household and termiticide poisons during the *reregistration* process. She wrote: "The EPA is concerned about the risks of acute pesticide poisoning and chronic pesticide illness resulting from exposures to household pesticide poisons in general. As you know, reported health concerns about chlorpyrifos involve illnesses that are common to organophosphates, most notably, vomiting, diarrhea and nervous system disorders from acute exposure and possibility of chronic neurological disease from long-term exposures.

Even though the active ingredients in all pesticides or poisons are *registered (not approved)* by the Environmental Protection Agency (EPA), sadly most synthetic poisons or pesticides and all *inerts* **are still not** required to be adequately or thoroughly evaluated regarding synergistic, carcinogenic, chronic or neuro-toxic effects before or after their *registration* by the state and federal governments. In fact, the EPA *registers and reregisters* poisons or grants *unlimited* extensions on many dangerous poisons, e.g., aldicarb (a carbamate pesticide) which has no *safe* threshold as a nerve poison and at least 20 other known or probable carcinogens, without any evidence of need, without any of the *benefits* being (re)analyzed, and by waiving their own *requirement* that new efficacy data *must* be submitted. **As of March, 1992, 20 years after Congress directed EPA to reregister the active ingredients in older pesticide poisons, only 2 of 19,000 older pesticide formulations had been *reregistered*; the rest have been given *extensions* and, therefore, I do not believe they are *registered.* There were, however, 18 pesticide poisons banned for use in the U. S. and manufacturers *voluntarily* canceled the registrations of 25 other "registered" pesticide poisons.** Dr. Sam Epstein and Jay Feldman reported in the Los Angeles Times, 11/16/89 that California found, "under its own Birth Defects Prevention Act, that EPA has reached the wrong conclusion in 58 of 99 pesticides (poisons) reviewed - could this much incompetence be accidental? We and our children have been and still are being poisoned for profit!" ***Legally*** some companies can and do hire a technician today and have him *professionally* spraying tomorrow. In addition, no current governmental regulatory agency voluntarily or routinely checks to see if the poison application was done safely and/or correctly. They only check **after** the fact to see if *their* interpretation of the label was followed and *enough* poison was

used. Most *professional* companies do not even provide their own men with *complete* information regarding detrimental environmental or personal hazards regarding the toxic qualities of the pesticide poisons they use, or even provide the basic safety equipment to protect their own people. For years many homes have been routinely *treated* just "to be sure" even when there was/is no evidence of any (re)infestation. The Author has estimated that **over 90% of *professional* pesticide poison usage** is totally unnecessary and is *used* prophylactically or misused just to be sure *they got them all.* This is due primarily to *their* total reliance on volatile poison *control* and attempt to *justify* their prices. In many different conversations Ithe Author has been told they and we can only *legally treat* pests with *registered* pesticide poisons! **He has stated,** "**So come arrest me!"**

Historically most state regulators and customers have only been concerned if *enough* "registered" pesticide poison was used and if you left any *survivors.* The pest control company was almost forced by the **state *regulators*** to be sure "it got them all" and thus **put chemical (poisons) control as the one and only *legal option*** and left the applicator to choose the poison, how much to use, and how often, when and where to apply it. It has been estimated that less than 1% of those people poisoned will ever bother to report it. Even if they do, **most will** be told (without any testing) that their reaction(s) are not pesticide poison related! Remember, even when there has been **any** *testing* done of the **active** ingredient prior to EPA registry, it generally has only been concerned with the harmful effects that will occur from a single exposure (by one specific route of entry) or its **acute** toxicity expressed as its LD_{50} or LC_{50} values which is the lethal oral dose of concentration (relative amount) of **active** ingredient required to kill 50% of a test population, e.g., male rats. LD_{50} values are recorded in milligrams of (only of the *registered* active ingredient in) the pesticide poison per kilogram of body weight of the test animal. LC_{50} values are recorded in milligrams of pesticide poison per volume of air or water. Both units are the same as parts per million (ppm) which compares to about 1 minute in 2 years or about 1 inch in 16 miles. At best the LD_{50} rating for the relative degree of toxicity of an active ingredient has many inadequacies, and can be used only as a very rough *guesstimate* of human hazard. More importantly, it only looks at the acute (oral) death of a test animal (exposed only to the active ingredient) and totally ignores the intermediate or long term health (chronic) effects they may also suffer as a result of their exposure. Much illness and death from pesticide poisoning occurs because people do not realize these toxins are just as or more dangerous if they touch the skin or are inhaled than if they are swallowed! Dermal and inhalation exposure are especially dangerous because the poison goes directly into your blood stream and may attack your internal organs before your liver and kidneys have a chance to do any detoxifying. Approximately 865 pesticide poison active ingredients are formulated into 21,000 different poison formulations - U. S. EPA, Ibid Table 7.

Most of the **active** ingredients in "registered" pesticide poisons **still** have not even begun to be (thoroughly) evaluated regarding whether or not they are *sensitizers,* carcinogenic (cancer-causing), neuro-toxic and/or cause chronic (long term) or synergistic health effects. We simply do not know how many birth defects, miscarriages, neurological problems, breathing problems, memory losses, cancers, other sickness and deaths are caused by chronic (long-term) exposure to even **minute** amounts of these *registered,* active ingredients in synthetic *residual* poisons, but the danger is **significant!** Note: The *law* under which EPA *regulates* pesticide poisons does not put the first priority on health or environmental concerns, but rather on the estimated **economic** benefits (the poison company thinks) that may ensue from the use of their poison! It is the **only** environmental *law* in the U. S. that does not permit citizens to go to court to insist on better enforcement! Many volatile, synthetic pesticide poisons "approved for use" by the EPA were *registered* long before any (extensive) research or testing was conducted linking these poisons to cancer and other diseases had been established. In the 1990s EPA considered at least 60% of all *registered* herbicide poisons, 90% of all *registered* fungicide poisons and 30% of all *registered* insecticide poisons were carcinogens, yet unbelievably **still** continues to extend their *registration*! Literally thousands of different toxins are regularly released into our environment. We do not even understand all the health effects (acute and chronic) just the active ingredients of just one poison pose us - much less the combined/synergistic effect or dangers the entire toxic "brew" creates or even contains! **We simply do not know the fate of all the residues and/or metabolites and/or unregistered *inerts*, patterns of human/pet exposure and all of the health/environmental effects of these *registered* poisons!** Amendments to FIFRA require re-evaluation of the old, untested pesticide poisons *registered* before the current requirements for scientific testing were put in place. Initially this was to be completed by 1976; there have been repeated delays, extensions, etc., so the re-*registration* and *testing* may not even be completed in 2010. Until then, the old, untested, volatile poisons can **still** be sold and used and misused. It's like getting a driver's license



now, but taking the written exam and road test 40 years later!

Deformity study points to vitamin A

Compounds, perhaps from pesticides, contain an acid that affects frogs.

By Doug Glass
The Associated Press - 3/18/98

MINNEAPOLIS - Scientists trying to figure out what's causing forgs from California to Miane to sprout extra legs have come up with a possible answer that seems absurdly simple: vitamins.

A group of vitamina A compounds called retinoids may be at least partly responsible for the frog deformities found in 32 states, said David Gardiner, a specialist in human limb regeneration at the University of California at Irvine.

Retinoids are vitamin A compoundsand include retinoic acid, a hormone that regulates key aspects of development in vertebrates. Excess amounts of retinoic acid produce birth defects in humans.

Deformed frogs were noticed first by schoolchildren in 1995 as they studies a farm pond near Henderson, about 55 miles southwest of Minneapolis.

They found about 200 frogs with multiple, missing or twisted legs. A few others had abornormal eyes.

Finding the cause of the deformities is important because scientists believe amphibians may be an early barometer of environmental problems.

Gardiner said he suspected retinoids last year when he saw pictures of deformed frogs taken from a Minnesota lake.

The frogs his team studied had one or more leg segments that, instead of being straight, folded nearly in half to produce a "triangulated" appearance. The deformities also included fewer fingers and one bone instead of two in the forearm.

Gardiner and Bruce blumberg of the Salk Institute of La Jolla, Calif., found evidence of retinoids in water samples from the Minnesota lake.

The substance may have come from a pesticide or pesticide derivative, or may even be produced by an organism in the lake, Blumberg said Monday.

The deformities were consistent with those seen in chickens, mice and other vertebrates exposed to retinoic acid in experiments, they said.

Though confident of the findings, Gardiner said they were only a starting point Other factors may contribute to the deformities he said.

Synergism - In the summer 1995 Journal of Pesticide Reform noted that synergistic interactions between chlorpyrifos and a variety of other chemicals have been observed. This means that chlorpyrifos either enhances the (poison) potency of another chemical, or its own (poison) potency is enhanced. For example, adding vitamin C (ascorbic acid) to the diet of rats almost doubled the acute toxicity of chlorpyrifos! Pretreatment of partridges with the fungicide, prochloraz, increased the inhibition of acetylcholinesterase by chlorpyrifos about 80%. Pretreatment of mice with the organophosphate insecticide, phosfolan, increased the acute toxicity of chlorpyrifos about 10%. Ingestion of chlorpyrifos (accidental) by a child prolonged the paralysis induced by the drug succinylcholine. (See Organophosphates.) **Do you really believe the poison *industry* ask if the drug succinycholine or vitamin C or orange juice are being used before they spray their poisons?**

The Journal of Toxicology and Environmental Health 41: 275-284 (1994), noted: Relatively brief exposure to "registered" pesticide formulations can have profound permanent health effects on some individuals — especially if they receive improper diagnosis and treatment with pharmaceuticals that act synergistically with the effects of the pesticides. The case of a 38-year-old female file clerk provides a graphic illustration for this. Previously healthy except for mild, rare hay fever symptoms, she developed symptoms consistent with chemical irritant effects and the neurotoxic effects of chemicals that inhibit the central nerve enzyme acetylcholinesterase (AChE) during three and a half hours of exposure to a pesticide sprayed by a co-worker for the purpose of controlling roaches and book mites. The pesticide contained phosphorothiate, pyrethrin, piperonyl butoxide, and petroleum distillates. At the emergency room she was treated with bronchodilators for bronchospasm instead of atropine or other measures necessary for organophosphate (OP) pesticide poisoning. The Authors explain how the pharmaceuticals could be responsible for "worsening the outcome in this case." **Do you really believe the poison *industry* asks if these medications are being used before they spray their poisons?**

Synergism has also been observed in the agricultural use of chlorpyrifos. Thifensulfuron is a sulfonylurea herbicide used to kill weeds in soybeans, a crop that is relatively tolerant of the herbicide poison. When applied in combination with chlorpyrifos (as well as certain other insecticides), damage to the soybean crop results. Researchers found that thifensulfuron in soybean leaves was detoxified by an esterase, an enzyme related chemically to acetylcholinesterase, the enzyme inhibited by chlorpyrifos. Chlorpyrifos also inhibited the esterase

responsible for detoxifying thifensulfuron in soybeans, resulting in the crop damage.

Synergistic interactions with chlorpyrifos were headline news recently, as Duke University researchers documented synergistic nervous system damage when laboratory animals were exposed to chlorpyrifos, the synthetic pyrethroid insecticide permethrin, the insect repellent N, N-diethyl-m-toluamide (DEET), and the anti-nerve gas drug pyridostigmine bromide. The same research also found synergistic effects when the three pesticide poisons, without the drug, were tested. This particular combination of chemicals is of interest because it may be responsible for the "Gulf War syndrome"...illnesses suffered by U. S. soldiers after returning from military service in the Persian Gulf.

Since there is no systematic screening of even the active ingredients in *registered* pesticide poisons for synergistic effects, it is impossible to estimate how many chemicals (poisons) are likely to interact synergistically with chlorpyrifos. **Therefore, no one really can tell you exactly how dangerous the use of chlorpyrifos or any other "registered" poison really is.**

A new (1996) study by the U. S. Geological Survey (USGS) found "registered" pesticide poisons in every one of the 95 samples taken from 20 small streams in the Williamette River Basin in Oregon. The study found 36 different pesticide poisons, 29 herbicide poisons and 7 insecticide poisons in the 20 sites. No one knows how these poisons interact or how dangerous this toxic brew is. A recent neurotoxicology study looked at the ability of *registered* chlorpyrifos and unregistered xylene to affect the susceptibility of young rats to electrically-stimulated seizures. Chlorpyrifos alone is a proconvulsant: it decreases the number of electrical stimulations required to initiate a seizure. Xylene and chlorpyrifos together causes "a potentiation of the proconvulsant action". While more research will be required to establish what implications this might have outside of the laboratory, it is clear that (the *registered* active ingredient) chlorpyrifos and (the *inert* unregistered ingredient) xylene work together to negatively affect the nervous system.

Synergism can take place with other volatile pesticide poisons, cleaning chemicals, medications, *inerts,* contaminants, impurities combine with your *normal* pollution. Ammonia acts as a potentiator to OPs and other poisons. If you would like to know if you are sitting on toxic waste or a landfill, you can try calling ERII scan or access them on the web at http://edrnet.com/index.php. ERII scan is an environmental property report that can access 8 databases with over 7 million sites that are contaminated or have the potential to be contaminated. There are over 1,300 sites in the U. S. where people wear white suits and are decontaminated when they leave. To ignore synergism is to invite death into your home and family and community.

The interaction between the **unregistered and untested** "inerts" in chlorpyrifos-containing products and the *registered* chlorpyrifos itself can also lead to unexpected environmental problems. In 1989, an "operational error" caused a small tank in a pesticide poison manufacturing facility in Cartagena, Columbia to overflow into a diked area. The xylene in the chlorpyrifos formulation dissolved the asphalt dike expansion joints. As a result, the chlorpyrifos escaped into Cartagena Bay and killed 17 tons of fish.

Besides all the unknown personal (acute) hazards to the applicator and occupants of a building from just the *registered* active ingredients, we are also basically unaware of the long-term environmental hazards/contamination caused by the toxic residual (chronic) qualities of each of these *registered* economic poisons. No adequate studies have been done on long-term potable water and ambient air contamination caused by these individual toxins. We simply are unaware of how dangerous they are to us (much less future generations), especially if you are under 1 year old, over 60 years old, have been or are sick, are taking medicine, suffer from epilepsy, pregnant, chemically sensitive, have breathing problems and/or allergies. Whenever you see a pesticide poison advertisement that shows an insect dead on its back with its legs waving in the air, you should immediately know this is a very dangerous volatile poison that can and probably will adversely effect your cholinesterase levels and probably is a deadly nerve gas or volatile neurotoxin that should not be used in your home.

On October 1, 1986, children at an elementary school in Hawaii were sent home after they became ill with headaches, stomachaches, and breathing difficulties following a routine spraying of *registered* chlorpyrifos (Dursban®) for fleas. Later, an investigation revealed that it was not the *registered* chlorpyrifos that had made them ill, but the unregistered *inert* solvent xylene and the other unregistered diethyl sulfide impurities or contamination in the formulation. These and other unlisted, unregistered, secret "inert' ingredients comprise 56% of the commercial Dursban 4E formulation.

Most "registered" pesticide poison formulations are primarily composed of unregistered, *secret*, untested, toxic *inert* ingredients, e.g., the MSDS for xylene and benzene are more toxic and more restrictive, than the listed active ingredients. By defining all the unregistered solvents, surfactants (surface-acting agents), emulsifiers, preservatives, metabolites, contaminants, impurities, decomposition/transformation products and anti-volatility agents in a synthetic pesticide poison formulation as "trade-secrets" and/or "inert ingredients", chemical (poison) companies literally can get away with murder. The so-called "active" ingredients, those ingredients that are actually listed on the *registered* pesticide poison label and which are intended to kill the pest only, usually comprise less than half and sometimes less than one or two percent of the total *registered* poison formulation. The *inert* ingredients are by legal definition supposedly without pesticidal activity, yet we have consistently proven over and over the unregistered *inert* ingredients actually can control pests better than the *registered* active ingredient. **To call these toxins *inert* is real "junk science" and a terrible lie.**

On 11/6/91 the Environmental Research Foundation, REHW #258 noted: "HAZARDOUS WASTE IS LEGALLY 'RECYCLED' INTO PESTICIDES AND LABELED 'INERT'

If current trends hold, by the end of the century as few as 10, or even 6, companies may own all the major newspapers, magazines, radio stations, book publishers and TV stations in America. An equally important trend is that news reporters now rely heavily on public relations firms for stories. REPORTERS CREDIT PR PEOPLE AS THE SOURCE FOR 90% OF ALL STORIES ON HEALTH...Clearly the polluters are managing to manage the news...An 'inert ingredient' in a pesticide is anything not registered as an 'active ingredient.'..A typical pesticide is 1% to 20% active ingredient by (by weight) and 80% to 99% 'inerts.'...A little-known exemption in RCRA (the Nation's basic hazardous waste law) allows hazardous wastes to be 'recycled' into pesticides as 'inert' ingredients...It is interesting--and perhaps entirely coiincidental--that the Nation's largest waste hauler--Waste Management, Inc.--started buying into the pesticide business in the late 1980s...The Lake Michigan Federation (LMF)--a group of citizen activist with offices in four cities--recently documented a case of 'recycling' a hazardous waste as an 'inert' ingredient in pesticides. A company called Granulated Technologies (Grantech) in Green Bay, Wisconsin, is buying toxic sludge from the Fort Howard Paper Company...to convert it into small pellets to be used as carriers for agricultural pesticides and fertilizers, and perhaps also as kitty litter...LMF is publizing EPA data on the chemical contents of the sludge. A year's worth of the dried sludge contains 301 pounds of styrene, 287 pounds of 2,4,6-trichlorophenol, 1921 pounds of napthalene, 5629 pounds of bis(2-ethylhexyl) phthalate, 5814 pounds of chromium, 1643 pounds of lead, 33 pounds of mercury, 122 pounds of thallium 278,897 pounds of zinc, and so on... Other compounds identified in the sludge are 2,3,7,8-TCDD (the most potent of the dioxins), 2,3,7,8-TCDF (a dibenzo furan) and range of chlorinated phenols, chlorinated catechols, chlorinated guaiacols and chlorinated benzaldehydes. Toxic soup. This is not something you want to put on your garden, yet that is where Grantech intends to put it, with the blessing of state and federal "environmental" agencies. Once again government is trying to 'linguistically detoxify' hazardous waste, this time by calling it 'inert' because it is being 'recycled.'"

Obviously, all of the totally untested and unregistered *inert* ingredients in *registered* economic poisons or synthetic *residual* insecticide poisons can even be more deadly to you and your family than the **active** ingredient, and yet they **still** do not have to be tested even acutely or even listed on the *registered* label! Note: The **label** is all the information printed or attached to the pesticide poison container. The Federal Hazardous Substance Act (FHSA) defines **labeling** to only include all accompanying literature where there are directions for use. To show how much more some of the federal government is concerned with the toxicity of pesticide poisons, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) describes the word **labeling** to include all other information (including updated product bulletins, brochures, research data, advertisements, flyers, etc.) distributed or given out concerning or describing the pesticide poison. Remember to **read and fully understand all of the labeling and all of the MSDS information** before you apply or allow anyone to apply any volatile poison. But, remember, EPA ignores FIFRA's intent to protect us by ignoring the *inerts*. **No "registered" pesticide poison supposedly may legally be used or recommended in any form that is in conflict with the recommendation for use on the *registered* label.** If that is true - that no *registered* pesticide poison may legally be used or recommended in any form that is in conflict with (any of) the *registered* labels - Then, there virtually are no currently *registered* pesticides in the U. S. for a number of reasons found in Federal 7 USC 136J, including:

1. Virtually all *registered* active ingredient poisons have *inerts* that have an MSDS (labeling)

that is far more restrictive and is in conflict with the *registered* active ingredient and use directions for the entire poison formulation.

2. Virtually all *registered* pesticide poisons are adulterated or misbranded because of all the dangerous *inerts*, contaminants, impurities, transformation and/or decomposition products, etc. they contain.

3. These *registered* products (poisons) are used in a manner inconsistent with their labeling, which includes the *inert* MSDS and/or label.

Conflict includes **any use over** the maximum amount permitted on the EPA *registered* label, any change of use and/or area allowed on the label or to treat any pest not shown on the *registered* poison label. (You may find it *difficult* to get your traditional poison applicator and/or state Department of Agriculture (DOA) to understand this EPA description of *conflict*, however! The EPA developed their "wording of concern" list so pesticide poisons could no longer legally be referred to as being "non-toxic, safe, organic, harmless, low toxicity, biodegradable, natural, environmentally safe or applications are safe around children and pets" because no pesticide poisons' active ingredients are completely safe or non-toxic since they are all designed to kill. (Many DOA's, however, **still** state the **maximum** labeled amount of pesticide poison allowed must be used and...**"protects"**.) The poison *industry* now will *switch* words again and:

REPLACE	**WITH**
chemical	material, product, controls
kill; destroy	control, manage
dangerous	hazardous
safe	can be used safely
EPA approved	EPA has *registered* for use.

If you are dealing with a "competitive IPM provider" understand even the word "natural" is not necessarily what you want in your home, it surely is not a "substitute" word for safe - the venom from a snake is very natural, but not at all advisable. In the late 1990s the EPA listed over 2,518 chemicals that it then allowed manufacturers to add to approximately 45,000 pesticide poison formulations as unregistered *inert* ingredients of *unknown* toxicity. My first edition of 1996 showed the *inert* EPA list as over 1,450 chemicals; obviously, there have been over 1,000 more *inerts* added since my first edition. In a 1/98 report entitled "Worst Kept Secrets: Toxic *Inert* Ingredients in Pesticides," the Northwest Coalition for Alternatives to Pesticides (NCAP) documented over 2,500 substances added to these poisons but not named on the labels. At least 25% of these have been identified as hazardous! Almost 400 unregistered *inerts* are or have been the active ingredients in other *registered* pesticide poisons. Confused? That is what the poison *industry* wants. In the National Academy of Sciences' book Toxicity Testing it estimates the proportion of pesticide poisons (active ingredients) for which testing was adequate to make a human health assessment on was only 10%! Nothing useful was known on 38% of EPA *registered* active ingredients in pesticide poisons and the rest of these *registered* active ingredients in pesticide poisons fell somewhere in between. Unregistered and untested *inerts* are not always inactive and can include many toxins, e.g., asbestos, volatile solvents, stabilizers, emulsifiers and preservatives. Many *registered* synthetic *residual* pesticide poisons are 80% to 99% unregistered *inert* ingredients. In addition, in some cases EPA **still** allows *registered* pesticides to be manufactured using unregistered *recycled* hazardous wastes or to contain unregistered contaminates such as DDT or dioxins.

Farm Chemicals, April 1999 edition, pg. 44, "Inerts under Fire" by Amy L. Fahnestock noted the EPA receives on average 25 new "inert" application requests each year and that the Food Quality Proteciton Act of 1996 requires reassessment of food use "inert" ingredients to ensure they meet the safety requirements of the FQPA. As of January, 1999 EPA's backlog of pending "inert" applications stood at 77, some of which went back to 1995. It will take at least 5 years at the current "pace" to eliminate the current backlog.

EPA's own list notes:

1) Approximately 8 of the unregistered *inert* ingredients allowed by EPA in *registered* pesticide poison formulations are also currently classified by EPA as *inerts* of toxicological concern. This figure on my first edition was 40; apparently the EPA "declassified" 32 of these poisons!) Being on this list means they are: probably human carcinogens, known animal carcinogens, brain or nervous system toxins (neurotoxins), capable of causing other chronic effects or adverse reproductive effects, e.g., teratogens, or acutely toxic at concentrations of one part per million or **less** to some tested species! These unregistered *inerts* include asbestos, carbon tetrachloride (previously banned as an **active** pesticide ingredient), trichloroethylene and 111-trichlorethane which labels state not only destroy ozone, but have caused liver toxic effects in experimental animals. In 1987, EPA indicated at least these unregistered *inerts* must be listed on the old *registered* pesticide labels, but there is no evidence that EPA enforces this policy. These *inerts* may no longer be used in new pesticide poisons. All the other 2,510 or so unregistered *inert* ingredients **still** do not have to be listed on any synthetic pesticide poison labels.

2) Approximately 101 of these secret *inert* unregistered ingredients are considered "potentially toxic inerts/ high priority for testing" because their chemical structure or existing data suggest toxicity. These *inerts* are designated "potentially toxic/high priority for testing" because they are structurally similar to List 1 and are headed for that list as soon as the safety data is compiled. These *inerts* include xylene, cresols, and methyl bromide (a highly toxic fumigant and neurotoxin). Methyl bromide is an extremely toxic fumigant that is easily inhaled and absorbed through the skin. EPA originally had this toxin on List I and **still** considers methyl bromide so dangerous that it permits only certified pest control applicators to use *registered* poisons which contain it as an active ingredient. However, because EPA has also *classified* methyl bromide as an *inert* ingredient, the pesticide poison manufacturers may add it to other *registered* pesticide poisons without even listing it on the label! EPA decided not to require immediate testing for any of these toxic *inert* ingredients. I believe if they did they would have to ban them and unregister (or unextend) a lot of *registered* pesticide poison formulas!

3) Approximately 1,981 of the secret *inert* unregistered ingredients are considered "inerts of unknown toxicity". EPA also **still** does not require testing to determine their toxicity, even though 276 of those *inert* ingredients are or were *registered*, active (pesticide poison) ingredients! Two examples, chlorothalonil and chlorpicrin, are unregistered *inerts* in this list, but are also restricted-use *registered* pesticide poisons only a licensed applicator can purchase or apply. Also included in the list are naphthalene, an insecticidal fumigant that according to U. S. Health and Human Services, can cause brain damage, convulsions and death in children. Chlorothalonil is a fungicide and a probable human carcinogen according to the U.S. EPA; chloropicrin is a fumigant and respiratory tract irritant that can cause asthma, pulmonary edema, bronchopneumonia and death. These unregistered *inert* ingredients also include:

(a) Chemicals known to be toxic (e.g., POEA or polyoxyethyleneamine and zinc). POEA is present in Monsanto's glyphosate formulation, Vision. The POEA is 400 times more toxic to immature salmon than a glyphosate formulation, Rodeo, that contains no POEA. It belongs to a class of surfactants that have been reported to cause adverse gastrointestinal and central nervous system effects and damage to red blood cells. POEA is contaminated with 1,4-dioxane, a chemical that causes toxic effects in the liver and kidneys of humans and various cancers in numerous animal species. Also included in the list are naphthalene, an insecticidal fumigant that, according to the U. S. Health and Human Services, can cause brain damage, convulsions and death in children; chlorothalonil, a fungicide and a probable human carcinogen according to the U. S. EPA; chloropicrin, a fumigant and respiratory tract irritant that can cause asthma, pulmonary edema, bronchopneumonia and death.

(b) Mixtures of toxic chemicals (e.g., chlorinated rubber, "Chicago sludge", and tall oil, toxic by-products of paper manufacturing).

(c) Compounds that would appear to be very problematic because they belong to chemical groups of great concern (e.g., toluene in toluene sulfonate, benzene in strontium dodecylbenzene sulfonate, and cresol in 2,6-di-tert-butyl-4-cresol).

(d) "Blacked-out" chemicals. Approximately 295 inerts have been 'blacked-out" since 1985 while EPA supposedly considers whether to release their names (they **still** are not listed on the *registered* pesticide poison labels). EPA currently is being sued by at least one citizens' group to reveal the names of these *inert* ingredients.

4) (a & b) Approximately 428 "inerts of minimal concern" include unregistered *inert* ingredients considered innocuous and chemicals that may be toxic but whose current use patterns supposedly "will not adversely affect public health and the environment."

5) Unregistered petroleum distillates pose a particular problem. According to EPA, they "...occur in about 80% of all volatile, synthetic pesticide poison formulations as "inerts" and/or actives and pose significant regulatory problems." Certain components of these distillates (the polynuclear aromatic hydrocarbons) have a "high potential" for causing cancer "and the aliphatic content may pose problems as well."

6) If you think volatile *inerts* are quickly dissipated, think again -
Note: 1,1,1-trichloroethane is a synthetic degreaser and a suspected carcinogen. NCAP recently released a report by Holly Knight about the hazards of (unregistered) *inert* ingredients. The report identifies 664 *inert* chemicals that have also been identified as hazardous by federal, state or international agencies.
NCAP's *inert* list notes that the U. S. has over 2,500 *inerts* that pose a wide variety of hazards. Almost 400 unregistered *inert* ingredients are or have been used as the *registered* active ingredients in pesticide poisons. In addition, 209 are considered hazardous air or water pollutants, 21 have been classified as carcinogens, and 127 are occupational hazards. Many have been identified by more than one stature or agency.

The report lists the following examples of what it calls "active inerts" - unregistered *inert* ingredients that are or have been clearly registered in the U. S. for use as **active** ingredients in some *registered* pesticide poisons, but also have now been cleared for use as unregistered *inerts* in other poison products and are listed as *inerts* of unknown toxicity:

American Ind. Hyg. Assoc. - June 1995, noted:

Calculated Half-Life of the Most Common Residential Indoor Air Contaminants [A] - Look for your unregistered, untested inert.

Compound	*Rate Constant (cm^3 $molecules^{-1}$ sec^{-1})*	*Half-Life at 100 ppb O3*
n-Hexane[B] n-Hexane[B]	~10-23	>880 years
n-Heptane[B]	~10-23	>880 years
Cyclohexane[B]	$\sim 10^{-23}$	>880 years
Methylcyclohexane[B]	$\sim 10^{-23}$	>880 years
Toluene	$<10^{-20}$	>0.9 years
m,p-Xylene	$<10^{-21}$	>9 years
Trichlorethylene[B]	$\sim 10^{-20}$	0.9 years
1,1,1-Trichloroethane	$<10^{-23}$	>880 years
Tetrachloroethylene[B]	$\sim 10^{-22}$	880 years
Isobutanol[B]	$<10^{-20}$	>0.9 years
Formaldehyde	$<2 \times 10^{-24}$	>4400 years
Acetaldehyde	$<10^{-2}$	>0.9 years
n-Hexanal[B]	$<10^{-21}$	>9 years
Styrene	2×10^{-17}	3.9 hours

[A]List compiled for residential homes in report World Health Organization, *Indoor Air Quality:* Organic Pollutants, (EURO Reports and Studies No. 111), Copenhagen; WHO, Regional Office for Europe, 1989.
[B]Estimated rate constant and half-life on chemical similarities to tested compunds.

- Chlorothalonil has been classified as a probable human carcinogen by a U. S. EPA scientific Advisory Panel.
- Coal tar has been listed as a known human carcinogen by the International Agency for Research on Cancer.

- Chloropicrin is a severe respiratory tract irritant and listed by U. S. EPA as a Restricted-Use Pesticide.

As another example, the unregistered *inert* ingredient naphthalene is the *registered* active ingredient in 16 currently *registered* products, primarily moth repellents. It is also cleared for use as an unregistered *inert* and is considered an "inert of unknown toxicity" by the U. S. Environmental Protection Agency (EPA). EPA says this despite the fact that the Agency for Toxic Substances and Disease Registry (ATSDR) first published a toxicological profile of this toxic chemical in 1989. The most frequent manifestation of napthalene poisoning is hemolytic anemia (destruction of red blood cells), which can lead to varying degrees of jaundice and liver enlargement. In children, severe jaundice resulting from napthalene-induced hemolysis can result in permanent neurological damage, motor disturbances, convulsion an death. Naphthalene is also classified as one of the 100 substances most commonly found at Superfund sites that pose "the most significant potential threat to human health due to their known and suspected toxicity to humans."

NCAP had filed a number of formal requests with U. S. EPA under the Freedom of Information Act in an attempt to find out how many pesticide poisons contain certain known or suspected carcinogens, active *inerts* and/or endocrine disrupters. Many of the requests are **still** being processed; however, preliminary findings indicate that hazardous inerts are sometimes widely used in pesticide poisons. For example, cristobalite, a known carcinogen (according to the International Agency for Research on Cancer), is an unregistered *inert* ingredient in over 1,500 *registered* pesticide poisons!

NCAP's report calls for full label disclosure of all toxic ingredients in pesticide poisons. Consumers and workers have a right to easy access to such information so they can make informed decisions and better protect themselves. NCAP also recommends that mixtures of active and *inert* ingredients found in pesticide poisons be assessed for a wide range of (combined synergistic effects including) teratogenicity, adverse reproductive effects and mutagenicity. **I believe the entire toxic brew must be registered and tested as it is being used.**

The Northwest Coalition for Alternatives to Pesticides is a five-state, grassroots membership organization that promotes sustainable resource management, prevention of pest problems, use of alternatives to pesticides and the right to be free from pesticide exposure.

Copies of the report are available on NCAP's web page, http://www.pesticide.org/.

Other North American and European countries may have different lists of unregistered *inert* ingredients, but they also currently **still** treat *inerts* as trade secrets -- their presence is not listed on the *registered* pesticide poison label and they are not tested for the damage or health problems they may cause. **To call these dangerous toxins *inerts* is real junk science!**

The Significance of These Unregistered *Secret* Pesticide Poison *Inert* Ingredients

The fact that *registered* pesticide poison formulations contain secret, untested and very toxic compounds that can contaminate for over a thousand years as *inerts* has important and dangerous health and environmental consequences. As long as a *registered* pesticide label says, "Inert ingredients...X%," then neither can any governmental agencies nor can any private applicators know what actually is being sprayed. They, therefore, cannot honestly even pretend to know where these volatile poisons may travel or what damages these volatile poisons may cause. Your right to know about your exposure to toxic chemicals is denied every time you encounter the drift, residues, or contamination or the synergisms of a volatile pesticide poison formulation containing all of these secret *inert* ingredients. **Therefore, none of these poisons are truly *registered*.**

"Experts" cannot truly even begin to evaluate or assess the health or environmental risks of any volatile, synthetic pesticide poison until they can base their assessment on testing of **all** the chemicals in the full formulation, as well as the full information itself including all of the contaminants, metabolites, transformation and decomposition products. In the United States and many other countries, adequate testing for all the chronic and reproductive effects, birth defects and/or cancer for even some of the *active* ingredients in pesticide formulations has only just begun - no one has even begun looking at the dangers the synergistic effects these terrible poisons may cause. When a poisoning occurs, obviously, medical professionals will not be able to begin to provide appropriate treatment or even properly diagnose your condition, since they have no way of knowing the total exponential dangers of all of the chemicals (poisons) present in the formulation. **I believe that to allow the poison *industry***

to continue with "business as usual" is far worse than murder - it is genocide!

Labeled use of *registered* pesticide poisons in the U. S. has already left behind a cascade of pest resistance, environmental, monitoring, contamination and health problems. Thousands of farm workers have been and are poisoned annually in the U. S. Millions of people in the Midwestern U. S. now drink water contaminated with pesticide poison *residues*. Our food supply is allowed by law to contain significant *residues* (contamination) or "tolerance levels" of nearly 325 different *registered* pesticide poisons and roughly 2500 unregistered *inert* ingredients at levels that, obviously, were not set to protect public health, because our "government" has not always had the authority to weigh health risks against economic "benefits" when setting poison "tolerances". We spend billions of dollars annually to monitor *residue* (poison) levels in our food and potable water with little assurance this *testing* will even begin to control hazardous contamination levels. Pesticide poison concentrations in our ambient air are **still** completely unregulated and thousands and thousands of tons of dangerous pesticide poisons have been "registered". Pesticide poisons are *regulated* by a diverse set of statutes that protect the poison producers more than the public! When in doubt - delay, until the poison damage is clearly evident - then call the facts "Junk science"! This type of *regulation* ensures dangerous, *registered,* pesticide poison contamination will continue to threaten and even destroy us. The burden of unbiased scientific proof of safety for the **entire** *registered* pesticide product should lie with the poison "industry" and not the public! All knowledge of all suspected and known pesticide poison risks/dangers of the entire toxic "brew" should be made public by the government and the pesticide poison producers. **Poison producers who continue to pollute and *regulators* who continue to create contamination should all be put in prison.** A 1995 survey found traces of 22 different organochlorine pesticide poisons, including DDT, chlordane and endosulfan and in (oily) tree bark gathered from 90 sites around the globe!

Study links organic solvents on the job to birth defects - 3/24/99 - The Associated Press

CHICAGO — Women exposed to certain solvents on the job are 13 times more likely to give birth to a baby with major defects, researchers reported today in the Journal of the American Medical Association. The researchers also found an increased risk of miscarriages, low birth weight, fetal distress and prematurity. The study looked at what are called organic solvents, which are used in many industries and trades. The chemicals—found in paints, pesticides, adhesives, lacquers and cleaning agents—have been linked to a host of physical and mental problems in adults. Problems among women exposed to organic solvents were most often found amont those who worked in factories, as laboratory technicians, in graphic design or printing and as chemists, according to the study. The study was led by Dr. Sohail Khattak of the Hospital for Sick children in Toronto. The researchers-looked at 125 pregnant women who had been exposed to organic solvents during their first trimester between 1987 and 1996. They were compared with 125 pregnant women not exposed to solvents. Of the group exposed to solvents on the job, 113 gave birth, eight suffered miscarriages and four had abortions. There were 13 major birth defects and five minor ones among their babies.

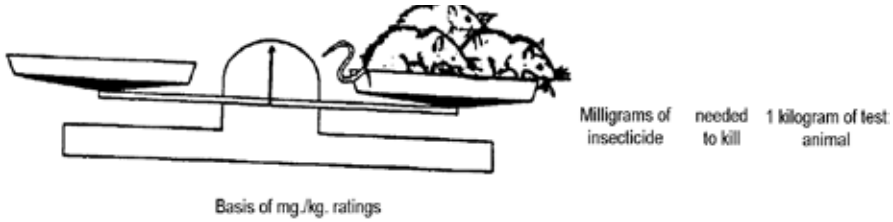
The use of unregistered, untested, secret, toxic, *inert* pesticide ingredients is socially unjust, morally wrong, and deadly dangerous. It must be stopped. Until it is stopped there cannot legally or ethically be any *registered* pesticide poisons!
USUALLY THE ONLY HEALTH HAZARD INFORMATION YOU WILL RECEIVE IS AN LD_{50} VALUE!
There is, however, no *official* LD_{50} value and the *values* can and do vary greatly for each toxin depending on when and which laboratory conducted the *independent* (oral) test only on the active ingredient for the formulator.

Criteria for comparing only the active ingredient in pesticide products by toxicity established by federal *regulation* include the following categories based on the acute **oral** LD_{50} of only the active ingredient:

Acute Oral Dose Needed to Kill an Average Man

Highly toxic (Category I)	LD_{50} - 50	mg/kg or less	A taste to a teaspoon
Moderately toxic (Category II)	LD_{50} - 50-500	mg/kg	1 - 2 tablespoons
Slightly toxic (Category III)	LD_{50} - 500-5000	mg/kg	1 ounce to 1 pint
Relatively non-toxic (Category IV)	LD_{50} - 5000+	mg/kg	1 pint to a quart or more

Note: Oral toxicity is, obviously, not the way most of us are exposed to volatile, synthetic pesticide poisons, so this health hazard *information* is basically useless!



Synthetic pesticide poison formulas are *registered* one active ingredient at a time, to gather the *detailed* information even on where only the active ingredient in the poison is to be used, where it will move and come to rest, how it will contaminate our food, water, people, and soil, its own toxicity (acute) to people and other non-pest/target species may easily cost millions of dollars. Most have simply had their old *registrations* "extended". Understanding the combined effect of tens of thousands of separate licensed (*registered or extended*) active ingredients and their "secret inert" ingredients, along with all their possible unregistered combinations and dangers, especially chronically is impossible! Note: Acute active ingredient pesticide poisonings are an important cause of morbidity and mortality. Although available data are inadequate to quantify with certainty the extent of the total toxic problem, there are old estimates that suggest that each year world wide there are at least 3 million acute, severe, *registered* pesticide poisonings with 220,000 deaths. (Recent [1998] studies put the figure at an estimated 5 million people acutely poisoned by pesticide exposure each year just in the developing countries.) Much of this contamination/ health burden is borne by developing countries, where 99% of fatal *registered* pesticide poisonings occur and where 25 million episodes of intoxication occur annually among agricultural workers alone. But the problem is not restricted to this area of the world; for example, the estimated incidence of pesticide-related illnesses in the USA is between 150,000 and 300,000 a year! Over one billion pounds of *registered* pesticide poisons are used annually in just the U. S. per EPA's 1996 annual report. On Earth Day 4/21/98 Democratic Vice President Al Gore announced the new environmental right-to-know initiative. Gore said too little is known by the public about the health effects of more than 70,000 chemicals in common use in the U. S. in manufacturing and other industrial activities. "Some can be extremely dangerous and many are never tested for toxicity. On top of that, communities are too often in the dark about the chemicals (poisons) released." Under the new initiative, the EPA also plans to identify industrial chemicals that pose particular risk to children and chemicals that tend to accumulate over many years in humans.

World production and use of volatile, *registered,* synthetic pesticide poisons continue to rise, with a 10-fold increase in pesticide poison production between 1955 and 1985. One class of pesticide poisons, the organophosphate insecticide poisons, had already become increasingly common and responsible for human toxicity. The organophosphate poisons have well-documented acute systemic effect, largely mediated through the suppression of the neuroenzyme acetylcholinesterase and resultant accumulation of acetylcholine. In addition to acute neurological effects, which occur within hours of overexposure, certain organophosphate poisons are well known to be associated with a delayed peripheral neurological syndrome (also known as organophosphate-induced delayed neuropathy), which may occur 2-3 weeks later. In the late 1990s a paralytic process (the so-called intermediate syndrome), occurring 24-96 hours after acute poisoning, has been described in a small series of patients. While case reports and case series suggest that acute organophosphate intoxication can cause long-term neuropsychological sequelae, there has been few epidemiological studies that have addressed the unresolved question of whether chronic effects result from acute non-fatal intoxication. **The reason for all the**

increased production and use of pesticide poisons is very simple - they do not *control* resistant pests! Pestisafes® and Intelligent Pest Management® alternatives, on the other hand, do not create the same risks and they actually control even resistant pests better.

POISON PRODUCTS AVAILABLE FOR PEST CONTROL

In 1972, Congress finally realized that despite extensive labeling and use instructions, the dangerous, *registered,* active ingredients in pesticide poisons were being misused on such a large scale that serious effects were happening to man and our environment. FIFRA was then amended to require the active ingredients in these pesticide poisons be *registered* and classified for *general* or *restricted* use. There are two basic types of pest control products available:

> **Restricted Use -** For sale to and use by only licensed certified professionals and pest control operators. (Any pesticide poison known to be restricted should always be avoided anywhere the public can come in contact with it.) Restricted-use pesticide poisons are restricted because their use "may" (even when used exactly as directed) cause unreasonable adverse effects on the environment including health problems just because of their **acute** dermal or inhalation toxicity.
>
> **General Use** - For sale to and use by anyone.

Although we at Get Set are licensed as professionals to use the restricted poisons, we prefer to **only spot apply** general use (non-volatile) products **(and then only as a last resort)** which we purchase at the wholesale level and generally buy in a concentrated form of the chemical. The concentrate is then mixed with a carrier such as water just prior to application. The *trick* is knowing how and where and when to apply even the general-use (non-volatile) pesticide poisons "safely". We prefer to first use non-toxic Pestisafes® and other alternative intelligent pest management® techniques and only use (non-volatile) pesticide poisons as a **last** resort. We prefer common sense rather than the *professional* maximum use of volatile synthetic pesticide poisons! We have proven our Pestisafes® work better than pesticide poisons and are safer because the entire product or technique is either non-toxic or made up of only Generally Recognized As Safe (GRAS) materials. **We do not believe that any pesticide poisons are correctly *registered* , because only the active ingredients have been *tested* or *registered*. We, therefore, believe that everyone is using unregistered and untested pesticide poisons. Therefore, we are not *registering* "our" Pestisafes® that do not contain any recognized dangerous materials as either active or *inert* ingredients.**

PESTICIDE CHOICE - DUTY TO WARN

We believe **you** should first be made aware of any and all known (or suspected) hazards and risks connected with any *registered* pesticide poisons or alternatives before they are even spot applied or used in or on your property. First, we will ask you if anyone is pregnant, previously or currently ill, taking medication, elderly, under 1 year old, has chemical sensitivity, asthma or any breathing difficulties, etc., before we even think about using any non-volatile poison, but because there are many pesticide choices (some are *safer* than others) and each person has different needs and reactions (especially to concurrent or cumulative exposure), we believe **the final choice should be yours.** We will not, however, under any circumstances use any volatile, restricted-use pesticides or break the general use label (the federal law) or our own safety policies when applying even spot application of (non-volatile) pesticides in order to safely control your pest problems. Before you allow any poison to be applied in your home, yard or building, ask for a copy of the label and the material safety data sheet (MSDS) and all other available labeling and product bulletins; then read them all and check the active ingredient against the active ingredients in the next few pages. Note: There is a total of approximately 865 currently *registered* active pesticide ingredients, but no one at EPA can give you an accurate *count* of this rapidly shifting number. The list of the following ingredients is only of the more common, active ingredients and a few other components. **Don't forget to also look at all of the MSDS's for all of the unregistered *inerts*, contaminates, diluents, emulsifiers, propellants, spreaders, stickers, surfactants, wetting agents, metabolites and/or transformation products too!**

On October 11, 1996, the Northwest Coalition for Alternatives to Pesticides (NCAP), PO Box 1393; Eugene, OR 97440 (phone) (541) 344-5044 (fax) (541) 344-6923 (e-mail) info@pesticide.org and the National Coalition Against the Misuse of Pesticides jointly won a Freedom of Information Act (FOIA) lawsuit against the US Environmental

Protection Agency (EPA). The American Crop Protection Association (ACPA), a pesticide manufacturer's trade organization, intervened in the case. The court declared that the identities of the "inert" ingredients in pesticide products cannot be claimed as trade secret and in most cases are not confidential business information. The groups were represented by the Western Environmental Law Center in Eugene, Oregon. The ruling was issued by Federal District Court Judge James Robertson in the District of Columbia (941 F.Supp. 197). **Way to go NCAP!**

The Judge ordered EPA to disclose the common name and chemical abstract service (CAS) number for 20 of the 24 "inert" ingredients found in the following six herbicide poisons: Aatrex 8OW; Weedone LV4; Roundup; Velpar, Tordon 101; and Garlon 3A. For two "inert" ingredients, the judge ordered public disclosure of the common name but not the CAS number. The judge did not name all of the *(inert)* ingredients in his ruling. Rather he placed them in an attachment under court seal. This action was taken in case the ruling was appealed. In November, ACPA asked the court to clarify and amend its judgment. On November 27, 1996, Judge Robertson denied the motion except to change the trade names to common names of two ingredients found in Velpar. By February, 1997, it became clear that none of the parties was going to appeal. By March 8, 1997 NCAP still had not received the actual names of the ingredients from EPA.

In bringing this lawsuit, NCAP learned quite a bit about the way to find out the identities of pesticide poison ingredients, including disclosure on Material Safety Data Sheets (MSDSs), from articles in the published literature or other public documents, by asking the companies themselves, and by reverse engineering two formulas themselves at a private laboratory. This is what we now know about the ingredients in the six herbicide poisons and how NCAMP and NCAP learned their identities.

Aatrex 8OW (active ingredient: atrazine). The court indicated there are four "inert" ingredients in this product. Crystalline silica and nuisance dusts are noted as ingredients on Ciba-Geigy's MSDS.

Weedone LV4 (active ingredient is the butoxyethyl ester form of 2,4-D). The court listed three "inert" ingredients in this product. According to the court., two of the ingredients appear on EPA's statement of formula with trade names instead of common names with CAS numbers. Because the common name CAS numbers do not appear on the statement of formula, the judge said there was nothing to disclose under FOIA. As EPA reregisters active ingredients, it will require industry to "update" the statement of formula and provide the common chemical name and CAS# for all ingredients in the product. "Trade names" will disappear off the statements of formula as EPA completes reregistration of pesticide active ingredients. Rhone Poulenc's MSDS lists Weedone LV4 as having petroleum distillates containing naphthalene. NCAP had this product reverse engineered at a private lab that found 1-phenyl-1-hexanone and seven different types of benzene derivatives (petroleum distillates), naphthalene, a surfactant similar to dodecyl benzene sulfonate, and some inorganics similar to sodium carbonate.

Roundup (active ingredient is glyphosate). The court identified four "inert" ingredients in this product. Monsanto's MSDS reveals that Roundup includes the "inert" ingredient ethoxylated tallowamine (CAS# 61791-26-2). Monsanto sent NCAP a letter telling all of the Roundup ingredients and their percentage of weight in the formula on the same day that they told EPA that all product ingredient information was to be withheld from us because it was trade secret/confidential business information. (The court agreed with us that information cannot be trade secret or confidential if it is shared.) Monsanto's letter to NCAP says the ingredients in Roundup are the isopropylamine salt of glyphosate (active ingredient), water, the ethoxylated tallowamine surfactant, related organic acids of glyphosate, and excess isopropylamine. Published medical journal articles have revealed the identities of Roundup's surfactant since at least 1988.

Velpar (active ingredient is hexazinone). The court said there are four "inert" ingredients in this DuPont product. From an USDA Forest Service vegetation management environmental impact statement (Pacific Northwest Region 6, 1988), NCAP knows that Velpar contains some of the following ingredients: acetic acid, diisopropyl naphthalene sulfate, ethanol, hydroxypropyl methyl cellulose, hydrous sodium silico aluminate, lactose, polyethoxylated dinomyl phenyl, potassium dihydrogen phosphate, sodium alginate, sodium benzoate, sodium sulfosuccinic acid, sodium tallowate, sugar, and water.

Tordon 101 (active ingredients are a mixture of the triisopropanolamine salt of 2,4-D and picloram). The court said there are five "inert" ingredients in this product. DowElanco responded to NCAP's letter requesting the "inerts" by telling us the ingredients and their percentage by weight in the formulations for Tordon 101 and Garlon

3A (the other DowElanco product, see below). Tordon 101 has water, ethylenediamine tetraacetic acid (EDTA, a chelating agent), a polyglycol non-ionic surfactant, and isopropanol. The court said the "polyglycol" name had to be public, but the CAS number could be withheld because DowElanco had demonstrated that revealing that information would cause the company "substantial competitive harm."

Garlon 3A (active ingredient is the amine form of triclopyr). This product has four *inert* ingredients according to the court, and, similar to Tordon 101, the polyglycol in this product had to be disclosed while the CAS# did not. DowElanco's MSDS lists water (CAS# 7732-18-5), ethanol (CAS# 64-17-5) and triethylamine (CAS# 121@) in the product. In its letter, DowElanco told NCAP that Garlon 3A had water, EDTA, polyglycol nonionic surfactant, and ethanol. NCAP had this product reverse engineered by a private lab, and the lab found that in addition to the active ingredient the product contained water, ethanol, triethylamine, two components that appear to be breakdown products of the active ingredient, an alkoxypoly(ethylenoxy) alcohol-based nonionic surfactant, and EDTA. DowElanco also revealed the identities of the "inerts" in Garlon 3A to Lane County (Oregon) Public Works Department in a letter. It did this after Public Works requested the information so it could tell the public all the ingredients that were in the products that the county was spraying along public roadways.

NCAP and other groups are submitting new Freedom of Information Act requests to EPA to get information about "inerts" in more products and to see how EPA will handle the requests now that the court has ruled. **We encourage others to submit requests for *inerts* as well.** "Inerts" are not biologically, chemically and/or toxicologically inert. EPA now has allowed the poison "industry" to call "inerts" - "other" ingredients. We are exposed to these "other" ingredients or "inerts" on a daily basis. We have the right to know their identity and dangers. We also have the right to demand these toxins be adequately tested; to know their synergistic and chronic health effects, and to have them all included on the "risk"/benefit analysis and LD_{50} tests. EPA has historically only looked at the approximately 900 active ingredients instead of looking at over 20,000 pesticide products. NCAP noted in Fall of 1999 in the Journal of Pesticide Reform alternative formulations may boost this number to 60,000. Pesticide manufacturers have the freedom to adjust ingredients based on market conditions, availability and other factors without close regulatory oversight. If "inerts" are identified on the MSDS, it is usually only a partial list.

Journal of Pesticide Reform/Winter 1999, Vol. 19, No. 4: News from Around - Pesticides and Deformed Frogs: New Research Suggests a Link

Frogs made headlines in 1995 when students from a middle school in southern Minnesota found an unexpectedly large number of deformed frogs.[1] Since that time, surveys have surveys have found frog deformities throughout the U. S., but they are most common and severe in Minnesota and Vermont.[2] Recently, scientists from the National Institute for Environmental Health Sciences, working with environmental agencies in the two states, showed that a mixture of pesticides and naturally occurring chemicals was "primarily responsible" for the deformities.[2,3]

The researchers first tested water from ponds in Minnesota and Vermont. They showed that water from ponds where a high number of deformed frogs had been found caused defects in a standard laboratory teratology (ability to cause birth defects) assay using the South African clawed frog.[2]

Then the researchers identified exactly which chemicals were responsible for birth defects.[3] The mixture of chemicals that caused the birth defects included the fungicide maneb; the insecticides permethrin, aldoxycarb and azinphos ethyl;[4] as well as desisopropylatrazine, a break down product of the herbicide atrazine.[5] Maneb and permethrin "were more teratogenic than the other compounds."

The authors of these studies suggest that the increased numbers of frog deformities may arise because these chemicals disrupt thyroid function. This connection leaves them "intrigued"[3] by reports of an association between pesticide exposure and thyroid cancer rates in people in Minnesota.[3] – Caroline Cox

1. ABC News, 1997, Nightline: The frogs - what are they really telling us? ABC Transcript #4195.
2. Fort, D. J. 1999. Effects of pond water, sediment and sediment extracts from Minnesota and Vermont, USA, on early development and metamorphosis of *Xenopus. Environ. Toxicol. Chem.* 18: 2305-2315.
3. Fort, D. J. 1999. Progress toward identifying causes of maldevelopment induced in *Xenopus* by pond water and sediment extracts from Minnesota, USA. *Environ. Toxicol. Chem.* 18:2316-2324.
4. Calif. EPA. Dept. of Pesticide Regulation. USEPA/OPP Chemical Ingredients Database. http://www.cdpr.ca.gov/docs/epa/epachem.htm.
5. Aizawa, H. 1989. *Metabolic maps of pesticides.* Vol. 2. San Diego CA: Academic Press. p.214.

Selected *Inert* Ingredients that are also *Registered* as Active Ingredients - NCAP

"Registered" Pesticide Poison Misapplications. Farm Chemicals, March, 1998 issue, noted that Farmland Insurance Co. has identified 5 areas of chemical (poison) misapplication: (1) wrong field application and (2)

spray drift account for 41% of all farm misapplications; (3) wrong chemical mix, wrong product recommenda-

		EPA List	Current	Cancelled		
***Inert* Ingredient**	**CAS number**		**regist.**	**regist.**	**Unknown**	**Some typical products**
Barbasco (Rotenone)	83-79-4	3	88	666	**	
2-Benzyl-4-chlor ophenol	120-32-1	2	89	376	**	germicides, disinfect
Benzyladenine	1214-39-7	3	24	4	3	plant growth regulator
Butoxypolypro-p ylene glycol	9003-13-8	3	88	260	**	fly, flea, lice, tick
Calcium hypo-chlorite (SARA)	7778-54-3	3	138	351	**	pools, toilets
Cuprous oxide/cop-per oxide	1317-39-1	3	209	550	**	anti-fouling
p-Diisobutylphen-o xyethoxyethyl dimethyl benzyl ammonium chloride	121-54-0	3	21	140	**	algae, disinfect, toilet garbage can
Distillates (petro-leum) hydro-treated heavy paraffinic	64742-54-7	2	119	6779	**	roach, mite, weed, ant, tick, larvae, rodent, flea
Glutaraldehyde	111-30-8	3	64	35	0	microbes
Isothiazolone, 2-methyl-	2682-20-4	3	66	33	**	ind. microbicide, nipacide, slime
Napthalene (SARA)	91-20-3	3	16	85	0	moth, flea, tick, mole
Phosphoric acid (SARA)	7664-38-2	3	68	389	**	disinfect, germ, bact, toilet
Pipernoyl butoxide	51-03-6	3	2101	5747	**	flea, tick, mite, wasp, mosquito
Quaternary am-monium cds,	68424-85-1	3	509	1745	**	algae, disinfect, germ, pool, sanitizer, microbe, slime

Number of "inerts" also registered as active (through Q in Alphabet): 302
of that 302, number that are EPA's List 3, "Inerts of Unknown Toxicity": 206 (approx. 66%)

Number with current registration >5: 64
Number with current registration >25: 28

Number of active inerts that must be reported under SARA: 13 ** = uncounted

tion, contamination, (4) off-label application and (5) equipment and calibration malfunction. Pest control using poisons in yards and buildings was not included in this report. All of these terrible misapplications are, obviously, not factored in the risk/benefit analysis. **Chapter 10 has EPA's "Top 10" list of pesticide poison infractions.**

YOUR SAFETY/PROTECTION

We have lead the pest control industry in safety and environmental concerns. We believe all our pest control technicians must first pass the State certification test for pest control operators - before they apply **any** pesticides or do any control work. Rather than have them depend on poison as the only pest management strategy and only operational *tool* as our *competitors* still do, our technicians must also demonstrate competency, knowledge of entomology, construction, biology, chemicals and alternative methods of safe, efficient Intelligent Pest Management® techniques and Pestisafes®. In addition to knowing *safer* general pesticide application techniques, we continually provide our applicators with up-to-date environmental, safety and effective alternative pest control information. We also advise OUR CUSTOMERS about pests, products, risks, dangers, concerns, safety procedures, odor dissipation and detoxification techniques. Even though we will only use Pestisafes®, alternative natural or general-use pest control products and/or non-chemical (non-volatile) alternatives **everyone must be out** of the property **before we begin any control program! All** pets must also be out, **all** aquariums shut off and covered and **all** of our instructions (written and/or oral) must be followed **before** safe re-entry is allowed. A door hanger will also be posted on the entrance notifying everyone that we have done pest control here, what toxin (if any) we have used, and when we feel it is it is safe to re-enter and if necessary thoroughly air out the home before entering and staying inside.

QUESTIONS

The Buffalo News/Thursday, June 4, 1992

If you have any questions, need a copy of a label, the labeling, the MSDS, or want to know more about your pest, pesticide, Pestisafe® or our true integrated pest management (IPM) treatment procedure(s), ask your technician or call our office at (616) 677-1261.

TRUE IPM OR INTELLIGENT PEST MANAGEMENT® INTRODUCTION

In Failing Health: Pesticide Use in California Schools published by the California Public Interest Research Group, researchers summarized the pesticide use in 46 California school districts. Almost 90% of the districts use pesticide poisons identified as carcinogens, reproductive toxins, hormone mimics and/or neurotoxins!

In October 1996, San Francisco adopted an ordinance immediately banning the use by the city of San Francisco of pesticides known to be carcinogens or reproductive toxins, reducing pesticide poison use by 50 percent by 1998 and eliminating pesticide poison use by city departments by the year 2000. The legislation, among the toughest in the nation, stemmed from a newspaper analysis revealing that three dozen of the sixty pesticide poisons used by the City's Parks and Recreation Department were probable or possible carcinogens or otherwise potentially hazardous to humans.

Finally on 2/10/98 the Board of Education for the City of San Francisco responded and voted unanimously to strictly limit the use of pesticide poisons in schools. This expanded the policy enacted one year ago which severely limited pesticide poison use in San Francisco public buildings and parks.

Pest Management at the Crossroads (1997), Consumers Union, Yonkers, NY noted that more than 500 insects, 170 weeds and 150 plant diseases are now resistant to one or more pesticide poisons - just another reason not to use them. True Integrated Pest Management is the fitting together of all pertinent data, constant monitoring and reinspecting, methods, and common sense to safely control a pest problem. Methods including Pestisafes®, natural enemies, e.g., pathogens, parasites and predators, cultural practices, mechanical alteration, microbial agents, genetic manipulation, exclusion, pheromones, traps, growth inhibitors, temperature controls and even (non-volatile) pesticides which all become mutually augmentative instead of individually operative.

The Author believes if *we* must *error* when we use any poison or Pestisafe® we must error on the side of **safety** and not on the side of control. We would rather spend additional time and money initially, by thoroughly inspecting and carefully designing a specific control program and later, if we have to come back, we will retreat/remove your property's pests again (if necessary) rather than make anyone or anything sick or worse by routinely/initially applying the **maximum** amount of volatile *(registered)* poison *legally* allowed. We believe **your safety is the most important consideration** and that we should not create a worse problem for you than the pests we are attempting to control. We have not and will not even spot apply **any** (non-volatile) pesticide poison unless there is an obvious need - nor will we break the general use pesticide poison label or knowingly endanger your environment in order to control your pest problem. The following descriptions of the **acute** (one time) exposure effects caused by some of the more common active and *inert* ingredients in poisons on the market today (and *yesterday*) should help you decide to get rid of your household pests without using any of these dangerous poisons. Many volatile, synthetic pesticide poisons are also very persistent in the environment in lethal or disruptive concentrations long after the *need* for their toxic *qualities* have passed. Remember as you read the partial list of synthetic poisons, some have already been *banned* or *voluntarily* withdrawn, yet they are **still** here persisting and contaminating this earth and its occupants, e.g., aldrin, DDT, chlordane, heptachlor, etc. These poisons all *had* two things in common: **First, their active ingredients were all *registered (not approved)* by the Environmental Protection Agency (EPA), and second, the State Department of Agriculture (DOA) said to the very end - these toxic poisons and carcinogens would *protect* you and me even though none of these poisons or their *inerts* had ever been adequately tested and the *registered* labels for only their active ingredients became more and more restrictive!**

DRUG INTERACTION

A man names Thomas Latimer was a successful petrochemical engineer and vigorous, athletic man in his 40's. According to an article in *The Wall Street Journal*, one day in 1985 Mr. Latimer went out to cut his grass, which, earlier in the day, he had fertilized with a product containing diazinon, a pesticide poison used every day by millions of homeowners. By the time Mr. Latimer had finished his lawn chores that day, he felt dizzy and nauseated, and he had a severe headache. Weeks later he was still very ill, and has not been well since then. **The use of lawn mowers should be discouraged after a pesticide poison application as the lawn mower blows the poison all over the neighborhood!**

Toxicologists, neurologists and neuro-opthalmologists who examined Mr. Latimer all concluded he had been poisoned by the pesticide poison in his lawn fertilizer, which caused him to have seizures and other nervous system disorders.

Why did Thomas Latimer suffer these consequences when so many others use this type of fertilizer with seeming impunity? At the same time he was exposed to the pesticide-containing lawn fertilizer, Mr. Latimer had also been taking Tagamet®, the brand name of the drug cimetidine, to treat an ulcer. Cimetidine interferes with the ability of the liver to detoxify foreign substances. Because they are not detoxified, those poisonous substances can even more readily accumulate in the body, and their harmful effects are intensified. Over-the-counter products, e.g., Tagamet and Zantac, have other significant side effects in some men including decreased sperm counts and impotence. **Do you really believe that the poison *industry* asks if anyone is taking Tagamet or Zantac before they spray their volatile poisons?**

Everyone depends upon his or her liver for protection from hostile elements in the environment. The liver is the body's first barrier of defense against toxins which enter the blood stream. If your liver ceased to function, you would quickly become very ill from the accumulation of exo- and endotoxins to which you are exposed every day. In Mr. Latimer's case, because the Tagamet he was taking prevented his liver from doing its job efficiently,

he was extremely vulnerable to the toxic chemicals (poisons) in the fertilizer. *The Physician's Desk Reference,* which describes the actions and side effects of all the drugs doctors prescribe, points out that Tagamet can make it more difficult for the liver to metabolize certain other drugs and chemicals, delaying the elimination of those substances and increasing their levels in the blood. This means that taking one medication can suppress the detoxification of other substances, and the blood levels of those substances can synergistically rise to toxic levels.

Epiletics take dilantin to control their seizures. Pesticide poison exposure can greatly harm people taking dilantin. **Do you really believe the poison industry asks if anyone is taking dilantin before they spray their poisons?**

The popular antihistamine Seldane® can also cause life-threatening health problems when it is taken in combination with some antibiotic medications or by individuals with liver problems. The reason Seldane, like cimetidine and alcohol, interferes with the ability of the liver to detoxify and excrete toxins. **Do you really believe the poison *industry* asks if anyone is taking Seldane before they spray their volatile poisons?**

Even the common pain medication acetaminophen, which is the active ingredient in over-the-counter drugs like Tylenol®, becomes much more toxic when it is taken by someone who is also consuming large amounts of alcohol, because alcohol alters the liver's detoxification ability and makes acetaminophen more toxic. **Do you really believe the poison *industry* asks if anyone is taking medication or is drinking alcohol before they spray their volatile poisons?**

The point of these examples is that your liver, intestinal tract and kidneys play an extremely important role in protecting you against substances inside your body or toxins outside your body that can cause metabolic poisoning and acute or chronic symptoms of illness. Thomas Latimer's case is an example of the combined or synergistic effects of poison toxicity. In the vast majority of cases, the effects are far more subtle, poisoning the body's energy-producing ability over a period of months or years. The results of this slow poisoning include the fatigue, low energy, muscle weakness, headaches, morning stiffness, and pain experienced by the walking wounded. **Do you really believe the poison *industry* asks or is even remotely concerned what all the possible synergistic combinations, sensitivities, contraindications, allergies, metabolites, breathing problems, health problems, medications, etc. are for all of the people and/or what they may be exposed to before they spray their volatile poisons? Remember, they simply have ignored the *inerts* since the beginning!**

On 3/26/99, PANUPS noted: A new study in the journal Toxicology and Industrial Health identifies significant shortcomings in toxicological testing protocols currently used to register pesticides in the United States. The five year study suggests that combinations of commonly used agricultural chemicals in concentrations that mirror levels found in groundwater can significantly influence immune and endocrine systems as well as neurological health.

"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 Porter, lead author and University of Wisconsin professor of zoology and environmental toxicology. "Although they frequently co-occur, tests for these compounds in combination are very rare."

The experiments performed by Porter's group suggest that children and the developing fetus are most at risk from 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 study focused on three commonly used farm chemicals: aldicarb, an insecticide; atrazine, an 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 "registered" 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.

The apparent influence of "registered" pesticide and fertilizer mixtures on the endocrine system, the system of glands such as the thyroid that secrete hormones into the bloodstream, may also result in changes in the immune system and affect 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.

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 in the U.S. are fundamentally flawed. The study listed six important deficiencies in current testing protocols:

★ Current tests do not require chemicals to be tested at low dose pulse exposure. Pulse doses of low levels of pesticides at critical times when developmental windows are open and body defenses are unable to respond may lead to permanent changes in a fetus. It is important to remember that the embryo has almost no defensive systems against chemicals and no feedback systems to modulate chemical concentrations early in its development.

★Toxicological tests have typically focused on cancer and mutation endpoints and have not looked at other critical concerns such as endocrine and immune system effects that can occur.

★Standard toxicological tests only evaluate one route of exposure at a time, rather than all possible routes (oral, cutaneous and respiratory). Frequency and volume are not considered.

★Most testing is done with pure forms of pesticidal active ingredients rather than with commercial formulations. There are three types of chemical additives that are missing from most testing: contaminants of manufacturing processes, toxic waste deliberately added from chemical reactor cleaning processes and "inert" ingredients.

★Current testing requirements do not evaluate expoure effects from chemical mixtures. while it is impossible to examine all possible mixtures, common combinations generated inspecific areas due to crop rotation and tillage practices could be examined.

★Laboratory animals generally live in an environment where climate, nutrition and disease are carefully controlled. Researchers know that when additional stresses are present, toxic responses to registered chemicals occur that do not appear under current standard testing procedures.

Sources: Warren Porter, et al., "Endrocrine, immune and behavioral effects of aldicarb (carbamate), atrazine (triazine) and nitrate (fertilizer) mixtures at groundwater concentrations," Toxicology and Industrial Health (1999) 15, 133-150. University of Wisconsin-Madison press release, March 15, 1999.

If I told you to take an aspirin a day, that might not harm you, and in fact might even be good for you; but if I told you to take a whole bottle of aspirin a day, eventually you would become ill and could even die. The same is true with any volatile, synthetic termiticide or poison, whether a cyclodiene chlorinated hydrocarbon, synthetic pyrethroid, carbamate or organophosphate, especially when **the DOA has officially stated *they* consider it *fraud* for an applicator to apply any amount less than the maximum labeled amount of "registered" poison suggested by the manufacturer and permitted by the EPA. This means the same *registered* poison that is not permitted to be applied in any amount in an animal barn must be *professionally and legally* applied inside your home using up to 300 times the amount that is considered to be a *safe* application to an acre of ground outside where there is constant change of air!** When the same *registered* poison is applied outside even in such small doses all the workers *out there* must be kept out of the fields for days! Yet the State DOA **still** does not consider there to be any need to establish a *safe* re-entry time for you to enter your home that now has thousands of times more poison/contamination applied per square foot than outside! If our (Michigan) DOA would have emulated the concerns of the State of New York Department of Environmental Conservation which regulates the Pest Control Industry there - then over 90% of the homes *treated* for termites *here* would not and could not have been *treated,* because of all the possibilities of ambient air contamination. In addition to airborne contamination, the (Michigan) DOA **still** does not consider there to be any danger from applying hundreds of gallons of volatile termiticide poisons under pressure into your soil even if you have a well nearby! This is even more amazing when you consider that in the 1990s some 92 pesticide poisons had already been found in the ground water of at least 43 states. The synthetic pyrethroids, organophosphate and carbamate **pesticide poisons are made to kill; they do not *protect*...** they attack our central nervous system and other vital body centers. No matter which volatile, synthetic poison termiticide poison(s) you choose, they are all very

persistent toxins which last for years in your soil and often in you. During the application of these poisons, and virtually for as long (or longer) as they are *effective* in controlling termites, they **all** will continue to volatilize and release molecules of poison into your ambient air. The *industry* refers to this poison contamination as *residue.* Poisoning symptoms are often mistaken for flu and other illness and can vary greatly with each person from a slight reaction to death. No one knows what the combined health hazard of many *residues* (poisons) is, but we know that it is an exponential increase in danger, not merely another additional contaminant. Pesticide poisons have been found in rain water samples in 23 states in samples taken by the U. S. Geological Survey. **Remember, there is at least a 20-year average delay from the time any substance is first discovered to be toxic or hazardous before there is any regulatory change! Historically, we then send the banned poisons to our overseas friends.**

The Pesticides Trust Press release of March 17, 1998 noted that after two years of negotiations, 95 countries unanimously agreed on March 14, 1998 to a legally binding convention on international trade in hazardous chemicals and pesticide poisons. The convention is an attempt to address the problem that chemicals and pesticide poisons banned or severely restricted in industrialized countries are **still** exported to other countries, very often to the developing world. "The aim of the convention is to enable importing countries to decide what chemicals (poisons) they want to receive and to keep out the ones they cannot manage safely," said Maria de Azevedo Rodrigues of Brazil, Chairperson of the Conference. It will include the 22 U. S. pesticide poisons banned or severely restricted: 2,4,5-T, aldrin, captafol, chlordane, chlordimeform, chlorobenzilate, DDT, dieldrin, dinoseb and dinoseb salts, 1,2-dibromoethane (EDB), fluoroacetamide, HCH (mixed isomers), heptachlor, hexachlorobenzene, lindane, mercury compounds used in agriculture, pentachlorophenol. Severely hazardous pesticide poison formulations: monocrotophos, methamidophos, phosphamidon, methyl parathion, parathion and 5 industrial chemicals that are already covered by the voluntary Prior Informed Consent (PIC) procedure, with the possibility of more being added in the future.

In the 1990s the National Academy of Science (NAS) estimated 1 out of 7 of us nationally were already significantly impaired by *registered* pesticide poisons and other toxic chemicals. Shortly, the NAS will publish a new study on *registered* pesticide poison health effects in children - this will confirm the terrible danger we have already inflicted on our children! The U. S. Department of Health and Human Services 1988 NIOSH strategy on neuro-toxic disorders caused by neuro-toxic chemical effects in the central nervous system notes these toxins cause disturbances to personality and cognitive functions. Psychoses and suicidal tendencies, delusions and hallucinations, shortened attentions spans, lack of alertness and loss of memory. They noted that chlordane, the organophosphates (OPS) and the *inert,* xylene, have been historically established as neuro-toxic and that the OPS's are known for their polyneuropathy psychosis effects and impaired psychomotor function. **In Ohio less than half of the students could pass their proficiency exams...in the schools where we controlled pests without volatile pesticide poisons, virtually 100% passed their proficiency exams.**

The Journal of the National Cancer Institute, 71(1), July 1983 noted A study of 3,827 Florida pesticide applicators employed for 20 or more years found they had nearly 3 times the risk for developing lung cancer. The same study also showed the pesticide applicators had twice the risk for brain cancer. There was not any increased cancer risk when applicators were studied for only 5 years, implying it takes over 5 years to accumulate enough chronic damage to the genetic structure to develop the cancers.

Children who live in homes where *registered,* volatile, indoor or outdoor volatile pesticide poisons are used face a far greater chance of developing leukemia (leukemia is a cancer of the blood). The study, published in July's 1987 issue of the *Journal of the National Cancer Institute,* studied 123 Los Angeles children with leukemia and 123 children with the malignancy. The results showed the children living in the *registered* pesticide poison treated homes had nearly a 4-times-greater risk of developing the disease. If the children lived in homes were *registered* pesticide poisons were used in the garden as well, the risk of developing leukemia was 6.5 times greater! All of the children in the study were 10 years of age or younger. **Thus proving to some of us with working brains that cancer rates are not increasing merely because we are living longer!**

In the April 1998 issue of the Ag Retailer on page 10 quotes Sarah Vacek, Public Relations Manger of the Agricultural Retailers Association, who was proud to point out: "During the past 20 years we've seen changes in agriculture that have worked to improve America's food supply. Now consumers devour 20 times more carcinogens in one can of cola or a cup of coffee than they do by eating any pesticide (poison) residues in their food." **That sure makes me feel "safe," Sarah.**

The *registered* lawn pesticide poison active ingredients, mancozeb and chlorothalonil (used by commercial lawn spray companies as fungicides), have been classified by EPA as *probable* cancer-causing chemicals in humans as they have been found to cause cancer in animals (*Newsweek, May 16, pg. 77, 1988)*). Mancozeb has also been found to react with sunlight to form a new compound EPA categorizes as a *known* carcinogen (*Newsweek, May 16, pg. 77, 1988*). The common lawn pesticide 2,4-D has been shown to increase the risk of lymphatic cancer in farmers 6 times the normal rate according to a National Cancer Institute report (*Science News, September 13, 1986*).

The National Cancer Institute studies show children get leukemia 6 - 7 times more often when *registered* pesticide poisons are used in and around their homes. The Arch. Environ. Contam. Toxicol Vol. 18, 1989; noted on pp. 79-94 that children living in homes with pentachlorophenol pesticide contamination had twice as much PCP in their blood as their parents. Drinking water in at least 38 states is already contaminated with *registered* pesticide poisons. Even EPA estimates that U. S. agricultural workers suffer 27,000 acute illness and injuries from (labeled) exposure to *registered* pesticide poisons. While both the 1972 Federal Insecticide and Rodenticide Act (FIFRA) state it is unlawful to claim any *safety* or *no toxic effect* with any *registered* pesticide poison use and the Federal Trade Commission has the authority to rule against false and misleading advertising claims for pesticide poisons. No one seems to care what the *professionals* say in Michigan...in fact, even **the State *regulatory* agency has historically written that using the maximum amount of volatile poison the label allows will *protect* your home.**

Pediatrician, Dr. Herbert Needleman of the University of Pittsburgh has testified pesticide poisons have a negative effect on children's I.Q. and behavior. "When the brain is developing, it lays down what we call connecting pathways. Introducing poisons, such as those contained in pesticides, can fundamentally and irrevocably throw this critical neurological development process off course. I will tell you without fear of contradiction that exposing children to excessive levels of pesticides is impairing their health, eroding their mental abilities and shortening their lives." According to the National Academy of Sciences "exposure to neurotoxic compounds of levels believed to be safe for adults could result in permanent loss of brain function if it occurred during the prenatal and early childhood period of brain development," National Research Council, Ibid pg. 61. **Children learn more in their first 3 years than they do for the rest of their lives. If you poison them during these first 3 years, what damage will you create in your children?**

A book from the Office of Technology Assessment entitled, Neurotoxicity: Identifying and Controlling Poisons of the Nervous System noted that an estimated 300,000 farm workers are poisoned by pesticide poisons in the U. S. Studies demonstrate that in addition to acute poisoning, pesticide poisons can cause long-term (chronic) damage to the nervous system.

Groups of test animals exposed to different pesticide poisons used in agriculture and lawn care showed over 50% more hyperactivity following a single exposure to the chemical. One of the main goals of this experiment, conducted by Dr. J. A. Mitchell and colleagues at the University of Michigan, was to investigate activity behavioral changes in test animals (male Swiss mice) following a single exposure to one of 4 different dosages of weed killers and fungicide poisons. The chemicals used included Lasso (containing alachlor), Basalin (containing fluchloralin), Premiere (containing dinoseb) and the fungicide poison Maneb-80 (80% Maneb). Test dosages ranged from a very low .4mg/kg to 4 mg/kg to 40 mg/kg. Even the largest dose was still below the LD_{50} for the animals (the amount needed to kill 50% of the test animals). According to the researchers, the herbicide poisons and fungicide poisons have received few reports investigating their toxicity while their yearly growth and production have grown far more than the insecticide poisons.

The detection of hyperactivity was measured by placing the test animals in steel cages that were equipped with electronic motion detectors which used infrared beams to count specific movements by the animals. After the single chemical exposure, activity was measured for a 4-hour period. Results showed the *registered* weed killer Lasso did not show any effects at the very low .4 mg/kg level, but did show over a 65% increase in activity at the low 4 mg/kg and a 75% increase at the higher 40 mg/kg level. The *registered* weed killer dinoseb also showed no activity increases at the lowest .4 mg/kg dose, but did show a 15% increase at the 4 mg/kg level, and a 54% increase that the larger 40 mg/kg level. Other researchers have reported that activity provides a sensitive measure for evaluating the behavioral effects of the *registered* pyrethroid pesticide poison, deltamethrin, at doses that did not cause the characteristic neurotoxicological syndrome.

In conclusion the researchers stated, “The results of this study suggest that at least some *registered* herbicide poisons, in addition to pyrethrins, organophosphate and carbamate pesticide poisons, can produce behavioral manifestations following accidental exposure ... The effects of the pesticide poisons on activity also support the hypothesis that these agents may affect the central nervous system” per *Neutrotoxicology and Teratology, Vol. 11:45-50, 1989.*

The article, “Chronic Neurological Sequelae to Organophosphate Poisoning. Am. J. Pub. Health Vol. 84, March 1994 noted: ...that pesticide poisoning can lead to poor performance on tests involving intellectual functioning, motor skills and memory.

The pesticide MCPA, used as an ingredient in some lawn pesticides, has been found to damage a part of the brain known as the *blood brain barrier* per *Toxicology and Applied Pharmacology, 65:23, 1982.* The blood brain barrier is the brain’s primary defense system which works to keep toxic substances out of the brain cells and is literally protecting all of us from developing immediate neurological illness. The blood brain barrier has been found to be defective more often in patients with Alzheimer’s and some psychiatric disorders per *British Journal of Psychiatry, 141.273, 1982*. In fact, the lack of functioning of the blood brain barrier in the human infant has been reported on many occasions as being the reason why an infant is being found to develop brain damage after exposure to common chemicals, while an adult with a mature blood brain barrier does not. Unfortunately, EPA neurotoxicologist Dr. Bill Sette stated EPA **still** does not yet require chemical companies to test any of their pesticide poisons for causing blood brain barrier damage. Another study of 56 men exposed to *registered* organophosphate pesticide poisons detected memory problems and difficulty in maintaining alertness and focusing attention per *Annual Reviews in Public Health, 7:461, 1986*.

Impact of OP’s, Carbamates. What would a significant reduction or elimination of organophosphate insecticides (OP) and carbamates mean to agriculture? Leonard Gianessi of the National Center for Food and Agriculture Policy completed a study in the 1990s that reveals just how important the class of chemicals are to U. S. growers. Among his findings:

- For 11 crops, OP’s and carbamate poisons are the only insecticides (poisons) currently used.
- Two crops, corn and cotton, account for 50% of the poundage of OP and carbamates (poisons) used in U.S. crop productions. 24 crops account for 95% of the poundage of OP and carbamate insecticides (poisons).
- OP and carbamates (poisons) represent 30 of the 59 active ingredients used as insecticides (poisons) in U. S. crop production in 1995. Of the acres treated with insecticides (poisons) in the U. S., 70% are treated with a chemical (poison) in one of the 2 classes.
- OP’s alone represent approximately 65% of the total poundage of insecticides (poisons) used in the U. S. in ‘95 (exclusive of oil products).

OP’s are especially threatened. Here’s a list of OP products (poisons):

Acephate	Ethion	Methidathion	Phorate
Azinphos-methyl	Ethoprop	Methyl Parathion	Phosmet
Chlorpyrifos	Ethyl Parathion	Naled	Profenofos
Diazinon	Fenamiphos	Oxydemetonmethyl	Sulprofos
Dicrotophos	Fonofos	Methamidophos	Terbufos
Disulfoton			

The new Food Quality Protection Act (FQPA) requires EPA to implement a new safety standard - a “reasonable certainty of no harm” for aggregate exposure using dietary residues and all other “reliable” exposure information. The legislative history of the FQPA establishes the “reasonable”-certainty-of-no-harm standard for nonthreshold (cancer) effects at a one-in-a-million risk level, meaning one additional cancer for each one million people exposed! **Obviously, Agri-business wants poison more than safe food!**

Congress has established stringent deadlines for compliance. Example: In the 1990s, EPA had the impossible task of re-evaluating more than 9500 pesticide poison tolerances for safety within 10 years. The first 3000 uses, including most organophosphate and carbamate insecticide poisons, were to be evaluated by August 1999.

What seems almost ludicrous...EPA was expected to meet this deadline despite the fact FQPA substantially changes the way pesticide poisons are evaluated scientifically for their health effects. EPA must now consider aggregate exposure to a pesticide poison, including both dietary and non-dietary exposures, such as drinking water, household and lawn and garden uses. These non-dietary exposures must be allotted a share of the maximum allowable exposure level. To further complicate the process, under FQPA, EPA must examine groups of pesticide poisons based on whether they share a common mechanism of toxicity. As a result, many OP insecticide poisons could end up sharing one "risk cup". The Environmental Working Group (EWG) just publicized a recent study that found more than 1 million children were exposed to excessively high levels of OP's. The only area where EWG slipped is in the timing of its news conference - the same week as the 1998 State of the Union address. The April 1998 issue of Pest Control Magazine has an interview with Bob Rosenberg, NPCA's Director of Government Controls commenting on the FQPA's potential harmful effects on the pest control (poison) industry. Rosenberg notes that over the next 10 years each new and existing chemical (poison) has to go through the process of measuring all of its risk, in addition to factoring in any uncertainty about the effect the chemical (poison) may have on sensitive populations, including children and elderly people as well as potential endocrine-disrupting effects. "Each manufacturer will have to justify and show when you add all the risk up, that they don't exceed their risk cup. **The fact is that probably every one of them (these pesticide poisons) do exceed the risk cup."** The FQPA actually has the potential to eliminate all chemical (poison) pest control products from the market. "There will be no products (poisons) available. There will be no pesticides (poisons) in the indoor market," warns Rosenberg. "Everyone will be using sticky traps." Rosenberg noted there are huge gaps in the data EPA needs to implement this law. Rosenberg said the first batch of chemicals (poisons) in the list includes carbamates, organophosphates and B_2 carcinogens. "Unless EPA changes the course they are on, we're going to lose all those chemicals (poisons), he confirms. "Then by 2002 pyrethroids will be gone. We need to put pressure on EPA to use hard science to make these decisions," Rosenberg concludes. **Obviously, the poison sprayers are worried more about their continued use of "registered" poisons than our health!**

The May 1998 Pest Control Magazine noted the FQPA initiative may be slowing due to handwritten notes from the poison *industry* and agri-business to congressional representatives. Al Gore wrote a letter 4/8/98 to EPA noting that a review of pesticides under FQPA would emphasize risk to children, but not at the expense of agriculture or the food supply. **Et tu, Al?**

The Tulane-Xavier Center for Bioenvironmental Research in New Orleans said that combining two substances common to *registered* pesticide poisons produces a synergistic impact on hormones 1,000 times stronger than the poisons alone. EPA only checks the active ingredient of a pesticide poison; it totally ignores the synergistic effect of two active ingredients, or even the active poison ingredient'(s) interaction with all of the *inerts*. This is like testing only the *active* ingredient in a cake (yeast) - thus, the "product" does not cause cholesterol problems, weight problems, diabetic problems, tooth decay, hyperactivity, etc.. First of all, a pesticide poison does not contain just the ***REGISTERED* ACTIVE INGREDIENT,** which by definition is the poison actually used to kill or destroy a living organism. Pesticide poisons *normally* also contain unregistered ***inert*** ingredients as well as transformation products, synergists, contaminates and impurities, and quite often the pesticide poison breaks down into other materials, known as metabolites, which can even be more deadly than the original poison. Unregistered *inert* ingredients are also often more dangerous than the *registered* active ingredient, although the *law* allows the formulator to keep these untested and unevaluated chemicals secret from you and your doctor, because they supposedly are not added to the poison formulation specifically designed to kill (the pest). *Inerts* make up the majority of the concentrate/formulation and may include xylene, toluene, benzene, or even DDT! How can you honestly or legally *register* a poison label for use of the active ingredient when the *inerts'* MSDS is far more restrictive in allowable usage?

On October 1, 1996, the California Department of Pesticide Regulation (DPR) suspended 21 pesticide products that contain the *registered* fungicide poison, chloreneb, the wood preservative creosote, and unregistered aromatic petroleum distillates, which are commonly used as *inerts* in insecticide poisons. (PANUPS: California Bans Pesticides. January 3, 1997.) On January 10, 1997 PANUPS announced that Monsanto agreed to change its advertising for glyphosate-based products, including the herbicide Roundup®. According to the State, the Monsanto ads implied the risks of products such as Roundup® are the same as those of the *registered* active ingredient, glyphosate, and do not take into consideration the possible risks associated with all of the unregistered product's *inert* ingredients.

Unregistered *Inerts* - At least 382 of the chemicals on the EPA list of allowable pesticide *inert* ingredients are

or were once *registered* as pesticide active ingredients! According to the Northwest Coalition for Alternatives to Pesticides (NCAP), a group currently undertaking a study of pesticide poison ingredients, these pesticidal substances can be used legally in *registered* pesticide poisons without being listed on the poison label. There are over 2,500 *inerts* on EPA's list.

U. S. pesticide law defines an *inert* as **any** ingredient in a pesticide poison other than the *registered* active ingredient. *Inerts* are added to perform a variety of functions, including dissolving a pesticide poison, helping it stick to its target or increasing the pesticide poison's efficacy in some way. Active ingredients are defined as chemicals which "prevent, destroy, repel or mitigate any pest." Federal law only requires that active ingredients be *registered* and listed on the label, but *inerts* - which can comprise up to 99% of the product - may remain secret and are untested, unregulated and unregistered!

NCAP's findings indicate EPA allows manufacturers to use certain active ingredients as though they were *inerts* - NCAP calls these substances "active inerts". According to NCAP, the fact that so many "active ingredients can be used legally in pesticide poison formulas without being disclosed on the *registered* label constitutes a major oversight by EPA."

In 1987, EPA announced an *inerts* strategy it said was "designed to reduce the potential for adverse effects from the use of *(registered)* pesticide products containing toxic inert ingredients.," Central to the old strategy was the creation of four toxicity categories. **List 1, "Inerts of Toxicological Concern,**" which includes carcinogens, teratogens and neurotoxins. EPA stipulated that no **new** products (poisons) could use these toxic *inerts* and that, in existing products (poisons) their use and a warning must be disclosed on the label. **List 2, "Potentially Toxic/High Priority for Testing,"** is made up of chemicals that are structurally similar to List 1 inerts and/or that had incomplete data sets. **List 3 is called "Inerts of Unknown Toxicity" and List 4 contains substances generally regarding as innocuous.** *Inert* ingredients on Lists 2, 3 and 4 a and b are not **still** required to even be listed on product labels, much less be *registered* or tested.

Approximately 70% of the active *inerts* are found on the old List 3, "Inerts of Unknown Toxicity" - 264 out of the 382 active *inerts*. Included in the (active) list are: napthalene, an insecticidal fumigant that is a common component of mothballs; according to U. S. Health and Human Services, it can cause brain damage, convulsions and death in children; chlorothalonil, a fungicide poison and a probable human carcinogen according to the U. S. EPA, and chloropicrin, a fumigant and respiratory tract irritant that can cause asthma, pulmonary edema, bronchopneumonia and death. **These "inerts" do not sound very "inert" to me**.

Butylated hydroxyanisole (BHA) is also among the 1,981 unregistered pesticide *inerts* included on the old List 3, "Inerts of Unknown Toxicity". However, in 1987 the International Agency for Research on Cancer (IARAC) classified BHA as a possible carcinogen, and according to EPA's own criteria, chemicals that have been assessed as known, probable or possible carcinogens by IARC qualify for and should be on List 1. This discrepancy is particularly troubling because BHA is a commonly used antioxidant in butter, vegetable oils, cereals, baked goods, potato chips, meat products and many other foods.

In 1997, IARC also classified two other commonly used unregistered *inerts* as known carcinogens: crystalline quartz silica and cristobalite. Neither is required to even be listed on *registered* pesticide poison labels, and, based on information obtained by NCAP from a Freedom of Information Act request to EPA, crystalline quartz silica can be found as an *inert* ingredient in at least 1,560 pesticide poisons!

NCAP is calling on EPA to revise their *inerts* policy to include the required listing of all ingredients on product labels regardless of toxicity. In addition, NCAP states that all chemicals used in pesticide formulations must be subject to the same health and safety testing requirements as the active ingredients. Under U. S. law, EPA must disclose the identities of those pesticide ingredients that pose "an unreasonable risk of injury to health or the environment." However, EPA, obviously, cannot determine whether a chemical poses such a risk when it has little or no information! NCAP will release a more detailed report of their *inert* findings in the Fall of 1997. Source: Journal of Pesticide Reform, Summer 1997.

While some synergists supposedly may not have any pesticidal effect themselves, they are added to make the active poison more toxic, and their combined toxicity may thus be increased several hundred times more than the *active* ingredient. They usually act by inhibiting one's ability to detoxify the primary poison whether one is

the target pest or an innocent bystander (you or me). Transformation products are the results of introducing unnatural toxins into the environment; thereby creating entirely new poisons or chemical compounds which are even more toxic and persistent than their *parents*. It is not enough to test for the original poison's active ingredient and what further hazards it may cause...one also has to test for all the *inerts,* all of the contaminants, all of the transformation products and all of the metabolites or degradations/derivatives of the original toxin (active ingredient) and then for all of the synergistic effects on one another!

The February 1997 "EPA Special Report on Endrocrine Disruption" noted that: "Based on the report, EPA is concerned about the possibility of impacts to human health and the environmental due to endrocrine disrupters (including certain pesticides). Given the current state of the science, the Agency does not consider endrocrine disruption to be an adverse end point *per se*, but as a step that could lead to toxic outcomes, such as, cancer and/or adverse reproductive effects. This perspective could change as additional data becomes available."

In August, 1997 the Environmental Defense Fund published a report stating that "even the most basic toxicity testing results can not be found in the public record for nearly 75% of the top-volume chemicals in commercial use. In other words, the public can not tell whether or not a large majority of the chemicals in the U. S. pose health hazards or not." Everyone on this planet is carrying at least 250 measurable chemicals that were not present before the 1920's per Biologist Pete Myers of "Our Stolen Future".

The volume of synthetic chemicals produced by the U. S. has increased a thousand-fold over the last 60 years! The toxic brew or total poison formulation *residue* left in you, your food, your water, your air and/or your home after a labeled poison application, may include the active ingredient, metabolic derivatives, physically transformed derivatives, *inerts*, solvents, contaminants, decomposition products and other impurities all left to persist/pollute your environment for some indefinite period of time! Because we do not know much about the unregistered *inerts*, synergists, transformation products, contaminants, impurities, or even the metabolites...the following descriptions are basically limited to the little we do know/suspect about acute exposure only to some of the *registered* active ingredients - none of which have been adequately evaluated and/or thoroughly tested.

Genetic vulnerability found to nerve gas

The toxic effect of sarin apparently is related to an enzyme that destroys paraoxon, the lethal agent in nerve gas. But in some people, the enzyme is, ineffective.

By LAURIE GARRETT
NEWSDAY
101/23/96

The ability to withstand exposure to the nerve gas sarin is genetically controlled, with Caucasians most resistant to the dangerous chemical and Asians most susceptible, according to a report released Friday.

The discovery of a genetic basis to sarin vulnerability may have powerful implications for investigation of complaints of medical problems among Persian Gulf war veterans. Last month, the Department Of Defense admitted that 20,000 gulf war military personnel may have been exposed to toxic levels of sarin when an Iraqi stockpile was bombed by U.S. forces. And some may be suffering symptoms related to sarin exposure.

"We think that research into possible health effects of organophosphorus [sarin type] compounds is important and we welcome responsible research ' " said an official statement released by the Department of Defense on Thursday.

"We agree that the question of individual genetic differences may be important in understanding the susceptibility of certain individuals to [organophosphorus] exposure. The DOD is currently negotiating a study that addresses these concerns."

Chemist Clement Furlong and his University of Washington colleagues have for several years studied a class of chemicals called organophosphates, all of which exert their lethal effects by blocking a crucial neurotransmitter called acetylcholine. Most organophosphates are used as pesticides, but a few — like sarin - have been developed as nerve gas weapons. The United States, for example, has stockpiles - all of which are scheduled

for destruction by 2000 of 25,000 tons of such nerve agents.

In the blood of all human beings is an enzyme called paraoxonase, or PON1, which normally plays a poorly understood role in cholesterol metabolism. Furlong's group demonstrated years ago that PON1 also breaks down or destroys the super-lethal component of organophosphates, a chemical called paraoxon. Furlong has injected rabbits and other test animals with the PON1 enzyme and shown that subsequent exposure to usually lethal organophosphate pesticides is harmless. In other words, PONI protected -the animals against the lethal effects of pesticides by destroying paraoxon.

In Friday's issue of the British publication Nature Genetics, Furlong's group shows that PONI has the same effect on sarin, which is not surprising because the chemical is a classic organophosphate. But what is startling is discovery that some people make a form of PONI that doesn't work against sarin. The trait - called type R - is genetic.
People who inherit type R genes from both of their parents, rendering them homozygous for the trait, are extremely vulnerable to the toxic effects of satin. People who make normal PON1 - this is regulated by type Q genes - are better able to resist the lethal chemical. If one is heterozygous, having inherited Q from one parent and R from the other, susceptibility to sarin is midway between the two extremes.

A separate, as yet unidentified, gene regulates how much PONI is made. Even if a person is homozygous for the beneficial type Q gene, it will do no good if the amount of PON1 is low when sarin enters the body.

"Now what I think is real important to do would be to look at people in Japan who were exposed to sarin in that [1993 Tokyo subway] attack," Furlong said, "to test their PONI enzymes - the genetic forms in those who got sick vs. those who didn't."

Gene tests show Asians are most likely to carry the susceptible type - R genes. Twenty-five percent of them are homozygous for sarin susceptibility. About 16 percent of Latinos are homozygous type R while only 10 percent of Caucasians are so vulnerable. Researchers have not yet tested Africans or African-Americans.

A Department of Defense spokesman said last week that no racial breakdown of gulf war veterans who claim war-related illnesses, compared with the overall demographics of the 700,000 U.S. troops who served in the war, has been done.

But the Furlong study suggests two crucial points: People are not equally susceptible to the nerve gas, and Pentagon assumptions about "significant exposures" - assumptions used in the past to dismiss the possibility that chemical weapons were at the root of so-called gulf war syndrome - may fail to consider elements of the population that are particularly genetically vulnerable to sarin and other nerve gases.

Five soldiers could, for example, have been exposed to the same sarin dose, at the same time and only one go on to develop paraoxon-caused illness.

The survival of the human species depends on the ability of males and females to reproduce successfully. Reproduction is a complex process involving multiple stages of vulnerability for parents prior to conception and birth of their offspring. Few established risks factors have been identified for failures that occur during many of these reproductive stages. In industrialized countries, about 1 of every 5 couples experiences difficulty reproducing. National Academy of Sciences Press, 1989. Exposures of pregnant females to a variety of foreign substances may pose a threat to the health of offspring. In addition, exposures of males and females to foreign substances prior to conception can affect both their ability to conceive and the health of their offspring. Reproductive Toxicology 1992; 6:289-292. Timing of exposure to such substances may be more critical than the total dose rate in determining a broad array of outcomes. Environmental Health Perspective 1997; 105:70-77.

In 1994 the EPA noted the U. S. used approximately 1.2 billion pounds of just the "registered" pesticides' active ingredients; agriculture used about 939 million pounds (77%), industrial, commercial and government applications accounted for 150 million pounds (12%) and home and garden applications used about 133 million pounds (11%). These figures do not include chlorine, wood preservatives or specialty biocides. World pesticide use is estimated to be 5.7 billion pounds of only the active ingredients in 1995. In 2001, it was estimated the U. S. A. alone used 4.5 billion pounds per year!

In 1996 EPA **began** a study to determine how much pesticide (poison) active ingredient residue (contamination) we can *safely* consume - (if we are lucky) we *may* get the results of how dangerous the food we are eating **today** is by the year 2006! When we set up interim numbers for *acceptable* levels of poison in people and pets, we are not only being very arrogant but very ignorant. **This is truly "junk or sound science" at its *finest.***

RESISTANCE - Never use any "registered," volatile, synthetic pesticide poison twice (especially even more) to *treat* any infestation - when it has already failed to control the pests when you used it the first time, clearly indicating the pests are already immune or resistant to that poison.

"Registered" pesticides do not even control pests; so why use them? In May, 1998 I received my copy of PANUPS 1997 Annual Report entitled, "PAN PARTNERS UPDATE;" the article contained a classic case of the pesticide poison treadmill: *"Two decades ago, subsistence farmers in remote Indonesian villages in Kalimantan and Riau did not have major pest control problems...On a recent site visit to these villages, PAN Senior program corordinator Marcia Ishii-Eiteman joined a local partner organization, Yayasan Duta Awam, to gather information and testimonials from farmers for a monitoring and evaluation project of the World Bank.*

The Indonesian government persuaded poor farmers, carpenters and fishers to move into these remote areas as part of a national resettlement plan. Though they were assured good work, the resettled families found only uncleared forest land and swamps. They struggled to build homes and harvest food from the land. Yet, most could not endure the conditions and today only a few families remain.

In response to the farmers' hardships, the World Bank initiated a program to 'support' agricultural development in these resettled communities by supplying farmers with modern technologies, such as chemical pesticide poisons and synthetic fertilizers. Many farmers told me that they were unaware of the health or environmental dangers posed by the chemicals they were using and that they had not received any education in ecological alternatives. Consequently, there is a widespread perception that the World Bank-supplied pesticide poisons are a very good thing.

As one local farmer explained, "In 1983, we had no serious insect pests. Then we got *free* pesticide poisons which we heard was the good, modern way to farm. Two years later, we began to have some major pest outbreaks which was strange. But fortunately we got more pesticides (poisons). Now, we have even more pest outbreaks, but it's okay because the World Bank continues to supply us with pesticides (poisons)."

The increase in pest outbreaks is a classic example of the pesticide poison treadmill. Pesticide poisons are designed to kill, and many kill beneficial organisms such as natural predators. Many pest species quickly develop resistance to the pesticide poisons and return in greater numbers, leading farmers to spray even more chemical poisons. Meanwhile, after their natural enemies have been destroyed, pests that were once insignificant can suddenly become major pest problems.

STUDYING A TOWN TO DEATH: On 3/25/99 Rachel's Environmental Weekly #643 noted: Lompac is a small city of 42,000 people that lies a valley along California's central **coast,** about 100 miles above Los Angeles. Lompoc is separated from the Pacific Ocean by 7 miles of rich, flat farmland. Here, farming is a year-round activity, so "registered" pesticides waft up the valley into the city most of the **year,** carried by the ocean breeze.

According to California's state Environmental Protection Agency (Cal EPA), the people of Lompoc have been lodging formal complaints about ("registered") pesticide drift and health problems for at least six years, since 1993. George Rauh, a teacher who moved to Lompoc in 1989, says, "For the first two years, I thought it was great. Then I got chronic bronchitis. I had never had anything like it, and I knew something was wrong. I started asking around and I found many, many people had problems — bronchitis, asthma, headaches, the flu when it wasn't flu season, even reproductive problems, and a host of other ailments. It was obvious that there was something really wrong." In 1992 Rauh and his neighbors formed Volunteers for a Healthy Valley and began asking local and state health officials to pay attention.

Now, if you have ever complained to your health department about an environmental problem, you know that the response is rarely swift or decisive. Of course this is not always true, but as a general rule public health officials are reluctant to even admit that there is a problem, or even to look for a problem diligently. There seem to be two

main reasons for this: If health officials admit there is a problem today, they are admitting that someone failed to do their job in the past. Secondly, if a problem is identified today, health officials are obligated to do something about it, and this often puts them into conflict with one or more polluters — many of whom have considerable political clout. Therefore, despite what a civics textbook may say, public health officials often do not respond positively when the public asks for help. Indeed, officials often begin to define the victims of pollution as "the problem" and spend their time trying to discredit the victims instead of looking into the underlying public health questions.

Lompoc is no exception to this general rule. After getting no satisfactory answers from state officials for more than a year, Volunteers for a Healthy Valley conducted a letter-writing campaign to Region 9 of U. S. Environmental Protection Agency (U. S. EPA). U. S. EPA responded by asking Cal EPA's Department of Pesticide Regulation (DPR) to conduct a study. Reluctantly, DPR then asked Cal EPA's Office of Environmental Health Hazard Assessment (OEHHA) to study health conditions in Lompoc.

Cal EPA's OEHHA began to study cancer incidence in Lompoc 1988-1995, birth defects in Lompoc 1987-1989, live births in Lompoc 1988-1994, and hospital discharges in Lompoc 1991-1994. The study did not collect any new data but examined only existing data. Government officials were caught falsifying data (see REHW #519) and the study took three years to complete.

Meantime, Cal EPA's Department of Pesticide Regulation (DPR) decided to study ("registered") pesticide use in the Lompoc Valley. They initially proposed to study two pesticides "but we laughed them off the stage," says Rauh. Then DPR agreed to study all pesticides used in the valley. Since 1991, California has maintained detailed records of pesticide use — the only state in the nation to do so. Six months later, DPR reported that about 50 different pesticides are used regularly in the Lompoc Valley, many of them carcinogens and many of them nerve poisons. In June, 1998, Cal EPA announced the results of its three-year health study:

** The people of Lompoc have 37% more lung cancer than people in the surrounding three counties (San Luis Obispo, Santa Barbara and Ventura). This finding was statistically significant at the 0.01 level — an unusually strict statistical standard. (It means that there was only 1 chance in 100 that the results of the study occurred by chance.) Another part of the study found that the incidence of chronic obstructive pulmonary disease (COPD) was low among Lompoc residents, "suggesting a lower prevalence of smoking among adults." High lung cancer and a low smoking rate. Curious.

The study also found elevated rates of breast cancer, kidney cancer, liver cancer, cancers of the female reproductive organs, non-Hodgkins lymphomas, multiple myelomas, all cancers combined, and all cancers combined excluding lung cancer. However, none of these elevated rates passed the test of significance at the 0.01 level, so Cal EPA disregarded the pattern as meaningless statistical flukes.

** The incidence of 7 kinds of birth defects was investigated; nothing unusual turned up.

** Cal EPA studied what proportion of hospital discharges in Lompoc was attributable to particular illnesses. (Hospital discharge records are assumed to represent serious illnesses, after subtracting out normal births.) The study divided hospital discharges into 18 groups of illnesses. Of the 18 groups, two were elevated in Lompoc — a "respiratory" group and a "reproductive" group. For the respiratory group, bronchitis and asthma were consistently elevated the most. Compared to the surrounding area, people leaving the hospital in Lompoc had 69% more bronchitis and 58% more asthma. By a different measure, Cal EPA found asthma and bronchitis 85% more common in Lompoc than in the three surrounding counties. Bronchitis occurred in the young and the old; asthma was elevated only among adults.

The "reproductive" group of illnesses included abnormal birth outcomes and female reproductive cancers. Four other groups of diseases were considered "suggestive" — female breast cancer, pleurisy-pneumonia, headaches and seizures, and all respiratory malignancies.

Abnormal birth outcomes showed "a strong pattern for infant respiratory conditions," Cal EPA reported. Compared to infants in surrounding counties, Lompoc infants had a two-fold or greater chance of being hospitalized for respiratory disorders.

In sum, Cal EPA now knew that 50 ("registered") pesticides (poisons) were being used in a geographic setting that channeled drifting poisons into a residential community on a continuing basis. By this time, people had been complaining for 5 years of bronchitis, difficulty breathing, headaches, and flu-like symptoms, among other medical complaints. Using rigorous statistical criteria, Cal EPA's three-year health study had documented 37% more lung cancer, 69% more bronchitis and 58% more asthma in Lompoc, compared to surrounding communities, plus a two-fold increase in respiratory problems requiring hospitalization of infants.

Given this information, ordinary citizens in Lompoc saw a pretty clear pattern. They came to believe that they are being poisoned by year-round exposure to a thin soup of mixed ("registered") pesticides (poisons). But Cal EPA scientists concluded only that "without information on potential exposures, we can only speculate as to why respiratory illnesses appear to be elevated in Lompoc."

So another study was begun. The plan was to monitor the air in Lompoc for all 50 ("registered") pesticides for a year. This would have provided the exposure data that the scientists said they needed to reach a conclusion. However, such a study required $142,000 in funds and Cal EPA dragged its feet and the state legislature dragged its feet. So instead of a year-long study of 50 pesticides, Cal EPA only conducted a one-month study of 12 "registered" pesticides (poisons) late in the growing season of 1998.

The results of this study were released in February, 1999. According to the Department of Pesticide Regulation (DPR), which conducted the study, 179 air samples were taken during a 28-day period. Of these 179 samples, 140 (78%) showed no detectable levels of pesticides, DPR said. Furthermore, the study looked for two metals, manganese and aluminum, because these are found in three common pesticides, maneb, mancozeb, and fosetyl-aluminum. Manganese and aluminum were not elevated in the air in Lompoc "suggesting no appreciable exposure" to these 3 pesticides, DPR said. This is now known as the "Phase I" study.

According to the WALL STREET JOURNAL, Lompoc farmers "seized upon the Phase I numbers as proof that ("registered") pesticides pose no health threat to valley residents." In sum, it looked as if Volunteers for a Healthy Valley had been proven wrong.

However, when DPR's data were subjected to close scrutiny by a former chemistry professor from the University of California at Berkeley, the picture changed. Dr. Susan Kegley, now staff scientist for the Pesticide Action Network in San Francisco, found that "DPR made numerous mistakes — and led the public to believe that fewer than one quarter of air samples taken in Lompoc contained ("registered") pesticides (poisons). An independent and scientific analysis shows that ("registered") pesticides (poisons) were detected in 97% of the air samples ... " Kegley also pointed out that DPR had waited six weeks before analyzing samples of ("registered") pesticides that (the DPR knew) would degrade within a week's time. In sum, "DPR drew erroneous conclusions from data that were not collected in a scientifically valid way," Kegley wrote.

Kegley was particularly scornful of DPR's study of manganese and aluminum. She wrote, "Because aluminum and manganese are very abundant in soils, looking for the 'extra' aluminum and manganese as an indicator of exposure to these pesticides is like adding a bucket of water to the ocean and looking for the 'extra' water. This method is not a valid one for analysis of metal-containing pesticides, and it is impossible to conclude that the data show there is 'no appreciable exposure."' No one has refuted Kegley's criticism of Cal EPA's study.

In sum, Cal EPA — the health officials responsible for determining what is killing people in Lompoc (few people survive lung cancer) and making others sick — were shown to be incompetent, or liars, or both.

As far as the people of Lompoc are concerned, they now have sufficient data: excess illnesses and deaths have been rigorously documented; the use of 50 ("registered") pesticides has been documented; and 97% of air samples taken in their town contain one or more ("registered") pesticides.

What is the response of California health officials? Are they ready to advocate pollution prevention and the precautionary principle? Are they ready to help Lompoc farmers phase out expensive, toxic pesticides and shift to organic farming methods that produce higher yields and higher financial returns than chemical methods? No. Cal EPA now wants to conduct a new, longer study of air quality in Lompoc before reaching any conclusions.

Why are health officials studying this town to death and refusing to act? Perhaps it is because 4 million people

in California live adjacent to fields that are sprayed year round with dangerous ("registered") pesticides. If health officials confront the truth in Lompoc, they will be opening a Pandora's box of trouble for chemical agriculture and for the chemical corporations that invented it. **If they really open that box, no telling where it might end.**

In USA Today, 6/18/03, there was an article entitled, **"Pesticides lower sperm level, study finds"** that noted the Centers for Disease Control and Prevention lab measured levels of the by-products of 15 different pesticides in urine samples of 50 men in rural Missouri and 36 men in Minneapolis that were fertile. Men with higher levels of alachlor, atrazine and diazinon were significantly more likely to have poorer sperm quality. This study was also reported in the journal, Environmental Health Perspectives." Only two of the men were farmers. The Coauthors speculate the other got their exposures through drinking water. Water treatment methods cannot remove these terrible toxins, per the authors.

The following partial list of *registered* pesticide poison active ingredients and a few *inerts* is provided to begin your study:

Aldrin. An early organochlorine insecticide poison and termiticide poison named after Alder. Most insecticidal poison uses were banned in 1974 and all pro duets were canceled in 1987 when its use as a termiticide poison ended. Aldrin residue is **still** in the ambient air of many homes legally *treated* for termites with this volatile toxin. It is a strong liver and kidney toxin, and can cause convulsions; it also is cumulative, carcinogenic and a suspected teratogen. Aldrin and dieldrin can build up for years of exposure and then suddenly damage the nervous system. It is highly toxic to birds, fish, crustaceans, mollusks and bees. Note: Only ½ teaspoon of aldrin taken orally is fatal to humans. Aldrin is rapidly converted to dieldrin in people, in plants and in the soil! **Please refer to the "dieldrin" section.**

Allethrin. A synthetic pyrethroid poison which is neurotoxic. It causes convulsions, decreased weight gain, increased liver, kidney or thyroid weight and pneumonia in rats and/or mice. Allethrin is highly toxic to fish and some aquatic invertebrates. It is somewhat toxic to bees.

Anticoagulants. Their widespread use as *safe* rodenticide poisons forgets that just their acute exposure effects in humans include hemorrhage, paralysis, weakness, anemia, pain and even death due to hemorrhagic shock. They are also suspected of causing prenatal damage. They also have a very high dermal, inhalation as well as oral toxicity. I tested one of the anticoagulants, Rozol tracking powder, in the early 1970's as a potential poison dust to control bats. My report said while it killed bats there was no safe way to remove the toxin from walls and attics, and it did nothing to correct the ectoparasite and bacterial problems inherent to bat control, so EPA did not include bats on the label. In spite of *my* findings, the Michigan DOA allowed this poison to be applied in Michigan under a "special use" permit. Local *professionals* have told their customers Rozol will *break down* in 30 days. When I called the Formulator to confirm my 20-year-old test material was no longer toxic, I was told it may have lost *some* of its *strength*. I have seen Rozol tracking powder *professionally* applied all over a walk-in attic and the customer vacuuming up **pounds** of the toxin without any safety equipment or clean-up instructions whatsoever! The federal Occupational Safety and Health Administration (OSHA) discovered rat poison/bait (Talon 6) in high concentrations in the ambient air in a small Albany, NY office building!

Arsenic. Compounds are used in pesticide poisons and wood preservatives. Considered to be a carcinogen, e.g., skin, liver, bladder and lung cancer. Health effects can occur some time after acute exposure to arsenic and can chronically last for months or years, e.g., weakness, nausea, loss of appetite, vomiting, stomach pain, eye, nose and throat irritation and inflammation, destruction of the nasal tissues, excess itching, thickening and discoloration of the skin, paralysis, shock and death. **Inorganic arsenic is a human poison**. Note: Leonardo da Vinci proved a long time ago that arsenic placed at the base of fruit trees wound up in the fruit of those "treated" trees.

Atrazine. Atrazine is a restricted-use pesticide poison; the label states: "This product is a restricted-use pesticide herbicide due to reproductive and ground and surface water concerns. Users must read and follow all precautionary statements and instructions for use in order to minimize potential to reach ground and surface water." Atrazine has a transformation product, N-nitrosoatrine. Atrazine has chronic toxicity effects that show it is a carcinogen, mutagen, immunotoxin and causes adrenal damage. Its *inert* components are ethylene glycol and formaldehyde; MSDS M0000119 states principal health hazards as "May be fatal if swallowed. Harmful it absorbed through the skin. Aggravated Medical Conditions: Preexisting eye, skin and respirator disorders,

impaired kidney function...In testing of technical Atrazine, ataxia, dyspnea and convulsions have been noted in lethally intoxicated experimental animals...Atrazine has caused an increase in mammary tumors (breast cancer) in female Sprague-Dawley rats...When ethylene glycol was administered at daily doses of 1.25 g/kg and above to pregnant rats, or at 750 mg/kg and above to pregnant mice, there was an increase in the number of malformed fetuses at all dose levels...There was also evidence of maternal toxicity at all dose levels...Formaldehyde... produces irritation of the skin, eye, upper respiratory tract and other mucosal surfaces...Direct contact of the eye with more concentrated formaldehyde solutions produce permanent eye damage. Formaldehyde has produced skin sensitization in laboratory animals and on rare occasions, respiratory sensitization (asthma) in man." The IARC, NTP and OSHA lists formaldehyde as a carcinogen. The MSDS also states that it is toxic to aquatic invertebrates. **See Formaldehyde.**

From the RIC Good Wood Guide: Atrazine is the world's most widely used herbicide. It is used to control weeds in plantations, on roadsides, in parks, gardens, orchards and pastures, etc lots of places where children play. It is notorious for its tendency to contaminate groundwater, with a consequent deleterious effect on human health as documented by the World Health Organisation. Because it is a systemic poison (organochlorine), its residues penetrate the flesh of fruit and vegetables and cannot be washed off. The Australian Medical Association is opposed to Atrazine spraying.

Research has indicated that atrazine is associated with prostrate, ovarian and breast cancer and also damages the endocrine system, functioning as a synthetic hormone disruptor. As a 'hormone mimic' it can block, antagonise, compete with, or mimic hormones at cellular level. This may lead to reproductive and endocrinal effects. Atrazine has also demonstrated cardiac toxicity in experimental animals. Exposure may lead to abdominal pain, impaired adrenal function, anaemia, dermatitis, diarrhoea, skin, eye and mucous membrane irritation, nausea and vomiting.

Too often, the community is not even aware of the use of this poison in public areas. It is extremely important to be vigilant when there is the prospect of such chemicals being used in the local community. With the corporatisation of forest agencies, and their hunger for short-term profits and reluctance to date to investigate environmentally-safe weed control, the 'chemical option' remains very attractive to them.

Forestry Tasmania is one such agency which has sprayed Atrazine in water catchment areas after clearfelling areas of forest or plantation. Twenty days after one such instance, Atrazine was found in the town of Derby's tap-water. Manufacturer, Ciba Geigy has tried very hard through the media to claim that Atrazine couldn't harm anyone, yet is unable to explain outbreaks of non-Hodgkins lymphoma in Italy (Europe in general has for years been getting Atrazine fog), or bowel cancer in Kansas in the U.S. (which is subjected to Atrazine rain, has 75% of its water bores contaminated with the stuff and uses identification of Atrazine residues in food imports as a trade barrier). Info from the Manufacturer itself shows that metabolites of Atrazine (i.e., what it breaks down into in the ecosystem), are more than twice as toxic as the original compound.

The Tasmanian foresters declared a moratorium on Atrazine (and Simazine) use until 1997, and have invested $200,000 in the investigation of alternatives to chemical use in plantations. Super-heated steam is one option being examined by Councils to control weeds (such as Sydney's Leichhardt Council). However, there are many more chemicals 'out there' which need to be subjected to closer community scrutiny.

Baygon. A carbamate insecticide poison used *professionally* against cockroaches, flies and mosquitoes. It probably causes inhibition of the cholinesterase enzymes; acute effects include nausea, blurred vision, stomach pain, sweating, muscle weakness in arms and legs and vomiting. **(Please see the carbamate section.)**

Bendiocarb. Ficam came on the market in 1976. The active ingredient in Ficam is another carbamate poison that is a known cholinesterase inhibitor. **(EPA Registration "voluntarily cancelled" 10/25/99 by AgrEvo.)**

Benzene. Is an aromatic hydrocarbon fumigant, insecticide and industrial solvent; all pesticide poison uses in the U. S. were canceled, but it is **still** found as a contaminant or *inert* in and/or the beginning chemistry for most volatile, synthetic pesticide poisons. It has a very high acute inhalation toxicity. Chronic toxicity effects include: leukemia, carcinogen, mutagen, cardiac difficulties, teratogen and blood and bone damages, central nervous system damage, chromosomal difficulties or aberrations, shortness of breath, nervousness, bleeding, weight loss, irreversible changes in blood, damage to liver and heart, paralysis and death; can acutely cause flu-like symptoms, headache, muscle twitching, intestinal distress and respiratory problems. Once inside the body,

benzene is stored in fat cells along with phenol, which is produced from the oxidation of benzene in the body. Although some benzene is passed out via urination or exhalation, the majority is stored in fatty cells. **Note: The benzene hexagon is the beginning chemistry behind the chlorogenic, chlorophenoxy, carbamate and organophosphate pesticides and herbicides! Benzene, as it is being pulled apart by nature and oxygen is added, remains carcinogenic and toxic.** Health effects can occur some time after exposure to benzene and can last for months or years. By 1991, EPA had removed benzene from its list of pesticide "inert" ingredients because the Agency had asked in 1987 for pesticide formulators not to use it and they thought no one was still using benzene. However, this was not the case; benzene may simply now be described as a "mix of petroleum distillates." **See Phenol and Xylene.**

Benomyl. Benomyl is a developmental and reproductive toxin we export to banana-growing countries as a fungicide poison.

Boric Acid. Another *safe*, inorganic insecticide I find routinely misused; it causes many acute and chronic exposure effects which include nausea, coma, testes and kidney damage, decreased sperm counts, lung hemorrhages, convulsions, insomnia, diarrhea, shock and even death due to CNS depression, circulatory collapse or renal failure. It can increase the frequency of birth defects in rabbit fetuses. It can be ingested or absorbed through the skin. Boric acid is toxic to plants and has damaged commercially important species. Most of the time I find it overused. People think it is totally non-toxic, and it is not - it has an acute LD_{50} value similar to salt; would you eat cups full of salt? Of course not. Baits should contain 2% or less of this material, (H_3BO_3). EPA exempted the need for a boric acid tolerance because of its benign nature and considers boric acid baits "non-toxic", per 7/16/97 Pesticide Report.

Boron and Boron Compounds. Very high levels can cause boron poisoning with damage to the respiratory tract, liver, kidney, nervous system, gastrointestinal tract and death. There is little data on the health effects of long-term exposure to boron.

Bromoethane. Bromomethane is a manufactured (volatile, synthetic fumigant) poison; also called **methyl bromide**, it is used to kill a variety of pests including rats, insects and fungi. Exposure at high levels can affect your lungs and cause breathing difficulty. It can also damage your kidneys and nervous system and can cause death. Small amounts can cause headache, weakness and nausea several hours later. It breaks down slowly in the air over several years. It is an extremely toxic *registered* fumigant, but it also is used as an unregistered *inert* that is easily inhaled and absorbed through the skin. EPA has determined that bromomethane is not classifiable as to its human carcinogenicity. We do not know if it affects our ability to reproduce. We believe chronically it is a mutagen, neurotoxin and causes brain, liver and kidney damages. Yet we continue to routinely use this toxin that can cause muscle tremors, seizures, kidney damage, nerve damage and even death. **See Methyl Bromide.**

Bromoxynil. This is a toxic herbicide poison with numerous known adverse health and environmental effects. A committee of EPA staff has concluded that bromoxynil should retain its classification as Group C, a possible human carcinogen, based on a new study submitted by Rhone-Poulenc showing that bromoxynil causes malignant liver tumors in both female and male mice. Evidence of bromoxynil's mutagenicity and information from a structural analog, 2,4,6-tricholorophenol, a known carcinogen, provided additional support for the carcinogenicity classification. The carcinogenic risk of bromoxynil **already exceeds** the one-in-a-million standard of the new Food Quality Protection Act.

In addition, bromoxynil is a developmental toxicant that causes birth defects in laboratory mammals (rats, mice and rabbits) and has been classified by the Agency as a developmental toxicant. In 1989, EPA canceled all registrations of pesticide poisons containing one form of bromoxynil - bromoxynil butyrate - because of the risk of developmental toxicity of pesticide handlers. At that time, EPA also imposed new measures, since relaxed somewhat, limiting occupational exposure to avoid cancellation of other bromoxynil formulations, e.g., octanoate.

Bromoxynil also poses environmental threats - it is highly toxic to broadleaf plants and fish. Because it is a low-dose herbicide, even a small amount accidentally misapplied or blown from the site of application threatens plants and wildlife habitats near fields. A study in ponds in the prairie-pothole region of Canada demonstrated bromoxynil's toxicity to fish and showed that the herbicide in water is readily converted to a toxic derivative which persists for weeks after spray applications.

PANUPS notes that bromoxynil-tolerant cotton is able to withstand bromoxynil because it contains an enzyme that breaks the herbicide down into a metabolite - DBHA. The Environmental Protection Agency knows that DBHA accounts for nearly 80% of the residues found in cotton after bromoxynil application. EPA now expects DBHA residues will be found in cottonseed oil and meal and in beef, pork, poultry and eggs from animals that consume the contaminated meal. Though the EPA and Rhone-Poulenc, the manufacturer of the herbicide, have known about DBHA for years, Rhone-Poulenc has never submitted data on its toxicity nor has EPA required those data as a condition of *registration.* So, the original tolerance set by EPA in 1995 covered only bromoxynil and not DBHA or any *inerts.*

EPA now recognizes that legally it must set a tolerance for DBHA as well as bromoxynil in order for the cotton to continue to be used. In the May 2, 1997 notice, EPA proposed a tolerance that accounts for the "residues" of DBHA. But the EPA still has not received the safety data from Rhone-Pulenc necessary to assess the true toxicity of the metabolite. Not having these data, EPA has to rely on assumptions. In this case, it is assuming that DBHA is "toxicologically equal" to the parent poison bromoxynil - that is, a carcinogen with the same potency for harm as bromoxynil. But what if DBHA is more potent than bromoxynil or perhaps an endocrine disrupter as well as a carcinogen? Just one more risk you and I will have to assume to keep corporate profits high and agri-business happy and scientifically "correct".

The U. S. Environmental Protection Agency finally banned the use of the *registered* herbicide bromoxynil on cotton genetically engineered to tolerate the toxic chemical. EPA said it acted "because of serious concerns about developmental risks to infants and children" from exposure to bromoxynil.

The Environmental Defense Fund (EDF) has long worked to end bromoxynil use. There is evidence this chemical causes birth defects, and studies suggest it is also a carcinogen. EDF was particularly concerned that residues of bromoxynil and its metabolite, DBHA, on genetically altered cotton could get into cottonseed oil as well as foods such as beef, pork, poultry and eggs from animals fed cottonseed meal. Bromoxynil in field runoff is also highly toxic to fish.

EPA halted bromoxynil use on cotton as of January 1, 1998. This is the first time EPA has stopped the use of a chemical (poison) on a crop genetically engineered to tolerate it. "EPA's decision is a major victory for environmentalists who believe that biotechnology should not be used to increase farmers' dependence on chemicals (poisons)," said EDF scientists, Dr. Rebecca Goldburg. "It is a strong signal to the biotechnology industry that genetically engineering crops to tolerate hazardous herbicides (poisons) is not acceptable."

Captan. Captan is a carcinogenic fungicide poison supposedly prohibited for many domestic uses in 1989. On March 26,1997, the United Farm Workers (UFW) with the support of a coalition of environmental groups took legal action to protect thousands of farm workers from the fungicide poison, captan. The UFW filed notices under California's Proposition 65 charging that strawberry growers have failed to warn workers about the hazards of laboring in fields treated with the widely-used fungicide poison, a known carcinogen that has also been linked to birth defects. Strawberry workers have signed sworn affidavits saying they were not warned about the dangers of captan as required under Proposition 65. The proposition, a citizen-sponsored ballot initiative overwhelmingly approved by California voters, requires that the public (including workers) must be warned about exposure to toxic chemicals known to cause cancer, birth defects or other reproductive harm. Under Proposition 65, a judge can order penalties of as much as $2,500 per violation per worker. Now that Delaney is gone, agri-business and the poison *industry* would like to pretend we can *safely* eat carcinogens again!

Carbamates - The origins of carbamate insecticides begin with West African witchcraft and the active principle of the Calabar bean *(Physostigma venenosum)* used in "trial by ordeal." The extracted active principle of this plant material was used in opthamology after 1863. Carbamates as insecticides were developed in 1951 by Geigy Corporation from a reaction involving carbonic acid. Carbamates, a group of insecticides and herbicides used in agriculture, are also used as growth promoters in battery-farms because they slow down the metabolic rate and are used to fatten livestock. Carbamates are also used medically to promote weight gain. The body, when exposed to toxins that it cannot process and/or eliminate, creates fat to store the toxins. No wonder we are becoming extremely overweight. (Read more about this in Dr. Baille-Hamilton's book, "The Detox Diet." Carbamates - including aldicarb, baygon and carbaryl. Mode of action: Inhibits acetylcholinesterase and so damages nerve function. Acute effects: Sensory and behavioral disturbances, incoordination, depressed motor functions, malaise, muscle weakness, dizziness, sweating, headache, salivation, nausea, vomiting, abdominal

pain, slurred speech, difficult breathing, blurred vision, muscle twitching spasms, convulsions, diarrhea, depression of cholinesterase is noted even more prominently in the fetus, skin sensitization. Chronic effects: Memory loss, behavioral defects, suspect mutagen, fetotoxin, carcinogen, viral enhancer and teratogen; causes cataracts, spleen, bone marrow, liver and testes damages, reduced sperm levels, increased organ weights, decreased body weights, anemia, decreased hemoglobin, decreased fertility from ovary and testis damage, may convert to N-nitroso compounds in soil and in vivo with saliva. Fact: In 1984, a spill of a toxic chemical used to make carbaryl at a Union Carbide plant in Bhopal, India killed thousands and poisoned hundreds of thousands, resulting in birth defects, miscarriages, blindness and permanent brain, nerve and lung damage. There are reports in literature that suggest carbamates possess another mechanism of action in addition to the inhibition of nervous tissue cholinesterases. In these experiments animals died almost instantly following intravenous injection. Within a very few minutes of *treatment*, carbaryl and other carbamates produced a marked anesthetic response accompanied by severe respiratory difficulty (dyspnea) and eventual respiratory failure - Pesticides and Neurological Diseases - page 265. EPA will focus on reviewing carbamates in 1999. **See Benzene.**

Carbaryl. This is a neurotoxin poison and EPA classifies it as a carcinogen as is may cause malignant blood vessel tumors. It causes abnormal sperm, fetal loss and birth defects in rats and causes chromosome damage in hamsters. Carbaryl is a poison that is also toxic to birds, fish, bees, etc. It has transformation products including l-napthol that causes liver damage and nitroso carbaryl, a carcinogen and mutagen. On 6/30/03 EPA completed another "assessment" on carbaryl, one of the most widely used insecticide poisons in agriculture; once again EPA has reduced application rates, eliminated aerial applications for certain crops, cancelled some uses and application methods, eliminating most pet care and aerosol products, requiring more personal protective equipment and engineering controls and extending restricted entry intervals for many crops. EPA never seems able to ban any "registered" pesticide poison outright, but seems only able to restrict its usage/misusage for years before the pesticide is "voluntarily withdrawn." Carbaryl poses risks to people, pets, honey bees, aquatic invertebrates and other aquatic animals.

Carbofuren. It is a WHO Class 1b "highly hazardous" U. S. restricted-use carbamate pesticide poison used in and exported from the U. S. as an insecticide, nematocide and acaricide. Its acute toxicity is high to very high orally; little is known about dermal and/or inhalation acute toxicity. Chronic exposure notes it is a immunotoxin and suspect mutagen.

Carbon Tetrachloride. (CCl_4) It has long been used as an unregistered *inert* in *registered* insecticide poison and fumigant pesticide poisons. Chronically it is a probably a carcinogen and a fetotoxin; it can damage the liver, eyes, nervous system and kidneys and testes. Acute exposure can cause dizziness, nausea, headaches, vomiting, skin irritation, etc. It can affect you when breathed in, absorbed or swallowed. **It was previously banned in the U. S. in 1986 as a *registered* insecticide active ingredient. It is still used** as an *inert* propellant for aerosol cans. It was used to fumigate U. S. grain until this use was also stopped in 1986. CCl_4 is very persistent in the environment - it takes 30 - 100 years for half of the CCl_4 to be destroyed. It has acutely killed some exposed people. The brain and liver are especially sensitive to CCl_4, as is the kidney. (Kidney failure was the main cause of death of people who died after exposure to CCl_4.) The above-mentioned problems are where people have been exposed only once or for a short period of time; the effects of long-term exposures are not known. Alcohol makes the effects worse. Its transformation products include phosgene gas that causes lung damage chronically and the acute toxicity danger period is usually 6 - 24 hours after exposure.

Carbophenothion. This is an organophosphate pesticide poison whose acute toxic effects include inhibition of cholinesterase, which results in the immediate uncontrollable physiological responses as well as long-term central nervous system damage. It may cause prenatal damage as well as severe physiological damage including coma, confusion, convulsions, dizziness and vertigo, hallucinations, headaches, liver damage, psychosis, salivation, shock, sweating, vomiting, and extreme weakness. Carbophenothion may be synergistic with other organophosphate pesticide poisons. It is highly toxic to freshwater, marine and estuarine organisms, bees and to upland game birds.

Chlordane. In 1945, Velsicol's Julius Hyman discovered chlordane. A member of the organochlorine family of pesticide poisons, chlordane is closely related to DDT but it is an even more potent and direct carcinogen. Most agricultural uses and above-ground uses were cancelled in 1980. Exposure can cause headaches, irritability, vision problems, liver damage, etc. It has been frequently used in termite control. It is extremely hazardous when inhaled; it is cumulative and a neurotoxin and **still** is one of the most common forms of pesticide poisoning today

because it is **still** causing long-term contamination of ambient air long after homes were ***legally treated*** with this *registered* carcinogenic compound. Chlordane is not a single chemical but a mixture of over 50 chemicals. There is approximately a 75% chance you are breathing significant amounts of the pesticide poison, chlordane, every minute you are inside your home if your home was built before April of 1988. Other studies have shown there is a 6% - 7% chance you are breathing dangerously high levels of the pesticide which are above the original interim guidelines set by the National Academy of Sciences. This problem is occurring because over 30 - 50 million homes were *treated* with the *registered* poison prior to its being *banned* (voluntarily withdrawn) by the EPA in March of 1988. The air chlordane studies were conducted by the U. S. Air Force and the New Jersey Department of Environmental Regulation. Over 1,000 homes and apartments were tested in different parts of the nation. The researchers stated they expect the figures to remain the same throughout the country because of standardized application practices by the pest control companies. *(Teratogenesis, Carcinogenesis and Mutagenesis 7:527-540, 1987)* Chlordane can affect you when breathed in, swallowed or when absorbed through the skin. It can damage the nervous system and liver. We **still** do not know (even now) what levels of chlordane contamination in food can cause death or nervous symptoms in humans after long-term or chronic exposure!

In 1987, over 250 adults and children were exposed to the volatile pesticide poison, chlordane when the wooden building surfaces and soil around their apartment complex was sprayed. Their exposure came from the vapors that entered into their home for the years after the chemical's application. Levels inside the homes were reported above 0.5 ug/m3. In June-September 1994, 216 adult occupants or former residents of the apartment complex were examined by researchers at the University of Southern California School of Medicine in Los Angeles. The 109 women and 97 men were given a battery of neurological tests to determine if the levels of chlordane in their apartments were causing any harmful effects. The tests given are considered sensitive indicators of neurotoxicity. To determine if chlordane was in fact causing neurological problems, the test scores of the chlordane exposed adults were compared to the test scores of 94 women and 68 men from Houston known not to have been exposed to chlordane. Results of the testing showed many negative effects upon mental function from the low levels of the air chlordane. Not only were test scores lower for reaction time, balance and memory, but also worse scores were observed in the test checking for attention deficits (digit symbol) and all tests of mood scores including tension, depression, anger, vigor and fatigue.

Going beyond the neurological testing, both groups were also investigated for many common symptoms and illnesses. Those which were significantly more common in the chlordane exposed group included asthma, allergies, production of phlegm, chronic bronchitis by Medical Research Council criteria, and wheezing with and without shortness of breath. Headaches and indigestion were also more common among the chlordane exposed individuals. **Chlordane is easily absorbed through the skin**.

In summary, Drs. Kilburn and Thornton summarized their findings by stating, "The exposure of our study group appears to be from indoor air, due to the outgassing of chlordane from the wooden surfaces of the apartment complex...Examination of subjects exposed in their homes to chlordane as compared to referent subjects showed significant and, we suggest, important impairment of both the neurophysiological and psychological functions including mood states. Accompanying these changes were significant differences in symptom frequency and in respiratory rheumatic and cardiovascular disease symptoms. The most notable changes were slowing of reaction time, balance dysfunction as revealed by increased sway speed, reduction in cognitive function, perceptual motor speed, and immediate and delayed verbal recall...the neurobehavioral impairments measured in this environmental epidemiological study were similar to those noted in patients exposed to chlordane at home. These impairments include probable irreversible dysfunction of the brain. Possible effects on trigeminal nerve-pons-facial nerve function were suggested for the first time. Confirmatory studies, including follow-up after removal from exposure, are urgently needed. Meanwhile chlordane use should be prohibited worldwide." **Chlordane was finally and totally removed in 1997. Should we have a moment of silence? No! Thank G-d!**

This study should generate heightened concern because of the large number of neurological and health effects seen at chlordane air levels of above the "interim" level of 0.5 ug/m3 (typical levels for most U. S. homes) and statements by researchers that developing children are harmed more by chemicals (poisons) than adults. *(Environmental Health Perspectives, 103:690-694, 1995).* One microgram or 1 part per million is only about 1 inch in 15 miles or about 1 minute in 2 years! **I remember when the State *regulatory* people indicted me for not using "enough" of this cancer-causing chemical!** Albert Einstein once said, "never do anything against conscience, even if the state demands it."

In another study, researchers divided mice into three groups of ten mice each. Two groups were subjected to either a low or higher level of chlordane and the third group was used as a control group not exposed to any chlordane. After 30 days of daily exposure, the animals were sacrificed and the testicles were examined. The researchers stated that the chlordane exposed groups showed obvious changes to the part of the testicles where sperm development occurs (called the somniferous tubules). Damaged tubules were present in 19% of the lower chlordane exposed animals - 31% of the higher chlordane exposed animals and only 3% in the animals not exposed to chlordane. There was also a reduction in the somniferous tubule diameter in the higher chlordane exposed group. *(Bulletin of Environmental Contamination Toxicology, 39:434-442, 1987)*

Virtually every human on earth now has some form of this cancer-causing poison in their fat. Most health effects are on the nervous system and the digestive system. Other toxic effects of this potent nervous system poison include mutagenicity, prenatal and postnatal damage, blood, liver and testicular damage, sweating, headaches, dizziness, incoordination, anorexia, renal degeneration, behavioral problems, memory loss, coma, convulsions, nausea, sleep disorders, respiratory problems, adversely effects hormone levels, causes delirium, tremors, personality changes, blood system disorders, vomiting, weakness, pain, paralysis, reproductive system effects, and death due to respiratory failure. Most uses of chlordane were strictly limited in the mid-1970's and it was finally banned 3/15/83, in the U.S.A. In Arizona, a *professional* was found still spraying crawl space surfaces in 1989! It **still** is being applied sporadically/illegally throughout the United States for pest and termite control and is **still** widely used in other nations. Customs records show Velsicol exported 2.6 million pounds of *banned* chlordane/heptachlor in 1990...a rate of 3.6 tons per day! (We get it back in our food.) It still poisons our soil and contaminates plants and vegetables grown on the poisoned soil and/or in animals that graze on grass from chlordane poisoned fields. We **still** do not know whether chlordane affects the ability of people to have children or whether it causes birth defects. Animals exposed while nursing or before birth developed behavioral effects/ problems later.

Several people I know have large amounts of chlordane stored away for future *use*. Based on what I have seen there are probably **hundreds of thousands of gallons still left in the U. S.** in garages, homes, barns and in the offices of *professional* pest control people. It is highly toxic to fish, arthropods and phytoplankton and is now *routinely* found in the fat of all *Michigan* people and fish. The acute fatal dose of active ingredient to man is estimated to be only 6 - 60 grams. On 9/30/92 a Cement Contractor told us that last Spring he bought 55 gallons of chlordane concentrate in Florida and brought it back here for his *own use*. On 10/9/92 I found a glass gallon of *registered/banned* chlordane *stored* next to a well. On 6/5/98 I received an e-mail that a man had just "treated" his home with the chlordane that was "banned" in March of 1988.

Over the years I personally have sent the DOA hundreds of examples of *competitive* misuse of this poison, none of which were ever prosecuted. Dr. Pete Lurker told me that when he was testing for chlordane contamination in the Air Force housing there was a command directive to keep any remediation at 2% or less - that is how the *safe* interim evacuation level of 5 ugs was first arrived at. Even back then the 5 micrograms per cubic meter was the **evacuation interim** guideline, not the *safe* level!

Today we have over 50 million homes (just in the U. S.) that are contaminated at or beyond the *latest* evacuation level, but no one will ever know for sure how many, but at least 75% of all U. S. homes built before April of 1988 are now (permanently) contaminated with chlordane **at significant levels!** Chlordane is and was such a persistent contaminant that homes treated according to the *registered* label 20 - 30 years ago are **still** showing unsafe levels of the cancer-causing chemical in the indoor air! In January of 1997 the Milwaukee Journal Sentinel noted that a person intentionally sabotaged a rendering plant run by National By-Products by contaminating the tallow with chlordane. "For some period of time" Purina Mills in Fond du Lac, Wisconsin used the poison contaminated tallow for mixed animal feed, e.g., cattle, hogs and chickens and prompted a recall of the contaminated feed product in four states and a testing of dairy products for health risks.

A new study has found that combinations of two or three pesticide poisons at low levels are up to 1,600 times as powerful as the pesticide poisons by themselves. The study performed by researchers at Tulane University showed that chlordane, which does not disrupt hormones by itself, greatly increases the ability of other chemicals to disrupt hormones. This study, along with additional articles commenting on its findings, is published in the June 7, 1996 issue of *Science* magazine. Additional research should confirm that chemical combinations can greatly enhance hormone-disrupting capabilities, regulation and review of chemicals will finally be under new scrutiny. **Only 1 oz. of chlordane taken orally will kill a man.** The Author lost a son, an Uncle and many friends to

the use of this terrible *registered* poison; received a tumor the size of a golf ball on his right middle finger, and was unable to add up two quarters, a dime and a nickel until he went through years of extensive detoxification. Even after it was removed from the market, a toxic substances fact sheet noted this *registered* poison has **still not been sufficiently tested** to determine what effect exposure has on reproduction and development. When the Author renewed his Michigan termite control license in November 1998 the "revised" manual still demanded homes be treated for termite control with not less than 1% chlordane or 0.5% heptachlor or 0.25% heptachlor/0.5% chlordane! On 1/21/00 a Farmer admitted to the Author he still uses chlordane on his crops. **See Heptachlor.**

Chlordecone. It was an organochlorine found in Black Flag ant traps, Tat ants traps, etc. It was used as an 4insecticide, acaricide and fungicide poison. Its *registered* use was cancelled in the U. S. in 1977. It has a high acute toxicity and chronically is cumulative, a carcinogen, suspect fetotoxin, neurotoxin and causes liver damage, decreased reproductive ability, suppresses pituitary cell hormones and causes testicular atrophy.

Chlorinated hydrocarbons. Include *registered* poisons such as DDT, lindane, dieldrin, aldrin, chlordane, endrin, isodrin, kelthane, thiodan and toxaphene, and are known to attack the central nervous system.

Chlorine. A powerful poison, chlorine gas became known as a poison gas to the world in World War I. About 90% of the chlorine is combined with various carbon compounds, usually derived from petroleum to make organochlorines. At present, about 7 out of 10 Americans drink chlorinated water. Chlorine is used extensively in the processing of **fresh** poultry and vegetables. Over the last 20 years nearly 2 dozen studies have been done that link chlorination of drinking water to bladder and rectal cancers and, in some cases, cancers of the kidney, stomach, brain and pancreas. The American Public Health Association has called for the phasing out of all products containing chlorine 'because of their probable link to breast cancer and other health-related problems. Because this toxin is a "sanitizing agent," the FDA and USDA do not require processors to label that their food products have been chlorinated. The hotter the water the more chloroform is absorbed through the skin.Try using Kleen 'Em Away Naturally enzymes or vitamin C. (See Chapter 11.) For laundry, substitute 1/2 cup white vinegar or baking soda or borax or 3% hydrogen peroxide per load. (See **furans**).

Chlorobenzene. Acute exposure to this chemical, which is used as an *inert* in the manufacture of numerous pesticide poisons, may cause numbness, headaches, sleepiness, nausea, vomiting, drowsiness, incoherence and liver damage. Points of attack include the respiratory system and the central nervous system; p-dichlorobenzene is used in the production of explosives.

Chloroneb. Is an organochlorine fungicide poison known to cause liver and kidney, blood cell, spleen and bone marrow damages. Its transformation products include TCDD, a dibenzodioxin, which not only has a very high acute toxicity but is known to be cumulative, a carcinogen, a suspect mutagen, a teratogen, which causes chloracne, thymic atrophy, hirsuitism and affects vitamin A balance in the liver and kidneys.

Chlorothalonil. Is a benzonitrile poison that is a probably human carcinogen exported by the U. S. to be used as a fungicide poison. It also chronically causes hyperexcitability, skin damage, eye damage and kidney damage. Its transformation products include 4-hydroxy-2,5,6-trichloroisophtalonitrile that chronic exposure to can cause anemia. It is also currently an approved, unregistered *inert* as well as a *registered* active ingredient. Nice *inert.*

Chlorpicrin. Is currently an approved unregistered *inert* and a *registered* active poison ingredient. Chlorpicrin is an organochlorine fumigant poison that chronically is a suspect mutagen, causes anemia, irregular hearbeat and recurrent asthma. Nice *inert.*

Chlorpyrifos. Chlorpyrifos (O,o-diethyl-0-3-5-6-trichloro-2-pyridyl phosphorothioate) is a chemical compound with 3 chlorine atoms on the central nitrogen - containing benzene ring, a white crystalline (sugar- or sand-like) substance that smells like natural gas. **(See Benzene.)** it was discovered and synthesized in 1961 by Dow Chemical Company's research scientist, Ray Rigterink. An organophosphate that inhibits an enzyme essential for nervous system function. Chlorpyrifos is on the Hazardous Substance List because it is cited by ACGIH, DOT and other authorities. The active ingredient is moderately toxic from acute exposure. There is a special risk of illness to people with respiratory or liver function problems. Acute exposure via inhalation can cause a runny or bloody nose, wheezing, coughing, chest discomfort, seizures and birth defects per the Extension Toxicology Network, California. Chlorpyrifos has a lot of trade names, e.g., Dursban, Lorsban, Empire, Equity, Lentrek, Lock-on, Pagent, Killmaster II, Tricel Pyriban, Contra-Insect, Pamol, Dorsan and Pyrinex. In June

of 1989, the EPA requested from Dow "specific analysis of chlorpyrifos for potential impurities structurally related to dibenzodioxins." The EPA cited the rationale: "The Agency is concerned that an impurity structurally related to TCDD (2,3,7,8-tetrachloro-p-dioxin) may form during the manufacture of chlorpyrifos, based on the starting materials used and other impurities known to occur." Despite requests to the EPA, under the Freedom of Information Act, information concerning potential dioxin contamination remains unknown. An EPA notice issued three years later requested data "in all discipline areas (product chemistry, residue chemistry, toxicology, environmental fate and ecological effects.)

The subject of synergistic contamination is of more than theoretical interest on two accounts. Illnesses suffered by Gulf War veterans are similar to illnesses developed by civilians who have been exposed to pesticide poisons. The use of pyridostigmine, related to the carbamate group of pesticide poisons, plus the use of chlorpyrifos and other organophosphate pesticide poisons may be one of the keys to the illnesses suffered by these military personnel. As with Vietnam veterans, pesticide exposure again may be a significant factor in disease causation. Chlorpyrifos is a WHO Class II moderately hazardous and a U. S. EPA Category II nerve toxin.

A second medical problem, involving what is called the "Post Polio Syndrome," became recognized but a decade ago, occurring in the young as well as the elderly after a stable course of 20 to 40 years. Nerve damage caused by the polio virus leaves victims with fewer functioning nerve cells than those unaffected. It follows that a person with a nervous system previously damaged by the polio virus will be less tolerant of a subsequent neurotoxic insult such as an organophosphate pesticide poison. **Do you really believe the poison *industry* asks if anyone has ever had the polio virus before they spray their poisons?**

A thorough inquiry into organophosphate pesticide poison exposure and its possible causation in each of these situations should be undertaken (page 168-69, J. Sherman's *Chemical Exposure and Disease*).

This (broad spectrum) organophosphate insecticide poison was introduced in 1965 and is used in ever increasing amounts to control pests in vegetable and fruit crops. An estimated 18 - 26 million pounds of chlorpyrifos are used just in the U. S. each year! In 1984, it was reported that there were numerous North Carolina University studies that clearly showed it is impossible to keep this toxin from contaminating all surfaces) even when the label's instructions were followed exactly! **Years ago EPA has *estimated* we were already ingesting 313% of the acceptable daily intake of this toxin just from our normal eating patterns!** It also is routinely sprayed on lawns, ornamental plants, inside homes and other public buildings and directly on stagnant water.

The American Journal of Public Health, (80(6): 689-93, 1990), noted that applying common flea pesticide *(registered)* treatments to carpets results in illegally high air pesticide levels in homes which lasts for over 24 hours after application. This was the conclusion of research conducted by Dr. Richard A. Fenske, Assistant Professor at Rutgers University. Tests were conducted by applying the common pesticide, chlorpyrifos (Dursban), for flea treatment by a Licensed Pest Control Applicator to three rooms of an unoccupied apartment in New Jersey in June, 1987. Air sampling equipment was installed above the floor at the levels expected for an adult sitting in a chair and that of an infant. After application, samples were taken at 30 minutes, 1 hour, 1.5 hours, 3 hours, 5 hours, 7 hours and 24 hours. Results showed that at 5 hours post application, indoor air levels of the volatile pesticide poison was nearly twice above the legal limit in homes with ventilation (an open window) and over 6 times above the legal limit at 7 hours where windows were closed. Levels at the infant breathing zone were nearly 10 times above the legal limit at 7 hours and over 3 times the legal limit even after 24 hours. These results show it is incorrect when pesticide applicators state it is safe to return home several hours after application. In fact, levels at 7 hours were 3 - 5 times higher than the 1.5 hour level. In conclusion the researchers stated, "Despite uncertainties in exposure/absorption estimates and toxicological interpretation, the dose values derived in this study raise a public health concern. Broadcast applications and possibly total release aerosol/fogging applications of acutely toxic insecticides may result in dermal and respiratory exposures sufficient to cause measurable toxicological responses in infants.

Archives of Environmental Health, 48(2):89-93, noted that the pesticide poison, Dursban (also called chlorpyrifos), commonly used in indoor and lawn pest control, is now showing evidence of causing immune system disorders in people. In a study by the Department of health Science at California State University, 12 individuals, which included a teacher, six housewives, a retail owner, a musician and an engineer, were studied for 1 to 4.5 years after they became ill when their homes or places of employment were treated with this *registered* pesticide poison. The researchers were investigating for any abnormalities in immune system function. Immediately following

each patient's exposure to the pesticide poison, common complaints included an initial flu-like illness following by chronic complaints of fatigue, headaches, dizziness, loss of memory, upper and lower respiratory symptoms, joint and muscle pain and gastrointestinal disturbances. The subjects were found to have an elevated number of CD26 cells and a higher rate of autoimmune problems, compared with two other control groups. (Autoimmune disorders occur when the person's own immune system mistakenly makes antibodies which attack their own body.) Autoantibodies were found toward smooth muscle, parietal cell, brush borer, thyroid gland, myelin and ANA. 83% of the pesticide exposed people were found to have autoantibodies in their blood, in comparison to only 15% for the non-exposed control group. 50% of the pesticide poison exposed people were also found to have two or more autoantibodies in comparison to only 4% for the non-exposed group.

In conclusion the researchers stated, "the presence of several different types of autoantibodies, e.g., antimyelin, antismooth muscle, antibrush boarder, and antimicrosomal, indicates that generalized tissue injury has occurred. Moreover, these identical observations have been made in additional chlorpyrifos patients (research in progress). Thus, chlorpyrifos (Dursban), as used in pesticide poison spray, should be examined more closely as a probable immunotoxin."

Since chlordane was *banned* this poison (**Dursban TC**) has been used as *the* replacement termiticide poison. Chlorpyrifos is extremely toxic to bees, fish, birds and other wildlife. Long term toxic effects includes birds: leg weakness, delayed neurotoxicity; fish: affects growth; crustaceans: affects reproduction and equilibrium; bulls: sterility and impotence. Symptoms of acute poisoning in humans include headache, coma, dizziness, extreme weakness, anorexia, ataxia, cardiac problems, tiny pupils, twitching, tremors, nausea, slow heartbeat, pulmonary edema and other respiratory problems, sweating and even death. Human chronic or continual exposure to this delayed neurotoxin may result in frontal lobe impairment, confusion, convulsions, flu-like symptoms including diarrhea, weakness, anorexia and malaise.

While **Dursban TC** may not legally be applied in **any** amount in animal barns, it is currently being ***legally*** applied by the hundreds of gallons inside homes, schools and other public buildings! It is known to bring on asthma attacks. It is an *interesting* poison in that its active ingredient's supposed *residual* life is only 3 - 5 *weeks* when applied to typical building surfaces for roach and general pest control, several *years* when applied to timbers and other wood for powder post beetle control and supposedly lasts for *decades* when applied to the soil as a termiticide. (Amazing; chlorpyrifos supposedly knows just when to *break down*).

The *new* **Dursban** labels state, **"It is impossible to eliminate all risks associated with use of this product."** This statement alone should be enough to place this poison on the restricted use list. The American Fire Sprinkler Association has identified Dursban TC and Tribute, two chemicals used to control termites, that cause stress cracking in rigid vinyls such as CPCV and PVC. There was a $125 million lawsuit filed against Dow charging that Rid-a-Bug Spray, which contains chlorpyrifos and xylene (a compound shown to cause birth defects in animals) caused two children in Smithtown, N.Y. to be born blind and severely brain damaged. The Plaintiffs cited evidence that the two chemicals when combined can be absorbed through the skin and lungs and bypass the placental barrier. When my Secretary became pregnant her OB-GYN said chlorpyrifos exposure was "o.k.", but when I mentioned the *inert* xylene carrier he made her leave our offices immediately! **Sadly, volatile, synthetic pesticide poisons are not registered or tested for their total toxicity; only their active ingredient is *tested/registered.***

ACGIH - The recommended (adult) airborne exposure limit is 0.2 mg/m^3 averaged over an 8-hour work shift and 0.6 mg/m^3 as a STEL (Short-Term Exposure Limit). The above limits are for air contamination levels only when skin or other exposure occurs; you may be overexposed even if air contamination levels are less than those listed above.

Death is usually due to respiratory failure. Even 21 hours after a *proper* application for fleas, studies have detected chlorpyrifos levels high enough to poison infants! (Please read and compare this poison with "malathion" and "methoxychlor" detoxification problems.) It is known to have sulfoTEPP as a contaminant and pyridinol is a transformation product and both a 1989 and a 1991 EPA "Data Call-In Notice" showed it has dioxin contamination problems as well. Whenever I sprayed this toxin for German roach control - the first thing I observed was the female roaches would immediately cast their egg cases (miscarry). On 11/2/92 two of my *competitors* stated that *they* would still pressure *treat* a home with a cracked foundation and an enclosed well ignoring the Dursban TC label restrictions. But, there is no one (in this State) who will stop this illegal practice.

Pregnant people, infants, old people and people with liver problems and asthma should especially avoid contact with this toxin. Very toxic to mammals and fish. Chlorpyrifos is a cholinesterase (an enzyme) inhibitor - which means it causes acetylcholinesterase (AChE) not to function properly so acetylcholine accumulates producing rapid twitching of involuntary muscles, convulsions, paralysis and ultimately death.

Other enzymes adversely effected are ATPase (per the 1994 Journal of Pesticide Reform) - important in cellular respiration. Per the Journal of Pesticide Reform, chlorpyrifos bioaccumulates and is transformed in animals/ people to chlorpyrifos-oxon which is about 3,000 times a more potent neurotoxin. Regional Monitor News - Winter 1995-6 noted as few as 27 chlorpyrifos-containing flea dips or shampoos per day have been calculated to contaminate a sewage treatment system serving 400,000 residents.

Dr. Sherman has noted: The most common volatile, synthetic pesticide poison used to *control* pests is an organophosphate called chlorpyrifos; remember nerve gases are also organophosphates. Extensive and excessive, unusual patterns of birth defects have been noted at least 11 children in the U. S. whose mothers were exposed to the organophosphate insecticide chlorpyrifos (sold as Dursban and Lorsban) during pregnancy. Defects were noticed in the brain, eyes, ears, palate, teeth, heart, feet, nipples and genitalia. All children had stunted growth and at least 3 had hypotonia (diminished muscle) and profound mental retardation. Published literature and unpublished documents held by the U. S. EPA (but not cited) indicated similar defects have been found in test animals exposed to chlorpyrifos. The exposure of each of the mothers to Dursban in the first 3 months of pregnancy is consistent with a teratogenic effect of Dursban. [J. D. Sherman: "Chlorpyrifos (Dursban) — associated birth defects report of 4 cases, *Archives of Environmental Health,* 1996, 51(1):5-8 as cited in the *Current Research Monitor,* No. 32, The Pesticide Trust, London.] Just 11 more reasons not to use volatile, synthetic pesticide poison to *control* pests! During a Dow deposition, I was told that some experts disagree with Dr. Sherman.

The January 1997 issue of PCT (Pest Control Technology) noted: Environmental Groups Call for New Restrictions on Dursban - The battle over the *safety* of chlorpyrifos, one of the pest control industry's most widely used pesticides, raged anew in November, 1996, after a coalition of medical researchers and environmental groups asked EPA to place new restrictions on indoor use of the popular pesticide poison. The call for additional restrictions was prompted by *alleged* links between chlorpyrifos and a broad range of health effects, sometimes referred to as "multiple chemical sensitivity" or "peripheral neuropathy." A coalition statement, distributed at an American Public Health Association meeting and reported in *Pesticide & Toxic Chemical News,* asked the EPA to:

- restrict all use of chlorpyrifos to certified pest control operators;
- ban the use of chlorpyrifos altogether on pets and in any indoor environment;
- promptly complete the "reregistration review" of chlorpyrifos that has been underway since 1991, and
- require DowElanco to add warnings to its product labels about MCS and the other symptoms of chlorpyrifos and/or proprietary *inert* poisoning, including headache, nausea and vomiting, shortness of breath, fatigue, memory loss and eye pain.

"Some of the data linking chlorpyrifos to multiple chemical sensitivity (have) been in EPA's own files for the last several years," said Albert Donnay, executive director of MCS Referral & Resources, a nonprofit group dedicated to educating the public and the medical community about MCS.

EPA said in its 1997 internal review that "Chlorpyrifos is one of the leading causes of acute insecticidal poisoning incidents in the U. S.," and noted that the chemical is the fourth most common insecticide poison found in U. S. homes. The review, written by Jerry Blondell of EPA OPP's health Effects Division, is based on data gathered from:

- poison control centers;
- a California pesticide poison illness surveillance program;
- National Pesticide Telecommunications Network and EPA Incident Data system case reports;
- descriptions of cases submitted by DowElanco, and
- cases from other sources.

In a statement dated January 15, 1997, DowElanco said it will withdraw Dursban® products (poisons) from the market for indoor flea control, pet care and plant additive uses. The agreement sends the strongest signal yet that EPA plans to seek similar risk mitigation measures for other pesticide poisons as part of the reregistration review process. Dursban® is just the first in a series of indoor-use pesticide poisons coming up for reregistration that EPA would like to see used more safely in the home.
Under that 10-point plan, DowElanco will:

1. Withdraw chlorpyrifos form the indoor broadcast flea control market.
2. Withdraw chlorpyrifos from the indoor total release fogger market.
3. Withdraw chlorpyrifos from the paint additive market.
4. Withdraw chlorpyrifos from the direct application pet care product market (shampoos, dips, sprays).
5. Take steps to increase protections for high-volume household uses, like crack and crevice use, such as marketing ready-to-use, not-concentrated forms to consumers; affix labels prohibiting use in inappropriate areas; set additional requirements for PCO's, and develop restrictions to protect families and pets.
6. Revise chlorpyrifos labels to include appropriate retreatment intervals.
7. Make label changes per PR-Notice 96-7 on appropriate practices for preventing exposures that can occur from inappropriate uses of termiticides.
8. Accelerate education and training for PCO's on these measures.
9. Undertake epidemiological research and establish a blue ribbon panel to provide scientific direction for study design on chlorpyrifos.
10. Continue the Poison Control Center Stewardship Project at the University of Minnesota to monitor incident reporting related to chlorpyrifos.

Most of the 10 points are nearly identical to recommendations in EPA's internal review. The January 14, 1997 EPA memorandum noted that the health statements DowElanco made in 1994 (with documentation) of no incidences of OP poisoning or significant depression or inhibition of red blood cell cholinesterase were reviewed by Jerome Blondell, Ph.D., MPM and found to be incorrect.

During a 6 year period ending in 1990, the National Pesticide Communications Network received 1,022 calls complaining of unusual chemical sensitivity to pesticide poisons. Many, perhaps the overwhelming majority of these calls, involved MCS type problems. Chlopyrifos was the leading pesticide poison listed for chemical sensitivity. Chlorpyrifos-oxon inhibits the enzyme cholesterolesterhydrolase - when this happens in rats, it eliminates one of their normal reactions to stress.

Chlorpyrifos is lipophilic (attracted to the non-water soluble, fatty parts of body tissues) where it is stored and then released and transformed into chlorpyrifos-oxon so that adverse effects occur over a long interval. Chlorpyrifos-oxon is about 3,000 times a much more potent neurotoxin against the nervous system than chlorpyrifos itself! Along with AChE inhibition, EPA researchers measured behavioral changes, including a reduction in working memory and a slowing of motor activity - one response was altered for 12 weeks after only one exposure.

Acute (one-time exposure) poisoning of humans is alarmingly frequent - but not always properly diagnosed. EPA's hotline reported several hundred calls about chlorpyrifos - related incidents occur each year. California physicians reported almost 40 cases of chlorpyrifos poisoning in 1991. Delayed neuropathy is not reversible; victims do not recover - its symptoms include cramps, weakness, tingling and numbing of the extremities, a high stepping gait, paralysis of the lower limbs and (in severe cases) quadriplegia! The delayed neuropathy syndrome typically occurs 1 - 3 weeks after exposure to an organophosphate. It is caused by the inhibition of another enzyme (called neuropathy target enzyme) whose function in the nervous system is not yet even understood. Acute organophosphate toxicity symptoms include headache, nausea, dizziness, muscle twitching, weakness, increased salivation and sweating, fluid-filled lungs - with sufficient exposure - unconsciousness, convulsions and ultimately death can occur.

Humans can be assumed to be as acutely sensitive as rats to chlorpyrifos poison exposure - and half the rat population (LD_{50}) is killed with only an acute oral dose of chlorpyrifos of between 82 and 270 milligrams per kilogram of body weight - **so a dose of less than one-fifth of an ounce can be sufficient to kill an average size adult human!** Based on LD_{50} data inhalation of formulated chlorpyrifos is even more toxic to mice and rats than is oral ingestion! Inhalation exposure obviously is the more normal route of exposure we all face daily! In 1993

physicians described 8 patients (including 2 patients who were physicians) who all (except for an exterminator) developed delayed neuropathy after exposure to routine Dursban *treatments* of their home and/or office.

Chlorpyrifos has also caused reproductive problems in laboratory tests. Recent research has also identified immune system abnormalities individuals (decreases in T cells and increases in CD26 cells) one to five years following chlorpyrifos exposure. Total use of chlorpyrifos is estimated at almost 30 million pounds per year! In pregnant laboratory animals, chlorpyrifos exposure caused fetal death. Chlorpyrifos also adversely affects the male reproductive system, e.g., death of cells in male rat testes and a decrease in sperm production in cattle. Chlorpyrifos has caused genetic damage in human blood and lymph cells, mice spleen cells and hamster bone marrow cells.

Call the National Pesticide Telecommunications Network (NPTN), an EPA sponsored service at Oregon State University at 1-800-858-7378 between 6:30 a.m. and 4:30 p.m. (http://npic.orst.edu/health/poison.htm) to report any chlorpyrifos and/or other pesticide poison exposure incident information. As of 2/98 EPA had documented about 200 Dursban poison exposure incidents. Chlorpyrifos review is scheduled to conclude in September, 1998. EPA wants reports of exposure to other pesticide poisons as well.

Even the newest safety measures won't protect children from exposure to chlorpyrifos. A new study (Source: Environmental Health Perspectives, Volume 106, November 1, 1997) shows that household use of chlorpyrifos products can lead to dangerous exposures well above the level considered safe by the U. S. Environmental Protection Agency (EPA), even when used according to the manufacturer's instructions. The study suggests that children have a particularly high risk of being exposed to dangerous levels of chlorpyrifos poison.

Chlorpyrifos, a broad-spectrum organophosphate insecticide poison, is one of the most widely used pesticide poisons in the United States. Sold under the brand names Dursban and Lorsban (both manufactured by Dow-Elanco of Indianapolis, Indiana), it is the sixth most commonly used pesticide poison in U. S. home and garden applications. Approximately two to four million lbs. were applied in U. S. homes and gardens in 1995.

Potentially hazardous exposures may occur as a direct result of household applications, according to scientists from the Environmental and Occupational Health Sciences Institute of Rutgers University in Piscataway, New Jersey, who authored the new study. The study, published in Environmental Health Perspectives, investigates levels of chlorpyrifos adhering to surfaces and objects in a room after it has been treated with the pesticide poison and then ventilated according to the *registered* manufacturer's instructions. The authors propose that the semi-volatility of the pesticide poison allows it to be deposited on surfaces in treated rooms weeks after application; it may adhere to objects such as children's toys that are brought into the room hours or days after the pesticide poison is applied.

To test this proposal, the authors treated rooms in two apartments with Dursban and then opened windows and used fans to ventilate the rooms for the recommended four hours. After a fifth hour, they placed groups of plastic and plush toys in the rooms, and periodically thereafter removed one plastic toy and one plush toy to measure surface chlorpyrifos contamination. They found that significant amounts of chlorpyrifos poison were volatilizing from other surfaces and adhering to the toys long after the pesticide poison was applied. Peak deposits on surfaces in the room took place 36 hours after the original application.

The authors conclude that applications of chlorpyrifos could result in significant doses of the pesticide poison to children who play in recently treated rooms. For a child between the ages of three and six, the total nondietary dose of chlorpyrifos after normal home treatment was calculated by the authors to be only about 208 micrograms per kilogram of body weight per day (micrograms/kg/day) -- well above the EPA's reference dose for chlorpyrifos of 3 micrograms/kg/day (the daily dose that the agency be**lie**ves is unlikely to cause any harm over a lifetime). For children who exhibit high levels of hand-to-mouth activity, the authors conclude that this dose could be as high as 634 micrograms/kg/day. The study also demonstrates that dermal and oral exposure to this volatile pesticide poison via toys and other surfaces may present a greater risk to children than inhalation of chlorpyrifos.

According to an Environmental Health Perspectives assessment, this study is likely to shed doubt on whether a 1997 agreement between EPA and industry to reduce consumer exposure to the pesticide poison will be sufficient to protect children. That agreement calls for elimination of chlorpyrifos in pet products such as flea dips and shampoos and in broadcast pesticide products such as foggers. The agreement also commits chlorpyrifos

manufacturers to take steps to ensure that the pesticide poison is not applied on inappropriate surfaces such as toys, drapes, and furniture. New warning labels, based on the agreement, should begin appearing on chlorpyrifos poison products sometime this same year.

Though the treatment used in the study apartments was a broadcast application of chlorpyrifos, which industry and the EPA have already agreed to phase out, the research indicates that more care must be taken than previously thought to avoid exposures to this volatile pesticide poison. It also signals that regulators can no longer simply measure air concentration to determine if dangerous levels of certain pesticide poisons are present.

Researchers have documented that the body's ability to metabolize and break down organophosphate insecticides, such as chlorpyrifos, is dependent upon adequate production of a particular enzyme (paraoxygenase-1), and enzyme production is genetically controlled in humans and can differ within the human population by a factor of 15. Children in the first few months of live have very low levels of the enzyme. Grossman, J., "What's Hiding Under the Sink: Dangers of Household Pesticides," *Environmental Health Perspectivdes,* vol. 103, no. 6, June 1995, pp. 550-554. In fact, a reported case of an unusually severe pooisoning (red blood cell cholinesterase levels reported to be 50 percent below normal) of an eleven-day-old boy exposed to food and clothing in his home contaminated with chlorpyrifos further suggests that children and infants may be more susceptible to chlorpyrifos poisoning than adults. EPA Memo from Jerome Blondell and Virginia Dobozy to Linda Propst, "Review of Chlorpyrifos Poisonsing Data," January 14, 1997. A study in rats supports this finding: in the seven-day-old rat, the maximum tolerated dose of chlorpyrifos was one-sixth the maximum tolerated dose in the adult; one-day-old rats were found to be four times more sensitive to chlorpyrifos than seven-day-old rats; and one-day-old rats exposed to chlorpyrifos were more deficient in DNA and protein synthesis in the brain than eight-day-old rats exposed to chlorpyrifos. Whitney, K.D. et al., "Development Neurotoxicity of Chlorpyrifos: Cellular Mechanisms,"*Toxicology and Applied Pharmacology,* vol. 134, 1995, pp. 53-62.

And this from Janette D. Sherman, M.D.'s "At the Source: Guide to Causes and Prevention of Breast Cancer": Endocrine disruption, noted in wildlife or humans, expressed as lowered fertility, birth defects or cancer have been linked to exposure to dioxins, dibenzofurans, PCBs, DDT/DDE/dicofol, **chlorpyrifos**, atrazine, DES, DBCP, chlordane/heptachlor, phenoxyacetic acid herbicides, and various phthalates.

The widely-used organophosphate pesticide, chlorpyrifos, manufactured from and metabolized to trichloropyridinol is linked to birth defects in children and test animals. Defects, produced in the brain, palate, eyes, ears, nipples and genitalia of children exposed in utero are irreversable and profoundly incapacitating.

Animal testing of chlorpyrifos has yielded anomalies of the head and brain similar to those seen in affected children as well as testicular hypoplasia. Trichloropyridinol is the metabolite of chlorpyrifos, the feed-stock used to manufacture chlorpyrifos, and part of the final product and tested positive for teratogenicity, producing face and skull abnormalities in rats. In vitro testing has revealed neurological damage in tissue culture and exposure to chlorpyrifos.

Many individuals report developing sensitivities to a broad array of substances following chlorpyrifos poison exposure. The Author becomes very intoxicated even walking into an area where volatile, synthetic pesticide poisons are stored or have been used according to the *registered* label and has to go through detoxification to recover. Are you still ready to spray poison or pay some *professional* to *treat* your property, family, pets and yourself with a nerve gas? Especially when there are so many safe alternatives? On January 1, 1998 Dow-Elanco became Dow AgroSciences, a wholly owned subsidiary of the Dow Chemical Company. **(Please see Organophosphates and Dioxin.)**

Tolerance reassessment decisions for chlorpyrifos (Lorsban/Dursban), one of the most widely applied insecticides, will not be completed by the August 1999 deadline. This delay is due primarily to all the necessary periods of comment required as a part of the reassessment process. Pesticide and Toxic Chemical News; January 21, 1999. **On 6/8/00 the U. S. EPA basically "banned" chlorpyrifos for inside use. In 2000, Dow AgroSciences finally announced the "voluntary phaseout" of this volatile organophosphate for most inside use.**
Chromium and Chromium Compounds. Are used in wood *treatment* and can affect you when you breathe them in, absorb them through the skin or swallow them. Inhalation of the hexavalent chromium compounds used in wood *treatment* have been linked to lung cancer in workers.

Copper and Copper Compounds. Copper is an essential nutrient, but large doses have toxic effects. Copper compounds are used as pesticide poisons and wood preservatives. Inhalation can cause a disease called metalfume fever. Long-term exposure can damage the liver. Basic copper chloride can cause irreversible eye damage.

Cresols. Are found in creosote and creyslic acids which are used as wood preservatives. Bacteria will eventually remove them. Health effects observed include burning and irritation of the skin, eyes, mouth and throat; abdominal pain and vomiting, heart damage, anemia, liver and kidney damage, facial paralysis, coma and death. They are possible human carcinogens. Another nice *inert.*

Creosote. The coal tar creosote is a phenol wood preservative thought chronically to be a carcinogen, suspect mutagen and causes lung and liver damage. The wood tar creosote is a phenol wood preservation and suspect mutagen. They both became restricted-use pesticide poisons in the U. S. in 1986 and are a mixture of many chemicals. There are 3 kinds of creosote. Coal tar creosote is the most widely used wood preservative in the U. S. - about 300 chemicals have been identified in coal tar creosote, and there may be 10,000 other chemicals present in the mixture. (Talk about possible synergistic effects!) Creosote can enter through ingestion, through breathing and through the skin. Harmful effects to the skin, lungs, eyes, nervous system and kidneys and death have been observed. Increased cancer risk has been demonstrated in animals as well as birth defects. Skin contact with a few drops irritates and burns the skin and eyes and increases sensitivity to the sun. EPA has declared any release of creosote in excess of 1 pound should be reported.

Cyfluthrin. Brand name Tempo, the active ingredient is a synthetic pyrethroid poison combined with the synergist, piperonyl butoxide (PBO), that acts as a stomach poison. NYCAP notes the half life of cyfluthrin in the soil at anywhere from 53 - 120 days. The California Extension Toxicology Network notes that acute exposure has relatively low toxicity (of the active ingredient) due to rapid breakdown in the body (PBO will adversely effect that breakdown.). Can irritate the skin and eyes; causes convulsions and behavioral changes. Immediate toxicity to fish - very high to high; crustaceans - very high; bees - high.

Cypermethrin. A synthetic Type II pyrethroid poison (with an alpha-cyano moiety) which is the active ingredient in the termiticide and insecticide called **Demon**. It's chronic toxicity effects on mammals show it to be a mutagen and immunotoxin. It is highly acutely toxic to fish and crustaceans and irritates the skin and eyes. Please refer to "permethrins" for a brief description of the inherent health problems caused from exposure to synthetic pyrethroids. The California Extension Toxicology Network notes exposure is considered moderately toxic, causes numbness, itching, burning sensation, loss of bladder control, seizures and death.

Cyproconazole. The common fungicide poison, cyproconazole, caused serious defects when administered to test animals. This chemical is reported to be widely used in agriculture and is a member of the family of fungicides known as triazole fungicide poisons. Its closely related family members include the fungicide poisons triadimefon, tridimenol, bitertanol, flusilazole, 1,2,4-triazole and propiconazole. Each of these pesticide poisons were reported in this article as being capable of causing birth defects in test animals when administered at doses as low as 30 mg/kg. These chemicals are far more toxic than even standard insecticide poisons. The NOEL or "No Observable Effect Level" (which means the maximum amount of the chemical that test animals can be exposed to without seeing any adverse effects) is reported to be only 2 mg/kg for flusilazole.

The study on the effects of cyproconazole (CPZ) was headed by Dr. K. Machera at the Laboratory of Pesticide Toxicology in Athens, Greece. Dr. Machera exposed 10 pregnant animals to different levels of CPZ ranging from 20 - 75 mg/kg from the 6th to the 16th day of pregnancy. On the 21st day of pregnancy the animals were sacrificed and the number of implantations, resorption sites and live and dead fetuses were recorded. The fetuses were weighed and examined for abnormalities.

Results showed the number of resorptions (similar to an early miscarriage) was over 8 times greater for the animals exposed to the 50 and 75 mg/kg doses. The fetal length was significantly smaller in doses from 50 mg/kg up. The fetal body weight was significantly less even at the lowest dose of 20 mg/kg.
Cleft palate did not occur in any of the 100 offspring not exposed to CPZ. However, cleft palate did occur in 2% of animals exposed to 20 mg/kg of CPZ, 20% of animals exposed to 50 mg/kg of CPZ and 91% of animals exposed to the highest 100 mg/kg dose.

The same trend was also seen with hydrocephalus - 0% for the animals not exposed to CPZ, 5% for animals exposed to 20 mg/kg, 19% for animals exposed to 50 mg/kg, 32% for animals exposed to 75 mg/kg and 100% for the 12 animals exposed to the 100 mg/kg level.

These studies demonstrate the definite potential for pesticide poisons in the triazole family to increase the risk of lower birth weight, lower body length, as well as strongly increasing the risk of cleft palate and hydrocephalus. With results such as this in test animals, it would certainly be worthwhile to investigate the incidence of these conditions among people living in close proximity to agricultural areas. Dr. Machera did not state if these chemicals were used on residential lawns as an anti-fungal agent. Keep in mind that these studies were looking for physical defects and were not looking for neurological defects in offspring (which typically occur at much lower dosages). *Bulletin of Environmental Contamination Toxicology, 54:363-369, 1995*

2,4-D. WHO Class II moderately toxic and a U. S. restricted-use pesticide widely used as a herbicide poison. Chronically it is a immunotoxin, carcinogen, suspect mutagen, teratogen, suspect fetotoxin that causes anoxexia and damages to liver, kidney and central nervous system; other health effects are vomiting,diarrhea, anorexia, ulcers of the mouth and pharynx; its transformation products include at least 4 dioxins and TCDD. **TCDD** - The National Research Council noted in "Pesticides in the Diets of Infants and Children:" In rats, for example, the developing immune system has been shown to be more vulnerable to the effects of the dioxin TCDD, compared to a mature immune system. A letter from Michael Yanchuks, U. S. EPA, to Farrel Vance, National Resource Defence Council, 9/13/94 noted that TCDD suppressed the developing immune system of neonatal rats but not of adult rats. TCDD has been found as a contaminant in two forms of the common herbicide 2,4-D and is suspected as a contaminant in at least thirteen other pesticides. **See chloroneb**.

In 1987, in a federal District Court in Marshall, Texas a jury for the first time concluded that 2,4-D was linked to a Worker's death; it awarded the family of a former forestry worker $1.5 million.

Per Rachel's Hazardous Waste News #3, December 15, 1986, "A study by the National Cancer Institute and the University of Kansas has linked exposure to herbicides with nonHodgkins lymphoma, lymphatic cancers besides Hodgkins disease. The study was based on the health histories of 948 male Kansas farmers who had cancer and an equal number of non-cancer victims for comparison....The higher cancer risk was found to be particularly associated with 2,4-dichlorophenoxyacetic acid, or 2,4-D, a chemical compound used in a variety of herbicides. Agent Orange, the herbicide sprayed in Vietnam that is the focus of lawsuits filed by exposed veterans, contains 2,4-D..." And from Rachel's Environment & Health Weekly #250, September 11, 1991, "Non-Hodgkin's lymphomas--the kind dogs are reported to get most often from exposure to 2,4-D--have been the second fastest-growing cancer in humans in the U. S. during the past 15 years."

2,4-D is a herbicide poison with reproductive and endocrine-disrupting effects and is associated with a whole host of diseases, including cancer of the kidney, testicles, stomach, colon, prostrate and liver; also known to cause adverse psychological effects, immune system disorders, gastrointestinal ulcers and altered liquid metabolism. Paul Gottlich of http://www.envirolink.org and an environmental study group for the Montessori Academy held a 3/4/98 meeting wherein Tru Green gave an "IPM" presentation. Through the entire presentation there was no mention of IPM. Tru Green noted they would not use 2,4-D because their certified toxicologist, Dr. Roger Yeary, advised them not to because of published health reports. Tru Green proposed using the "alternative" herbicide, Trimec 959, which contains the chemicals MCPA, MCPP and dicamba instead. Paul told the group that dicamba also contains 2,4-D. Paul pointed out this is a tactic used by pesticide (poison) companies to switch to a different chemical (poison) after the one they use has proven to be a major problem. The ingredients are not explained and parents would not know the "switch" is useless because 2,4-D is **still** in the proposed "alternative" herbicide. MCPA and MCPP are also of concern, but there is little or no testing of these done yet. When the Tru Green Representatives were asked to guarantee the safety of our children, staff, pregnant mothers, birds, squirrels and pesticide applicators, they said they could not guarantee safety, that there was some risk involved with the use of pesticides (poisons). Paul Goettlich noted, "These representatives, trying to sell us pesticides (poisons), tell us there is a 'risk' is an understatement. Pesticides poisons are not safe!" 2,4-D is the most widely used herbicide in the world.

DDT. Paul Müller discovered the insecticidal properties of DDT in Switzerland in 1939. In 1942, DDT was first shipped to the U.S.A. for experimental use. DDT was initially used to *control* everything inside, outside and on people and on pets. It was so effective initially that many people thought the war on bugs was over and DDT would destroy the pest control industry. In fact, it was said entomologists would soon be out of business. DDT

was widely used and before long all of the insect pests it was *registered* to control began to develop resistance to the "miracle poison" and its popularity declined. In the Science Newsletter of August 5, 1944 it says, "They may at the same time destroy both useful and harmful agricultural insects. They may rid your dog of fleas, but insidously, and perhaps fatally, damage his liver or paralyze him through nerve damage. They will rid your home of mosquitoes, flies and vermin, but the price may turn out to be high in human health and life." Early on doctors of the U. S. Public Health Service found DDT acted like carbolic acid and in experiments had killed animals. These doctors stated DDT was a definite health hazard. In 1946, houseflies were already resistant to DDT in Sweden. Ads in Life Magazine in 1947 noted that "Bug-a-boo with DDT was guaranteed by Good Housekeeping, pleasantly pine scented, has almost twice the killing power required by the U. S. Government for an AA-grade insecticide poison! Used as directed, it is harmless to humans and pets." In 1948, Paul Müller received the Nobel Prize in Medicine for developing this carcinogenic pesticide/poison (that interferes with the conduction of nerve impulses) first synthesized by Zeidler in 1874. A cyclodiene chlorinated hydrocarbon introduced as a *miracle cure* in 1942. George J. Wallace, Professor of Zoology at Michigan State University, reported "robins are dying like flies" on his campus because of the spraying of DDT. In 1950, a Syracuse University study suspected DDT was mimicking estrogen when young roosters that had been injected with DDT failed to develop combs or normal testes. Rachel Carson again noted its dangers in 1962 and it was finally banned in the U. S. only 30 years later as an earth/people destroyer in 1972. During that 30-year period, it is estimated 675,000 tons of DDT were applied domestically in the USA before it was banned here and it is estimated over 4 billion pounds of DDT were used/misused throughout the world. In 1969, Arizona placed the first moratorium on the use of DDT. DDT is cumulative, a probable human carcinogen, mutagen, fetotoxin, immunotoxin and neurotoxin. DDT causes hormonal changes, aplastic anemia and liver damage. Metabolites include DDD and DDE. It still is found contaminating the earth and its inhabitants. **Quite often I still find containers of this banned carcinogenic poison stored in people's homes and garages.** U. S. Customs records demonstrate that at least a ton per day of this carcinogen were shipped from U. S. ports in 1996. In 1971 the National Institute of Health found DDT or its breakdown products in 100% of all the human tissue samples it sampled. Even today DDT is still showing up in higher rates in women's breast milk than the government permits in cow's milk. Fat soluble pesticide poisons accumulate over time in our bodies, then are released at potentially toxic levels when illness or stress results in our fat reserves being metabolized. A large portion of a woman's lifetime exposure to such pesticides is released in the breast milk for her firstborn child! In the March, 1997, Indiana Pesticide News it was noted in the Pesticide Enforcement Summary a Central Indiana Landlord carelessly applied DDT poison in kerosene to numerous tenants' houses for the *control* of cockroaches. DDT has a half-life of at least 7 years. Obviously, DDT is still being sprayed 25 years after it was *banned* here. An old advertisement for DDT has a proud woman appearing with dancing farm animals who sing, "DDT is good for me!" DDT is **still** produced abroad and those developing countries that **still** use this poison have had not only malaria resurgence, but serious declines in their raptor populations. In 1993, a research team led by biologist William H. Smith of Yale University examined the soil of Hubbard Brook Experimental Forest in New Hampshire. Its newly fallen leaves and needles and composting earth contained DDT (0.8 pounds per acre). DDT long-banned had never been used, distributed or produced in the immediate area where the samples were taken. Note: DDT is still used and produced in Mexico.

Per Janette D. Sherman, M.D.'s "At the Source: Guide to Causes and Prevention of Breast Cancer": DDT was patented in 1944 by Geigy Corporation, the parent of CIBA-Geigy, and promoted to agricultural interests and to the general public as a way to control insects. While DDT was effective in combatting malarial mosquitoes, the initial success was short-lived as DDT-resistant strains emerged. Organochlorine pesticides (DDT and congeners) are designed to kill by poisoning the nervous system, but long-term effects are more insidious, resulting in cancer and hormonal disruption, interfering with reproduction.

By 1969, a U. S. Commission recommended discontinuation of DDT because of toxicity, persistence and insect resistance. In 1972, DDT use was banned in the United States; however, production continues elsewhere and contamination is world-wide.

The Mantrose Company of Indonesia (close in spelling to the California DDT manufacturer, Montrose) sells its entire production of DDT to the World Health Organization, mostly for "public health" uses in Africa. Between 1949 and 1970, its US forerunner, the Montrose Chemical Co., released into the Los Angeles sewer system an estimated two million kilograms of DDT. Sediments near the White's Point, California, sewage out-fall contain as much as 100 metric tons of technical DDT, biologically available to all sea animals and thus to land animals that consume them. **DDT can be considered the first pyrethroid.**

DDE. A metabolite of DDT; human enzymes quickly convert DDT into DDE, which is an androgen-blocker. DDE is consistently identified as the primary reproductive factor (in birds). The half-life of DDE is nearly the length of the average human life span. Harry Katz, contributing editor to Pest Control Technology (PCT), in his column "Myth Conceptions" in the February, 1998 issue of PCT noted Donald spencer's statements, "DDT is metabolized to less toxic and finally harmless compounds. In most croplands in the southern U. S., the half-life of DDT is less than one year." He also quotes Elizabeth Whelan, "More than 93% of DDT and its metabolites are broken down in sea water in 38 days." Harry, however, forgets to note that in 1993, 17 years after the first pilot study in breast cancer, Mary Wolff and her colleagues conducted a major study on the stored blood samples of 14,290 New York city women. Within 6 months, 58 of these women were diagnosed with breast cancer. Wolff compared these women to women of similar age, menstrual status, etc., but without cancer and found the breast cancer women's blood contained an average 35% more DDE than that of the healthy women. U. S. women born between 1947 and 1958 now have 3 times the rate of breast cancer their great-grandmothers did when they were the same age. **Shame on you, Harry**; you **still** want to pretend DDT is and was totally *safe and saved* lives. You know its carcinogenic residues are **still** found in Arctic ice, fish/seafood, meat, milk, soil, vegetables, water, etc. and its metabolites are **still** in our blood and fat even though it was banned in 1972. Harry, you also want to pretend DDT could still *control* insect pests and could have *saved* millions of lives annually from Malaria. You know mosquitoes and most pest insects are and were immune to this volatile poison long before it was banned in the U. S. over 25 years ago! It **still** is used in many undeveloped countries and **still** has limited use in the U. S.

DDF. An organophosphate pesticide poison. Even acute (one-time) exposure can cause a variety of effects including ataxia, central nervous system impairment, coma, confusion, convulsions, diarrhea, hallucinations, hepatic damage and hypothermia as well as salivation, shock, sweating vomiting and weakness. It is also suspected of being a delayed neurotoxin.

DEET. DEET, the active ingredient in many insect repellents, is responsible for more than 5,000 U. S. poisonings every year (National Capital Poison Center, Georgetown University Hospital, Washington, DC). DEET can cause central nervous system disturbances, dermatitis and skin irritation. Neutralizes sunscreens. Chronic exposure can cause various problems such as confusion, depression, irritability and/or insomnia. As it volatilizes, DEET eventually becomes a mosquito attractant (in the Author' opinion).

Diazinon. A WHO Class II moderately hazardous and U. S. EPA Category II nerve toxin. Another [General Use] organophosphate insecticide poison (only 2 ounces orally will kill a man) is used routinely to 'control' ants, grubs and roaches. Brand names include Knoxout, TKO and Diazinon PT 265. The Commission of the European Communities report/study notes no more than 0.002 mg/kg of diazinon and 0.005 mg/kg of parathion is the "acceptable" daily intake - or that diazinon is 2 1/2 times as toxic as parathion! It is contaminated with isodiazinon, and occasionally methyl parathion, and its transformation products include sulfoTEPP and TEPP. Diazinon is responsible for thousands of bird kills (especially ducks and geese). It also is toxic to bees and other arthropods. It is banned from use on golf courses and turf farms in the U. S. - but, you can still use it at home! Chronic toxicity effects in mammals include: suspected mutagen and neurotoxin, fetotoxin, immunotoxin, causes allergic dermatitis and conjunctivitis. People with liver problems should avoid all contact with this terrible toxin. The Audubon Jan/Feb 1977 Silent Scourge by Ted Williams, article noted in one study, after one application to the turf of diazinon the hatching process of robin eggs was reduced 50% and the survival rate of nestling song sparrows was reduced 66%. Can cause weakness, salivation, tightness in chest, blurred vision, nausea and vomiting. No longer labeled for golf courses or sod farms since March of 1988 because of its extreme acute toxicity to waterfowl.

1,2-Dibromochlorpropane. Is an organochlorine fungicide poison, herbicide poison, insecticide poison, fumigant poison, carcinogen and suspect mutagen that causes liver damage. The 1984 issue of Arch. Environmental Health; 39:85-89 noted one study of workers exposed to this nematocide poison had diminished sperm counts. Although testosterone levels remained normal, gonadotropin levels were elevated. Of importance, those who were able to have children produced 3 times as many daughters as expected. Of the 12 births that occurred in wives of exposed men who had been oligospermic, 10 were female for a male population of 0.167. The proportion of male infants conceived before exposure of these same men to dibromochloropropane was 0.529! (Significant declines in the proportion of males born has been reported in the U. S., Canada, Denmark, Sweden, Germany, Norway, Finland and the Netherlands - all industrialized countries with resulting pollution and contamination. Environmental Medicine 1995: 52: 429-430 noted a study in the Netherlands of offspring born from 1978 to 1990 revealed a remarkable shift toward more daughters and a male population of only 0.248% in children conceived

by men who had received workplace exposure to pesticide poisons. This report also found the time of conception was significantly longer for fathers who were estimated to have incurred greater exposures as measured in terms of the number of days of pesticide poison spraying.

1,2-Dibromoethane. Also called ethylene dibromide, EDB and glycol bromide. It has been used as a *registered* pesticide fumigant and insecticide poison. Most *registered* uses were stopped by the U. S. EPA since 1984. It is **still** used today to *treat* logs, control moths in bee hives and as an unregistered *inert*. This poison can affect the brain, damage skin and sperm and even cause death if exposure is high enough. The Department of Health and Human Services has determined it may reasonably be anticipated to be a carcinogen. Birth defects, brain damage and behavioral problems have been observed in rats. It is suspected to be a carcinogen, mutagen and teratogen.

Dicamba. This member of the benzoic acid herbicide family may cause skin irritation, muscle cramps, poor digestion, vomiting, unconsciousness, coughing, loss of voice, swollen glands, lung congestion, shortness of breath, hemmorhages, dizziness, inflamed kidneys, sensory and behavioral disturbances, spasms and sweating. Dicamba inhibits an enzyme found in the nervous system of animals, acetylcholinesterase. This is the enzyme that is inhibited by the organophosphate and carbamate insecticde families. When acetylcholinesterase is inhibited it causes a neurotransmitter, acetylcholine, to accumulate thereby preventing smooth transmission of nerve impulses. Additionally, dicamba inhibits the activity of several enzymes in animals livers that detoxify and excrete foreign chemicals. NCAP's Journal of Pesticide Reform, Spring 1994 stated, "dicamba's effects on the reproduction of laboratory animals cause concern because of the low doses that cause problems...does over 3 mg/kg per day increased the number of fetuses lost or resorbed by the mother...Concerns about reproductive effects are heightened by a manufacturing contaminant, 2,7-dichlorodiebenzo-p-dioxin. In pregnant rats, this contaminant causes abnormalities, suppression of tissue growth and lesions in fetal hearts." This publication also states, "A 1990 study...also looked at effects on human blood cell cultures and found that exposure to dicamba caused an increase in unscheduled DNA synthesis as well as a slight increase in sister chromatid exchanges (exchange of genetic material between chromosome pairs)." If these possible health effects were not enough, dicamba's contaminants have also been determined to be carcinogenic. Add to this knowledge the easy volatilization of dicamba (especially when temperatures exceed 85° F.), plus the realization that vapors can drift 5 - 10 miles; then add in the fact that "residues" may be transported form turf to carpet surfaces which may come in contact with skin, posing significant risks to particularly to children and pets, and you can readily realize dicamba's extreme potential to contaminate.

Dichlobenil. Journal of Pesticide Reform, Spring 1997, Vol. 17, No. 1 - The herbicide poison dichlobenil is used to kill unwanted weeds in shrub beds, orchards and berry fields. It is "among the most toxic chemicals hitherto reported" to nasal tissue. Damage to this tissue reduces smelling ability and the transport of an important amino acid to the brain. Dichlobenil affects reproduction in both male and female animals. In male hamsters, long-term feeding studies found that ingestion of dichlobenil decreases the weight of the testes, decreases the number of sperm stored in reproductive organs, and causes degeneration of the prostate gland. In female rabbits, ingestion of dichlobenil resulted in an increase in the number of unsuccessful pregnancies. The frequency of cleft palate, a birth defect in their offspring was increased. Dichlobenil has caused cancer in three species of laboratory animals. In rats (both sexes) and male hamsters, long-term feeding of dichlobenil caused an increase in the frequency of liver tumors and cancers. Injection of mice with small amounts of dichlobenil caused in increase in the frequency of lymphoma. Dichlobenil is "remarkably persistent" in soil and residues have been measured five years after application. It volatilizes (vaporizes) readily so it can contaminate air in areas where it is used. Dichlobenil is acutely toxic to fish, bioconcentrates in fish tissues, and reduces their reproductive success. Dichlobenil reduces the growth of beneficial mycorrihizal fungi on the roots of apple trees.

1,4-Dichlorobenzene. Is a poison used to try to control moths, molds and mildew and to "deodorize". In the air it supposedly breaks down to harmless products in about a month. It is bioaccumulated. High exposures can cause dizziness, headaches and liver problems. The Department of Health and Human Services has determined p-DCB may reasonably be anticipated to be a carcinogen. There is no direct evidence it can cause birth defects or affect human reproduction. About 70 million pounds of p-DCB are used to make deodorant blocks and moth killer products. Smaller amounts are used in the pharmaceutical industry and it still is a general-use insecticide poison in farming. The released vapor acts like a "deodorizer" and insect killer.

Dichlorvos. Another organophosphate insecticide poison; very acutely toxic (orally, dermally and when inhaled)

to mammals; it is used in No-Pest Strips, flea collars, etc. It is also very acutely toxic to bees, birds, fish and aquatic organisms. Dichlorvos chronic or long-term toxicity in mammals show it to be a carcinogen, mutagen, (suspect) teratogen, immunotoxin, a cause of sperm and other reproductive abnormalities, kills human white blood cells, inhibits steroid synthesis, and there are indications of bone marrow damage and aplastic anemia. In birds it is a delayed neurotoxin. It is extremely volatile and many *professionals* have told me that dichlorvos *used* to be the *secret ingredient* they would inject along with their cyclodiene chlorinated hydrocarb termiticide poisons whenever they had a difficult termite retreatment!

Dicofol. An organochlorine insecticide poison and acaricide poison introduced in 1955; it contains DDT as a contaminant or *inert* ingredient and is a probable human carcinogen. It is very toxic to fish.

Dieldrin. Another organochlorine insecticide poison named after Diels, introduced in the late 1940's and canceled for use in the USA in 1971. Dieldrin is one of the most violent, persistent toxins which can still be found contaminating our food and people. It is a strong neurotoxin and probable human carcinogen, teratogen, immunotoxin, it causes abnormal brain waves, behavioral changes, attacks the liver, causes a rare form of hepatitis and probably also causes reproductive system defects. Dieldrin is highly toxic to bees, birds, fish, crustaceans, and many other aquatic organisms. Its transformation product photodieldrin is even more toxic than dieldrin! A new Danish study entitled "Pesticides and Breast Cancer," Science News, Jan. 23, 1999 155(4):56 linked 2 pesticides to increased risks for breast cancer. Out of 18 pesticide poisons and 28 polychlorinated biphenyls tested, only beta-hexa-chlorocylohexane (a component of lindane) and dieldrin emerged as independent risk factors. **Only 3/4 teaspoon of dieldrin orally will kill a man**.

Dioxin. There are many different dioxins and closely rated organochlorine allies, the furans. Formed usually as a by-product of trash incinerators and/or in the manufacture, use and disposal of chlorine and chlorinated (phenolic) compounds, dioxin is found as an unregistered *contaminant* in some pesticide poisons (see chlorpyrifos) in fly ash and in the flue gases of incinerators - the devil burns. The term dioxin encompasses a family of 219 different toxic chemicals. Some dioxin is 480,000 times more potent than DDT. Gravel roads were sprayed routinely with oil contaminated with dioxin, but no one wants to admit there is any health problem. Dioxin probably is mutagenic; it has a high degree of reproductive toxicity; it reduces fertility; it is teratogenic, fetotoxic and cumulative. Dioxin has been linked to blood diseases, cardiovascular failure, miscarriages and various forms of cancer! EPA is concerned that an *impurity* structurally related to TCDD, *the most toxic chemical known,* may form during the manufacture of chlorpyrifos (Dursban). TCDD is extremely stable; this molecule bears four chlorine atoms, each bonded to an outer corner. In human tissue, TCDD's half-life is at least 7 years! Exposure to dioxin at levels 100 times lower than the levels associated with cancer has been linked to severe reproductive and developmental effects. EPA *originally* considered any level of exposure to dioxin created a risk of cancer, but with all the tons of dioxin contamination in Michigan, Missouri, Arkansas, etc. there is a push from *industry* to *detoxify* dioxin. and call it *safe*. Even at a few parts per trillion, dioxin is capable of profoundly altering biological processes! **Dioxin can now be found in every man, woman and child in the U. S., and according to the EPA we are almost "full"! This one fact proves the world's health apparatus has failed!**

A striking illustration of the apparent ability of environmental exposures to influence male proportion comes from recent epidemiologic reports on the population most highly exposed to 2,3,7,8 tetrachlorodibenzodioxin (TCDD) from a chemical plant explosion in Seveso. In July 1976, an explosion released a large cloud dispersing many kilograms of this toxic agent into the atmosphere. A recent assessment of children born to the small number of highly exposed adults on whom data are available in this region found that for 7 years after this explosion, twice as many females as would be expected were born and overall fertility was markedly reduced. *Lancet 8/10/96; Vol.348, No. 9024, Mocarelli, et al: "Dioxin Changes Sex Ratio"*

German researchers have concluded that dioxins may be responsible for 12% of human cancer in industrialized countries—Rachel's Environment & Health Weekly #636, 2/4/99.

Between April 1977 and December 1984 (corresponding to 1 half-life of TCDD in the body), 74 children were born to parents in the zone of greatest exposure. Of these, 48 were female and 26 male, for a male proportion of 0.35 1. In 1976, serum samples were taken from the exposed populations; based on an assay (that was not available at the time of the explosion), it has been determined that for 7 years after the explosion, no boys were born to parents with the highest levels of dioxin in their blood. The proportion of female offspring proved to be highest among parents with the highest levels of serum TCDD. In fact, none of the 9 couples with the highest

serum TCDD levels (at least 100 parts per trillion) bore a single male child.

Since 1985, the male proportion in this population has returned to expected levels and overall fertility has increased. This resumption of a normal pattern in the Seveso population further strengthens the argument that unusual environmental exposures can be the primary cause of reduced sex ration in some circumstances. Even at a few parts per trillion, dioxin is capable of profoundly altering biological processes. **There is no safe dose below which dioxin causes no biological effect. (See furans).**

Diuron. Diuron is an urea-type herbicide active ingredient that increases in short-term danger with protein-deficient diets. It is a suspected mutagen and teratogen when exposure is long-term and also is noted to cause long-term growth inhibition and anemia. It is contaminated with TCAB whose structure is analogous to TCDD; TCAB (long-term) is also a suspected mutagen and can cause chloracne and hyperkeratosis. It is highly toxic to aquatic insects and phytoplankton short term; the long-term exposure causes fish gill damage and inhibits reproduction and can reduce the oxygen content of ponds.

Endosulfan. An organochlorine pesticide poison. Chronic exposure probably causes red blood cell damage, suppression of immune responses, eye, liver and kidney damages, damage to the central nervous system and testicular atrophy. Endosulfan also is a suspect carcinogen and mutagen. Breathing high levels can cause convulsions and death. In 1997 Norway banned endosulfan due to its high toxicity. Also see “Organochlorines”.

Endrin and Endrinaldehyde. Another organochlorine poison that was widely used in the U. S. to control insects and rodents until its use was canceled in 1979. Acute exposure to even minute amounts of endrin may cause sudden convulsions, nausea, vomiting, confusion, headaches, dizziness, sleepiness and weakness. People have died swallowing this poison. Many cases of endrin contaminated food poisoning have occurred in Wales, California, Doha, Qatar and in Hofuf, Saudi Arabia. This dangerous poison was only labeled to be applied in Rid-a-Bird® perches, but I know a home where a *professional* simply sprayed the entire roof to control pigeons! It is suspected mutagen, carcinogen, teratogen and neurotoxin. Endrin is very toxic to birds, bees and aquatic organisms. Endrin’s main target is the nervous system. It can enter via the mouth, skin or lungs. No studies were found on how endrin aldehyde can affect your health or intensify or modify the health effects of endrin. Only 15 drops of endrin taken orally will kill a man.

Ethion. Another organophosphate insecticide poison, it is a suspect teratogen, and is known to have a high acute oral, dermal and inhalation toxicity in mammals.

Ethylene dibromide (EDB). Developed in the 1920’s for use as an additive in leaded gasoline and later used as a fumigant and insecticide poison; it replaced DBCP, which was banned in the late 1970’s. EDB is even more carcinogenic than DBCP! It causes very high rates of cancer among virtually all lab species. It also causes birth defects, sterility, liver, heart, kidney, spleen, sperm and egg damages, diarrhea, abdominal pain and hemorrhage. It was finally banned in the 1980’s, in the U.S.A.

Ethylene oxide. (Also known as ETO or oxivane.) It is used as a fumigant and fungicide poison and is a flammable gas also used to make other chemicals, especially ethylene glycol, a chemical in anti-freeze. ETO is used as a *registered* active ingredient to control insects in stored agricultural products and to sterilize medical equipment and supplies. ETO has been found up to 3.5 ppm on food sprayed with a *registered* pesticide that contains this unregistered *inert*. ETO can cause a wide variety of harmful health effects in exposed people. There is some evidence it causes an increased rate of miscarriages. Studies in animals show breathing high levels can interfere with their ability to reproduce. Litter sizes have been smaller, babies have weighed less than normal and have delayed bone formation. ETO causes cancer in laboratory animals. Leukemia, brain tumors, lung tumors and tumors of the tear glands of the eye have been found. Eye damages, blisters, burns, etc. all can come from ETO exposure. EPA is considering listing ETO as a hazardous air pollutant. Ethylene oxide is a known carcinogen, suspect mutagen and causes both nerve damage and testicular atrophy.

Fenitrothion. Another organophosphate pesticide poison; even acute exposure may cause a variety of symptoms including ataxia, cholinesterase inhibition, central nervous system impairment, coma, confusion, convulsions, diarrhea, dimness and vertigo, hallucinations, headaches, liver damage, nausea, pallor, psychosis, salivation, shock, sweating, vomiting and weakness. Chronic toxicity problems in mammals include suspect mutagen and

viral enhancer, causes behavioral problems in newborn and also is an immunotoxin.

Fenthion. Another organophosphate poison which acts as a contact and stomach poison. It is used to kill insects and birds. It causes cancer in male mice. Chronic toxicity problems in mammals show it to be a delayed neurotoxin, suspect embryotoxin, causes neuromuscular dysfunction and eye damages. Refer to the "organophosphate" section for other health effects.

Fenvalerate. The termiticide poison known as Tribute® has this synthetic pyrethroid poison as its active ingredient; in addition to the "typical" health problems found under the "Permethrins" classification, fenvalerates are known to be cumulative, suspect mutagens and probably cause albuminemia, cancer, eye problems and spleenic, lymph node and wallerian nerve damages.

Fertilizer. Pure nitrogen exists in nature as a gas, about 80% of the atmosphere of the earth. Plants are able to utilize some atmospheric nitrogen through a complicated soil micro-biological process by which beneficial soil bacteria form specialized nodules on root hairs. This process is called "nitrogen fixation" and is probably the second most common bio-chemical reaction in nature. Only a select few strains of bacteria are capable of performing this function, so it follows that their presence in agricultural land along with the presence of other micro-organisms responsible for nutrient chelation, nematode and other pest control is vital to normal food production. Unfortunately, all of these microbes are seriously depleted with applications of synthetic pesticide poisons and cheap fertilizers containing salts and/or muriate of potash.

While high quality natural sources of nitrogen are available on the market - fish products to name just one - nitrogen in most fertilizers is derived from urea, nitrates of one sort or another, ammonia-based compounds or a combination of both. Many of these are very high in salt content and lethal to soil micro-organisms.

One reason salt is so destructive to soil eco-systems is its chlorine content. Salt, however, is extremely effective in killing living organisms as evidence by the Dead Sea. Chlorine is highly toxic to all living things from bacteria to humans. Witness its use in swimming pools as a bactericide and fungicide. It wouldn't take much of an increase in chlorine application to start killing swimmers. Salt (NaCl) is 50% chlorine.

Coastal flood plains and areas once covered by salt water such as most of Kansas have salt problems that are natural in nature and can be dealt with and controlled. Fertilizers present more of a problem because they are applied continuously and the toxic effect is cumulative. Probably the most detrimental nitrogen source is high burette (chlorine index) urea. Low burette urea is not only safe, it is very effective as a fertilizer. Unfortunately, it is also expensive. Cheap fertilizers are usually made with high burette urea. Another extremely toxic nitrogen source is anhydrous ammonia, also popular because it is cheap. This is a lethal gas injected under pressure into soil prior to planting and has a distressing tendency to kill its applicators as well as soil organisms.

Many farmers are discovering alternative non-toxic nitrogen sources such as ammonium nitrate and amonium sulfate. Both are relatively inexpensive and extremely effective fertilizers. But they are in liquid form and require special equipment for application, which works against them in the agriculture market since a majority of farmers are set up to spread dry granular material.

Nitrogen sources are not the only toxic chlorine-bearing materials used in fertilizers. Even more common is the sources of potassium, "muriate of potash". Beware of **anything** derived form muriates. Murtiate of potash is actually the compound potassium chloride, which is 40% chlorine and lethal. An inspection of fertilizer bag labels in any store will show that over 90% of them show the "K" derived from muriate of potash. Quality fertilizers on the other hand will contain "K" derived from chlorine-free potassium compounds such as potassium nitrate, potassium sulfate or potassium hydroxide.

The point of all this is that any materials applied to the ground that kill soil micro-organisms, whether they be salt and chlorine laden fertilizers, insecticides, herbicides or fungicide poisons, ultimately destroy soil fertility. The net result to the farmer is low crop quality as measured by test weights, low nutritional value and, eventually, lower crop yields requiring the use of even more synthetic fertilizers, thus perpetuating the downward cycle of productivity and increasing the probability of bankruptcy.

Finally, a word about phosphate sources...Again, care must be taken in selecting the fertilizer. Phosphorous

does exist in pure form in nature, but is unstable, radioactive and completely useless to plants. The phosphate used in agriculture is P205, or phosphoric acid. The difficulty arises in the fact phosphoric acid is available from a whole range of sources. The best source is mined as an ore and is considered "organic". Another excellent source is food or hospital grade ortho-phosphoric acid which is free of contamination and highly effective as a fertilizer. Both of these sources are expensive.

Many fertilizer manufacturers use phosphoric acid derived from industrial wastes. Not only do these materials contain all kinds of toxic and corrosive spent acids, they also often contain contamination in the form of heavy metals like mercury and lead. They get past the EPA because the amounts are small or simply ignored, but heavy metal toxicity is cumulative - once in your system it bioaccumulates and stays there. Only recently have the cumulative toxic effects of lead paint led to government regulation. Unfortunately, heavy metal contaminated fertilizers can **still** be legally sold in the United States.

CAUTION! THE SOURCE OF PHOSPHATE IS NOT REQUIRED TO APPEAR ON FERTILIZER LABELS! CHECK BEFORE YOU BUY!

Fipronil. It is a neurotoxin poison which EPA classifies as a carcinogen. It has caused seizures, deceased weight gain, kidney damage and alters thyroid hormones in rats. Fipronil is toxic to birds, fish and other marine life.

Formaldehyde. Is a volatile aldehyde *registered* fungicide and herbicide poison that chronically can be considered a carcinogen, suspect mutagen and causes liver damages. Formaldehyde has transformation products that include formic acid which can cause eye damage and paraformaldehyde that has an unknown chronic toxicity and is also a *registered* fungicide poison. Acute exposure to formaldehyde can cause eye, nose and throat irrigation, coughing, headaches, nausea, allergic sensitization, respiratory complications, immune system depression, nervous system disorders, e.g., neurasthenia, and a host of other symptoms. Chronic effects of formaldehyde exposure may cause MCS, central nervous system depression, cancer, immune system repression and neurasthenia. When a person has developed an antibody response to formaldehyde, they begin to react whenever they are re-exposed and are thus sensitized for formaldehyde. It is a common *inert* used primarily as a bonding agent that vaporizes at room temperature. **(Also see Atrazine.)**

Fluoride. The contents of one family-sized tube of fluoridated toothpaste has enough fluoride to kill a 25-pound child. Only 1/10 of an ounce is required to kill a 100-pound adult; that is why fluoride is used as a poison by some pest control operators. There is no antidote. On Wednesday, July 2, 1997, the National Federation of Federal employees, Local 2050, which consists of toxicologists, chemists, biologists and other professionals at EPA headquarters in Washington, D.C., voted unanimously to co-sponsor the California Safe Drinking Water Initiative that would reverse the State Legislature's 1995 law mandating fluoridation.

The statement from NFFE Local 2050 continues, "Our members' review of the body of evidence over the last 11 years, including animal and human epidemiology studies, indicate a causal link between fluoride/fluoridation and cancer, genetic damage, neurological impairment, and bone pathology. Of particular concern are recent epidemiology studies linking fluoride exposure to lowered I.Q. in children

Furans. There are 175 different/known furans. Two chlorinated benzene rings held together by a single atom of oxygen and a double carbon bonds are called a furan - furans are usually found with dioxins. Dioxins and furans can form spontaneously during the manufacture of certain pesticides, especially those which chlorine, e.g., phenoxy herbicides and chlorophenols. Dioxins and furans are the unplanned and dangerous, unwanted by-products or contaminants of modern chlorine chemistry. **Just another example of "junk science".**

Glyphosate. According to a 1993 report by the School of Public health at the University of California, Berkeley, glyphosate poison, a surfactant, (found in the herbicide Roundup®) was the third most commonly reported cause of illness among agricultural workers. Another of their studies found glyphosate was the most commonly reported cause of illness among landscape maintenance workers. (Both studies were based on 1984 - 1990 data.) In the first nine months of 1996, Monsanto's worldwide agrochemical sales increased by 21% to U. S.$2.48 billion due largely to increased sales of Roundup! Craven Laboratories of Austin, Texas was found guilty by a U. S. Federal Court in December, 1993 of falsifying data in favor of registration. Glyphosate, trade name Roundup, was one of the poisons *tested* by Craven Laboratories! Dr. Jonathon Gressel in the journal "Resistant Pest Management" notes that weeds could develop resistance to glyphosate. Not surprising when one considers that Monsanto

sells soybeans that are genetically engineered to be glyphosate-resistant. This herbicide poison is a derivative of glycine, an amino acid. The California Extension Toxicology Network notes exposure to the active ingredient can cause eye irritation and cardiac depression. I would like to note that the weeds are generally back in force 8 weeks after a Roundup herbicide burn down. (See Salt in Chapter 11.)

The following is from The RIC Good Wood Guide, TOXIC HERBICIDES - from the RIC Good Wood Project, originally at: http://forests.org/ric/good_wood/tox_herb.htm. See http://www.rainforestinfo.org.au/good_wood/contents.htm

Glyphosate - This stuff is not safe, but unfortunately many forestry agencies, local authorities, private-land tree-planters and bush regenerators now spray, dab, or otherwise apply glyphosate-containing substances to control weed growth prior to planting. In the U.S. in 1993, university studies declared glyphosate the third most commonly reported cause of pesticide illness among agricultural workers, and to be the most commonly reported cause of pesticide illness among landscape maintenance workers.

Glyphosate is the active killing ingredient in numerous proprietary pesticides, including: ROUNDUP, EAZY WEEDER, SLAM grass and weed killer, ZERO weed spray and wand,COMKILL, SQUADRON, TILLMASTER, TUMBLEWEED, etc.

Virtually all testing for long term health and environmental damage (e.g., for cancer, reproductive defects, birth defects, chronic damage) has been done only on the single ingredient, glyphosate and not on the full formulation containing solvents and surfactants.

Claims of biodegradability for Roundup (ie, that the herbicide breaks down when it contacts the ground) are, therefore, next to meaningless. Researchers have found up to 98% of the glyphosate has remained present on sprayed leaves and branches after 90 days. Likewise, if it is not able to be absorbed by a particular soil type, especially those low in organic matter, then it will remain active, often for months.

Glyphosate readily “nitrosates” to form a new compound called N-nitrosoglyphosate, which is known to cause tumours. Nitrosation occurs in the human stomach by reaction with the nitrate in normal human saliva. A forest worker spraying Roundup from a backpack, for example, could be in the high risk category for tumour growth by breathing in some of the spray drift.

Nitrosoglyphosate can apparently also form in soils under certain conditions. Research has shown that it is very persistent (i.e., not biodegradable), with 7 parts per million remaining in the soil after 140 days. Admittedly, there is diverse and conflicting data put out about glyphosate. On the strength of the above, the Guide advises that you err on the side of caution.

Weed experts now say that weeds such as rye grass are becoming resistant to glyphosate-containing herbicides, which will render conventional chemical farming practices useless.

Glyphosate is illegal to spray in waterways as of June 3, 1997. Seventy-four of seventy-five glyphosate-containing substances tested by the National Registration Authority for Agricultural and Veterinary Chemicals contained a surfactant toxic to frogs and other aquatic lifeforms.

The Last Roundup...The West Australian Environment Protection Agency has evidence that Roundup has killed three species of frogs . At first, the reaction from the National Registration Authority was dismissive, but now a snap review of the effects of Roundup in or near aquatic environments is being undertaken. It is suspected by the WA EPA that it is the surfactant in Roundup that kills the frogs.

The manufacturers, Monsanto, have not released the names of the other ingredients in Roundup and they have not been tested in the environment in conjunction with the active ingredient, glyphosate. Monsanto has reported “severe local effects and testicular effects in rabbits”, so watch out!

Roundup is only conditionally registered with the Authority, because nineteen out of twenty-eight studies have still not been done. These are studies to ascertain Roundup’s movement and accumulation in water, soil, air, fish, irrigated crops, aquatic systems and forests.

In the state of New York, Roundup manufacturers Monsanto are no longer allowed to label their glyphosate products “biodegradable”, or “environmentally friendly” in any advertising. (Monsanto is also the manufacturer of genetically-engineered, Roundup-resistant soybeans.) - Going Organic Magazine, Dec ‘95, and Pesticide Action Network North America Update

Heptachlor. Another member of the infamous organochlorine family of *registered* pesticide poisons, heptachlor was used both agriculturally and as a termiticide. Most *registered* agricultural uses were cancelled in 1983. It was also an unregistered impurity in *registered* chlordane. (Whenever chlordane was applied, heptachlor was also applied.) Only 1 teaspoon of heptachlor taken orally will kill a man. During the mid-l970’s the use of heptachlor and chlordane above ground was *voluntarily* withdrawn because of their danger and persistence. One study showed a crop grown in soil *treated* 15 years before with heptachlor **still** contained heptachlor epoxide! Heptachlor and/or heptachlor epoxide exposure can damage your nervous system. EPA allowed their continued use at that time because they incorrectly believed Velsicol’s *evidence* that *professional* termiticide applications below ground would preclude any human exposure. Today, heptachlor and chlordane are **still** (permanently) contaminating the homes (at significant levels) that were *treated* (legally) even exactly per the *registered* label instructions for termite control. Heptachlor is readily absorbed through the skin and is more acutely toxic than chlordane in mammals. Evidence of transplacental transfer of heptachlor or heptachlor epoxide in humans comes from a study in which this poison was detected in the adipose tissue, brain, adrenal glands, lungs, heart, liver, kidney, and spleen of ten still born babies and two babies who died soon after birth and in 27 of 30 samples of cord blood from healthy babies. (Our own Son was still born after my Wife’s exposure to this poison). Short periods of high exposure produced serious liver problems. Mice had trouble walking and rats developed tumors. High levels in the feed damaged the livers of rats and the livers and adrenal glands of mice. Some animals who ate contaminated feed had smaller litters or were unable to reproduce, some of the offspring had cataracts and some did not live long after birth. Clinical case studies of humans with even an acute exposure to chlordane containing heptachlor document a pattern of central nervous system effects similar to those found in contaminated animals...irritability, salivation, labored respiration, muscle tremors and convulsions (most of which I still have even after many years of extensive detoxification). Several blood diseases, including anemia and leukemia, are associated with heptachlor exposure. Other researchers report an increased evidence of lung cancer and a significant increase of cerebrovascular disease in 1,403 white male workers employed for only 73 months in the production of chlordane and heptachlor. Heptachlor is a potent carcinogen and mutagen, it causes liver damage and it may also cause cataracts. It has been implicated frequently in mass population contaminations and poisoning over widespread areas of the U. S. In both Arkansas and Hawaii, heptachlor exposed mothers were advised not to breast-feed their babies. In the environment (people), heptachlor undergoes a substantive change and becomes a cumulative carcinogenic chemical/poison known as heptachlor epoxide, which is twice as toxic as its “parent”. Heptachlor also has two other deadly transformation products to consider - hydrogen chloride and carbon monoxide. In spite of all this evidence, the Michigan Department of Agriculture (DOA) repeatedly told me, “they would feel *safer* if I would (break the termiticide label) and **completely *treat* all of the previously treated and still inactive termite infestations** I found just like my *competitors* were doing” - that is just one reason I worked with others to get these carcinogenic toxins banned and finally was successful nationally 3/15/88. In spite of the *ban*, it is estimated that just the U. S. farm community has between 60,000 - 80,000 gallons of this poison *hidden away* - enough to last well into the middle of the next century at current rates of *use*! Heptachlor is more toxic to newborn than adult rats and is probably the cause of our infant Son’s death in January, 1981. There probably are “windows of vulnerability” that exist, and/or critical phases of physical and functional development. There **still** is not enough data to establish a clear assessment of carcinogenicity. **See Chlordane**.

Herbicide Adjuvants. The first edition of Herbicide Adjuvants published in 1992 had 72 entries. The third edition in 1996 contained 330 entries. The fourth edition has well over 400 entries. Adjuvants are substances that aid another in doing its job.

Hexachlorobenzene. Is used as a grain fungicide poison, wood preservative and chemical intermediate; it can adversely affect you when breathed in, absorbed through the skin and when swallowed. It is a cumulative carcinogen, teratogen, fetotoxin, immunotoxin that can cause liver, skin, thyroid and central nervous system damage, liver damage, etc., and may damage the developing fetus because it crosses the placenta.

Hexachlorocyclopentadiene. Can adversely affect you when breathed in, absorbed through the skin or swallowed. Contact can irritate the eyes, nose, mouth, throat and skin. Exposure can cause brain, adrenal

glands, heart, lung, kidney and liver damage. Chronic health effects can occur sometime **after** exposure and can last for months or years! It **still** has not been tested for its ability to cause cancer nor for any adverse affects on reproduction. It is just another unregistered and untested *inert!*

Hexachlorophene. Is a suspect teratogen and neurotoxin that is used as an anti-bacterial agent, acaricide and fungicide. The U. S. cancelled all product uses in 1983. Hexachlorophene can affect you when swallowed or absorbed though the skin. Bathing newborn babies with soaps with this toxin can damage their nervous system, cause blindness and death. Women exposed during pregnancy bore malformed babies. Ingestion can cause damage to the nervous system, blindness and death. No information is yet available regarding health effects from inhalation. The odor threshold only gives a warning of exposure. Health effects may occur at lower concentrations. Its contaminants include TCDD. **See Chloroneb.**

Hexaflumuron, 0.5% per the DowElanco MSDA (1996) notes this product (poison) is a "hazardous chemical" as defined by OSHA and "an immediate health hazard and a delayed health hazard" as reviewed by SARA. A white solid, odorless, may cause slight eye irrtation. Highly toxic to aquatic inbertebrates and possibly fish. The dermal LD_{50} has not been determined. There is no specific antidote. Toxic irritating fumes may be formed if product is involved in fire. Bait stations should not be placed in areas that may be flooded. In 1994, Glenn Gordon noted a "small problem" to the Entomological Society of America with the Sentricon Colony Elimination System. In October 1993, Dr. Nan-Yao Su and Dr. Rudolf H. Scheffrahn addressed the Entomological Society of America, and discussed concentrations of hexaflumuron that elicited feeding deterrance at > 125 ppm for Formosan Ttermites and > 62.5 ppm for Eastern Subterranean Termites. At current levels of hexaflumuron (0.1%) Sentricon respectively has 8 to 16 x's known feeding deterrent levels. Now Dow has registered Recruit 2 with 0.5 hexaflumuron; this is 40 to 80 x's the known feeding deterrence level. How is Sentricon dealing with learned feeding deterrence? According to Su and Scheffrahn, .00156 to .0002% controls 90% of the termites at 9 weeks. Sentricon is already 61 x's optimum feeding level for Formosan Termites and 500 x's optimum feeding level for Eastern Subterranean Termite. Recruit 2 goes to a staggering 320 x's optimum for Formosan Termites, and 2500 x's optimum for Eastern Subterranean Termites. Please explain this in light of the comment (getting it right the first time) made by Ried Sprenkel in the July 1994 issue of PCT?

Imazalil. WHO Class II "moderately hazardous". Just another pesticide poison routinely exported from the U. S. to our overseas "friends".

Imidacloprid. It is a neurotoxin which can cause incoordination and breathing difficulties. It causes thyroid lesions, reduces offspring weight and increased birth defects in rats. It is toxic to some marine life, birds and bees.

Isofenphos. This restricted use organophosphate poison is the active ingredient in the termiticide Pryfon®, which was *voluntarily* withdrawn 9/30/92. Refer to "Chlorpyrifos" and "0rganophosphate" sections for health effects. After 12 years of *successful* use the Formulator basically said *new* tests proved this poison was not even an effective termiticide! On 10/1/92 when I called to confirm the fact this toxin was truly "gone" - my supplier asked how much I wanted to buy and store away for future use! Chronic exposure problems in mammals show *this* organophosphate is a delayed neurotoxin, causes irreversible demyelination and paralysis. It is also highly toxic acutely no matter how you are exposed. Isofenphos is also very toxic to birds.

Lufenuron. This drug is a close relative of diflubenzuron, a growth regulator, that has a metabolite which EPA classifies as a carcinogen. Adverse effects in dogs and cats include vomiting, depression, lethargy, diarrhea, loss of appetite and itchy, scratchy skin.

Lindane. Is yet another EPA *registered,* chlorinated hydrocarbon poison. Most *registered* uses were banned in 1983, but this terrible poison is **still** legally *registered* and used as an insecticidal poison *treatment* for lumber, seed grains, and livestock, and in dog dips, pet and human (baby) shampoos for *treatment* of fleas, ticks, lice, sarcoptic mange and scabies. Only 1-1/2 teaspoons of lindane taken orally will kill a man. Lindane is described by its manufacturer as a powerful contact and internal poison. Lindane has been banned in 18 countries and severely restricted in 10 others. It has not been produced in the U. S. since 1977, but it is **still** imported here. You may **still** find lindane as the active poison ingredient in flea collars, moth and other household sprays. As a scabicide poison (against lice) **on children** it may be present in lotions, creams and shampoos. Lindane is considered to be cumulative, a possible carcinogen and mutagen; a teratogen, immunotoxin and neurotoxin whose other long-term effects on human health include aplastic anemia, liver, testicular, bone marrow and kidney

500 times more toxic than purified malathion [based on the amount needed to kill test animals - LD_{50} is 20 mg/kg compared to 10,000 mg/kg for purified malathion]. It is called - O,S,S- trimethyl phosphorodithioate [OSS-TMP for short]. Researchers state this, and other malathion impurities/contaminants, actually increase in amounts during simple storage [especially 3-6 months after manufacture], making malathion far more toxic than when it was first formulated! OSS-TMP and other impurities have also been shown to increase even more rapidly when exposed to temperatures around 100 degrees. How high do the temperatures become for the drums sitting in direct sunlight or at the Tampa Airport in the non-air conditioned rooms? Effect of Impurities on the Mammalian Toxicity of Technical Malathion and Acephate. Journal of Agricultural Food Chemistry, 25 (4) : 946-953, 1977. Two studies showing how technical grade malathion poison contains chemical impurities which can weaken immune system function, including a weakening of a type of white blood cell called "cytotoxic lymphocytes" (which attack cancer cells and virus infected cells). These lymphocytes can also attack viruses in the body. Malathion has now been shown to significantly weaken the CTL's ability to perform their job effectively. Obviously, the consequences of not having these lymphocytes remove viruses or cancer efficiently could result from either mild to serious health disorders. Journal of Immunology, 140 (2) : 564-570, University of Virginia. In trying to calm the fears of Tampa residents, spokespeople for Florida Department of Agriculture have make public statements that after application, malathion "*breaks down"* in a matter of hours. What they don't tell you is that malathion can actually breakdown into compounds which are more poisonous than the malathion itself. This is, in fact, the conclusion of research from a graduate project by researcher N. E. Barlas at the Department of Biology, Hacetepe University, Turkey. Barlas went on to say, *"The disappearance of pesticide residues at a given location does not mean the end of the problem. Pesticides can be translocated, biolocated or converted into more dangerous chemicals."* Barlas found that new chemicals were formed in this breakdown process including 14 micrograms of monocarboxylic acid and about 8 micrograms of the highly toxic malaoxon. Barlas then exposed mice to the technical grade malathion and another group to the breakdown products just mentioned. Results showed even the mice exposed to the breakdown products of malathion showed significant decreases in spleen weights and significant changes in liver blood tests which were suggestive of liver damage. Barlas summarized by stating, *"It may be concluded that commercial malathion and it's degradation products together have detrimental effects on mice over a period of 15 weeks of treatment."* Department of Biology, Faculty of Science, Hacetepe University, Turkey. A favorite tactic of pro-malathion supporters is to use the phrase "less toxic than salt." However, it is important to realize that the word toxic in this context refers only to malathion's ability not to cause immediate death in laboratory animals. Not only is this seriously inaccurate due to the impurities which can form during storage and heat are present only in technical malathion, but we also have to consider malathion's ability to harm life in other ways. This can include weakening the immune system and the body's ability to fight infections, gradual damage to the nervous system during pregnancy, the ability to cause accelerated aging to organs such as the liver and kidneys, as well as the potential to accelerate damage to the genes on the DNA molecule. Again, none of these health effects are considered when using the word "toxic" - only immediate death. Malathion does not appear to produce point mutations in standard gene mutation assays in bacteria, but its metabolite malaoxon (94% pure) was positive in mammalian cell mutation tests. In their haste to "completely eradicate" the medfly in the Tampa, Fla., region, Florida agriculture department officials may have violated some of the terms of their Section 18 quarantine exemption an aerial malathion spraying. At least one biologist responsible for collecting water samples and testing for malathion said he believed that levels of the chemical was increasing in local waterways, and might soon pose an acute toxicity threat to fish and other wildlife. Citizens in or near the spray zones around Tampa and Hillsborough County had been flooding a Medfly Spraying Hotline and the Hillsborough County EPC with phone calls saying that wetlands, lakes and streams had been sprayed, neighborhoods that had not yet been officially designated had been sprayed, and that spraying had occurred during rainstorms. Two people told *Pesticide Report* that they had been sprayed, or witnessed malathion sprayings, while standing at or near bodies of water. Richard Bowler, a biologist with the Hillsborough County Environmental Protection Commission, said he was collecting water samples for analysis in mid-June at Rocky Creek near Hillsborough Avenue, when he was sprayed. "You could see the mist coming out of the helicopter nozzles, and I felt it on my face," he remarked. Bowler also reported that it has rained in Tampa and Hillsborough County almost every day for the last 10 days in June, and that the spraying has continued, unabated, despite the exemption condition prohibitions on spraying close to or during periods of rainfall. EPA fined two DC3's $20,000 that dumped their malathion "rinse water" into the Gulf of Mexico! Obviously, misuse increases the danger to us, but not to the medfly - which was not finally controlled in Florida by malathion, but by sterile medflies. **See Parathion**.

Mancozeb. Norway will phase this thiocarbamate (fungicide) poison out by the year 2000 due to its reproductive toxicity. Most uses have been already cancelled in the U. S. Its transformation products include ethylene thiourea which is a carcinogen, suspect mutagen, teratogen, creates increased fluid in the skull and is goitrogenic.

damages. Most *registered* uses were supposedly banned or at least severely restricted in 1983, but I still find gallons of lindane concentrate on farms, in offices and homes and it still is sold *over the counter* as a *general use* in Michigan. The basic manufacturer of hexachlorocyclohexane was Hooker Chemical. Transformation products include hydrogen chloride, 2,4,6-trichlorophenol, benzene, pentachlorobenzene (which is cumulative), pentachlorophenol and phosgene gas! Lindane is a known hemotoxin - blood poison. Lindane exposure from recommended (labeled) dosages has resulted in blood diseases, e.g., aplastic anemia, which is a precursor to leukemia. It has caused blood disorders, seizures, reproductive problems, changes in levels of sex hormones and death. There are several reports of 6-fold increases in non-Hodgkin's lymphoma in farmers exposed to lindane. In 1990, Finnish researchers reported that women with breast cancer had higher concentrations of lindane-like *residue* (contamination) in their breasts than did women that did not have breast cancer. **Still** used to *control* lice on kids and fleas on pets. The Leukemia Society's brochure states the only two known causes of leukemia are radiation and benzene. Please see the radioactive note later in this chapter and the benzene note earlier in this chapter. The Author has reviewed other acute leukemia case-control studies that show a significant relationship exists between acute leukemia with an exposure to pesticides/insecticides (poisons) and/or "weed" killers. In the 1993, Vol. 24 issue of "Archives of Environmental Contamination and Toxicology" a study documented a relationship between childhood brain cancers in Missouri children. Compared to healthy children, brain cancer was nearly 5 times more likely for children *treated* with Kwell (lindane poison) shampoo! See the warning posted at http://www.fda.gov/cder/drug/infopage/lindane/default.htm. Lindane can remain in the air for up to 17 weeks and travel (and contaminate) long distances. It can accumulate in the fatty tissue of fish. Lindane was found in large quantities in Love Canal, NY. **Pesticides are poisons that, obviously, kill more than what they are labeled to kill.**

Malathion. Originally developed as a nerve gas during World War II, this organophosphate has been a part of urban pest control since 1950. Another EPA registered organophosphate pesticide poison. "ENVIRONMENTAL RESEARCH" states that malathion and its oxygen analog malaoxon are both quite carcinogenic and have been linked with increased incidence of leukemia in mammals. Malathion's chronic health effects include: suspected mutagen and teratogen, delayed neurotoxin, allergic reactions, behavioral effects, ulcers, eye damage, abnormal brain waves and immuno-suppression. Very low doses of malathion - not much less than what humans can and do *legally* ingest (daily) - have produced direct mutagenic effects. (When the DOA wanted to spray this poison with aerial applications here in Michigan they *justified* their choice by saying, "Only one person is known to have died from malathion (acute) exposure.") Disturbingly, subsequent exposure(s) to malathion, using even much smaller doses, produced even more intense chromatid breaks, an indication that the toxic effects are cumulative. This chemical is a potent sensitizer of the skin and caused allergic dermatitis in human beings after a single exposure. *Some* people who are exposed, quickly become sensitized to malathion and other organophosphates and will develop skin eruptions on subsequent exposures), even to minute amounts. Contact with malathion can elicit allergic reactions ranging from a mild rash to severe asthma-like symptoms. Neurological abnormalities occurred in rats exposed to low levels even though the chemical was **undetectable** in their blood samples. This poison also produces rapid eye inflammation and edema. The impurities or *inerts* it contains increase as this poison *ages* and greatly increases the poison's toxicity by inhibiting the detoxifying enzymes in the person or animal poisoned. Malathion has an ester called diethyl fumurate which is synergistic with malathion. It also has two transformation products: malaoxon (a carcinogen), and 0,S,S-trimethyl phosphorothioate. In 1989-90, 509,583 pounds of malathion were used in southern California to eradicate the medfly; it didn't work. In 1997, Florida decided to "control" the medfly with malathion - obviously, no one paid any attention to the California fiasco - that cost $200 million or so...

There are two types of malathion that can be used in medical health effects research. One is the **"purified form"** (which is approximately 99.9% malathion) and the other is called **"technical grade"** (which is approximately 96.5% malathion) and is the type being sprayed over Tampa and Lakeland, Florida. The technical grade is approximately 10 times stronger in causing death to laboratory animals. The type of malathion being sprayed over Tampa is not always the type being referred to in health studies by malathion proponents. Compounding the problem, the malathion being sprayed with in Florida had been "baking" in the hot summer sun which research finds converts it into an even more toxic compound. If malathion was as safe as proponents state - why did 5 men die and 2,800 become severely ill out of 7,500 Pakistani spraymen who sprayed malathion poison? Could it be possible the hidden chemical ingredients that make malathion drastically more toxic? - Centers for Disease Control, Atlanta. Note: technical grade malathion [the type we are exposed to] contains approximately 11 impurities. It is these impurities which scientists state are the main poisoning ingredients in malathion - none of which have been tested or included in malathion's MSDS! One impurity has been shown to be approximately

Mecoprop (MCPP). The potential health effects of this herbicide include skin irritation, vomiting, unconsciousness, coughing, dizziness, sensory and behavioral disturbances, spasms and sweating.

Mercury and Mercury Compounds. Are used in pharmaceuticals as an anti-mildew agent, bactericides and/or fungicide poisons. They can affect you when breathed in swallowed or absorbed through the skin. They may damage the developing fetus, the brain and kidneys and they bioaccumulate. Even acute exposure can cause chest pain, shortness of breath, coughing, persistent irritability and lack of ambition. They **still** have not been fully studied regarding their ability to cause cancer. In Michigan every inland lake has mercury contamination to some degree.

Methiocarb. Acute exposure to the carbamate poison methiocarb, may cause excess amounts of acetylcholine to accumulate at cholinergic neuro-effector junctions, which can damage central nervous system functioning. It may also alter the body's enzyme systems. Acute exposure effects include abdominal pain, coma, skin irritation, diarrhea, disorientation, dizziness, muscle twitching, nausea, psychosis, tremors and vomiting. Effects of long-term exposure may include muscle weakness, central nervous system degeneration and impaired nerve conduction. It is highly volatile and very toxic to birds, bees and aquatic invertebrates.

Methoprene. Methoprene was the first insect growth regulator and it was registered by the EPA in 1975. Known to cause increased liver weight and degeneration of parts of the kidney in test animals. It is toxic to amphibians and marine life. It causes intoxication in birds and duck reproductive impairment. Adverse effects to humans may include headaches, eye and throat irritation, breathing difficulty, confusion, dizziness and nausea. In 2003, Bush's EPA exempted methoprene from any tolerance level because "risk analysis" showed aggregate exposures to "residue" would not result in harm to people of any age, per the August Issue of Pest Control Magazine on page 64.

Methoxychlor. Another organochlorine or cyclodiene chlorinated hydrocarbon insecticide poison which was *once* EPA *registered* for use on 87 crops is **still** also used extensively in homes and in dairy barns. Chronic or long term exposure problems in mammals show methoxychlor to be cumulative, a fetotoxin, causes kidney and liver damages, interferes with the development of the male reproductive system, has estrogen-like effects, reduced reproduction and a suspect carcinogen. High exposure in animals caused tremors, convulsions and affected fertility. **Not much is known about human health effects**. According to Rachel Carson, "Methoxychlor may not be as free from dangerous qualities as it was generally said to be, for research work on experimental animals shows a direct action on the uterus and a blocking effect on some of the powerful pituitary hormones - reminding us again that these are chemicals (poisons) with enormous biologic effect... If the liver has already been damaged, methoxychlor is stored in the body at 100 times its normal rate, and will then imitate the effects of DDT with long-lasting effects on the nervous system. Yet the liver damage that brings this about might be so slight as to pass unnoticed." Please understand **many** poisons including chlorpyrifos may also react this way to *slight* liver damage and/or (oxonase) enzyme deficiencies. Methoxychlor mimics the effects of estradiol, which affects fertility. This poison is still sold "over the counter" as a "general use" poison in Michigan. Exposing immature female mice to high levels of methoxychlor stimulated them to early sexual maturity per Reproductive Toxicology, Vol. 7 (1993). Methoxychlor is used as a DDT substitute, partly because of its estrogenic properties.

Methyl Bromide. Methyl bromide was sold in the 1940s as war surplus for 22¢ per pound, per an old ad in Pest Control Magazine, January 2003. The State of California notes methyl bromide is a developmental toxin, U. S. EPA Category I "extreme, high acute toxicity and a U. S. restricted-use, *registered* pesticide (fumigant) poison. Chronically it is thought to be a mutagen, a neurotoxin that causes brain, liver and kidney damage. On 3/19/99 Environmental Working Group/Friends of the Earth/Pesticide Action Network/Pesticide Watch/Western Environmental Law Center sent a press release that said in part: Judge David A. Garcia ruled Thursday (3/18/99) in favor of four environmental groups - Environmental working, Group, Friends of the Earth, Pesticide Action Network and Peticide Watch - who filed suit in June against the California Department of Pesticide Regulation (DPR).

The decision marks a turning point in California environmentalists' long battle against methyl bromide, a highly volatile and actutely toxic pesticide that routinely drifts from farm fields into adjacent neighborhoods, and also depletes the ozone layer. The order requires DPR to adopt regulations for applications of methyl bromide - which could result in significant reductions in use - and calls into question the entire process the State has used to register methyl bromide.

Garcia found DPR in violation of a 1989 state law requiring adoption of clear and enforceable statewide regulations for methyl bromide use by April of that year. Instead, DPR has only developed an internal set of use "guidelines" - supposed safety measures that nonetheless allow applications of methyl bromide within 100 feet of homes and 30 feet of farmworkers. The "guidelines" are administered by county agriculture commissioners, vary from one county to another, and are subject to change without public notice.

Methyl bromide is classified by the U. S. Environmental Protection Agency as a Categroy I toxic compound, a designation reserved for the most dangerous substances. It is known to cause nerve damage and birth defects in laboratory animals and even small doses ar harmful to the lungs, kidneys, eyes and skin.
Methyl bromide is a potent destroyer of the Earth's protective ozone layer, and by international treaty will be banned in the U. S. in 2005. The U. S. deadline had been 2001, but was extended last year under a bill sponsored by now-retired U. S. Rep. Vic Fazio of California and allowed to become law with only token opposition from the Clinton-Gore Administration. In 2003, the National Pest Management Association filed an applicaiton with the EPA for critical use exemptions.

Under the state Birth Defects Prevention Act of 1984, it was twice scheduled for earlier bans in California, but each time the agricultural industry successful lobbied the Legislature to extend the California deadline. In the lawsuit, DPR argued unsuccessfully that the 1996 law extending the deadline superseded the 1989 law requiring adoption of clear and enforceable statewide regulations.

In California, methyl bromide is injected into the soil before the planting of strawberries, almonds, wine grapes and other crops. California uses more methyl bromide than any other state, with more than 17 million pounds applied in 1995, much of it by Central Coast strawberry growers. It is also commonly used in Southern California to fumigate buildings for insects.

In the last two decades, at least 19 people have died in California from exposure to methyl bromide in structural fumigation. More than 1,600 have been poisoned and hundreds evacuated from homes and schools after the toxic gas drifted from fields - even when applied according to the State's guidelines. Children are particularly at risk: An Environmental Working Group study found that more than 2.4 million pounds of methyl bromide were applied near California schools in 1995, the latest year for which use figures are available.

Manager's Report of July, 1993 noted: An investigation by the Florida Bureau of Entomology and Pest Control found 55 of 115 State Vikane investigations were in violation of the State's rules. On 3/23/98 in Davey, Florida Orkin's national spokesman, Paul Hartley, noted that when Orkin treated dry wood termites per the Dow label they sometimes got no control. Then Dow came and treated again with Vikane per the label and also got no control. Want to read something that truly is insane...a single cocoa bean may require 6 to 8 fumigations with this terrible toxin before it is processed. **(See Bromoethane.)**

Methyl Chloride. Is classified as a probable human carcinogen. It causes mutations in bacteria and kidney cancers in mice. It also causes birth defects and testicular (tubules) degeneration in rats. It is an unregistered *inert*. Used in the manufacture of pesticides, e.g., herbicides, methyl chloride is synthesized by attaching a chlorine atom to a molecule of wood alcohol. **Methyl chloride's long-term effects on human health have never been studied directly.** We only know it can harm the human central nervous system, cause dizziness, nausea, tingling and numbness. By 1981, annual production reached 362 million pounds per year!

Methyl Parathion. Is a powerful organophosphate poison and immunotoxin, mutagen and fetotoxin that effects the central nervous system. It has a very high acute toxicity. It smells like rotten eggs and is very similar to nerve gas. It is a *registered,* restricted-use poison that routinely is used illegally by untrained people in homes and occupied buildings. It can cause loss of consciousness, dizziness, confusion, headaches, difficulty in breathing, chest tightness, blurred vision, sweating and death. It is not classifiable as to its carcinogenicity to humans. It can caused decreased heart rate and blood pressure and reduces the ability of animals to fight infection. It causes retinal and sciatic nerve damage and reduced protein synthesis in the fetus. In 8/98, the ATSDR noted since 11/96 about 18,000 people had been affected by illegal residential spraying. **See Parathion.**

Tennessee Men Arrested for Pesticide Misuse. Memphis, Tenn. - Robert Kelly Jr. and Robert Kelly III, operators of Kelly Spraying Service, were arrested in February on a 42-count federal indictment. The charges allege

that they illegally applied methyl parathion inside homes, and that Kelly Jr. purchased at least 280 gallons of the restricted-use pesticide between 1992 and 1996.

According to a release from the United States Environmental Protection Agency (U. S. EPA), both defendants face maximum penalties of up to one year in prison and a fine of up to $100,000 on each count. The U. S. EPA release also reported that Margaret Stewart, of Clarksdale, Miss., was ordered to appear in U. S. District Court, to answer charges that she illegally sold the pesticide endosulfan to the public in improperly marked containers. The indictment alleges that Stewart sold the organophosphate in milk and bleach containers without pesticide warnings. If convicted on both charges, she could face a maximum sentence of up to two years in prison and up to $200,000 in fines. May 1998 Pest Control.

Mirex. Is an orgnaochlorine poison that was cancelled in the U. S. in 1976. Mirex can affect you if breathed in, swallowed or if it comes in contact with the eye or skin. It can damage skin, has caused cancer, cataracts and birth defects in animals. Mirex can cause nausea, vomiting, skin rash and can damage the heart, liver and nervous system and cause reproductive failure. Mirex has many names and was used as a *registered* insecticide poison. Its transformation products include chlordecone. A closely related poison, chlordecone, has not been manufactured or used as *registered* poison in the U. S. since 1977. Chlordecone was and is cumulative, a carcinogen, a suspect fetotoxin, a neurotoxin, caused testicular atrophy, liver damage, suppressed pituitary gland hormones and decreased reproductive activity. **See Chlordecone.**

Napthalene. Exposure can irritate the eyes, nose, throat and skin and damage the liver, kidneys and red blood cells. Repeated exposure can cause cataracts and corneal damage. Used as moth balls or as a moth repellant and/or *registered* insecticide poison. May cause nausea, vomiting, blurred vision, abdominal pain, bladder irritation, damage to the cornea, severe eye irritation, brown or black coloration of the urine, etc. Health effects can occur some time after exposure and can last for months or years. **Napthalene was not tested for its ability to cause cacncer or for other long-term effects or for any reproductive hazards. On 1/26/01 it was announced by NTP that napthalene causes cancer in rats**. It can be transported across the placenta and causes blood damage. Also used as an unregistered *inert*. It has a strong odor and has caused cancer in female mice. Hemolytic anemia is the primary health concern for humans exposed to napthalene. It has trans- formation products including 1-napthol. A memorandum from Lloyd Novick, M.D., Director, Center for Community Health to William Stasiuk, Center for Environmental Health, State of New York, Department of Health, "Naphthalene," August 20, 1992, noted that: Children who are African-American, Mediterranean, Middle Eastern, or Asian in ancestry are more likely than European-American children to lack an enzyme that is necessary for breaking down the pesticide naphthalene a common ingredient in mothballs. Without the enzyme, children of color are more likely than European-American children to suffer from acute hemolytic anemia (premature des-truction of red blood cells) after exposure to naphthalene. Children who come in contact with mothballs can be exposed to naphthalene by the inhalation of fumes, absorption through touching or accidental ingestion. **See Carbaryl.**

Nicotine. Is a natural, old-time pesticide; only 15 drops taken orally will kill a man.

Nitrophenols. 2-nitrophenol is used to kill moles; 4-nitrophenol is used to kill fungus. **Very little is known about the fate of nitrophenols in the air.** They are a breakdown product of other *registered* pesticide poisons including parathion and fluoridifen. **There are no health studies that have looked at their effects in people.** Animal studies show that 4-nitrophenol may cause a blood disorder that reduces the ability of the blood to carry oxygen to the tissues and organs.

Nonachlor. A metabolite of chlordane.

Octachlor. Also known as chlordane. A probable human carcinogen. Probably causes birth defects and repro-ductive toxicity. Although uses were canceled for agriculture in 1978 and for termite control in 1988, "hidden" supplies are still in use and the chronic contamination in homes *legally* treated and retreated with this poison will remain hazardous for decades! See "chlordane".

Organochlorines. Organochlorine poisons, e.g., dioxin, aldrin, chlordane, dicofol, DDT, dieldrin, endrin, heptachlor, lindane, methoxychlor, mirex and toxaphene, interfere with axoncal transmission of nerve impulses, thereby disrupting the function of the nervous system. They are stored in human and animal fat for extremely long periods and are bioaccumulated. 177 different organochlorine contaminants can now be detected in the

average middle-aged (U. S.) man. They continue to induce mixed function oxidases, protein and lipid synthesis and changes in hepatic enzymes. Photolysis of these organochlorines usually results in compounds more toxic than the original poison/pesticide. About half of the synthetic chemicals known to function as endrocrine disrupter are organochlorines (not all organochlorines are estrogenic, however). The American Public Health Association issued a 1993 resolution calling for the gradual phase-out of most organochlorine compounds and for the pursuit of safe alternatives, as did the International Joint commission on the Great Lakes earlier. **(See Chlorine.)**

Organophosphates. Organophosphate poisons attack the enzymatic systems of humans and were initially developed to kill people as neurotoxins used in chemical warfare. Tabun and Sarin (the first organophosphates) were developed in 1937 and used by Hitler to kill people. When some madman today proclaims that he is not manufacturing nerve gas, but only pesticides; that is like saying, "I don't drive a car, I drive an automobile." Accounting for almost half of the *registered* pesticide poisons in the U. S., there are about 200 different organophosphorus ester insecticide poisons in the U. S. market place. The March 1992 Endometriosis Association Newsletter noted ... "Studies have shown that when combined organophosphorus compounds are 100 to 1000 fold more toxic than the original compounds are individually." They are dangerous nerve poisons which inhibit esterases including the essential enzyme, acetyl cholinesterase (AchE) and cause polyneuropathy and many other health problems.

All organophosphorous compounds (poisons) are toxic to the autonomic nervous system (ANS). Knowing how the autonomic nervous system works helps to understand the way organophosphates affect the body.

The ANS includes those structures which are concerned with the innervation of smooth (involuntary) muscles, the heart muscle and glands. The activities of the structures stimulated by the ANS are essential for life, structures such as the digestive, respiratory, urinary, reproductive, circulatory and endocrine systems. (These structures are known as effector organs). A nerve fiber (neuron) along which an impulse travels runs from the brain-spinal cord to the effector organ. As the impulse comes to the end of the neuron, it stimulates production of a substance called acetylcholine. Acetylcholine travels a very small distance to receptor sites on the effector organ and stimulates the organ into action. Almost immediately, the acetylcholine is hydrolyzed (eliminated) by another substance called cholinesterase. Organophosphates top the action of cholinesterase, allowing acetylcholine to accumulate at the receptor sites. As acetylcholine accumulates, it causes a constant stimulation and an increased function of that organ. After a period of time, however, that function decreases. In this way organophosphates severely inhibit the ANS. It is not until additional cholinesterase is generated by the body that the affected organs can function normally. In cases of chronic exposure, there may be a permanent decrease in the response capability of the effector organs to the ANS. The symptoms are the same for both acute and chronic exposures. They include: impaired memory, miosis (unusual pupil constriction), depression, poor concentration, confusion, irritability, nervousness, fatigue, muscle aches and pains, muscle weakness, abdominal cramping and nausea. In addition to a persistence of some of the above symptoms, chronic exposure to organophosphates can cause permanent damage to the nervous system. Electroencephalograms (recording of brain electrical activity) of people chronically exposed to organophosphates show a marked change in their wave patterns. Studies show chronic organophosphorus exposure can result in frontal lobe damage, which corresponds to impaired sensory-motor functions. There is an increasing indication that some organophosphates can produce paralysis due to a demyelinating process in the spinal cord. Per Bio Tox, Inc., one of the primary German research scientists, Dr. Gerhard Schroeder, "quickly realized these compounds (poisons) could never be used as insecticide poisons since animals treated with even minute quantities suffered horrible *consequences.* Yet today these poisons are used in ever increasing quantities, and though *some* like Dursban TC are not safe (labeled) to be used in barns, can and are routinely and prophylactically applied in homes, schools and many other public buildings. Acute exposure effects include anorexia, cardiac problems, coma, confusion, headaches, giddiness, vertigo, cramps, skin problems, diarrhea, dizziness, hallucinations and neurological problems, hyperglycemia, nausea, renal damage, respiratory problems and depression, sweating, vomiting, weakness and even death due to respiratory failure. Chronic effects tend to be neuropsychiatric disorders, peripheral neuropathies or myopathies. Disorientation, depersonalization, hallucinations, anxiety and abnormal EEG patterns. *Some* organophosphates are suspected carcinogens, mutagens, teratogens and are immunotoxins. Please look at "Methoxychlor's" liver damage comments; it is believed chlorpyrifos can also effect us the same way when there is liver damage or enzyme deficiencies. Please note *some* of the organophosphate pesticides actually potentiate or activate each other - increasing the toxicity of one poison that normally is of a very low acute toxicity, into one that becomes highly toxic to man!

In 1981, three pediatricians in California reported in the Lancet - the incidence of acute leukemia in seven cases shortly following in-home exposure to an organophosphate poison. In 1987, a case control study of leukemia (childhood) in Los Angeles county explored causes of the disease. For children under 10, a 3.8 fold increase of leukemia was found if the parents used pesticides in the home and a 6.5 fold increased risk was revealed among parents using pesticide poisons in the garden. In 1989, the Children's Cancer Study Group noted that among families of 204 children with acute nonlymphoblastic leukemia, the most consistent association found in their analysis of potential causes was pesticide (poison) exposure.

If the fathers held jobs involving pesticide poison exposure - for more than 1,000 days - the child had a 2.7 times higher chance of contracting the disease when compared to the controls. As parental pesticide poison exposure declined, so did the odds or risk. Children regularly exposed to pesticides in the household had a 3.5 rimes higher incidence of leukemia than those not exposed there. The frequency of household pesticide poison exposure also played an important role. According to Richard Wiles of the Washington-based Environmental Working Group (EWG), more than 1 million children under age 5 eat an unsafe dose of organophosphates every day! EWG estimated in January, 1998, that 1.1 million children each day eat food which, even after it is washed, contains an unsafe dose of 13 organophosphates; of those, 106,000 children exceed the federal limit for adults by 10 times or more! Dr. Herbert L. Needleman noted, "These chemicals (poisons) do affect the nervous system and developing nervous systems are vulnerable...certain pesticides that are highly concentrated should be banned. If we wait, a lot of kids will pay an unnecessary price." On January 30, 1998, PANUPS noted: U. S. EPA Fails to Protect Children from Pesticides (poisons) in Food - Every day, one million U. S. children age five and under consume unsafe levels of pesticides (poisons) that can harm the developing brain and nervous system, according to a new report by the Environmental Working Group (EWG). The report, based on an analysis of federal data, found that most of the risk to children comes from five organophosphate insecticide poisons: methyl parathion, dimethoate, chlorpyrifos, pirimiphos methyl and azinphos methyl. The foods most likely to contain unsafe poison active ingredient levels are peaches, apples, nectarines, popcorn and pears. Among baby foods, pears, peaches and apple juice most frequently had elevated levels.

EWG undertook the study to monitor effectiveness of the 1996 Food Quality Protection Act (FQPA), which requires all pesticides (poisons) to be safe for infants and children. "It's been more than 18 months since Congress passed the Food Quality Protection Act," said Richard Wiles, vice president for research at the Environmental Working Group. "This study shows that every day, hundreds of thousands of children receive unsafe exposures, at precisely the age when they are most vulnerable to long- and short-term brain and nervous system damage." The study found that approximately one in four peaches and one in eight apples have levels of organophosphate insecticide poisons (OPs) that are unsafe for children. (Researchers found 1 million U. S. kids five and under are daily exposed to unsafe levels of 13 different organophosphate neurotoxic poisons in the foods they eat. (Organophosphate poisons can not differentiate between a cockroach's or a child's nervous system.)

The report stresses that the solution is not for infants and children to eat fewer fruits and vegetables, but rather "that baby food should not contain pesticides (poisons)," said Wiles.

EWG says its report is the first comprehensive analysis of exposure to organophosphate pesticides (poisons) in the U. S. food supply. It is based on more than 80,000 samples of food tested by the U. S. Department of Agriculture (USDA) and the Food and Drug Administration, and dietary records for more than 4,000 children collected by USDA.

According to the report, estimates of the number of children at risk of exposure to unsafe levels of pesticides (poisons) are conservative because children are also exposed to pesticides (poisons) sprayed in their homes, schools and day care centers. (Even the rain and air contain pesticide poison contamination.) In addition, the EPA's current standards are based on levels considered safe for adults. The study estimates that as many as 3.6 million children aged 6 months to 5 years would be considered at risk from pesticide levels in food if EPA set standards that complied with the Food Quality Protection Act, which requires an additional ten-fold margin of safety.

EWG urges that the five OP pesticides (poisons) be banned immediately for all agricultural use, and also recommends:

-- a ban on all home and other structural use of OP pesticides (poisons)
-- a ban on all OP pesticides (poisons) on commodities that end up in baby food

-- safety standards for all OP pesticides (poisons) must be set at levels that are safe for infants and children
-- additional developmental neurotoxicity studies on all OP pesticides (poisons) in the food supply must be conducted before EPA adopts new OP regulations next year.

The chemical and food industries called the report alarmist and said it serves only to frighten parents away from wholesome food. "The food is safe and so are their children," said Jay Vroom, president of the American Crop Protection Association. You have convinced me, Jay - **not!**

But EPA has already identified organophosphates (poisons) as the top priority in determining whether to change the acceptable residue (contamination) levels in food. EPA will decide whether to set new standards for organophosphates in the food supply by August 1999. The agency could ban them outright or change the acceptable levels in foods. According to an Associated Press report, one top EPA official familiar with the Environmental Working Group report said its findings were not out of line with the agency's analysis of the threat to children.

"The study offers concrete evidence reinforcing our view that organophosphates (poisons) cannot be safely used on food," said David Chatfield, Executive Director of Californians for Pesticide Reform (CPR), a coalition of over 70 groups in California. "The report shows how widespread these contaminants are and calls into serious question the notion that children's safety can be ensured by setting allowable, so called 'safe exposure' limits. These chemicals (poisons) are unsafe at any speed, and should be banned."

Copies of the report can be ordered for US$20 from EWG (see below) or downloaded from the internet: http://www.ewg.org.

Sources: "Overexposed: Organophosphate Insecticides in Children's Food," 1988. Environmental Working Group; Associated Press, January 29, 1998.

Contacts: EWG, 1718 Connecticut Ave., N.W., Suite 600, Washington, DC 20009; phone (202) 667-6982; fax (202) 232-2592; email info@ewg.org; web site: http://www.ewg.org. CPR, 116 New Montgomery, #800, San Francisco, CA 94105; phone (415) 495-1149; fax (415) 495-1141; email pests@igc.org; web site: http://www.igc.org/cpr.

Acute organophosphate pesticide poisonings cause substantial morbidity and mortality world wide; however, whether organophosphates cause chronic neurological sequelae has not been established. To see whether single episodes of acute unintentional organophosphate poison intoxication lead to chronic neuropsychological dysfunction, the Pesticide Health Effects Study Group carried out a retrospective study of agricultural workers in Nicaragua who had been admitted to hospital between July 1, 1986, and July 31, 1988, for occupationally related organophosphate poison intoxication.

This "poisoned" group (36 men) was tested on average about two years after the episode of pesticide poisoning and compared with a matched control group. The poisoned group did much worse than the control group on all neuropsychological subtests, with significantly worse performance on five of six subtests of a World Health Organization neuropsychological test battery and on 3 of 6 additional tests that assessed verbal and visual attention, visual memory, visuomotor speed, sequencing and problem solving, and motor steadiness and dexterity. Differences in neuropsychological performance could not be explained by other factors. The findings of a persistent decrease in neuropsychological performance among individuals with previous intoxication emphasize the importance of prevention of even single episodes of organophosphate poisoning (Lancet 1991; 338: 223-27).

A national registry of pesticide poison "incidents" maintained by the U. S. EPA recorded, between early 1992 and mid-1996, more than 500 complaints of human illness from chlorpyrifos, the most widely used organophosphate insecticide poison. Of these, nearly 160 cases involved classic symptoms of enzyme inhibition.

The poison registry includes many individual examples of accidental overexposure, such as:

- A Tennessee homeowner who suffered a rash and burning eyes after carrying a chlorpyrifos soaked carpet outside.
- A Michigan woman who experienced fatigue, heart palpitations, dizziness, and memory loss for six

months after her home was treated for termites with chlorpyrifos.

- Children at a Nevada school who fainted, and later developed memory loss and balance problems, after the building was treated with diazinon, an organophosphate, while school was in session.

J. M. Spiker and D. L. Avery "Neurobehavioral Effects of Prenatal Exposure to the Organophosphate Diazinon in Mice" 1977, Journal of Toxicology and Environmental Health noted in some organophosphate compounds the lethal dose (to kill) in immature animals has been reported to be only 1% of the lethal dose in adult animals.

Organophosphate pesticides are being tested on students, British Medical Journal; 1998; 317; 430

Paul Tyler, chariman of the all party Commons and Lords organophosphate group, is worried that vulnerable people may be induced by financial incentives to take part in the experiments: "Multinational companies are paying substantial sums to students to use them as human guinea pigs for testing dangerous organophosphate pesticides."

Organophosphates are highly toxic chemicals. Their best recognised effects are due to phosphorylation and inhibition of acetylcholine esterase, which has an impact on cholinergic transmission throughout the nervous system. Symptoms of acute toxicity relate to musculo skeletal, central, and autonomic effects and include paralysis, confusion, headache, nausea, sweating, and blurred vision.

The long term effects of organophosphates are unpredictable. Being lipophilic, they tend to accumulate in fatty tissue, from which they are gradually released. According to Dr Goranji Jamal, consultant neurologist and senior lecturer at the University of Glasgow, experiments on animals have revealed that organophosphates can inhibit or destroy a whole range of enzymes. Chronic symptoms including memory loss, fatigue, and sensorimotor polyneuropathy have been described. Organophosphates are one of the agents implicated as a cause of the symptoms experienced by those who took part in the Gulf War.

Pesticide regulations in the United States dictate that the safe concentration of a chemical is 10 times lower than the level established by animal testing. This gives chemical companies a huge financial incentive to test pesticides directly on humans to try to establish higher acceptable concentrations, although legislation prevents testing of organophosphates on humans in the United States.

In 1997, Amvac Chemical Corporation, a California pesticide company, hired a lab in England to conduct three related feeding trials using people to test the toxicity of dichlorvos, a common ingredient in pet collars and pest strips. In a 1992 study in Scotland commissioned by Rhone-Poulenc, the French chemical giant, volunteer subjects were paid to ingest the extremely toxic insecticide aldicarb.

Citing ethical and scientific concerns, The Environmental Working Group said it strongly opposes human experiments that deliberately expose people to pesticide (poisons) or other environmental toxins for the purpose of determining "safe" or "acceptable" levels of pollution for people.

Andrew Wineke, Everett Herald, Tuesday, August 4, 1998, p C1 & C2 , noted: Why does a single whiff of a chemical make some people seriously ill, while others don't even notice it?

Researchers at the University of Washington, working with a team at the University of California at Los Angeles, have begun to map out how differently people can react to the same pesticides and chemicals. Some results of their research were published earlier this month in the science journal Nature.

Using common pesticide (poisons) called organophosphates, such as diazinon, chlorpyrifos, and parathion, the scientists have shown that one person can be 100 times as sensitive to a particular chemical as another person. The research has also shown that babies start life with almost no resistance to these dangerous pesticides (poisons).

"A little bit of difference in metabolism can make a lot of difference in response," says Clem Furlong, a professor in the UW's Department of Environmental Health.

The differences stem from an enzyme produced by the body. Apparently, the same enzyme that is a contributing

factor for vascular disease also regulates resistance to some pesticides.

Furlong's research is a long way from explaining chemical illnesses such as multiple chemical sensitivity or Gulf War syndrome. The reason is that there are so many chemicals that a victim might have been exposed to, and, after the fact, there is no way to measure what doses they could have received.

If the poison companies really want to test their volatile nerve gases or poisons on people, they should begin by using their CEO's as guinea pigs rather than on student "volunteers" in laboratories (and in classrooms all over the world.)

The Journal of Occupational and Environmental Medicine 1998; 40:1038-1047noted that organophosphate pesticide exposure affects male fertility. Dr. Xiping Xu of the Harvard School for Public Health studied two sets of workers in China and concluded the greater the exposure to organophosphates the greater the sex hormone abnormalities.

P A N U P S, OP Food Poisoning: Case Study in India, February 26, 1999

In many developing countries, widespread use of organophosphate insecticides (OPs) has been accompanied by an appreciable increase in accidental poisoning with these chemicals. A report in the British Journal of Medicine highlights the dangers of indiscriminate use of organophosphates and stresses the importance of early and accurate identification of the cause of food poisoning outbreaks. According to the report, this increase in poisonings is often a result of the easy availability of OPs, indiscriminate handling and storage, and lack of knowledge about the serious consequences of poisoning. Increased use of OPs as agricultural and household insecticides without accompanying public education about proper storage or dangers associated with their use increases the likelihood of more food poisoning incidents.

The report calls for health professionals to know the symptoms associated with organophosphate poisoning so that they can differentiate between these and neurological symptoms caused by other forms of poisoning. Based on their research, the authors believe that skilled, prompt treatment can save lives.

The authors use an incident that occurred in India in July 1997as a case study. Sixty men aged 20 to 30 years attended a communal lunch where they ate chapati, vegetables, pulses and halva. All sixty developed nausea, vomiting and abdominal pain over the next three hours. They were taken to a local primary healthcare center where they received treatment for their symptoms (intravenous fluids, antiemetics and antibiotics). Fifty-six responded to the treatment and were discharged the same day. However, the condition of the remaining four patients deteriorated. Their level of consciousness decreased and they developed respiratory distress and muscular weakness. The next day the four men were moved to an urban emergency hospital.

One of these patients, a 20 year old man admitted with a range of symptoms (including sweating, impaired consciousness, hypotension and muscle weakness) began having difficulty breathing on the second day, and was eventually placed on a ventilator. Despite continuing treatment of his symptoms, he developed respiratory failure and muscle paralysis and died of cardiac arrest on the tenth day. The other three patients responded to treatment and were discharged a week later.

Detailed questioning of those who had been working in the communal kitchen where lunch had been cooked revealed that on the morning of the outbreak the kitchen had been sprayed with malathion, an organophosphate insecticide. Many of the cooking ingredients used for the lunch were stored in open jute bags. All 60 people who had eaten the meal developed symptoms, but the patient who died had eaten at least eight chapati, while the others had eaten only three or four. Laboratory testing of leftover food from the shared lunch revealed the presence of an organophosphate compound, but no other toxins or chemicals.

Due to the severity of his illness, health care workers initially suspected botulism as the cause of his symptoms. When test results for botulism proved negative, hospital staff ordered additional analysis of the patients' gastric fluids. A positive test for organophosphate poisoning was obtained nine days after the onset of illness. All of the men hospitalized developed symptoms more consistent with organophosphate poisoning than botulism. However, the early onset of certain intermediate symptoms had not been described previously with malathion,

but rather with other OPs. This added to the difficulty in making a correct diagnosis. This delay in diagnosis, evaluation and management of the malathion poisoning resulted in the death of patient who might otherwise have survived had he received early appropriate treatment.

The article concludes by issuing a reminder "...to epidemiologists, toxicologists, and microbiologists that organophosphate food poisoning is a continuing hazard, especially in developing countries. Health professionals should be familiar with the acute illness syndromes associated with organophosphate poisoning so that they can differentiate between these and the neurological symptoms caused by other forms of poisoning."
Source: Chaudhry, R., S.B. Lall, B. Mishra and B. Dhawan, "A foodborne outbreak of organophosphate poisoning: Indiscriminate use of organophosphates without public education on safety increases the potential threat of foodborne outbreaks of poisoning," British Medical Journal, July 25, 1998.

The pesticidal activities of organophosphate poison compounds are not only insecticidal - they also include acaricidal, nematocidal, anthelmintic, insect sterilizing, fungicidal, herbicidal and rodenticidal activities indicating they truly can be called biocides and can adversely effect (poison) all life forms. About 140 phosphorous compounds are or were used as pesticide poisons (including plant growth regulators) in the world. More than 60,000 tons of organophosphate pesticide poisons are produced in the U. S. alone. Many organophosphorus poison compounds show a special chronic neuro-toxicity, which is not due to acetylcholinesteral inhibition - but, to another unknown mechanism, and is accompanied by irreversible demyelination both in the central and peripheral nervous systems of certain species of vertebrates **(including man - who is the most susceptible vertebrate species**)! EPA has targeted organophosphates for review under the FQPA in 1998. After this review, many of these volatile pesticide poisons may be no longer available for use in this Country. **See Dichlorvos**. **See also Chapter 25 for other organophosphate psychiatric data.**

Oryzalin. Brand name Surflan®, it is a herbicide poison in a powder form used ton inhibit the growth of weed seeds. Can cause skin and eye irritation.

Oxamyl. WHO Class 1b "Highly Hazardous, U. S. Category I", extremely high acute toxicity and a U. S. restricted-use pesticide used here and exported for use as a carbamate nematocide poison.

Paraquat. Used as a herbicide poison and is ranked as a WHO Class II "Moderately Hazardous; U. S. EPA Category I " extremely high acute toxicity and a U. S. *registered* restricted-use pesticide poison.

Parathion. An organophosphate pesticide poison, parathion is extremely acutely toxic. One chemist swallowed a mixture of about .00424 ounces of parathion, believing he would learn about its toxic properties through subjective research. He was immediately paralyzed. He had prepared antidotes but could not act quickly enough to swallow them. He died. Only nine drops of parathion when taken orally will kill a man. In Finland, parathion is a favorite means of committing suicide. Hundreds of deaths have been reported in India, Syria and Japan as a result of parathion poisoning. Even entering fields sprayed with parathion poison a month after application can cause serious injury to farm workers, as was proven in California when orchard workers collapsed and went into shock. Fatalities were avoided only through pro per and immediate medical attention. Parathion is also deadly to wildlife. Indiana farmers once instructed a pilot to apply parathion to river bottom land where thousands of blackbirds congregated. Approximately 65,000 blackbirds and starlings were killed by their exposure to parathion. In a single wheat field, parathion once killed 1,200 Canadian geese. In Grand Rapids I personally know of a person who bragged (until he died) that he routinely *treated* inner city homes with this terrible poison to control roaches! Other pest control companies have sprayed parathion in Michigan, Ohio, and the South. Chronic toxic effects include: suspected carcinogen, mutagen, teratogen, retinal degeneration, neurotoxin and limited immunotoxin. Its sibling is malathion. **See Methyl Parathion and Malathion.**

PCB. In Janette Sherman, M.D.'s "At the Source: Guide to Causes and Prevention of Breast Cancer" she notes: PCBs, manufactured in the USA solely by Monsanto Chemical Corporation at its plants in Sauget, Illinois, and in Anniston, Alabama...
In 1970, Monsanto's Manager of Environmental Control wrote: "There is ample evidence from many laboratories that certain species of birds which are at the top of the marine food chain cannot reproduce properly when PCBs are present in their diets." Later, expressing interest in dibenzofuran contamination of the Arochlor manufacturing process, he urged the Alabama Monsanto plant to determine the source of contamination. Despite this documentation, Monsanto has steadfastly denied the presence of these contaminants. Spread

widely, PCBs have contaminated fish, a major food source for many, notably in the Great Lakes, the Salton Sea and even the deep ocean...

Since PCB production began in 1929, EPA estimated that 1.4 billion pounds of PCBs had been produced...the environmental permanence and adverse effects from PCB exposure: carcinogenic, reproductive, developmental, neurologic, immunologic, and harm to the skin, liver, cardiovascular and endocrine/thyroid systems.

Pentachlorophenol. Also known as penta, most uses of this *registered* toxic poison were canceled in the U.S.A. in 1984, but the Michigan DOA Wood Preservation Certification Manual (when I took my 1998 test) still recommended its use as a wood preservative to *protect* against fungus, decay and termite attacks. It was once used as a biocide (a substance that can kill all living things), termiticide, wood preservative, fungicide, insecticide and herbicide. Some of the breakdown compounds may harm people. Impurities may also cause many, but not all, of its harmful effects. Penta is so powerful that a California tank truck driver applying penta to a cotton crop was killed when the spigot he was using to draw the chemical drum fell out of the drum and he reached into the liquid with his bare hand. He washed immediately, but by the next day he was dead. Metabolites include pentachlorophenol methyl ether and pentachlorophenol methyl sulfide. Acute exposure effects include pain, headache, G. I. upset, coma, cardiac problems, nausea, respiratory problems, stupor, sweating, hypothermia, mental deterioration, weakness, vomiting and death due to cardiac or respiratory failure or hypothermia, damage to the liver, kidneys, blood, lungs, nervous system, immune system and gastrointestinal tract. Chronic exposure effects include nerve, anemia, renal, hepatic and pulmonary damages, systemic poisoning, cancer, birth defects and leukopenia. It is a suspected carcinogen, mutagen, teratogen, fetotoxin, embryotoxin, is an immunotoxin, causes aplastic anemia and probably causes both pre and post natal damages. It is known to contain the contaminants 2,4,5-trichlorophenol, hexachlorobenzene, heptachlorodibenzo-p-dioxin, hexachlorodibenzofuran, octachlorodibenzo-p-dioxin, hexachlorodibenzo-p-dioxin, terachorophenol, TCDD, and has transformation products which include tetrachlorocatechol, tetrachlorohydroquinone and tetrachlorophonol! The odor threshold only gives a warning of exposure. Health effects may occur at lower concentrations.

Perchlorethylene or Tetrachloroethylene. Is an organochlorine poison used as a dry cleaning agent, industrial solvent, typewriter correction fluid and/or fumigant. May cause cancer in humans; it has caused cancer in animals; it may damage the development fetus; can cause dizziness, nausea, light-headedness, headache; can irritate eyes, nose, mouth, throat and skin; can damage kidneys and liver and the nervous system. Degrades very slowly in the atmosphere. The odor threshold only gives a warning of exposure. Health effects may occur at lower concentrations. It is a carcinogen, suspect mutagen and teratogen and causes kidney, liver and respiratory damage; its transformation products include **hexachlorobenzene.**

Permethrins. Permethrin was created as a photostable synthetic pyrethroid in 1973 and by 1977 it was on the market. Permethrins are synthetic pyrethroid poisons (including the termiticides Torpedo® and Dragnet®) which are suspected carcinogens and have (as do all pyrethrins and pyrethroids) the following acute exposure effects: ataxia, convulsions, diarrhea, headache, irritability, tremors, vomiting and death due to respiratory failure. Note: Prelude's active ingredient is permethrin 25.6% with "inert" ingredients of 74.4% - but no one knows how dangerous the *inerts* are. Permethrin is a neurotoxin which EPA classifies as a carcinogen (it causes lung cancer and liver tumors in mice). It is embryotoxic in rabbits. It is highly toxic to marine life. Allergic reactions have included breathing problems, fever, pollinosis, sweating and swelling. Persons (especially children) with a history of asthma are particularly reactive to pyrethrins and pyrethroids. Chronic exposure in mammals causes blood damages. A recent study conducted by Dr. Mohamed Abou-Donia about permethrins role in the neurological symptoms associated with exposure to the Gulf War toxins ("Neurotoxicity resulting from coexposure to Pyrodostigimine Bromide, Deet and Permethrin: Implications of Gulf War Chemical Exposures.", Journal of Toxicology and Environmental Health 5/1/96 pages 35-36) is quite alarming - especially if you are considering termite treatment or are considering washing your child's head with this toxin. Isn't it interesting that the EPA *registered* .5% permethrin Rid label for lice control for bedding and furniture warns "Avoid contact with skin, eyes or clothing," and **"This product (poison) is not for use on humans,"** and vacate room after treatment and ventilate before reoccupying. Do not allow children or pets to contact treated areas until surfaces are dry," while the Nix FDA *registered* Lice Treatment with 1% permethrin (twice as much poison) says saturate hair and scalp (especially behind the ears and on the nape of the neck) and leave the volatile poison on for 10 minutes! The Massachusetts Department of Public Health under mosquito repellents notes: Do not apply permethrin to the skin - yet Children's Hospital, Oakland, **Highlight** November, 1996 notes "In fact, for scabies treatment, 5% permethrin lotion (Elmire, five times stronger than Nix) is approved for overnight, neck-to-toe applications in

babies and pregnant women! Dear ones - there simply is no *regulatory* consistency regarding the use of these volatile poisons - the public is asleep, intoxicated, or brain-dead if they can "logically" believe both yes and no at the same time! **Please read more about this volatile poison in Chapter 16, Chapter 1 and Chapter 14. Never use it on cats.**

Phenol. Has been used as a *registered* fungicide poison, antibiotic and/or slimicide (a poison that kills bacteria and fungi found in watery slimes) and as a disinfectant. **The effects of humans breathing phenol are unknown. The effects of phenol on human reproduction and the developing fetus are unknown. We do not know if phenol causes cancer in humans,** but cancer occurs in mice when phenol is put on their skin. We put it on our skin as an antiseptic and gargle it as a mouthwash. It is used as an anesthetic in some sore throat remedies. Phenol will kill the outer layers of skin if it remains on the skin, so we use it to remove warts and skin spots. **Exposing large areas of skin (more than 25% of the body surface) to even weak solutions of phenol can result in death.**

Phenolic Compounds. Include chloro and nitro phenols. Some of these poisons work as pre-emergent herbicides and some that function as contact herbicides. Their toxic principle is the uncoupling of oxidative phosphorylation in cellular respiration, preventing the energy-storing reaction of ADP to ATP. This results in excess energy being released as heat,rather than being stored.

Phosalone. Just another organophosphate poison that causes central nervous system damage.

Phosmet. Just another organophosphate neurotoxin or poison that is a suspected human carcinogen (EPA classifies it as a carcinogen - it causes liver tumors in mice) mutagen, teratogen and fetotoxin. Phosmet is highly toxic to bees, birds and fish. It contains Thalimide, a basic ingredient of Thalidomide - the drug that causes birth defects.

Phosphonates. The most common of this group is glyphosate (Round Up).

Phtalic Acid. This group of poisons is generally used in agriculture. If ingested you may have blood in the urine.

Picloram. Is a restricted-use herbicide poison (trade names Tordon and Grazon) in the U. S. It is a suspected carcinogen, teratogen and chronic exposure causes liver, spleen, eye and kidney damage and testicular atrophy. It is contaminated with the carcinogen hexachlorobenzene. Hexachlorobenzene causes cancer of the liver, thyroid and kidney and damages bones, blood, the immune system and the endocrine system. Nursing mothers and infants are particularly at risk from hexachlorobenzene. Picloram is very persistent and highly mobile in the soil. Concentrations as slow as 0.04 ppm have killed trout fry. In Montana 15,000 pounds of fish at a hatchery died 1/4 mile downstream from a Tordon *treatment*. Picloram is extremely phytotoxic, and drift and runoff from picloram have caused great damage to crops such as tobacco and potatoes.

From the RIC Good Wood Guide: Picloram (Tordon), a picolenic acid herbicide, is the type of herbicide a chemical company loves to sell and those concerned only with killing vegetation love to buy: it is persistent and can be used to kill a large variety of woody plants and annual and perennial broadleaved weeds.

A mixture of picloram and 2,4-D, known as Agent White during the Vietnam War, was sprayed by the US military on those plants that survived the initial onslaught of Agent Orange (2,4,5-T and 2,4-D). That mixture is sold in Australia as Tordon.

Picloram/Tordon can be sprayed on foliage, injected into plants, applied to cut surfaces, or placed at the base of the plant where it will leach to the roots. Once absorbed by the foliage, stem, or roots, picloram is transported throughout the plant, where it is quite stable (i.e., just sits there, waiting...).

The very characteristics of Picloram that ensure the killing of a wide variety of plants, however, are also the one ones that cause trouble in the wider environment: persistence, leaching and broad toxicity to plants in small amounts.

Piperonyl Butoxide. Piperonyl butoxide is added as a synergist to pesticide poisons, e.g., pyrethrins, and is classified by EPA as a suspected carcinogen, is suspected of causing anorexia, cancer, coma, convulsions,

kidney, liver, adrenal, hepatic and prenatal damages. It is known to cause lung lesions, hemorrhages and anemia in rats. It is known to inhibit microsomal enzymes and reduces the ability of the (human) body to detoxify other toxins. It is very toxic to fish and crustaceans. **Read more about this poison in Chapter 16.**

Pirimphos-methyl. An organophosphate poison that also attacks the central nervous system, causing acetylcholine build-up at nerve junctions. Symptoms of acute exposure include alkyl phosphates in urine, anoxia, aphasia, ataxia, confusion, convulsions, cyanosis, dermatitis, diarrhea, dizziness and vertigo, hallucinations, headache, hypertension, hypotension, hypothermia, incontinence, tenesmus, nausea, pallor, paresis, psychosis, renal damage, vomiting and weakness. This poison also appears to be a chronic mutagen.

Polycyclic Aromatic Hydrocarbons (PAH's). Several are used as unregistered *inerts* in pesticide poisons. Mice fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring had higher rates of birth defects and lower body weights. Animal studies have shown PAH's can cause harmful effects on the skin, body fluids and the ability to fight disease after both short- and long-term exposure. **Lab animals and some people have developed cancer after breathing or even touching mixtures of PAH's, including lung and skin cancer**. Animals that have ingested them have gotten stomach cancer. In the body, PAH's are changed into chemicals that can attach to substances within the body. **Little human research has been done.**

Porphyric. Is used as a herbicide poison and insecticide poison. Animals and people are more susceptible to the toxic/porphyrinogenic effects of Protox® herbicides than the average dandelion. Of particular interest is the fact that only 6% of a Protox® herbicide is absorbed by the plant - 94% of the toxic compound remains on the plants surface to get you, your caddie, pets and/or family! Currently, the EPA (according to Dr. Copley, EPA, Pesticide Registration, Division of Toxicology) has no policy whatever regarding porphyrinogenic substances! **Porphyric herbicide and insecticide note:** Originally, the synthetic pesticide poison industry based most of its poisons on World War I and II nerve gas technology - Now its new generation of poisons are aimed at the destruction of the heme and chlorophyll biosynthesis pathway. These new (1970) porphyric poisons require direct interaction with light and are either photo-dynamic and/or photo-bleaching compounds that are toxic to all living things. Plants and animals both bioaccumulate large amounts of one or more porphyrins. These toxins photosensitize the formation of a single oxygen in light. This single oxygen is a very potent oxidant that can trigger a free radical chain reaction that destroys enzymes, nucleic acids, biological membranes and many proteins. The health effects include skin lesions, neurological damages and tissue damage wherever porphyrins accumulate. These *experimental porphyrias* are called *intoxication porphyria* by the May Medical Laboratory. *Intoxication* means (medically) "being poisoned by a drug or toxic substance." Recent findings indicate that the protoporphyrinogen content in animal livers was underestimated by pesticide researchers because the solvent they used (methanol-sulfuric acid) to extract the porphyrins actually destroyed them. According to two researchers at Dartmouth Medical School (Jacobs and Jacobs), protox inhibitors are preferred for use by pesticide formulators because of their action against both plasma membranes (plastids) and mitochondria, as well as their extremely effective photosensitivity effects. Final notation - While plant cytoplasmic fractions have the capacity to destroy protoporphyninogen, cytosolic factors in animal (people and pets) cells provide no damage against Protox® herbicide damage.

Propenal. One use of this chemical is for a tear gas. These chemicals are also used as herbicides for water weeds. They are extremely strong irritants. Asthmatics are at increased risk from exposure to these substances.

Propetamphos. Is the active organophosphate poison in Safrotin®, it also is a known cholinesterase inhibitor that works similarly to chlorpyrifos.

Propoxur. Propoxur is the active carbamate poison in Baygon® and many other synthetic pesticides and is manufactured by Mobay Chemical Corporation. Chronic or long term exposure problems/toxicity in mammals include: carcinogen, suspect mutagen, causes learning disabilities. It is highly toxic to birds, bees and flathead minnows. Propoxur is a biocide, that has n-nitroso propoxur (a mutagen) as a transformation product. **Please refer to "Baygon" for comments.**

Pyrethrins and pyrethroids. Pyrethrin is now considered a probably carcinogen. Natural pyrethrins (brand names include Blitz, Drione, etc.) are botanical pesticide poisons extracted from the daisy species, *Chrysanthemum cinerariaefolium and/or C. coccineum* which can bring on allergic reactions, asthma attacks,

dermatitis and interfere with nervous system functions. They are often combined with organophosphates to kill. Inhalation of just pyrethrins per the Extension Toxicology Network, California Public Interest Research Group can cause asthmatic breathing, sneezing, stuffiness, headaches, tremors, convulsion, burning and itching. They are especially toxic to fish and other aquatic organisms. Synthetic pyrethroids are a diverse class of more than 1,000 powerful, broad-spectrum insecticide poisons that can be divided into two groups, according to their chemical structures. Pyrethroid toxicity is highly dependent on stereochemistry, the three dimensional configuration of the molecule. Each isomer (molecules consisting of the same atoms, but with a different stereochemistry) has its own toxicity. Some pyrethroids have as many as 8 different isomers and there are several different types. Acute toxicity of a mixture of 2 isomers depends on the ratio of the amounts of the two isomers in the formulation. For example, the female rat's acute oral LD_{50} of permethrin increases from 224 milligrams of the pyrethroid per kilogram of body weight (mg/kg) to 6,000 mg/kg as the proportion of trans isomer increases from 20% to 80%. The route of exposure is also critical in assessing the acute toxicity of a synthetic pyrethroid. Like DDT and many other *registered* insecticides, naturally occurring pyrethrins and the synthetic pyrethroids are nerve poisons. Synthetic pyrethroid's principal mechanism of action is believed to be the disruption of the permeability of nerve membranes to sodium atoms. Organophosphates and carbamates are also nerve poisons, but they do not attack our peripheral (In addition to our central) nervous system as do DDT and synthetic pyrethroids. The half life of pyrethroids in soils ranges from 1 day to 16 weeks. (It is amazing that people apply them for termite *control*; even though permethrin is supposedly *effective* against termites in the very same soil for 1 - 5 years.) **Insect resistance has begun to be openly reported. Read more about these poisons in Chapter 16**. Some synthetic pyrethroids are already suspected by the EPA as being carcinogenic. Long-term or chronic exposure to pyrethrum causes liver damage especially when used with the synergists and Freon propellants; causes allergic reactions and is a neurotoxin. Synthetic pyrethroids have a very complex chemistry, most are primarily termite repellents. Dr. Nan-Yau Su, Professor of Entomology for the University of Florida, has observed termites tunneling through pyrethroid-treated soil by lining their tunnels with clean soil particles. See: Permethrin. (The use of pyrethroids should not be used for longer than 3 - 4 months in a commercial kitchen area or you will quickly create chemical resistance in the pest population.) Persons with respiratory problems are more sensitive to pyrethrins. People with multiple sclerosis (MS) can be on medication that affects sodium and potassium ion diffusion through neuron axons, so avoid the use of pyrethroids. **Do you really believe anyone in the poison *industry* asks if anyone has MS before they start spraying their poisons?** Pyrethroids can modify behavior in a number of ways. FenDeet® which contained the insect repellent Deet and fenvalerate for use in the veterinary arena had a large number of poisonings reported - small, young cats were most often effected. It appears that Deet which is readily absorbed through the skin, enhanced the absorption rate of fenvalerate sufficiently to lead to the development of toxic levels systematically (J. Am. Vet. Med. Assn. 196, 100, 1990). Pyrethrum or pyrethroids, e.g., permethrin, should not be used by persons sensitive to ragweed; should not be used near the eyes; should not be inhaled or swallowed; should not come in contact with mucous membranes, e.g., the eyes, nose or mouth. The Journal of Pesticide Reform in Fall of 1990 noted: There are several *inerts* in pyrethroid formulations used in the U. S. which are known or suspected carcinogens (e.g., silica, trimethyl benzenes and ethyl benzene) or are poisons which depress the central nervous system (e.g., xylenes). There are also hazardous contaminants, e.g., ethylene oxide, benzene and arsenic, in several pyrethroid formulations. Pyrethroids and DDT prevent nerve cells from being turned off.

Demand® CS, e.g., contains the active ingredient Lamdacyhalothrin 9.7% (pyrethroid microencapsulated for gradual release). It also contians 90.3% "inerts" or petroleum solvent with 1,2,4 trimethylbenzene; label reads, "At high concentrations, vapors or aerosols of the solvent can produce respiratory and and central nervous depression, headache, dizziness and nausea."

Marcy Trice remembers the day her life changed forever. She was a 35-year-old limited licensed psychologist working with chronically ill patients at Detroit Receiving Hospital. Early on that August day in 1989, an insecticide (poison) company sprayed her office because of a bug problem. When Trice returned later, she got some of the chemical mist on her hands. She started to fall asleep at her desk. Her asthmatic condition, previously under control, dramatically worsened. The insecticide was pyrethrin, made from powdered flowers of the chrysanthemum family. Poison control told Trice to get tested and warned her she could develop symptoms months later. She did: headaches, frequent falling, kidney problems, memory lapses, fatigue. Unknown to Trice, another office where she worked in Bloomfield Hills was periodically sprayed. Her illness grew worse, and she stopped working in 1994. Trice has been diagnosed with multiple chemical sensitivity (MCS), a chronic condition marked by heightened sensitivity to many different chemicals. Jewish News, Detroit 2/6/98. **WD40 causes an extremely dangerous synergism with pyrethrin. See also Chapter 16.**

NCAP's *Journal of Pesticide Reform, Spring 1999, Vol. 19, No. 1* states: "Pyrethroid Insecticides Mimic the Hormone Estrogen: Endocrine disruption, the ability of pesticides and other chemicals to disrupt the normal functions of our hormone systems, has recently received wide publicity. Yet another chapter was added to this story by new research showing that commonly-used insecticides mimic the hormone estrogen.

Researchers Vera Go, Joan Garey, Mary Wolff and Beatriz Pogo from the Mt. Sinai School of Medicine looked at four insecticides from the synthetic pyrethroid family: sumithrin (also called phenothrin), fenvalerate, allethrin and permethrin. The study used cultures of human breast cancer cells. First, researchers looked at the activity of a gene called pS2. They chose this gene because its activity is directly promoted by estrogen. Two of the insecticides studied (sumithrin and fenvalerate) promoted pS2 activity. Next, researchers looked at cell proliferation, how much the insecticides caused the number of breast cancer cells to increase. Proliferation is another characteristic of estrogen. All four of the insecticides caused cell proliferation.

The new study is clearly a warning. As the authors of the study concluded, 'pyrethroids are widely used, are prevalent in the environment, and can alter estrogen homeostasis [normal balance and equilibrium]. Therefore, their effects on the endocrine system in both humans and wildlife is of concern.'—*Caroline Cox*"

The Premise advertisement in the August, 2003 Issue of PCT notes the pyrethroid termiticide Andre Lovelace was using weren't just staining and damaging property; they were giving him a retreatment rate over 18%.

Pyridine. Is used to dissolve other substances and, as an unregistered *inert,* to make insecticide poisons and herbicide poisons. **Everyone is exposed daily to pyridine in air, water and food. Very little information is available on the health effects of pyridine.** Animal studies and some case reports in people have noted liver damage. Headaches, giddiness, a desire to sleep, quickening of the pulse and rapid breathing have occurred in adults who have breathed an unknown amount of pyridien for an unknown length of time. We do not know if it affects reproduction, causes birth defects or cancer.

Pyriproxyfen. During a chronic feeding study and a study of reproductive effects, this insect growth regulator caused a decrease in normal weight gain.

Resmethrin. Resmethrin is yet another synthetic pyrethroid poison which smells like urine as it decomposes and is very toxic to bees and fish. Chronic toxicity problems include: suspect neurotoxin and immunotoxin and causes a decrease in hormone release from the brain. Its isomers include bioresmetrin and cismetrin. **Please refer to " Permethrin" and " Pyrethrins and Pyrethroid" comments.**

Ronnel. Another member of the organophosphate poison family, ronnel has already been banned for use in the U. S. It probably causes cancer, prenatal damage and reproductive system effects. It is contaminated with TCDD.

Sodium borate. Has been described in Chapter 11 and Chapter 36 and elsewhere. Mark Dolan, President of Home Guard Pest Control in Largo, Florida noted a 220-pound person would have to eat one-half pound of borax to be killed by the chemical. "If you eat that much table salt, they say it would also kill you," Dolan said. "You would have to make a real concerted effort."

Sodium fluoride. Sodium fluoride, an inorganic compound, is used alone or mixed with other poisons including pyrethrins. Children and pets should not be exposed to it. It is a herbicide and is toxic to fish, birds and other wildlife. If ingested it will kill as a stomach poison. It also is dangerous when inhaled and will mottle tooth enamel. It is usually tinted Nile blue. **See Flouride.**

Sulfur. A thousand years BCE - sulfur was burned as a fumigant by the "first" pest control operator.

TCDD - See 2,4-D.

"At the Source: Guide to Causes and Prevention of Breast Cancer" by Janette D. Sherman, M.D. states: If only TCDD (tetrachlorodibenzo-*p*-dioxin), the most toxic of the dioxins is assayed, the total biological load and effect of dioxin exposure is greatly underestimated. Except under controlled laboratory conditions, formation

of a single dioxin or dibenzofuran is not the case. Depending upon the original chemical mixture, heat, and absence or presence of oxygen, dioxins and furans formation is a random process, with potential for creation of any combination of 210 congeners.

Several forms of a furan containing three chlorine atoms are "being investigated as a compound which may be clinically useful for the treatment of mammary cancer". The question arises if this is just another product, patentable and profitable, not concerned with remediation and primary prevention?

Products contaminated with dioxins and furans include the chlorinated phenoxy herbicides 2,4-dichlorophenoxyacetic acid and 2,4,5-trichlorophenoxyacetic acid (2,4-D and 2,4,5-T). Used in combination in Vietnam (as Agent Orange) and linked to several documented adverse effects, use continues world-wide on range lands, rice fields, forests, crops, and as home "lawn care" products.

TEPP. Only needs three drops of this poison to be taken orally/internally to be fatal.

Terbufos. Is ranked as a WHO Class 1a "extremely hazardous" and is a *registered* U. S. restricted-use pesticide poison used as an organophosphate nematocide poison. It causes eye and stomach damage and "disturbance to fetal development". Its transformation products include **formaldehyde**.

Tetrachlorvinphos. This organophosphate poison is a neurotoxin which EPA classifies as a carcinogen (it causes liver and thyroid tumors). It also causes fetal loss in pregnant rabbits and damages hamster chromosomes. Tetrachlorvinphos is very toxic to fish and other marine life.

Tetramethrin. A synthetic pyrethroid neurotoxin and poison, classified by EPA as a carcinogen (it causes testicular tumors). It reduces pituitary, thyroid and spleen weight, inhibits ovulation and reduces fetal growth in rats.

Toulene. Another unregistered *inert* aromatic (volatile) hydrocarbon with a half life of 0.9 years! The odor threshold only gives a warning of exposure. Health effects may occur at lower concentrations. Toulene can affect you when breathed in, absorbed or swallowed. Toulene can cause mutations and may damage the developing fetus, cause skin rashes, irritate eyes, nose and throat, cause hoarseness, coughs, loss of energy, loss of appetite, slowed reflexes, trouble concentrating, headaches, dizziness, nausea, light-headedness, may cause you to pass out, may damage bone marrow and cause low blood cell counts. Toulene can also damage the liver and kidneys. May cause cancer, irritability, insomnia, a feeling of drunkenness, loss of memory and disturbed menstruation. It is additive and causes brain damage, hearing loss and behavioral effects.

Toxaphene. Was one of the most heavily used *registered* organochlorine insecticide poisons in the U. S. until most *registered* uses were banned by EPA in 1982 because of adverse effects on human and animal health. Now only put on livestock and special use cases in the U. S. It is still widely used to control insects on banana and pineapple crops in Puerto Rico and the Virgin Islands. It is volatile, synthetic poison containing more than 670 chemicals. Poisoning in people from breathing, eating or drinking high levels of toxaphene for brief periods can damage the lungs, nervous system, liver, kidneys and can result in death. Limited evidence of long-term exposure to lower levels may also damage the liver, kidneys, lungs and nervous system in people. An increase risk for cancer has been demonstrated in laboratory rodents. **The level and length of exposure from breathing *registered* toxaphene can not be determined.** It is a carcinogen, neurotoxin, suspect mutagen and fetotoxin, causes adrenal and blood damages and liver and kidney damages.

1,1,1,-Trichloroethane. Another unregistered, untested *inert* with a half life of over 880 years! Exposure can cause dizziness, light-headedness, mutations, changes in genes, loss of balance, can irritate skin and eyes. **Cancer risk is not known at this time**. Long-term effects: May damage, liver and kidneys, etc. Health effects can last for months or years! The odor threshold only gives a warning of exposure. Health effects may occur at lower concentrations. It is used as an *inert* propellant in aerosols; it degrades very slowly in the atmosphere destroying the ozone and is known to bio-concentrate (a little). By 1996, 1,1,1-trichloroethane will no longer be made in the U. S. due to its effects on the ozone layer. **Trichloroethane** is known to cause cancer, brain damage, dizziness, loss of consciousness, fatigue, memory loss, pulmonary edema, headache, irritability, mental confusion, depression, kidney and liver damage, irregular heartbeat, nervousness, giddiness, increased sensitivity and death. It was once used as an anesthetic for surgery, but now as a unregistered *inert* solvent.

Triazine Herbicides. Living Downstream noted these poisons have been in use since the 1950's, but the actual mechanism that caused plants to die was only discovered years later. We now know some of these herbicide poisons, e.g., cyanazine, simazine and atrazine are possible carcinogens and the poison creates a chain reaction inside the chloroplasts. Chloroplasts are like little quonset huts on the leaf's surface; the triazine poisons bind a protein in the reaction center so crucial electrons can not be transferred from one acceptor molecule to the other on down the line. So as the plant's green pigments build up along with the toxic products of oxidation, the chloroplast swells up and eventually explodes. Thus triazines effectively kill photosynthesis in plants that provide us with our sole supply of oxygen. Another example of true "junk science". Triazine poisons, poison from within and are very water soluble. Traces of these triazine herbicide poisons are now found in ground water and 98% of all Midwestern surface waters. They have demonstrated a remarkable ability to contaminate and poison plankton, algae, aquatic plants and other chloroplast-bearing organisms that form the basis of the freshwater food chain. Triazine poisons have already been found in the rain drops in 23 states in the upper Midwest and Northeast. According to EPA: "field monitoring studies...indicate that the actual toxic concentration of the triazines and their degrades in the environment trigger deleterious effects at much lower concentrations than predicted by the laboratory quideline studies." Atrazine, a known endocrine disrupter, is restricted for use in Germany, the Netherlands and several Nordic countries. In the U. S., atrazine is **still** used on 2/3's of all corn fields. Simazine is used on lawns and fruit crops, and until 1994 simazine was used to kill algae in swimming pools and hot tubs, but EPA has subsequently disallowed this *registered* use as it (now) posed "unacceptable cancer and non-cancer risks to children and adults." In 1995, the Manufacturer of cyanazine voluntarily agreed to a 4-year phase-out in response to concerns about the herbicide poison's carcinogenic potential as a contaminant of food and water. The triazine herbicide poisons are under particular scrutiny for their possible role in breast and ovarian cancers. EPA's description of what is known about the movement of triazine poisons through the human food chain is full of qualifiers, disclaimers and expressions of frustration: "These data introduce uncertainty... The percentage of the total estimated risk accounted for by these data is not known, but will always lead to an underestimated risk when detectable residues (contaminations) are present...Registrants have been unable to develop an analytical methodology which measures triazine ring residues in non-radiolabel food trials. In other words, after about 40 years of using these terrible poisons, we **still** do not know how dangerous they are. **Another example of "junk science"**.

Vikane. Vikane was first tested in 1957 in Miami, Florida, and the sulfuryl fluoride fumigant was registered in 1961 by Dow.

Warfarin. The Wisconsin Alumni Research Foundation patented this anticoagulant in 1944. An anticoagulant rodenticide poison. There may be no early signs of danger. Blood tests are essential. Symptoms of poisoning include any unusual bleeding, including rectal or urinary tract bleeding, excessive menstrual bleeding, nose-bleeds, bleeding around gums, bruising, red or tar-black stools, vomiting bloods and red or dark-brown urine. See a doctor immediately. In 2002, warfarin was the fourteenth most prescribed drug in the USA.

Xylenes. Xylene should be used in industrial settings only. Students at Michigan State University use xylene to clean their test tubes, but only under a vented hood, and then only with the use of gloves. If anyone reads the MSDS of just xylene - no sane person would use it around their family or home. In fact, the MSDSs that we have read do not allow the use of xylene around people. Our Toxic Times, October 1999, noted: Its known health effects include: Eye, nasal, throat and respiratory irritation, abdominal pain, abnormal electrocardiograms, amnesia, brain hemorrhage, cardia palpitations, confusion, corneal vacuolization, dermatitis, dizziness, drowsiness, epileptic convulsions, excitement, fatigue, gastric discomfort, headaches, impaired ability to work with numbers, balance, pulmonary function and reaction times, labored breathing, light headedness, liver and kidney damage, loss of appetite and patience, nausea, pulmonary congestion, hemorrhaging, edema and damage, reduced coordination, respiratory failure, short-term memory loss, staggering gait, tremors, unconsciousness due to narcotic effects, ventricular fibrillation, vomiting and death. **It is a neurotoxin.** Suspected health effects include birth defects, spontaneous abortion, cerebral dysfunction, blurred vision and involuntary eye movement. But, when the *registered* pesticide's active ingredient (poison) is put in (unregistered) xylene, xylene now miraculously becomes an *inert* and it now is "safe" enough to use this volatile *inert* and the poison's active ingredient in and around schools, homes, offices and people and pets! To me, that is real "junk science" and another proof there really are no *registered* pesticide poisons.

Xylene trade names/synonyms include dimethylbenzene, xyolol, methyl toluene, Violet 3™; its isomers include: m-xylene, o-xylene and p-xylene. Mixed xylenes usually contain the three forms of xylenes and 6% to 15%

ethylbenzene.

- Xylenes can enter into you through your skin, whenever you breath in, and they can bioaccumulate. They evaporate readily.
- Xylenes can irritate the eyes, nose and throat. Xylenes can damage eyes and cause stomach problems, loss of balance. High levels can cause dizziness, passing out and death.
- Xylenes can affect the brain, cause confusion and problems with memory and concentration. Xylenes can damage and/or kill the developing fetus or baby. May damage bone marrow causing low blood cell count, cause dizziness and/or loss of consciousness.
- Xylenes are extremely volatile, flammable liquids and fire hazards. Poisonous gases are produced in fire. Containers may explode in fire.
- Repeated exposures may damage bone marrow causing low blood cell counts, damage the liver and kidneys, cause poor memory, difficulty in concentration and other brain defects and may also damage the eyes and cause stomach problems.
- Xylenes are on the Hazardous Substance List because they are regulated by OSHA and cited by ACGIH, DOT, NIOSH, NFPA, DEP, and EPA! Xylenes (DOT number 1307) have these notes under "Spills and Emergencies", "Keep xylenes out of a confined space, such as a sewer, because of the possibility of an explosion..." and "it may be necessary to contain and dispose of xylenes as a HAZARDOUS WASTE."
- SUPPORT DOCUMENT: ACQUIRE Database, ERL-Duluth, U.S. EPA.
- Xylene is an aromatic hydrocarbon just like nicotine, DDT, paraquat, benzene, or chlordane.
- Finn Scientific, Inc. Material Safety Data Sheet states: Xylenes, $C_6H_4(CH_3)2$ - Conditions to Avoid: Avoid heat. Avoid sources of ignition. Avoid breathing vapor. Health Hazards: Toxic by ingestion and inhalation. Tolerance Limit Value: 100 ppm in air. Special Precautions: Fume Hood. Chemical gloves and goggles.
- The *National Fire Protection Association Quarterly*, vol. 57, No.3, Jan. 1964, pp. 272-75 had an article - "Seven Killed in Japanese Department Store Fire" noted that xylene fumigant mixtures can be very dangerous. A fire which started from ignition of a flammable insecticide containing 30% xylene and 66% "special boiling spirits" used by workmen fumigating a seventh-story cafeteria in a Tokyo department store, resulted in 7 persons being killed and 114 injured and an estimated loss of $6,475,000.
- These mixtures of isomers are used as solvents or "inert" ingredients for pesticide poisons. Points of attack include the central nervous system, eyes, gastrointestinal tract, blood, liver, kidneys and skin. Although they are clearly neurotoxins, they are not yet known to be carcinogenic. They do not appear to be mutagenic, but they are suspected teratogens and do cause skin damages. The acute exposure effects include pain, amnesia, anemia, anorexia, ataxia, brain hemorrhage, cardiac problems, confusion, coma, irritability, nausea, renal injury, respiratory problems, tremor, vomiting and death due to respiratory, hepatic or renal failure or ventricular fibrillation. This solvent was/"is" used by Dow as a *carrier* or *inert* ingredient in its Dursban products and it is suspected of causing leukemia, skin cancers, cholinesterase depression, epilepsy, mutagenesis, prenatal damage and reproductive system defects. Benzene is a contaminant. See "chlorpyrifos" and "benzene".
- Long-term health effects can occur some time after exposure to xylenes and can last for months or even years!
- Xylenes used in paint, gasoline and plastics may impair a person's ability to work with numbers. (ATSDR)
- Xylenes (contained in most pesticide applications as an "inert"), when heated above 80° F. become even more deadly and many synthetic pesticide poisons when exposed to motors, furnaces and other heat sources can become extremely dangerous volatile gases that become acids in your eyes and lungs. (ATSDR)

The American Ind. Hyg. Assoc. June 1885 noted the World Health Organization's report, "Indoor Air quality: Organic Pollutants (Euro Reports and Studies #111) 1989 noted the half-life at 100 ppb O_2 of M,P-xylene is greater than 9 years! Great unregistered *inert.* **The odor threshold only gives a warning of exposure. Health effects may occur at lower exposure.** OSHA PEL: 150 ppm - exposure not exceed 15 min.; 655 mg/m^3 - exposure not to exceed 15 min. IDLH: 900 ppm.

Zinc and Zinc Compounds. While an essential trace mineral, zinc can cause "metal fume fever" with difficulty in breathing and flu-like symptoms when inhaled. Overexposure may interfere with the body's ability to use other

trace elements. T**hey have not been tested to determine their ability to cause cancer or birth defects.** Prolonged exposure can cause anemia and other changes in blood chemistry. Health effects can occur some time after exposure to zinc and can last for months or years. Just another *inert*. **Very little is known about long-term effects of breathing zinc dusts or fumes.**

ARE SOME PESTICIDE POISONS RADIOACTIVE? Ms. Elizabeth Onan (who has a brain tumor) from "Protect All Children's Environment", notes that today's manufacturing processes are more than likely tainting poison (pesticide) products with radiation. Poisons also contain "recycled" hazardous waste ingredients comprised of known carcinogens, neurotoxins, fetotoxins, teratogenes and, it would appear, unavoidably radiation. The Dec. 1990 Environmental Protection Agency (EPA), Freedom of Information Act (FOIA) response to the poison victims organization, Protect All Children's Environment, revealed that "hazardous waste is legally allowed by EPA to be recycled into pesticides". A Resource Conservation and Recovery Act (RCRA) loophole allows hazardous waste to be "recycled" into pesticide poisons and other consumer products! Poison producers, employing this "recycling" method, avoid the requirement of shipping manifests, Citizens Right to Know laws and product label disclosure. Hazardous waste disposal companies such as Rollins Environmental and Waste Management Inc., (WMI) are also in the pesticide poison business. WMI now has Service Masters Consumer Services Limited Partnership and owns about 22% of Terminex, Furthermore, WMI subsidiary, Chem-Nuclear Systems, operates one of only three U. S. low level nuclear landfills located in Barnwell, S. C., where there are many documented problems. Orkin Pest Control is a subsidiary of Rollins Services. In the June, 1992 issue of Greenline, an article wherein the author, Andrea Helm, interviewed WMI employee Bill Plunkett, it was stated "Service Master might be using pesticide poisons containing those (haz/waste) inert ingredients." The RCRA haz/waste recycling loophole is frightening enough, but one must consider that some of these companies (WMI in particular) have scandalous convictions for environmental abuses, bribery of officials, conspiracy and price fixing. Are we to "trust" these convicted criminals to refrain from cheaply disposing of radioactive and other haz/wastes in their pesticide poison products, when they may legally do so?

The August 1991 legislative report Agricultural and Rural Impacts of Uranium Recovery Activities in the South Texas Uranium District, Principal Investigator, Sarah Hana, mentions radiation in pesticide poisons, and fertilizers as a confounding factor in discovering the enviro/health effects of uranium mining. Three statements from this report: 1. "The radiological and chemical impacts to crops and livestock resulting from other activities which use potentially hazardous toxic or radioactive materials such as the application of pesticide poisons and fertilizers to agricultural lands, should be assessed." 2. "Agricultural products, such as fertilizers and pesticide poisons, have the potential to create adverse radiological and chemical human health impacts, in addition to groundwater and other environmental contamination " and, 3. "Radioactive contamination has been documented in agricultural areas", illuminate poison/fertilizer radiation problems, The report further states, "any dose of radiation may produce harmful, health effects, and the combination of low doses of chemicals and ionizing radiation may increase adverse health effects. The National Research Councils Committee on the Biological Effects of Ionizing Radiations (BETR) noted in its 1990 report that harmful radiation induced health effects due, to high LET radiation, such as alpha particles, may even increase with decreasing dose and dose rate."

Radioactive contaminants in pesticide poisons may well explain why the EPA has not been able to determine "any" breakdown period for now banned, but ubiquitous chlordane. Evidence clearly points to far longer (or nonexistent) periods of half life than are indicated by the poison *industry*.

One must consider the possibility that radioactive contaminants in pesticide poisons could possibly ruin residential radon tests or be confused for radon. The recommended remedy for surviving (risk reduction) in a home with radon 'are the same procedures for a home contaminated with chlordane. EPA recommends increased outside air exchange, sealing all cracks (especially around the floor or foundation) and plastic crawl space barriers for both forms of contamination. Additionally, the physical health devastation from chlordane exposure (there are no levels below which there is not observable liver damage) and many other poisons, further parallel what is now known of chronic low dose radiation exposures. The immune system is damaged by both radiation and a variety of poisons.

There are at least three potential methods of producing "glow in the dark" pesticide poisons. First, low level radiation is produced by "scale" deposits from metal piping of petroleum/pesticide products (poisons). Secondly, there are pockets of high level radiation being sucked to the surface with crude oil. These high level radioactive contaminants then potentially become part of final (pesticide) poisons. Thirdly, it would seem that when manufacturers are "recycling" unscrutinized materials such as "petroleum distillate, coal tar distillate, heavy aromatic

bottoms and heavy oil (coal)" listed by EPA as current pesticide *inert* ingredients, radiation inevitably would be included. Fertilizers would be prey to the same processes and failure to regulate.

While there is no "conclusive' evidence that specifies that poisons and fertilizers absolutely do contain radioactive materials, there is considerable evidence that this very serious problem has the "potential" of existing. No regulatory agency is (currently) monitoring for radiation in poisons or fertilizers. Common sense would dictate that if companies could avoid the extraordinary expense of rad/haz/waste disposal by legally dumping these contaminants into pesticide poisons and fertilizers (or other consumer products) they would exercise this deadly option.

The Texas Department of Health Radiation acknowledged that many of the listed ingredients in pesticide poisons are known to be contaminated with naturally occurring radioactive materials or NORM waste. EPA wrote PACE that "total or petroleum products from certain naturally radioactive geological formation might themselves be radioactive. Vol. 54, No. 224 of the Federal Register's EPA regulatory announcement states, "Impurities in *registered* products (poisons) are contaminates...rather than intentionally added ingredients." Thus, it is not appropriate to subject impurities to the "Inerts Strategy" - so the pesticide poison *industry* can simply/legally *ignore* these radioactive toxins!

Finally, if no enforced regulation requires that "naturally occurring radioactive materials" (NORM) wastes be removed or prohibited from pesticide/fertilizer products, what motivation would even less corrupt poison manufacturers have to do so? With epidemic cancer and/or leukemia rates, lead related neurological impairment, lowered intelligence scores, immune damage, etc.: It is time to reverse regulatory and judicial processes and require that pesticide poisons, fertilizers or other consumer products "do not" contain any form of radiation or unknown hazardous contaminant or *inert* ingredients. Prove the products (poisons) are safe or remove them from commerce. Stop requiring body counts to prove products (poisons) are dangerous and to obtain judgments that victims were injured.

Are you really at risk?

The Leading Edge International Research Journal Issue No. 104 noted in part: "The most blatantly fraudulent procedure of drug (or poison) testing is the testing of these (individual) substances using animal models; a practice often termed 'vivisection'. To begin with, many of the most common or life-threatening side-effects cannot be predicted by aniimal tests. For instance, animals cannot let the experimenter know if they are suffering from headache, amnesia, nausea, depression and other psychological disturbances. Allergic reactions, some blood disorders, skin lesions and many central nervous system effects are even more serious examples that cannot be demonstrated by animal models.

According to one of the world's best known toxicioogists, Professor Gerhardt Zbinden, from Zurich's Instiute of Toxicology, 'Most adverse reactions that occur in man cannot be demonstrated, anticipated or avoided by the routine subacute and chronic toxicity experiment.' Professor Zbinden has shown that of the 45 most common adverse reactions only 3 may possibly be predicted, and of the remaining 42, 'only in exceptional cases can they be predicted from routine toxicologic tests.'

Apart from the effects that cannot be demonstrated in animals, another very fundamental probelm exists with testing substances using animals. Each individual species of animal has a unique genetic make-up...Because each animal species is different, substances that are tested on them for 'safety' and 'effectiveness' will have a different effect on each individual species...Morphine sends cats into a frenzy of excitement yet it calms and anaesthetises humans. The amount of opium that can be eaten without discomfort by the hedgehog would keep the most hardened addict happy for a fortnight. Arsenic kills humans but is harmless to guinea-pigs, chickens and monkeys. Chloroform, used successfully for decades in human surgery, is poisonous for dogs. Digitalis, which dangerously raises the blood pressure of dogs, is used to lower blood pressure for humans. The list can be lengthened at will, but these few examples should be sufficient to demonstrate that there could not be a more unreliable test for new drugs (or poisons) than animal experimentation.

Toxic drug effects not predicted by animal testing may be seen in people if their metabolism is slower, with the potentially dangerous result from longer exposure. The anti-inflammatory drugs phenylbutazone and oxyphenbutazone, which have been responsible for an estimated 10,000 deaths worldwide, takes 72 hours for people to metabolise. However, phenylbutazone is metabolised by rhesus monkeys, dogs, rats and rabbits in eight, six, six and three hours, respectively. Oxyphenbutazone takes only half an hour for dogs to metabolise.

The LD_{50} is an acute toxicity test (supposedly) designed to indicate that human lethal dose that results from accidental or intentional overdose. The standard LD_{50}tests consist of forcing massive amounts of the test substance down the throat of a large number of animals to discover at what dosage-level about 50 per cent of them will die. Even if the substance is not poisonous to the animal, it will cause damaging effects by overpowerng the animal's ability to cope with the sheer quantities.

Most toxicilogists and clinicians agree that these tests are scientifically indefensible. Professor Zbinden writes: 'For the recognitition of the symptomatology of acute poisoning in man, and for the determination of the human lethal dose, the LD_{50} in animals is of very little value.' D. Lorke, from the Institute of toxicology, Bayer AG, Germany, states that 'even if the LD_{50} could be measured exactly and reproducibly, the knowledge of its precise numerical value would barely be of practical importance, because an extrapolation from the experimental animals to man is hardly possible.' **Despite the fact that these tests have no scientific validity, they are used as a crude index of acute toxicity, demanded by government regulations....**

The following statements from doctors, not bound to commercial interests, contribute to the real motives behind the vivisectionists' methods of drug testing:

'Results from animal tests are not transferable between species, and, therefore, cannot guarantee product safety for humans...In reality these tests do not provide protection for consumers from unsafe products but rather are used to protect corporations for legal liability.' (Dr. Herhert Gundersheimer, 1988, Baltimore, Maryland)...
'Another basic problem which we share as a result of the regulations and the things that prompted them is an unscientific preoccupation with animal studies. **Animal studies are done for legal reasons and not for scientific reasons.** The predictive value of such studies for man is often meaningless - which means our research may be meaningless.' (Dr. James Gallagher, 1964, Director of Medical Research, Lederle Laboratories, US)

Author's note: We and the environment are rarely exposed to one toxicant at a time. We are continually being bombarded and/or impacted by multiple stressors (multiple pollutants) simultaneously through multiple and widely different pathways of exposure.

Testing Caution: Animal tests can give false and misleading readings for a number of reasons. Rats have livers which can handle much higher levels of toxic substances proportionally than people and animals can and rats do not live long enough for the body burden (in the fat and in the blood) to reach danger levels. Only single active ingredients in poisons are "tested" and people live longer than rats and will carry much higher cumulative amounts of many toxic substances that can and do react synergistically with other chemicals, radiation and dioxins. High body burdens of "tested" pesticide poisons can and do "legally" destroy the liver function, endocrine system, immune system and central nervous system. All animals and man now have body burdens of radionuclides such as plutonium, caesium, strontium, etc. and about 500 - 1000 other chemicals. The presence of this toxic brew of pesticide active ingredients, "inerts," radiation, solvents, plus stress all damage the ability of our immune systems to fight viral and bacterial infections. Pesticides and radiation are mutagenic and can alter viruses, etc. None of this is being researched or "tested" or even considered by the poison "industry" which sells and uses these "tested" toxins. So much for their "sound science."

There are many ways of producing 'irrefutable' facts in support of any argument, using different kinds of animals: one just has to choose the right one. For example: 'Do we want to show that *Amanita phalloides* is an excellent edible toadstool? Then we have only to feed it to the rabbit...Do we want to discourage people from eating parsley? Let us give it to the parrot which will probably be found lying stone-dead under its perch the next morning...Should we wish to rule out penicillin as a therapeutic drug, we have only to give it to the gunea-pig which will be dead in a couple of days...If we wish to convince the consumers of tinned food that botulin poison is harmless, let us give it to the cat and it will lick its lips. Let us give in instead to the cat's traditional prey, the mouse, and it will die as if struck by lightning...If we need to show that vitamin C is useless we withhold it from the diet of the most readily available animals: the dog, the rat, the mouse, the hamster...they will continue to

thrive because their bodies produce vitamin C of their own accord. But let us not eliminate it from the diet of guinea-pigs, primates or humans or they will die of scurvy...To sum up, **one has only to know how to choose the proper animal species to obtain the desired results...**This is a kind of ("sound") science which one can knead like dough. The trouble comes in believing that with dough one can produce health for human beings. (Professor Pietro Croce in VIVISECTION OR SCIENCE - A CHOICE TO MAKE, 1991. From 1952 to 1982 Croce was head of the laboratory of microbiological, pathological anatomy and chemical analysis at the research Hospital L. Sacco of Milan, Italy.)"

EPA's current "best effort" at evaluating aggregate and cumulative exposures from (only the active ingredients in) 40 organophosphate pesticides indicates that even by themselves, several of these chemicals overflow the available "risk cup" by factors of ten to 50! When these exposures are cumulated for the entire class of chemicals, the Agency's current working data produce an exposure estimate that appears to be more than 100 times higher than that allowed under the Food Quality Protection Act's health-based standard for pesticide regulation. *Food Regulation Weekly, July 27, 1998.* Pesticide poisons and people don't mix!

If you want to visually check the toxicity of the entire poison compound, try putting one drop of the labeled dilution directly behind a mouse's head. Then place the mouse on a stick and visually check its lack of coordination. Caution: **The mouse may die.**

Can you trust a "professional"? — The Tampa Tribune on 11/21/98 noted, "Toxic Home Costs Orkin Millions" BARTOW — A couple's historic Lake Alfred home has been condemned because of pesticide contamination. By Candace J. Samolinski of The Tampa Tribune. George and Carolyn Fox will never be able to return to their historic home on Lake Alfred, but a $2 million settlement awarded to them Friday will allow them to go on with their lives. After a three-week trial, a Polk County jury found the Orkin Exterminating Co. liable for treating the couple's home in 1993 with the toxic pesticide Chlordane, the couple's attorney, W. Russell Snyder, said Friday. The Chlordane contamination caused them to lose more than just their home of nearly 6,000 square feet at 7775 Pierce St., George Fox said. The home was built in 1917 by Swedish craftsmen and was valued at more than $230,000. "My wife used to have an antique shop," he said, "and we had collected things for 30 years. The home was filled with antiques. They also were contaminated." The Foxes aren't yet sure what will happen to the house, which health officials have condemned as unfit for occupancy because of the contamination, Snyder said. Chlordane, an organochloride insecticide, was used from 1948 to 1988, when it was banned for use on food crops by the Environmental Protection Agency. In a study this past February, the EPA found that exterminators had continued to use chlordane for termite control until January of this year.

The jury awarded the Foxes $168,000 for the value of the antiques, Snyder said, and $200,000 for the house. After the home was treated in May 1993, the Foxes tried four times over the next five months to stay there, Carolyn Fox said. "Everything was just so toxic," she said. The Foxes would not discuss any medical problems that resulted, saying their attorney had advised them not to. They may be fortunate they weren't able to stay in the home. In February, the EPA determined that unlike currently used insecticides, which the human body can detoxify, Chlordane can not be decomposed. It can accumulate with repeated exposure; and as it builds up on the body, it can affect the neurological, reproductive and immune systems. Other studies conducted with tenants of apartments treated with Chlordane showed it can increase tension, depression and anger. It also has been linked to aplastic anemia and leukemia in children.

The Foxes received $200,000 each for mental pain and suffering, Snyder said, and $1.2 million in punitive damages. While the lawsuit was pending the couple lived in one room in George Fox's winter haven veterinary clinic, Carolyn Fox said. "At least with a hurricane when you lose everything, you have some type of closure," she said. "With this, the nightmare continued for five years. Maybe now we can move on." Attorneys for Orkin could not be reached for comment Friday.

The November 1998 issue of Pest Control Technology noted: "On Aug. 31, Massachusetts Assistant Attorney General Andrew Goldberg issued a letter to 64 pest control companies warning them of their alleged violations of the Massachusetts Consumer Protection Act in connection with the use of misleading Yellow Page ads. According to the Attorney General, the ads claim the pest control methods have been 'government-approved' and are 'safe', 'environmentally friendly' or depict young families in scenes that could convey a false sense of security to potential consumers."

A vision of an "ignorant savage"

Chief Seattle's vision or "How can one sell the air?" on page 42 noted "The white man does not mind the foul air he breathes. Like a man in pain for many days, he is numb to the stench." On page 46 his vision continued: "Teach your children what we have taught our children, that the earth is our mother. Whatever befalls the earth, befalls the sons of the earth. If men spit upon the ground, they spit upon themselves. This we know. The earth does not belong to the white man, the white man belong to the earth. This we know. All things are connected like the blood which unites our family. If we kill the snakes, the field mice will multiply and destroy our corn."

"Registered" Herbicides Linked to Infant Health Problems

On July 8, 1997, PANUPS, http://www.panna.org/panna/ noted: The ("registered") herbicides atrazine, cyanazine and metolachlor may be linked to a range of adverse health effects, including respiratory distress, cerebral palsy and impaired development. According to a recent study of drinking water contamination in Iowa, these three herbicides were each associated with higher community levels of intrauterine growth retardation (slow fetal growth resulting in low birth weight) among newborns. The researchers said that slow fetal growth is a predictor of increased infant mortality and is the second leading known cause of fetal death.

Atrazine, cyanazine and metolachor are widely used ("registered") herbicides in the U. S. According to a recent review of pesticide use in the North American Great Lakes Basin, metolachlor, atrazine and cyanazine are, respectively, the first, second and seventh most used pesticides by weight in the region. Due to concerns that atrazine and cyanazine pose serious health and environmental risks, the U. S. Environmental Protection Agency (EPA) put them in Special Review to examine their hazards and benefits in 1994. Cyanazine was subsequently removed from Special Review because it is being phased out... DuPont, its manufacturer, is withdrawing all uses in the U. S. by the end of 2002. EPA expects to complete the atrazine's Special Review by 1999. EPA considers atrazine, cyanazine and metolachlor all to be "possible human carcinogens."

On July 17, 1997 I received my copy of the eighth edition of Handbook of Pest Control - Mallis, on page 1299, Dr. Bruce Ames, Chairman, Department of Biochemistry at the University of California, Berkeley *estimated* that 99.99% of carcinogens in the diet come from natural sources. The same day at a breast cancer conference in Kingston, Ontario, they called for a ban on all pesticide poisons by the year 2000. Almost 1 million women are expected to get breast cancer this year and Devra Lee Davis, director of the Health and Environment program at the World Resources Institute, a Washington based think tank, noted "Most people tell you the evidence is inconsistent and incomplete - they are right, but we can not afford to wait for definitive evidence. We have lots of animal studies that show a number of these compounds (poisons) increase cancer in animals." Among the 600 conference delegates there was a wide consensus that pollution and "registered" pesticide poisons play a big role in causing cancer, and that the time to act is now!

The Northwest Coalition for Alternatives to Pesticides has collected information about childhood illnesses related to "registered" pesticide exposure in schools. In some instances, illnesses resulted from applications made in accordance with label directions.

- In 1993, chlorpyrifos and dichlorvos were applied for ant control in North Powellhurst school in Oregon. Soon after, at least sixty-five individuals, including infants, children, pregnant teenagers, teachers, and school staff reported nausea, vomiting, diarrhea, massive headaches, rashes, dizziness, itching eyes, sore throats, and other symptoms. The school was closed, cleaned and reopened, and eventually closed early because students and staff continued to experience health effects.

- In 1992, children, teachers, and staff at New York's Eastchester High School suffered headaches, eye and respiratory irritation, and nausea following their return to school after it had been sprayed for roach control with the pesticide poisons chlorpyrifos, diazinon, and resmethrin. The school was forced to close for three weeks to clean up the pesticide poison residues.

- In 1989 in Yakima, Washington, a first-grader mistakenly ate several granules of the toxic insecticide Di-Syston. This exposure almost killed the boy and left him permanently sensitized to minute pesticide poison

exposures.

- In West Virginia, students and staff at an elementary school were found to suffer from persistent fatigue, nausea, respiratory problems, and numbness in their limbs over a four-year period because the school was contaminated with the now banned termiticide, chlordane. Federal investigators finally closed the school in 1989 after concentrations of chlordane were found eleven times the evacuation threshold.
- Close to 300 students and four teachers at Homer Davis elementary School in Tucson, Arizona, in 1987 became nauseated in class and were evacuated to hospitals after the organophosphate insecticide malathion was sprayed by a neighbor and then sucked into the building ventilation ducts.

- In 1986, twenty-eight students and two faculty members at Waianae Elementary School in Hawaii developed headaches, stomach aches, breathing difficulties, and nausea after their school was treated with a flea spray containing chlorpyrifos. It was subsequently discovered that the children became sick from exposure to the "inert" ingredient, xylene, not the active ingredient, chlorpyrifos.

The National Research Council, *Pesticides in the Diets of Infants and Children*, p. 347-349, notes "Children taking certain medications may be at increased risk for adverse effects from pesticide exposure. Children taking anti-epileptic drugs, other drugs that act on the central nervous system, propranolol and digoxin, and drugs that alter hepatic blood flow may be at risk if exposed to certain pesticides. For example, the fungicide thiram may potentiate or magnify the effects of diphenhydramine (Benadryl®), dimenhydrinate (Dramamine®), and methylphenidate (Ritalin®) - all drugs given to children.

NOTE: Even Washington admits our food supply is contaminated - the General Accounting Office (GAO) or investigative arm of Congress has stated the U. S. Department of Agriculture (USDA) has not even begun to collect enough preliminary contamination data necessary to make even the initial regulatory decisions to ensure food safety. The Food and Drug Administration (FDA) that supposedly samples foodstuffs for illegal contamination "often relies only on memory and experience in making their monitoring decisions." FDA only tests 1 - 2% of imported food shipments and then is only capable of testing for less than one- half the **registered active** ingredients! EPA's estimates of benefits are "generally imprecise.... potentially misleading... .and incomplete." GAO also states that violators know they can freely and flagrantly violate the "law" because even if they get caught "shippers still can earn a profit after paying Customs Service penal ties for distributing contaminated (with illegal residues) fruits and vegetables, while they face little threat of criminal prosecution from the Justice Department." Every reference (and hundreds of examples) I personally (and several others have) made regarding the Michigan Department of Agriculture (DOA) and all the *competitive* misuse of dangerous "registered" poisons we have continually observed over the years have all been sent or discussed with this *regulatory* agency at least once - to my knowledge no action has ever been taken against any *professional* even when they blatantly ignored and broke the label (the federal law), FIFRA, and or the State laws and/or regulations. The only *action* I personally know they have ever taken is to say "that poisons protect" and "that is fraudulent to use less than the MAXIMUM amount of "registered" poison the label permits", and to close down a pest control company when they did not pay their $50.00 annual license renewal fee! In spite of all this documentation - the DOA has argued that Michigan has some of the strictest regulation of pesticides! No wonder why we are drowning in our own sewage! **Now, do you still want some "professional" to "protect" you by applying the maximum amount of "registered" poison permitted by EPA in or around your home, family, pets, air and/or water?**

Nature has only one role - survival of the fittest!

THE TOXIC TIME BOMB

The (Michigan) DOA still demands the MAXIMUM labeled rate of "registered" poison allowed be applied and many states including the Michigan Department of Public *Health* wants all food establishments to be sprayed with poisons at least monthly - even if they do not have any roaches! The California Department of Pesticide Regulation will only allow the use of its "registered" poisons to "control" pest problems. These two bureaucratic

Departments have you believe they are trying to *protect* us! Synthetic organophosphate and carbamate poisons are toxic substances deliberately added to our environment to kill or harm living things, so they are inherently toxic to people; they do not "protect" us - they attack our central nervous systems and other vital body centers. Poisoning symptoms are often mistaken for flu and other illnesses and can vary greatly with each person from a slight reaction to death. Over a billion pounds of *registered,* volatile, synthetic poisons are routinely added to the U. S. environment every year! The National Academy of Sciences estimates 1 out of 7 of us nationally are already significantly impaired by *registered* pesticide poisons and other toxic chemicals. Pesticides depress the central nervous system and cause suicidal depression and intense irritability. The National Cancer Institute studies show children get leukemia 6 - 7 times more often when *registered* pesticide poisons are used in and around their homes. Drinking water in at least 38 states is already contaminated with poisons, and it will take several hundred to several thousand years for polluted ground water to be cleansed by natural recycling! Public concern about children's exposure to pesticides is warranted. Government programs have failed to significantly reduce public exposure to pesticide poisons or educate people about alternative pest control methods. In 1972, Congress passed the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requiring health and safety testing of all pesticide poisons. Although information implicating the hazards of pesticide poisons has been accumulating under FIFRA, government action to adequately protect the public, particularly children, has been insufficient. Pesticide manufacturers continue to aggressively market their poisons despite mounting evidence of health and environmental effects.

Epidemiological and laboratory studies contribute to a growing body of evidence linking "registered" pesticide poison exposure to adverse health effects including cancer, birth defects, reproductive harm, neurological and developmental toxicity, immunotoxicity, and disruption of the endrocrine system.

Based on experiments in laboratory animals, the U. S. Environmental Protection Agency (EPA) memorandum dated 2/19/97 from Burnham William has identified at least ninety-six different pesticide poison active ingredients *registered* for use that are potential human carcinogens. Studies of human populations, particularly farmers, also demonstrate the carcinogenic potential of certain pesticide poisons. A 1992 National Cancer Institute review of two dozen epidemiological studies found "registered" pesticide poisons to be one of five likely suspects explaining why farmers had melanoma, and cancers of the lip.

Of principal concern is that during the first six years of life the central nervous system is still developing and is thus vulnerable to neurotoxic "registered" pesticide poisons. And during periods of rapid growth, specifically infancy and adolescence, cells and tissues are proliferating, so that carcinogenic "registered" pesticide poisons can have a greater impact at these stages of life. National Research Council.

Available human and experimental animal data suggest that children are more vulnerable than adults to the neurotoxic effects of "registered" pesticide poisons. In several cases of human poisoning by organophosphate insecticide poisons, fatality rates were higher in children than in adults. National Research Council. Tests on young rats and mice demonstrate a progressive decrease in susceptibility to organophosphate insecticide poisons with increasing age. National Research Council.

According to the National Academy of Sciences, concern about children's exposure to "registered" pesticide poisons is valid because "exposure to neurotoxic compounds at levels believed to be safe for adults could result in permanent loss of brain function if it occurred during the prenatal and early childhood period of brain development. National Research Council.

The primary reason infants and children are believed to be more vulnerable to neurotoxic "registered" insecticide poisons is because of their increased absorption and decreased elimination through the gastrointestinal tract. Infant kidneys, for example, are immature and cannot excrete foreign compounds such as drugs as quickly as adult kidneys. National Research Council.

"If a child has a problem in school because his nervous system is being depressed, that is going to affect him as an adult because he won't be able to read or write properly." Beverly Paigen said in 1988; Beverly was a senior research biochemist at the Children's Hospital Medical Center in Oakland, CA. "('Registered') Pesticides have been selected because they kill pests," she argued. "They adversely affect all living things, whether they are insects, animals, or children." As a result, noted Victor M. Sher, a lawyer for the Sierra Club National Defense Fund, Inc., **school districts that continue to spray ("registered") pesticides as a matter of course could**

be subject to lawsuits. "If you stop and think about it, spraying kids in schools or in any state program is like grabbing them and giving them a very lethal drug," he says. "They can't say no."

Living and working in agricultural areas has been shown in several studies to be associated with an increased risk of delivering a child with birth defects. In California, mothers living in counties of high agricultural productivity or with high ("registered") pesticide poison use were found to be at greater risk of giving birth to children with limb reduction defects than mothers living in areas of low agricultural productivity and low pesticide poison use. Schwartz, D.A., and J. P. LoGerfo, "Congenital Limb Reduction Defects in the Agricultural Setting," *Am. J. Pub. Helath,* vol. 78, no. 6, June 1988, pp. 654-658.

A study of pregnant women in Iowa and Michigan found an association between maternal exposure to multiple ("registered") pesticide poisons and an increased risk for cleft palate in offspring. Gordon, J.E. and C.M. Shy, "Agricultural Chemical Use and Congenital Cleft Lip and/or Palate," *Archives of Environmental Health,* vol. 36, no. 5, 1981, pp. 213-220.

A new study in Minnesota found a significantly increased rate of birth defects in the offspring of private pesticide (poison) applicators and in regions of the state with highest frequency of use of chlorophenoxy herbicides and fungicides. Garry, V. et al., "Pesticide Appliers, Biocides, and Birth Defects in Rural Minnesota," *Environmental Health Perspectives,* vol. 104, number 4, April 1996, pp. 394-399.

Laboratory animal studies indicate that when exposure occurs at high doses, most ("registered") pesticide poisons are toxic to developing organisms. Johnson, E.M. et al., "Development Effects," *The Effects of Pesticides on Human Health,* pp. 391-438.

In 2 California counties, according to 1986 and 1987 surveys by Citizens for a Better Enviornment, a San Francisco group, all but one school district regularly applied pesticide poisons. Only one of the districts in Alameda County and none in Contra Costa County had a comprehensive pest-management policy at the time of the survey. Many of the school districts in Contra Costa, the group also found, violated federal and county pesticide regulations.

As discussed in a recent report by the World Resources Institute (Repetto & Baliga, ibid), epidemiological studies in Moldova, in the former Soviet Union, have implicated "registered" pesticide poison exposure in increased rates of infectious disease. In one study, teenagers in villages with the greatest pesticide poison applications exhibited rates of infections of the respiratory and digestive tracts two to five times and three times higher, respectively, than controls from areas of lower use. Based upon this association, researchers conducted a retrospective study of healthy children's immune systems in these villages. Nearly 80 percent of highly exposed infants and children showed significant deviations in more than five immunological parameters.

- Since 1965, over 4 million distinct chemical compounds have been reported in scientific literature - No one can honestly say they have **any** idea how they will act synergistically!
- Over 3000 chemicals are added to our food and over 700 to our tap water.
- Over 20% of all pregnancies end in miscarriage. (EPA)
- In 1991 and 1992 the San Francisco Poison Control Center reported almost 1,000 adverse (acute) health outcomes due to pesticide poison exposure, one-fifth were children aged 5 or under!
- 95% of mothers' milk is contaminated from pesticide poisons and PCB's found in food, water, homes and the workplace and is so toxic that if it were bottled, the FDA would ban its sale. (EPA)
- Women with the highest concentrations of chlorine-based pesticide poisons and other chemicals in their blood and fat have been found to have breast cancer risks 4-10 times higher than women with lower levels. (Greenpeace)
- U. S. counties with hazardous waste sites are 6.5 times more likely to have elevated breast cancer rates than counties without such sites. (Greenpeace)
- There are 700 chemicals in cigarette smoke, 43 are known carcinogens. Cigarette smoke contains 40 to 50 ppm of formaldehyde in addition to phenol, benzene and cadmium. (EPA)
- 99% of the population has one or more toxic chemicals stored in their fatty tissue. Many of these chemicals are linked to cancer. (EPA)
- The National Research Council states that few chemicals are "subjected" to extensive safety tests, and most are scarcely tested at all.

- No toxicity data is available for 80% of some 49,000 chemicals in commercial use. Of the more than 70,000 chemicals in daily use, complete toxicity data is available on only 2%. (NRC)
- 70% of all pesticide poisons **still** in use have fraudulent reports of animal safety tests. Only two companies and responsible employees have been convicted of fraud. However, these *registered* poisons are **still** in "use". (EPA & EDF)
- 74% of American households (or 70 million) used some type of pesticide poison at a cost of $1.9 million in 1994. (EPA)
- Within the past three decades, pesticide poison use in agriculture and for home and industrial purposes has increased by 50%. (EPA Ibid. Table 10)
- Total pesticide poison use in the United States, including wood preservatives and disinfectants, is about 2.2 billion pounds of active ingredients in a typical year (1994), or eight pounds for every man, woman, and child in the country. (EPA Ibid. Table 4)
- Approximately 875 pesticide poison active ingredients are formulated into 21,000 different products. (EPA Ibid. Table 7)
- Pesticide poisons also contain *inert* ingredients - which are not identified by name on product labels due to secrecy - that may be extremely hazardous.
- The long term effect of greatest interest to the EPA in chemical poisoning is cancer and chemical sensitivity is its second concern. (EPA)
- 98% of all cancer is caused by toxic chemicals. (NCI)
- EPA estimated in 1981 that up to 20% of the population would be affected by levels of formaldehyde of .1 parts per million (ppm). OSHA estimated 10% of the population at levels of 1 ppm. NAS estimates 15% of the population at levels of .25 ppm. OSHA standards for the work place are set at 1 ppm.
- Chemicals are slow killers often taking up to 20 years to induce cancer and an average of 10 years to induce chemical sensitivities. (EPA, OSHA, NAS and NCI)
- More than 20 million Americans work with chemicals known to cause damage to the nervous system even when used in small amounts. (OSHA)
- Neurodegenerative diseases such as Parkinson's Disease and Alzheimer's Disease have been linked to toxic chemical exposures. (Office of Technology Assessment)
- Texas, Ohio and Michigan lead the nation in air pollution and birth defects. Illinois has the 4th highest birth defect rate in the United States linked to chemically polluted air. Over 1.3 billion pounds of toxic chemicals where dumped into the air in 1991 in Illinois. (WGN TV News)
- Cancer is actually more than 100 diseases which are created by multiple causes or exposures and/or accidents. Cancer erupts only after the cell's DNA or genetic material becomes chronologically damaged or mutated. Cancer normally takes a serious of exposures, mutations and/or accidents to produce this dreaded disease.
- There are now 500 to 1000 chemicals in the human body that were not present in 1920. (WHO)
- Synthetic pesticide poisons are capable of disrupting the normal functioning of every major organ system in the body, but the nervous system is the most likely targeted. (CDC)
- More than 25 million people are poisoned by pesticide poisons, worldwide, each year, resulting in at least 20,000 deaths. (WHO) Long term illnesses from exposure are not considered in these numbers. This is due to the inability of physicians to diagnose the cause of illness.
- Currently, only 2% of the doctors in the United States are qualified to diagnose chemical poisoning and its related problems. (IOM/NAS) Few of these are qualified to treat these victims. It is interesting that Grand Rapids *leads* the nation in the *use* of Ritalin. In 1993 there were 6 million U. S. prescriptions for Ritalin (Methyphenidate). When mice were fed 30 times the human dose for 2 years, 4 of the male mice developed cancerous liver tumors called hepatoblastomas, and the mice had elevated levels of non-cancerous liver tumors called hepatocellular adenoma. Between 1973 and 1991 cancer of the brain and nervous system in children increased by an astounding 38%!
- Some pesticide poisons are associated with diminishing reproductive capacity and causing birth defects. The state of California maintains a list of reproductive toxins that currently includes 15 pesticides, 10 of which are **still** in use. The California Department of Pesticide regulation (DPR) evaluates pesticide poisons for their potential to cause birth defects and reproductive harm. Of the 63 chemicals evaluated by the DPR, 15 have tested positive for birth defects and 22 have tested positive for other reproductive effects in experimental studies.
- Neurodegenerative diseases such as Parkinson's Disease and Alzheimer's Disease have also been linked to toxic chemical exposures. (Office of Technology Assessment, April 1990, "Neurotoxicity: Identify-

ing and Controlling Poisons of the Nervous System," Pages: 362, Biological Applications Program [M. Schaefer and T. P. Condon])

- There are 183 chemicals that are known to cause convulsions, 62 that cause paralysis, 177 that cause tremors, 179 that cause weakness, 135 that cause equilibrium changes, 121 that cause vision disorders, 34 that cause confusion, 33 that cause memory problems, 131 that cause central nervous system depression, 125 that cause narcosis, 25 that cause hallucinations, 25 that cause delirium, 40 that cause depression, and 179 that cause sleep disturbance. These chemicals are found in such common things as pesticide poisons, rubber cement paint, photography chemicals, grout, cleaning products, gasoline, adhesives and textiles. (NIOSH)
- Twice as many deaths result from corporate contamination and/or pollution as from violent crime and car accidents combined! (FBI and Labor Statistics)
- There is a 1-in-5 prevalence of chemical sensitivity in those exposed to corporate contamination and/ or pollution; this is higher rate than asthma, breast or prostate cancer and HIV combined! (California Department of Public Health, 1995)
- Researchers at the Un. of Minnesota have discovered why synthetic pesticide poisons triple the rate of non-Hodgkin's Lymphoma. They found a high rate of chromosomal breakage (fracture of the 24th and 18th chromosomes) in farmers who apply these toxins to crops.
- There are substantial levels of organochlorine pesticide found in patients with chronic fatigue syndrome. (Newcastle Un., Medical Jr. of Australia 9-95)
- A five time increase in the risk of childhood brain cancer has been found linked to pesticide poison bombs, no-pest strips, flea collars, Kwell shampoo for lice control, and diazinon. (Pesticides and You - Spring93)
- Florida is the second largest pesticide poison user in the U. S.
- Blazing Tattles noted in Vol. 5 Nos. 7-8 that EPA's regional office in Atlanta told Claire W. Gilbert in 1989 there was no place in Florida that did not have pesticide poison residue (contamination). Claire W. Gilbert also noted in that issue that asthma and respiratory diseases are all increasing.
- A study of childhood leukemia cases in Shanghai found a more than threefold increase in risk associated with maternal occupational exposure to pesticide poisons. "Cancer" 8/98, pp. 635-44.
- In 1989, the Children's Cancer study Group reported that, among families with children with acute non-lymphoblastic leukemia, pesticide poison exposure was the most consistently associated potential cause of the disease. Children regularly exposed to pesticide poisons in the household had a 3.5 times greater incidence of leukemia than those not exposed there. In a 1987 National Cancer Institute study, the risk of childhood leukemia increased nearly four times when pesticide poisons were used within the house at least once per week, and increased more than six times when garden pesticide poisons were used at least once per month. JNCI, 7/87, pp. 39-46.
- Children of fathers with jobs including pesticide exposure had a 2.7 times higher risk of contracting the disease when compared to controls. "Cancer Research," vol. 49, 1989, pp. 4030-37.
- Gold, E. et al., "Risk Factors for Brain Tumors in children," *American Journal of Epidemiology, vol*. 109, 1979, pp. 309-319, noted: "Children diagnosed with brain tumors in the Baltimore area were more than twice as likely to have been exposed to insecticides (poisons) during household exterminations than children without cancer."
- A study of nearly 15,000 men in 21 countries found a 50% decrease in the male sperm count in the last 50 years. Other measures of sperm quality have also declined significantly. These decreases were attributed to environmental factors. (Brit Med J 92 305, pg. 609)
- The side effects from pharmaceuticals put 1.6 million people in hospitals and kill up to 160,000 Americans at a cost of more than $20 billion each year. (Dr. Brian Storm, Assoc. Dir. of Medicine & Pharmacology, Un. of Penn. School of Medicine)
- In the U. S. the death rate from medical malpractice is four times higher than that from auto accidents and two times higher than from guns. (Harvard University Study)
- No toxicity data is available for 80% of some 49,000 chemicals in commercial use. Of the more than 70,000 chemicals in daily use, complete toxicity data is available on only 296. (NRC)
- Carbon disulfide, used in such products as rayon, has been known since the 1800's to cause psychosis and peripheral neuropathy. (NIOSH)
- 12 million Americans have asthma today - a rise of 40% since 1982. In 1994, 5,000 Americans died from asthma - 50% more than in 1980. Young children are much more vulnerable to the lethal effects of synthetic pesticide poisons, than adults. (CDC)

- "There is no questions that pesticide poisons impair children's brain functions as insidiously as lead. When the brain is developing, it lays down connecting pathways. Introducing poisons, such as those contained in pesticide poisons, can fundamentally and irrevocably throw this critical neurological develop ment process off course." (In testimony before the U. S. Senate Committee on Pesticides in 1992. Herbert Needlemen, M.D., Un. of Pittsburgh)
- Xylenes used in paint, gasoline, plastics and pesticides may impair a person's ability to work with numbers. (ATSDR)
- According to the GAO, Lawn Care Pesticides (Poisons): Reregistration Falls further Behind and Exposure Effects are Uncertain (GAO/RCED-93-80). To date EPA has identified 13 lawn care poisons in ground water and 4 potential carcinogens among the 18 major poisons used. The Associated Press in September 1993 stated the EPA had again fallen behind in reviews required by a 1983 law. However, these pesticides (poisons) are **still** in use. (EDF)
- The National Research Council, *Pesticides in the Diets of Infants and Children,* p. 64 noted that: The nervous system includes the brain, spinal cord, and peripheral nerves and is responsible fore regulating and coordinating body activities. Pesticide poisons can cause both acute and chronic damage to children's nervous systems. Children acutely exposed to neurotoxic pesticide poisons are susceptible to symptoms of poisoning much like adults, ranging, depending on exposure levels, from headache and nausea to convulsions and death.
- When heated above 80° F. the "inert" xylene becomes even more deadly and many synthetic poisons when exposed to motors, furnaces and other heat sources can become extremely dangerous volatile gases that become acids in your eyes and lungs.
- Recent (1990) research documented the ability of six synthetic pyrethroid poisons to bind with androgen (a male sex hormone) receptors, and disrupt normal androgen function. The researchers "advise protection from any form of contact or ingestion of the pyrethroids in order to prevent any undesirable effects on the human reproductive system".
- The Gulf War Syndrome has now claimed abut 80,000 of the 700,000 veterans who were exposed to oil well spills and fires, exhaust fumes and smoke from military operations, depleted uranium, lead, a number of government applied pesticide poisons, including chlorpyrifos (Dursban). The insect repellent DEET and the anti-nerve gas agent pyridostigmine bromide (PB) which the troops took orally to "protect" them from "enemy" chemical attacks.
- It is estimated that there are 4 million chemical mixtures in commercial use that have never been tested for their reproductive effects. (NIOSH)
- It is estimated that 200,000 children are born each year with birth defects as a result of parental chemical exposures. (The March of Dimes)
- An estimated 560,000 infant deaths, spontaneous abortions and still births occur each year from parental chemical exposure. (Disorders of Reproduction, MMVR 8/6/85 34(35).)
- There are over 1,000 chemicals in the workplace that have been shown to have adverse reproductive effects in animals, yet they **still** have not been studied in humans. (NIOSH)
- An EPA survey noted 85% of U. S. households have at least one pesticide poison stored in their home at any one time; 20% have more than 5 pesticide poisons in storage!
- In her book Silent Spring Rachel Carson wrote, "As crude a weapon as the caveman's club, the chemical barrage has been hurled against the fabric of life." Then she died of breast cancer in April of 1964!
- Thomas C Diederich, Vice President Government Relations for Orkin Exterminating Company of Atlanta, in reviewing the warnings made in Our Stolen Future for the Florida Pest Control Association wrote, "Cheez...we have not been able to eliminate cockroaches with the stuff, but now it may be the demise of the rug rat!!!"
- **SLAPP suits** - Strategic Lawsuits Against Public Participation have now become a poison industry tactic to stop, intimidate and/or silence community activists and/or whistle blowers. Read Chapter 14 on The Poison "Industry".

On April 14, 1998, the State of Maryland passed a statewide school notification system: all parents of elementary students must be notified 24 hours prior to any indoor "registered" pesticide poison application. Parents of middle and high school students must request notification. This puts Maryland ahead of a growing national movement to curb the use of these poisons, some of which cause cancer and birth defects.

"REGISTERED" PESTICIDE POISONS OFTEN CREATE WORSE PROBLEMS THAN THEY "SOLVE". To

“treat” a malaria outbreak in Borneo in the 1950’s the World Health Organization [WHO] decided to spray DDT to kill the mosquitoes. The DDT killed the parasitic wasps which were controlling thatch-eating caterpillars. As a result, the thatched roofs of many homes fell down, and the DDT-poisoned insects were eaten by Gecko lizards, which were in turn eaten by cats. The cats perished, which led to the multiplication of rats - and then to outbreaks of sylvantic plague and typhus. To put an end to this destructive chain of events, WHO had to parachute 145,000 live cats into the area to control the rats! Note: For over 50 years we have needlessly sprayed the whole earth with deadly nerve gases and/or carcinogens that do not kill pests but kill or injure people and pets - yet very few people have said, “Enough! Stop the madness! Stop the use of volatile synthetic poisons! Please stop killing us!” Please join me now in stopping the use of nerve gases! Join me in closing down the poison industry which has produced the toxic cloud of neurotoxins that are destroying our earth and us! Thank G-d now you can easily control your own pests better and safer and cheaper using “my” intelligent “tools” than any “professional poison applicator” can and/or ever could give you “control”. **Remember that even a healthy food like carrots can be toxic in excessive amounts to virtually everyone and can be dangerous even in small amounts to anyone allergic to them - always try to find a safer way!**

Integrated Weed and Soil Management, J. L. Hatfield, D. D. Buhler and B. A. Stewart, eds. 1998. Ann Arbor Press, Chelsea, MI. 385 pp. noted: (“Registered”) Herbicides are used on 98% of corn and soybean crops in the major producing states, amounting to a total of over 105,000 metric tons at an averge cost of about $2.1 billion per year (1994 figures). Volatilization losses of these herbicides can be quite high, and subsequent fallout from the atmosphere can be a major source of contamination in surface water. One study, for example, reported volatilization losses of 90% for dieldrin, trifluralin and heptachlor in three days...Many of the papers presented demonstrate that there are effective integrated weed management techniques available. Among those covered in depth are highly diversified crop rotations, rotary hoes and weed suppression by legume residues... Unfortunately, producer attitudes and perceptions prevent their acceptance...One factor is the unfortunate tendency of conservation tillage systems to create heavier reliance on herbicides...One very serious difficulty for farmers wanting to diversify crop rotations is that eligibility for government subsidies is limited to certain crops, and payments are linked to the number of acres. For example, a farm with 1000 acres of corn would lose $90,000 per year in government support if it changed from continuous corn to a corn-oat-meadow-meadow rotation. In this way, U. S. farm policies can strongly discourage farmers from diversifying, particularly with forage legumes and green manures.

FINAL COMMENTS–The finished “registered” poison compound is not “inert” or stable itself, but continues to “cook” or transform into more dangerous substances inside the container as it is transported and stored, yet no one ever bothers to check for the new unregistered poisons that are formed and/or the increased toxicity that is subsequently produced.

On May 25, 1998 PANUPS noted: Toxic pesticides that are banned, (“voluntarily withdrawn”) or otherwise forbidden in the U. S. were shipped from U. S. ports at a rate of more than 14 tons per day in 1995 and 1996 — a total of more than 21 million pounds — according to a new report by the Foundation for Advancements in Science and Education (FASE). The report, which is based on U. S. Customs shipping records, documented that more than 1.2 billion pounds of pesticide poisons were exported in 1995 and 1996.

At present, U. S. policy allows the export of banned pesticide poisons, as well as “never registered” pesticides — pesticide poisons that have never been evaluated by the U. S. Environmental Protection Agency (EPA). FASE found that approximately 9.4 million pounds of “never-registered” pesticides were exported in 1995 and 1996 — a 40% increase since the period from 1992 through 1994. The U. S. also exported more than 28 million pounds of pesticide poisons designated as “extremely hazardous” by the World Health Organization, representing a 500% increase since 1992.

Many of these (dangerous) pesticide poisons shipped from U. S. ports are destined for developing countries. “Workers in developing countries often have no idea of the concerns that exist in other countries about the pesticide poisons they are using,” said Barbara Dinham, International Projects Officer at the UK-based Pesticides Trust. “Pesticide poisons are applied by farmers who have no protective equipment, nor access to medical facilities.” FASE pointed out there are indications that trade agreements are creating pressure for developing countries to increase their use of outdated, inexpensive and hazardous products (poisons). “Because of the liberalization of trade, the influx of hazardous pesticide poisons is a very big problem,” stated Dr. Grace Ohayo-Mitoko, Executive Director of Health and Environment Watch, an NGO in Nairobi, Kenya. “Because of trans-shipments, we are not

able to know exactly where these chemicals are coming from. Some of the products (poisons) that come from the U. S. come in through Belgium or other countries."

The U. S. government does not maintain complete records of pesticide poison shipments, and there are many data gaps. For example, between 1992 and 1996, more than two billion pounds of pesticide poisons left U. S. ports with their specific chemical names omitted from publicly accessible shipping records. "In many cases, the description is simply 'pesticide' or 'weed killing compound;' in others, trade names or abbreviations are used which cannot be found in publicly-accessible pesticide dictionaries, reference books or on-line databases," according to Carl Smith, Senior Editor of the report. "It isn't possible to determine how many of these unnamed products (poisons) are safe under conditions of use in the developing world."

The report recommends changing U. S. policy to eliminate double standards of safety. It calls for prohibiting the export of banned pesticide poisons from the U. S. and requiring that full data on all pesticide poison shipments be made available through a publicly accessible records system. FASE points out that these changes would be consistent with existing U. S. environmental laws, such as the National Environmental Protection Act of 1969, which was created to "prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man." The entire report, "Exporting Risk: Pesticide Exports from U. S. Ports 1995-1996," is available online: http://www.fasenet.org.

Officials declare toxic site *clean*. The Associated Press 9/2/98

JACKSONVILLE, Ark. —— After 17 years and $150 million, federal environmental officials on Tuesday declared one of the nation's oldest and largest toxic waste sites safe enough to reopen to the public. The former Vertac Inc. plant once contained about 30,000 barrels of chemicals, scores of contaminated machines and buildings. The site also had thousands of tons of dioxin-contaminated soil and sludge spread over its 200 acres and onto neighboring land. The plant made ("registered") herbicides and insecticides under various owners, starting in the 1940s. The last owner, Vertac, abandoned the site and declared bankruptcy in early 1987. (Take the $ and run!)

U. S. manufacturers exported (on average) 157 tons of hazardous pesticide poisons per day between 1992 and 1994. Many of the poisons exported are banned for use in the U. S., but not where they are being shipped. Developing countries record 99% of pesticide poison-related deaths, even though industrialized countries only use 80% of agricultural chemicals. Breast cancer now kills 46,000 American women each year and the number is steadily rising! The December 1997 issue of Pest Control Magazine reported: A recent Gallup Survey noted 65% of Americans confessed to have a pest problem, but only 10% actually called a pest control operator (which means the traditional pest control people are fighting over 6.5% of the market - 93.5% of the potential market is being ignored.) 54% believe pesticide poisons used by PCO's are harmful and 64% said they would wait until the (pest) problem was severe before calling a PCO. The overriding reasons included the belief that pesticides (poisons) may jeopardize the safety of the homeowners' children or pets and that the pesticide poisons used by PCO's were "too strong". The University of Kentucky conducted another study that showed 66% of Americans believe pesticide poisons cause cancer. 77% are concerned about pesticide poisons in their work and home environments. 85% want pesticide poisons with no "odor"; 62% prefer only outdoor treatments. 83% would pay a PCO extra to use less pesticide poison. 75% of that group would pay 10% - 25% more to the PCO to use less poison! **Even if "registered" pesticide poisons were "safe", they do not work as well as Pestisafes® or alternatives and most of the public, obviously, does not want them used any more. Yet the poison *industry* continues to use ever increasing amounts of these poisons and "regulators" continue to demand these terrible toxins are the only "legal" way to "control" pest problems.**

Always remember pesticide poisons are never approved or tested by the EPA, FDA or any state government; only the active ingredient is *registered* or usually simply *extended even when "banned" they still are used and misused for years and years.*

On April 9, 1999, PANUPS noted: Dirty Dozen Pesticides: Banned But Still Traded

A review of recent U.S. exports of the Pesticide Action Network's Dirty Dozen pesticides indicates that a national ban is not sufficient to prevent a pesticide from entering a country. According to U.S. Customs records examined by the Foundation for Advancements in Science and Education (FASE), during the years 1995 and 1996 more than 3.3 million pounds of Dirty Dozen pesticides were exported to countries which had banned them.

The review was the latest report from a project that FASE began in 1991 to document the trade in hazardous pesticides through analysis of U.S. Customs shipping records.

The Pesticide Action Network (PAN) International's list of "Dirty Dozen" pesticides includes 18 highly toxic chemicals including aldicarb, chlordane, EDB, heptachlor, parathion, pentachlorophenol and lindane.

Chlordane exports accounted for 2.5 million pounds of total U.S. Dirty Dozen exports. Nearly two million pounds were shipped to Brazil; 430,950 pounds to Singapore; and 44,200 pounds to the Netherlands. Overall, 95% (by volume) of chlordane shipments that appear in U.S. Customs records for 1995 and 1996 were to countries that had regulations banning the chemical.

During 1995-1996, over 225,000 pounds of heptachlor were shipped to countries that had banned the chemical including, 93,528 pounds to the Netherlands in 1995 and 129,900 pounds to Brazil in 1996. Of the heptachlor shipments noted in Customs records, 65% (by volume) were to countries that had banned the chemical.

In its 1997 announcement that it would discontinue chlordane and heptachlor production before the end of the year, Velsicol Chemical Corporation stated that it had been exporting chlordane and heptachlor "for major road building projects in Africa, protection ofresidential structures in tropical regions such as Northeastern Australia and the Far East, and as a soil insecticide to protect crops in South America." Such uses of these highly toxic chemicals were banned 10 to 20 years ago in the United States.

Aldicarb, a WHO Class Ia ("extremely hazardous") pesticide with an oral toxicity of less than 1 mg/kg, is banned in Argentina. However, shipments to Argentina were noted at an average rate of over six tons per month during 1995 and 1996, a total of more than 300,000 pounds.

Paraquat, another highly toxic pesticide, was exported to the Dominican Republic, where its use has been banned. U.S. shippers exported 120,015 pounds in 1995 and 75,477 in 1996. Other hazardous chemicals exported to countries that had banned them included pentachlorophenol (42,544 pounds to Thailand in 1995) and EDB (34,992 pounds to Belgium in 1996).

In reviewing exports over the last eight years, FASE project staff have noted that the majority of pesticide shipments – as many as two-thirds or more – are described in U.S. Customs records in such generic or cryptic terms that the specific chemical cannot be identified. This lack of comprehensive and accurate data is a barrier to effective monitoring and enforcement of export regulations.

"These shipments are examples of the gap that can exist between regulatory goals and reality," said Carl Smith, project director for FASE, who points out that the Dirty Dozen shipments do not appear to violate any U.S. policy. "International treaties such as the PriorInformed Consent (PIC) and Persistent Organic Pollutants (POPs) agreements can set the stage for reducing trade in hazardous chemicals &emdash; but the real-world situation doesn't change unless they're implemented. If we want to keep the implementation process honest, we need good data in the public record." *Source: Global Pesticide Campaigner (PAN North America), April1999.*

Some day the U. S. government may be in serious trouble because of these dangerous exports; if some nation seriously considers these dangerous poisons are, in fact, nerve gases, chemical warfare agents and/or malicious acts of aggression against their people and environment.

The August, 1998 issue of the Service Technician noted on page 4 that the Minnesota Department of Agriculture cancelled the "licenses" of 38 TruGreen Chemlawn pesticide applicators after a search of the Company's Burnsville offices uncovered copies of a test used by the State to certify (poison) applicators. According to the MDA, possessing a copy of the test "compromised" the testing process. In Minnesota, the test to become a license pesticide (poison) applicator is closed book and monitored.
Dr. Zane Gard notes that pesticide poisoning may mimic brain hemorrhage, heat exhaustion, hypoglycemia, heat stroke, gastroenteritis, asthma, pneumonia or other severe respiratory distress or infection.

Abou Ben Adhem (may his tribe increase!)
Awoke one night from a deep dream of peace,
And saw, within the moonlight in his room,
Making it rich, and like a lily in bloom,

An Angel writing in his book of gold:
Exceeding peace had made Ben Adhem bold,
And to the Presence in the room he said,
"What writest thou?" The Vison raised its head,
and with a look made of all sweet accord
Answered, "The names of those who love the Lord."
"And is mine one?" said Abou. "Nay, not so,"
Replied the Angel. Abou spoke more low,
But cheerily still; and said, "I pray thee, then
Write me as one that loves his fellow men."

The Angel wrote, and vanished. The next night
It came again with a great wakening light,
And showed the names whom love of God had blessed,
And lo! Ben Adhem's led all the rest!
by: James Henry Leigh Hunt

"It is insanity to continue doing the same thing over and over and expect the results to be different."
— Albert Einstein

"The only time you mustn't fall is the last time you try."
— Charles Kettering

The EDF's chemical scorecard @ http://www.scorecard.org lets you know what polluters are dumping in your area and how a community ranks in terms of pollution.

The following internet web sites have volumes of free information on pesticides:

http://www.pesticideinfo.org
http://www.afn.org/~accpta/pesticides.htm
http://www.nrdc.org/health/pesticides/default.asp
http://www.beyondpesticides.org (formerly http://www.ncamp.org)
http://www.epa.gov/pesticides/carlist/table.htm
http://pmep.cce.cornell.edu/issues/nas-report-nrdc.html
http://msds.ehs.cornell.edu/msdssrch.asp
http://www.edf.org
http://www.rachel.org
http://www.sciencenews.org
http://ace.orst.edu/info/extoxnet/
http://www.chemfinder.com
http://www.ewg.org
http://www.wwf.org
http://www.igc.org/pesticides/
http://www.pesticides.org
http://ciin.org
http://www.chem-tox.com
http://www.msdsonline.com
http://toxnet.nlm.nih.gov/
http://www.lawnandlandscape.com/msds
http://www.msds.com
http://www.cdms.net
http://ptcl.chem.ox.ac.uk/MSDS/
http://www.pesticide.net
http://www.scirus.com
Go to http://infoventures.com/e-hlth/organge/phd93.html to access Review of the Literature on Herbicides, including Phenoxy Herbicides and Associated dioxins - Herbicides and Associated dioxins Volume XXIII: Analysis of Recent Literature on Health Effects. Last modified on: Friday, October 18, 1996 10:47:02. Copyright 1994-1999, Information Ventures, Inc.

U. S. Environmental Protection Agency, Office of Pesticide Programs (OPP), Fact Sheets on New Active

Ingredients. Contains comprehensive information on conventional pesticide active ingredients, including year of initial registration, chemical family. U. S. producer, application sites, types of formulations, methods of application, application rates and toxicilogical characteristics. Fiscal years 1998 and 1999 are available. OPP will expand this page to include more new active ingredients, as well as those registered in previous years.
http://www.epa.gov/opprd001/factsheets/

Status of Pesticides in Registration, Reregistration and Special Review, 1998 U. S. Environmental Protection Agency. Provides status of pesticides that are undergoing or have completed pesticide registration or review process as mandated by Federal Insecticide, Fungicide and Rodenticide Act. Lists "new" pesticide active ingredients, those initially registered since November 1, 1984, which by law are not subject to reregistration. Available at http://www.epa.gov/pesticides. 458 pp. For hard copies contact National Center for Environmental Publications and Information (EPA/NCEPI), P. O. Box 42419, Cincinnati, OH 45242-2419, phone 1-800-490-9198; fax 1-513-489-8695.

Pesticide Web Sites: Programs and Projects

Office of Pesticide Programs - Biopesticides and Pollution prevention Division (BPPD)
http://www.epa.gov/pesticides/biopesticides/

The BPPD is responsible for the regulation of all biopesticides in the Unites States. This web site includes a definition of biopesticides, regulatory activity, active ingredients, Federal Register notices, press releases, publications and a related Internet resources section. The regulatory activities section breaks down biopesticides regulations by all types including active ingredient approvals, tolerance applications, and experimental use applications. Fact sheets are also available from the home page.

Pesticide National Synthesis Project
http://ca.water.usgs.gov/pnsp/

The Pesticide National Synthesis Project is part of the U. S. Geological Survey's National Water Quality Assessment Program (NAWQA). The project's objective is the long-term assessment of the status of and trends in the quality of the Nation's water resources. The web site includes a project overview; national summaries and data concerning pesticides in water; special topics, such as contaminants in fish hormones; national maps of pesticide use, and on-line publications from the NAWQA Pesticide Studies Program. The web site includes a search feature, pesticide-related links and a National Map of the NAWQA Study Units.

Virginia Tech Pesticide Programs, Pesticide Site Locator
http://www.vtpp.ext.vt.edu:8080/catlist.html

The Virginia Tech Pesticide Program offers this extensive database of pesticide-related internet resources. Select a source or topic area, like Government Information Sources, Organizations and Educational Institutions, Pesticide News and Newsletters, and Pest Control Product Manufacturers and Other Commercial Sites, to choose from hundreds of possible resources. This database is fully searchable by keyword or subject. Visit, too, the Virginia Tech Pesticide Program web site, available at http://www.vtpp.ext.vt.edu/. This site serves as a clearinghouse for technical information on pesticides and other toxic chemicals. Find information on pesticide education and training programs, pesticide safety teaching resources, and surveys of pesticide use in Virginia.

Pest Management Regulatory Agency (PMRA)
http://www.hc-sc.gc.ca/pmra-arla/

The Pest Management Regulatory Agency (PMRA) is a Canadian government regulatory agency which "protects human health and environment by minimizing risks associated with pest control products while enabling access to pest management tools." The web site is available in English and French and includes contact information for pesticide programs, regulatory information, international activities information, sustainable pest management data, online publications, related links and a headlines section.

Greenbook.net
http://www.greenbook.net/

This site, offered by the Chemical and Pharmaceutical (C&P) press, provides access to the free and subscription-based reference services of their online Crop Protection Reference Manual. The free service provides the most current versions of product labels and Material Safety Data Sheets (MSDSs) available to C&P Press. Documents can be located by brand and company name. In addition to the product labels and MSDSs, a subscription allows access to a single source of product summaries (including all sites and pests on which the product is registered, EPA registration information, restricted use information, common name, etc.), worker protection information, DOT shipping information, and SARA Title III reporting information. A one-month free trial of this subscription service is available.

Version 2.0 of the PAN Pesticide Database is now available at http://www.pesticideinfo.org. The PAN Pesticide Database is the largest and most comprehensive online collection of pesticide data in the world, providing detailed information (at no cost to the user) for about 5,400 pesticide active ingredients, breakdown products, and related chemicals. The database also contains information on more than 100,000 formulated pesticide products (current and historic registrations) from the U.S. Environmental Protection Agency (EPA). Where available, the database provides information on toxicity, regulatory status, aquatic ecotoxicity, and general identification information, including an extensive list of synonyms. Comprehensive documentation defines terms used and cites the sources of the information, along with its currency, accuracy, and comprehensiveness.

The NIOSH Pocket Guide to Chemical Hazards and Other Databases on CD-ROM put out by the US DHHS, Public Health Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health:

It is listed as DHHS (NIOSH) Publication No. 2000-130 of July 2000 (may have been updated since) and is both Windows and Mac compatible. It contains the following databases:

Immediately Dangerous to Life and Health Concentrations
International Chemical Safety Cards
NIOSH Certified Equipment List
NIOSH Manual of Analytical Methods
NIOSH Pocket Guide to Chemical Hazards
OSHA Sampling and Analytical Methods
Recommendations for Chemical Protective Clothing
Specific Medical Tests Publishes for OSHA Regulated Substances
Toxicologic Review of Selected Chemicals
2000 Emergency Response Guidebook.

You can get it by phoning 1.800.35NIOSH or at http://www.cdc.gov/niosh/

Recognition and Management of Pesticide Poisoning - ***540988001*** (208 pgs.) Call 703-305-7666 or 1-800-490-9198 to order from the *Certification and Worker Protection Branch of the EPA, Office of Pesticide Programs*. or view the publication directly on the EPA site: http://nepis.epa.gov/

ENVIRONMENTAL JUSTICE DATA NOW ONLINE
NEW YORK, New York, April 19, 2001 (ENS) - Different degrees of evironmental burden felt by different racial, ethnic and income groups are now documented and available for every community in the U.S., Environmental Defense announced Wednesday.

The information is available free on the group's Scorecard website, http://www.Scorecard.org, which lets users type in their zip codes to get the local facts.
"This access to comparative data in a single place is an important breakthrough for the environmental justice movement," said Gerald Torres, a law professor at the University of Texas and former U. S. Justice Department official. "For the public at large, it will make it possible to see differentials in environmental burdens in our society, not just where those problems are already obvious but place by place throughout the country." Torres is coauthor, with Professor Lani Guinier, of a forthcoming book on race and politics from the Harvard University Press.

“Environmental justice is important, sensitive, and hard to measure,” said Environmental Defense senior attorney David Roe. “We are putting the best measurement data we can find out into public view, so people can see a local picture no matter where they live.”

The new service, available in English and Spanish, represents the first time that local level environmental data have been analyzed across the country to show the differences experienced by several different demographic groups, such as people of color and low income families.

“These are first cut data only,” Roe cautioned. “The best numbers available today are very far from being perfect measures of the environmental burdens that different people experience - and of course, numbers can’t tell the whole environmental justice story. But systematic data on the ‘where’ and ‘how much’ of unequal environmental conditions, even if imperfect, will help focus attention and set priorities in this critical area of public policy.”
http://chemdef.apgea.army.mil/textbook/Ch-8.pdf - This website has long-term effects of chemical agents. If you scroll down to the organophosphates section you will find the long-term effects associated with them.

The resource book Hazardous Chemicals in Human and Environmental Health. will be available from 6/1501 onwards as an electronic version free of charge at the IPCS website, http://www.who.int/pcs. The file is full-text html and can be printed. International Programme on Chemical Safety.

The natural Resources Defense Council has launched a website devoted to environmental contaminants in breast milk. It can be accessed at: http://www.nrdc.org/breastmilk/

The Rachel Carson Council, Basic Guide to Pesticides, is now available at:
http://members.aol.com/rccouncil/ourpage/samples.htm .

NEW resources on-line at PAN UK
Reducing pesticide hazards in developing countries

A widely-praised series of publications on ***Control of Pesticides and Integrated Pest Management (IPM): Implementation of Farmer Participatory IPM and Better Chemical Management*** is now available on-line (http://www.pan-uk.org/internat/intindex.htm). PAN *UK* developed the material to guide policy makers in governments and development agencies, and others concerned about pesticides. The materials include:

Progressive Pest Management: Controlling pesticides and implementing IPM (24pp). A booklet recommending a strategy on: establishing control of pesticides; reducing use, risks and dependency on pesticides; and taking action for IPM.

Pest Management Notes a series of short (4-page) briefings, which will be periodically supplemented, now includes:

1 Pest management a new approach
2 Integrated Pest Management
3 Disposal of obsolete pesticides
4 Desert locust control in Africa
5 Prior Informed Consent
6 International chemical initiatives
7 Pesticide procurement
8 Pesticide residues in food
9 Growing coffee with IPM
10 Success with cotton IPM

Guide to Active Ingredient Hazards This tabulated guide to over 1,000 active ingredients provides a quick reference point for chemical names, types, uses, acute toxicity (WHO classification), the Acceptable Daily Intake, reproductive and chronic effects, endocrine disrupting pesticides, environmental effects, national regulation, inclusion in the PIC Conventions known evaluations.

Resource guide to pest management topics, agencies, web sites and databases (32pp). Topics provides

a quick guide to commonly-used terms. Agencies lists major international bodies, NGOs, research institutes, industry contacts. Computer resources offers fully updated web-links and on-line databases.

Country profiles: the state of IPM and chemical management in Africa (34pp), provides an overview and information on selected African countries. The profiles include details (current to 1999) of projects which contain a strong element of participatory IPM.

Information will be added to and up-dated periodically.

THE FAROES STATEMENT

[Introduction: This consensus statement was issued March 24, 2007, by the International Conference on Fetal Programming and Developmental Toxicity held May 20-24, 2007, at Torshavn, Faroe Islands, which was attended by more than 200 biologists, toxicologists, epidemiologists, nutrion researchers, and pediatricians. The conference was organized jointly with, and sponsored by, BCPT (the journal, Basic & Clinical Pharmacology and Toxicology); the World Health Organization; the European Environment Agency; the Centers for Disease Control and Prevention; National Institute of Environmental Health Sciences and National Institute of Child Health and Human Development, National Institutes of Health. The conference was co-chaired by Philippe Grandjean (University of Southern Denmark and Harvard School of Public Health) and Pal Weihe (The Faroese Hospital System). In this powerful consensus statement, more than 200 scientists from five continents call for a precautionary approach to toxic chemicals, to protect fetuses and children from chemical exposures that may cause serious disease later in life, and which may also afflict their children and grandchildren. The Faroes Statement defines a “new paradigm of understanding in toxicology.”]

Background

Fetal life and early infancy are periods of remarkable susceptibility to environmental hazards. Toxic exposures to chemical pollutants during these windows of increased susceptibility can cause disease and disability in infants, children, and across the entire span of human life. Among the effects of toxic exposures recognised in the past have been congenital malformations and other adverse pregnancy outcomes. These outcomes may be readily apparent and have been linked to toxicant exposures during or prior to pregnancy. Even subtle effects caused by chemical exposures during early development may lead to important functional deficits and increased risks of disease later in life. The notion of developmental plasticity of organ functions and disease risks has gained much support from both experimental and epidemiological studies. The timing of exposure — with an emphasis on critical windows of susceptibility — has therefore become a crucial factor to be considered in toxicological assessments.

During May 20-24, 2007, researchers in the fields of environmental health, environmental chemistry, developmental biology, toxicology, epidemiology, nutrition, and paediatrics gathered at the International Conference on Fetal Programming and Developmental Toxicity, in Torshavn, Faroe Islands. The conference goal was to highlight new insights into the effects of prenatal and early postnatal exposure to toxicants, and their sustained effects on the individual throughout their lifespan. The Conference brought together, for the first time, key researchers to focus on human data and translation of laboratory results to elucidate the environmental risks to human health.

Research state of the art

The developing fetus is extraordinarily susceptible to perturbation of the intrauterine environment. Fetal development is adjusted to the intrauterine environment of nutrients and energy supply to fit the anticipated postnatal environmental conditions. If a disparity arises between prenatal and postnatal environments, it can cause abnormalities in energy metabolism, endocrine functions, and organ development. Evolution seems to have favoured a “thrifty” phenotype that optimizes the energy use, but which, in an environment with ample food and limited energy expenditure, can increase the likelihood of developing obesity, metabolic syndrome, and associated diseases.

The physiological mechanisms involved in the development of energy and nutrient metabolism are also highly vulnerable to toxic effects of environmental chemicals. Chemical exposures during prenatal and early postnatal life can bring about important effects on gene expression, which determines normal development and also predisposes

to disease risks during adolescence and adult life. Many environmental chemicals can alter gene expression by DNA methylation and chromatin remodelling. These epigenetic changes can cause lasting functional changes in specific organs and tissues and increased susceptibility to disease that may even affect successive generations.

New research on rodent models shows that developmental exposures to toxic chemicals, such as the hormonally active substances, diethylstilbestrol, tributyl tin, bisphenol A, genistein, can increase the incidence of reproductive abnormalities, metabolic disorders, including obesity and diabetes, and cancer, presumably through epigenetic mechanisms that do not involve changes to DNA sequences but may be heritable.

Prenatal exposure to diethylstilbestrol, an estrogenic drug no longer used on pregnant women, causes an increased risk of vaginal, uterine, and breast cancer. Low-level developmental exposure to a plastics ingredient, bisphenol A, can result in increased susceptibility to breast cancer or prostate cancer, and prenatal exposure to vinclozoline, a common fungicide, also promotes later development of cancer. These substances are only weak carcinogens, if at all, in the adult organism but are nonetheless hazardous to the growing fetus. In addition, when exposure to a carcinogenic substance occurs during early development, the expected life-span will exceed the normal latency period for development of the disease.

Functioning of the human reproductive system is highly vulnerable to changes in the intrauterine hormonal environment. In men, increasing occurrence of testicular cancer, poor semen quality, and cryptorchidism have all been linked to developmental exposures to maternal smoking and endocrine disrupting chemicals, such as diethylstilbestrol. Additional risk factors include fertility treatment of the mother, phthalate exposure, and occupational exposure to pesticides with suspected estrogenic and antiandrogenic activity. Perinatal exposure to endocrine disrupting chemicals, such as polychlorinated or polybrominated biphenyls, endosulfan, or DDT compounds, may affect puberty development and sexual maturation at adolescence. Expression of some of these effects may be promoted by predisposing genetic traits.

The brain is particularly sensitive to toxic exposures during development, which involves a complex series of steps that must be completed in the right sequence and at the right time. Slight decrements in brain function may have serious implications for social functioning and economic activities, even in the absence of mental retardation or obvious disease. Each neurotoxic contaminant may perhaps cause only a negligible effect, but the combination of several toxic chemicals, along with other adverse factors, such as maternal stress or decreased thyroid function, may trigger substantial decrements in brain function and may predispose to the development of serious degenerative disease.

The immune system also undergoes important development both before and after birth. New evidence suggests that exposure to some immunotoxic chemicals, such as polychlorinated biphenyls and atrazine, and maternal stress may cause aberrant reactions of the immune system to foreign proteins, including vaccines. Such effects may be related to a shift in immune system balance, with an increased susceptibility to infections and an increased risk of development of allergy in the child.

While the research on developmental toxic effects has to date emphasised maternal exposures and the neonatal environment, the possibility exists that paternal exposures may also affect the child's development. Experimental studies suggest that ionizing radiation, smoking, and certain chemicals may be of importance, and some exposures may also affect the sex ratio of the children.

Conclusions

Three aspects of children's health are important in conjunction with developmental toxicity risks. First, the mother's chemical body burden will be shared with her fetus or neonate, and the child is then likely to be exposed to larger doses relative to the body weight. Second, susceptibility to adverse effects is increased during development, from preconception through adolescence. Third, developmental exposures to toxicants can lead to life-long functional deficits and manifestations of increased disease risks.
Research into the environmental influence on developmental programming of health and disease has therefore led to a new paradigm of toxicologic understanding. The old paradigm, developed over four centuries ago by Paracelsus, was that "the dose makes the poison". However, for exposures sustained during early development, the most important issue is that "the timing makes the poison". This extended paradigm deserves wide attention to protect the fetus and child against preventable hazards.

Part of the new insight derives from numerous animal studies on fetal programming being responsible for reproductive, immunological, neurobehavioural, cardiovascular, and endocrine dysfunctions and diseases, as well as certain cancers and obesity. These adverse effects have been linked to chemical pollutants at realistic human exposure levels similar to those occurring from environmental sources. Among the mechanisms involved, particular concern is raised about changes in gene expression due to altered epigenetic marking, which may not only lead to increased susceptibility to diseases later in life, but the effects may also be passed on to subsequent generations. Most chronic disease processes are characterised by multi-causality and complexity. Understanding such processes requires a more holistic approach that focuses on systems and tissue biology.

Recommendations

** Studies on the etiology of human disease therefore need to incorporate early development and characterise appropriately the factors that determine organ functions and subsequent disease risks. Such associations can best be examined in long-term prospective studies, and existing and planned birth cohorts should be utilized for this purpose.

** Cross-disciplinary approaches and translation of animal data on exposure biomarkers and disease susceptibility need to be promoted for application in studies of the etiology of human disease. Communication and clarification of key concepts and terms needs to be stimulated between the scientific disciplines involved and between these scientists and policymakers.

Environmental chemical exposure assessment should emphasise the time period of early development. Exposure data already routinely collected need to be optimised for application in epidemiological studies. Cord blood, cord tissue, human milk and other biological samples can be applied for assessment of exposure biomarkers and for determination of gene expression changes.

Since humans are exposed to numerous chemicals during development and throughout life, mixed exposures need to be considered in a life- course approach to disease. Further, the interaction due to other life-style factors, such as intake of essential nutrients and societal environment, needs to be explored. This research should also involve the impact of genetic variation and genetic predisposition to disease.

** Toxicological tests and risk assessment of environmental chemicals need to take into account the susceptibility of early development and the long-term implications of adverse programming effects. Although test protocols exist to assess reproductive toxicity or developmental neurotoxicity, such tests are not routinely used, and the potential for such effects is therefore not necessarily considered in decisions on safety levels of environmental exposures.

The accumulated research evidence suggests that prevention efforts against toxic exposures to environmental chemicals should focus on protecting the fetus and small child as highly vulnerable populations. Given the ubiquitous exposure to many environmental toxicants, there needs to be renewed efforts to prevent harm. Such prevention should not await detailed evidence on individual hazards to be produced, because the delays in decision-making would then lead to propagation of toxic exposures and their long-term consequences. Current procedures therefore need to be revised to address the need to protect the most vulnerable life stages through greater use of precautionary approaches to exposure reduction.

Note: This statement has been developed by the International Scientific Committee of the conference, taking into account comments and suggestions from the conference participants. The statement (pending minor editorial revision) will be included in the conference proceedings.

Members of the International Scientific Committee

David Barker (UK) David Bellinger (USA) Ake Bergman (Sweden) Roberto Bertollini (WHO) Sylvaine Cordier (France) Terri Damstra (WHO) George Davey-Smith (UK) Erik Dybing (BCPT) Brenda Eskenazi (USA) David Gee (EEA) Kimberly Gray (NIEHS) Mark Hanson (UK) Peter van den Hazel (The Netherlands) Jerry Heindel (NIEHS) Birger Heinzow (Germany) Irva Hertz-Picciotto (USA) Howard Hu (USA) Terry Huang (NICHD) Tina

Kold Jensen (Denmark) Philip J Landrigan (USA) Caroline McMillen (Australia) Katsuyuki Murata (Japan) Larry L Needham (USA) Sjýÿrýÿur Olsen (Denmark) Beate Ritz (IARC) Greet Schoeters (Belgium) Niels E Skakkebýÿk (Denmark) Staffan Skerfving (Sweden)

ORGANIC CORIANDER CHELATION PESTO

4 cloves	garlic
1/3 c.	Brazil nuts (selenium)
1/3 c.	sunflower seeds (cysteine)
1/3 c.	pumpkin seeds (zinc, magnesium)
2 c.	packed fresh coriander (cilantro, Chinese parsley) (vitamin A)
2/3 cup	flaxseed oil
4 T.	lemon juice (vitamin C)
2 tsp.	dulse powder liquid aminos (Bragg's)

Process the coriander and flaxseed oil in a blender until the coriander is chopped. Add the garlic, nuts and seeds, dulse and lemon juice and mix until the mixture is finely blended into a paste. Add a squirt of Bragg's to taste and blend again. Store in dark glass jars if possible. It freezes well, so you can purchase coriander in season and fill enough jars to last through the year.

Coriander has been proven to chelate toxic metals from our bodies in a relatively short period of time. Combined with the benefits of the other ingredients, this recipe is reportedly a powerful tissue cleanser. Two teaspoons of this pesto daily for three weeks is purportedly enough to increase the urinary excretion of mercury, lead and aluminum, thus effectively removing these toxic metals from our bodies. You can consider doing this cleanse for three weeks at least once a year. It is delicious on toast, baked potatoes and pasta.

Politicians and school superintendents may finally get the message when they realize that if a child is sick from poisons or has lice the day they take the census they have lost approximately $6,500 for the year - if they will not protect the children, may be they will protect their assets!

May be farmers will get the message when they read that Cornell University entomologist, David Pimental and his colleagues calculated that $520 million in annual crop losses are caused by pesticide reduction of natural enemies just in the U. S. "Nature Wars" people vs. pests by Mark L. Winston noted insecticide use in Indonesian rice production in the early 1980's destroyed natural enemies of the brown plant hopper and the populations of this pest exploded. The Food and Agricultural Organization (FAO) estimated that $1.5 billion in rice production was lost in just two years. Fortunately, Indonesian President Suharto followed the advice of his specialists and ordered severe reduction in pesticide use, which allowed the natural enemies to increase and brought the pest levels back down below economically tolerable thresholds. When they stopped using "registered" pesticides they finally got pest control.

The solution? = Call 1-616-677-1261.

Note: When pesticide manufacturers are threatened with the loss of an insecticide/poison, they "work" with the USDA to find a solution acceptable to USDA. The May/June 2000 issue of Ag Retailer noted on page 6 that the EPA requires developmental neurotoxicity studies on Reldan insecticide/poison. Dow Agro Sciences had requested a minor-use exemption to waive these studies. Gustafson LLC, Plano, TX, who markets Reldon, is now working to find a compromise. It is too bad there simply is no precautionary principle involved in the "registration" of economic poisons.

Rotenone - The Washington Post noted on 11/6/00: The organic pesticide rotenone can produce an illness in rats that closely resembles Parkinson's disease in humans, and can selectively damage the specialized brain cells that die in that disorder. About 1 million Americans suffer from Parkinson's disease.

Asthma - The incidence rates for Asthma are rising, according to the U.S. Centers for Disease Control - the number of asthma cases in the United States has more than doubled in the past two decades from 6.8 million

in 1980 to more than 15 million today - resulting in 7.4% of all children ages 5-14 having diagnosed asthma. Since
"asthma" is not a normal condition, and since the incidence is rising, we must assume there are unexplained factors present which are increasing its incidence.

Our lungs inhale an enormous quantity of particles daily, yet are still able to function properly in most people. All of us inhale a wide variety of particles daily - from car exhaust particles to dust mites - to animal dander - to plastic synthetic carpet fibers - to synthetic pesticide poisons. It is amazing our lungs can even function. However, thanks to our lung's enormous power to cleanse itself via coughing - sneezing and mucous secretions - they can keep doing their job of taking oxygen out of the air and putting it into our blood. There is, however, an ally to the lungs which is much under appreciated. It is called an alveolar macrophage and is a microscopic immune system cell that waits in the wings of your lungs looking for intruders. When an intruder comes on site - macrophages extend long arms around the intruder preventing it from interfering with the alveoli's job and proceeds to digest it. However, researchers at the Department of Immunology, University of Arkansas (Agents & Actions, Volume 37:140-146, 1992) found that when test animals were exposed to chlordane pesticide vapors (found in high levels in many U.S. homes today, then the macrophages become paralyzed in their ability to destroy cancer cells for 24 hours.

Asthma has been found to occur immediately following chemical exposure. Called Occupational Asthma, this medical condition shows first hand what serious harm can occur to a person's delicate lung structure after working in a chemical environment.

THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD AND GUIDELINES TO CLASSIFICATION 2000-01

http://www.who.int/pcs/docs/Classification%20of%20Pesticides%202000-01.pdf
revised 6.7.2001

The WHO Recommended Classification of Pesticides by Hazard was approved by the 28th World Health Assembly in 1975 and has since gained wide acceptance. When it was published in the WHO Chronicle, 29, 397-401 (1975), an annex, which was not part of the Classification, illustrated its use by listing examples of classification of some pesticidal active ingredients and their formulations. Later suggestions were made by Member States and pesticide registration authorities that further guidance should be given on the classification of individual pesticides. Guidelines were first issued in 1978, and have since been revised and reissued at 2-yearly intervals.

The document is arranged as follows:

Part I: The Classification as recommended by the World Health Assembly. This part is not subject to periodic review and the classification table and text can only be changed by resolution of the World Health Assembly.

Part II: Guidelines to Classification. Individual products are classified in a series of tables, according to the oral or dermal toxicity of the technical product, and its physical state. The tables are subject to review periodically.

The toxicity values are intended to be a guide only. Formulations should be separately classified using the methods set out on pages 3 (single technical product) and 6 (mixtures) and the table in Part I. To assist in the classification of formulations, an annex is now provided giving numerical tables from which the classification may also be derived.

Comments on Part II of the document are welcome, together with proposals for new entries. These should be addressed to the International Programme on Chemical Safety, World Health Organization, 1211 Geneva 27, Switzerland, and should include supporting data on the compound being commented on or proposed.

This material was produced with the support of, and for use by, the European Commission.

A study by the U. S. Center for Public Integrity says that from 1988 to 1995, a total of 65 bills to tighten pesticide

regulations were introduced in Congress, but none were passed. The report was cited as saying that the pesticide industry, enlisting trade associations that also represent tobacco companies, breweries, farmers, supermarkets and others, had contributed $84.7 million to congressional campaigns since 1987. The center's executive director claims that repeatedly, Congress clearly has put the economic interests of the pesticide industry ahead of the safety of the American public. The report also said that between 1987 and 1998, congress introduced 151 tax breaks to save pesticide manufacturers money. *UPI, June 30, 1998.*

It has been reported by the Foundation for Advancements in Science and Education that the U. S. exports of pesticide chemicals totaled more than 1.2 billion pounds in 1995 and 1996. About 9.4 million pounds of pesticides never registered in the U. S. were also exported during those years. The report said that the U. S. exported at least 28 million pounds of pesticides classified as "extremely hazardous" by WHO. *Pesticide and Toxic Chemical News, June 4, 1998.*

The April 1999 issue of Farm Chemicals, pg. 45 noted: "In January 1998, 180 environmental groups and 8 state attorneys general petitioned EPA for full disclosure of "inert" ingredients on pesticide product (poison) labels. In response, 6 ag associations responded in opposition to both petitions. The matter is still under review by EPA." ("What they don't know won't hurt them.")

Pest Control Technology, January 2000 noted that: According to the Rural Advancement Foundation International (RAFI), five companies account for 60 percent of the global pesticide market. Three of the five companies - AstraZeneca, DuPont, Monsanto, Novartis and Aventis - did not even exist five years ago. Since then, Zeneca and Astra merged to form AstraZeneca; Rhone-Poulnc and Hoest became Aventis; and Ciba Geigy and Sandoz became Novartis.

The top 10 "AgChem Companies" by 1998 pesticide sales in U. S. millions:

Aventis	$4,676
Novartis	$4,152
Monsanto	$4,032
DuPont	$3,156
AstraZeneca	$2,897
Bayer	$2,273
American Home Products	$2,194
Dow	$2,132
BASF	$1,945
Makhteshim-Agan	$ 801

Source: Rural Advancement Foundation International

When the Author was in the pesticide application business, he noted he usually got about a year of "control" with every new synthetic pesticide; then he had to move on to the next toxin.

Political Attention Deficit Disorder - Bush Affliction - According to a report not yet released, the Council on Science and Public Health of the American Medical Association has recommended that a chronic and widespread affliction of Americans be officially declared a psychiatric disorder. It has been named the Political Attention Deficit Disorder (PADD). It is recommended that the disorder be included in a widely used mental illness manual created and published by the American Psychiatric Association. The current manual was published in 1994; the next edition is to be completed in 2012. The benefit to people of an official classification is coverage by health insurance. "The symptoms of PADD are all around us and treating it professionally can do more for our country than any election," said Dr. Mable Wank in the report's introduction; she is chairwoman of the Council and a professor at UCLA.

Here are the Council's main findings on PADD:

Nearly 80 percent of adult American citizens are unable to pay sustained attention to issues and problems associated with their government. They are unable to accept their responsibility as citizens, including their obligation to vote, read in-depth articles and books on political issues, become active members of politically oriented groups, and initiate discussions on current events with friends and family. "The decades-old decline in voter turnout is a direct result of a national epidemic of PADD," said the report.

http://scoop.epluribusmedia.org/story/2007/6/25/155410/695

Simple Detox Formula - Jan Morales, D. O. has found a simple way to detox without sitting in a sauna for hours: Put one tablespoon of (cold pressed) sunflower oil under your tongue for 20 minutes. Swish the oil around while holding it in your mouth. Spit the oil out after 20 minutes into the toilet. Brush your teeth with half baking soda, half salt to get the oil out. Do this on an empty stomach. The procedure can be done 1 - 3 times per day. Quite often this simple procedure will remove intense headaches - virtually immediately.

"In a time of universal deceit, telling the truth is a revolutionary act." — 1984, George Orwell

"A time has come when silence is betrayal. That time is now." — Martin Luther King, Jr.

Pesticide, suicide or homicide, they all kill. — S.L.T.

Note: Life threatening bacteria, e.g., *Shigella, Salmonella, Listeria* and *Escherichia coli* that cause food poisoning, thrive on about 1/3 of the pesticides that Canadian researchers tested. The bacteria grew fastest on chlorothalonil, linuron, permethrin and chlorpyrifos. *(New Scientist,* Oct. 7, 2000, No. 2259, pg. 20, by A. Coghlan, "Food Poisoning Bugs Thrive in Crop Sprays")

Obesity Note: The June, 2003 issue of Organics and Natural Living had an article entitled: "Chemicals make you fat - the medical evidence." What is the cause of obesity? The article notes that: "Dr. (Paula) Baille-Hamilton's book entitled, 'The Detox Diet' links the current fat epidemic to the toxic synthetic chemicals used in agriculture, skin care, cosmetics and household products. Toxic synthetic chemicals are highly fat soluble and when we are exposed to them the body creates fat to safely store those toxins it cannot process and eliminate safely. Carbamates, a group of insecticides and herbicides used the growing of food, cosmetic and medicinal ingredients, are also used as growth promoters in battery-farm situations because they slow down the metabolic rate. So, the same synthetic chemicals used in our fruit and vegetables are used to fatten livestock! Carbamates are also used in medicine to promote weight gain in humans."

People are not overweight simply through their own lack of effort, such as exercise. The truth is that the finger of blame must also be pointed at toxic chemicals. It is known that toxic chemicals, even when present in very small amounts, directly damage muscles and disrupt the hormones that control their growth."

Pesticide Poison Note: PANUPS estimated in November 2000 that: "Each year approximately three million people are poisoned and 200,000 die from pesticide use." The Author would like to note that probably only 1 in 50 cases of pesticide poisoning are reported as such.

Common Sense Note: The wise man foresees the trouble ahead and steps out of harm's way, while the fool blunders on into punishment." — Solomon 2300 B.C.E.

Demand the Government Act: FIFRA as amended in 1964 required the USDA Secretary to refuse registration of pesticides that were unsafe or ineffective and to remove them from the market. The Author finds it amazing that over 40 years later any pesticides are **still** "registered" and/or on the market today as these terrible toxins are neither "safe" nor are they "effective".

Final Note: Steve Tvedten has developed a detox formula that helps to detoxify people and also helps control internal parasites; it is called Not Nice to Toxins®. Also see "Do You Want to Be Healthy" and/or "How to Beat Cancer" at http://www.safesolutionsinc.com

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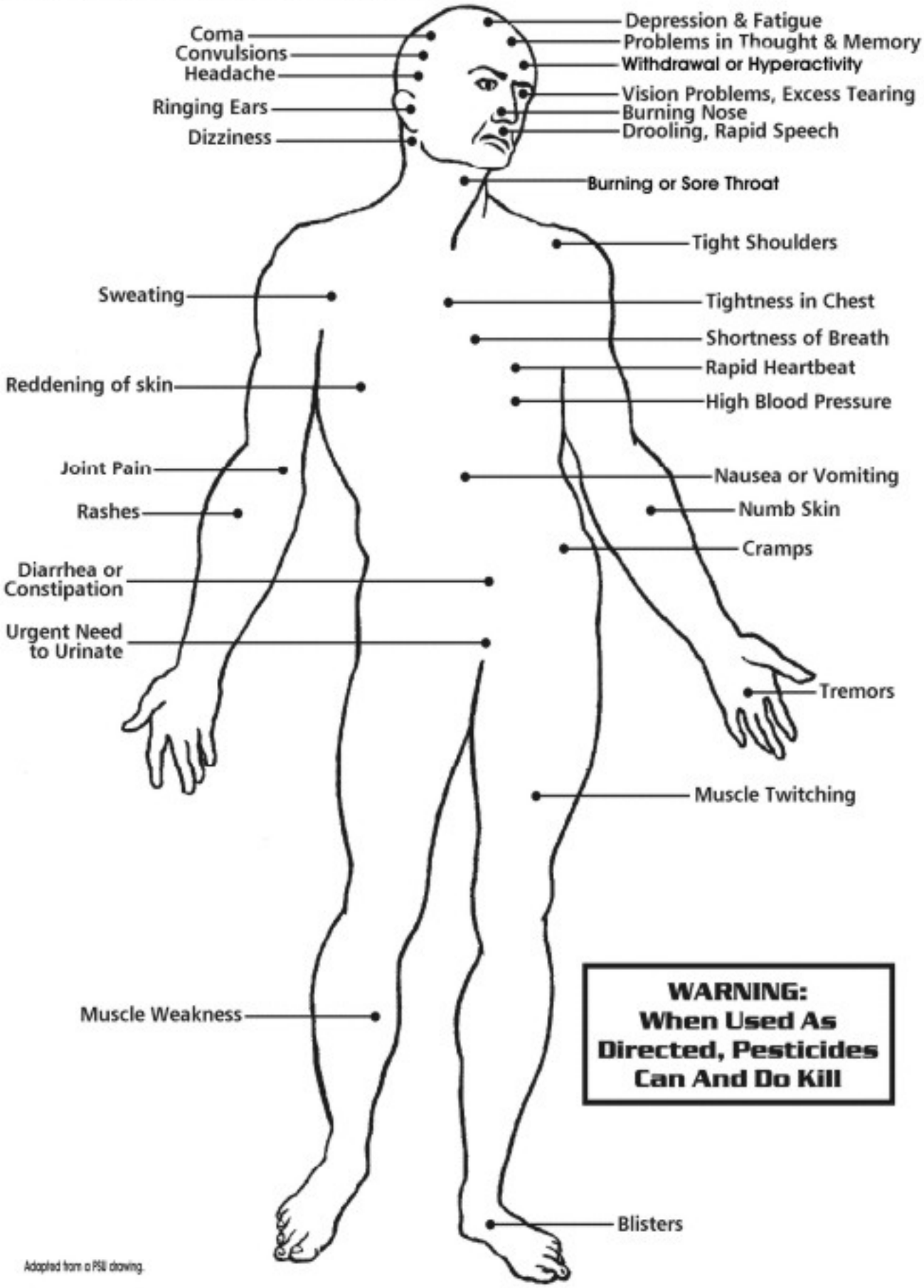
In the May 2007 issue of Pest Control Technology, pg. 16, Bob Rosenberg, Vice President, National Pest Management Association, told the Greater Cleveland Pest Control Association in April 2007 at its Spring banquet the industry could face challenges with the new Democrat controlled Congress which is pressuring President George Bush's Administration on a whole range of issues, including the environment. Rosenberg noted that Barbara Boxer (D-California), the new chair of the Senate Environment and Public Works Committee, has tried to attach "non-industry friendly" school pest control legislation as amendments to existing bills. "Having Democrats in charge of the House is a very dangerous thing for us; the people who control the floor don't like us." Rosenberg said, "Who's going to vote no for protecting children from pesticides?"

Symptoms of Pesticide Poisoning:



Adapted from a PSII drawing.