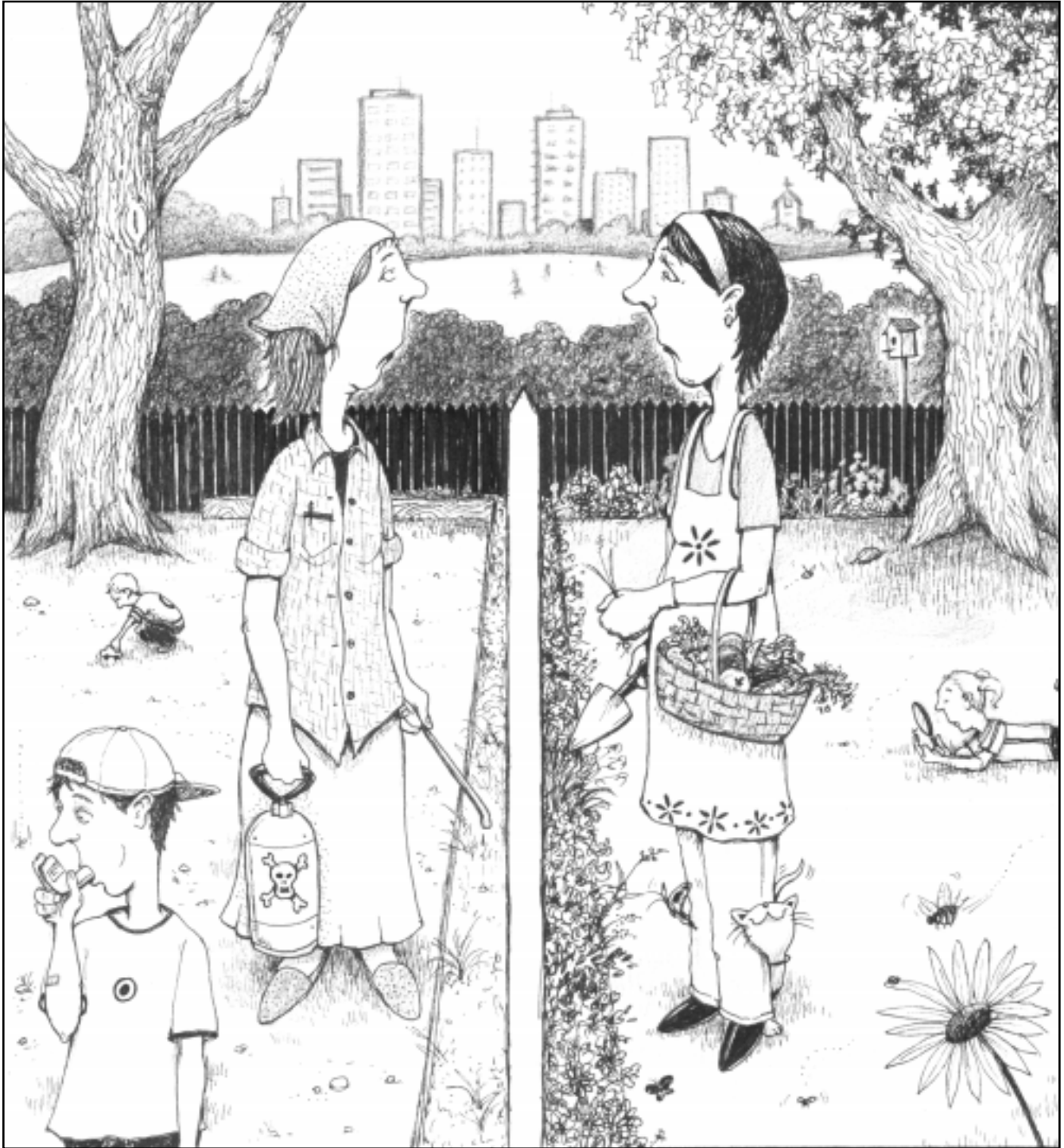


Pesticides and You

News from Beyond Pesticides / National Coalition Against the Misuse of Pesticides (NCAMP)



**Congress Wants to Weaken Children's Provision of
Pesticide Law • Lawn Mowers and Leaf Piles • Wood Preservatives
Cause Illnesses • The Schooling of State Pesticides Laws — 2000**

Putting a Human Face on the Pesticide Threat

One of the most difficult and perhaps most important challenges we face in forcing better regulation of pesticides is capturing the adverse human health effects associated with pesticide use. It is difficult for a variety of reasons, starting with inadequate medical diagnosis of poisoning incidents and ending with no effective monitoring of incidents that are diagnosed or suspected. Our failure to associate major illness trends, such as increasing childhood asthma or childhood leukemia, with widespread use of pesticides leaves our children and families increasingly threatened. Once a pesticide is released into the air, water or land, there is no question that it is difficult to show, beyond a shadow of a doubt, that it is a contributor to national trends in illness. So, even if a pesticide is known to be a hazardous material with widespread exposure to the public, the lack of information on individual human effects or incidents allows it to escape adequate regulation.

If you look back at many of the major actions banning pesticides, you will see documented human or wildlife impacts behind the decision. Eggshell thinning doomed DDT, worker sterility forced the fungicide DBCP off the market, and miscarriages stopped the herbicide 2,4,5-T. When EPA staff identify hazardous pesticides like the wood preservatives, without reported adverse effects the agency can delay for years. Who says we do not experiment with pesticides on humans?

In this issue of *Pesticides and You*, we begin to take on the challenge of expanding our documentation of adverse effects associated with wood preservatives. There is no disputing that wood preservatives are among the most toxic substances known to humankind. They have created a trail of contamination. Consider the fact that, together or independently, wood preservatives, including pentachlorophenol, creosote, arsenic, copper and chromium, fill a majority of our nation's most hazardous Superfund toxic waste sites. Yet, we continue to put chemical-soaked wood products in the ground around our homes, allow them to dot our communities in utility poles, use in sensitive habitat and waterways for building, allow them to be recycled for use in gardens and as wood for decks, and then dispose of them in municipal landfills. For the third year in a row, EPA has just notified us that its review of wood preservatives will take another year, which means that the original completion date of 1998 is now 2001, maybe later.

Meanwhile, people continue to get sick. It comes as no surprise that illness will show up first in those who are in closest contact with treated wood, or who live near wood preserving facilities. We are receiving information on second generational effects, learning disabilities and birth defects. We are told of unregulated and uncontrolled uses of treated wood. One situation described in this issue is of a family that bought a home with a deck made out of the crossarms of old utility poles that had been milled. The children got sick and the family is left with an estimated \$80,000 in clean up costs to remove and properly dispose of the deck. EPA, with the data it has, should

stop these exposures, and put an end to many of these unnecessary chemical uses, allowing the alternative materials and naturally resistant woods to take their place.

It should not go unnoticed that EPA today is still struggling with pesticide mistakes of the past. It is trying to "cap" 17 square miles of ocean floor contaminated with DDT off the coast of Los Angeles, 100 feet below the surface. Wood preservatives, such as pentachlorophenol, an organochlorine like DDT, will some day join the list of banned materials. But, when? And, how will we answer our children when they ask, why did we allow the contamination of so much land and the poisoning of so many people for so long after we had identified the harm and found safer, economical alternatives.

School Action Shows Potential for Change

The wave of activity on schools continues across the country. At this writing, California's Governor has pledged to sign *The Healthy Schools Act of 2000*, AB 2260, which will, like other states, provide for posting and notification of pesticide use and seek to implement a pest management strategy not reliant on hazardous pesticides. The trend in local action to protect children is incredibly important. While we recognize that political realities differ from state to state, we will continue to push for universal notification rather than notification for only those who get themselves on a registry. The universal notification provision, contained in Maryland and Arizona law, treats all pesticide exposure in the school as a potential public health threat that requires comprehensive right-to-know in advance of pesticide use.

Putting Alternatives into Action

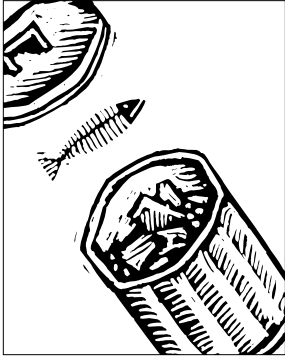
As we face the challenges of continued public exposure to pesticides, particularly involuntary exposure, we can all play our part in doing without pesticides. One important place to begin is in our garden. This issue contains a colorful piece by our newest staff member, Becky Crouse, public education associate, on Fall lawn care. If you thought you were going to get some rest from the garden, not just yet. Fall is the most important time to work on your lawn, thereby avoiding problems that are harder to correct in the Spring.

Best wishes.

— Jay Feldman is
executive director of
Beyond Pesticides/NCAMP



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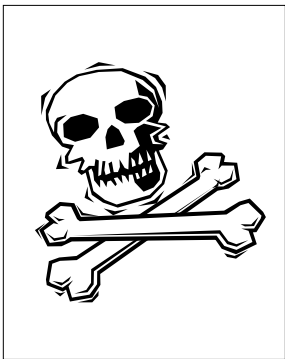
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Limonene Really Less Toxic?

Dear Beyond Pesticides/NCAMP, I just received a copy of your newsletter and, to be honest, one thing has me extremely puzzled — your recommendation to use limonene for fleas, etc... The EPA a while ago put out a report on the top 20 chemicals in fragrance products, and here's what it says about limonene:

LIMONENE (in: perfume, cologne, disinfectant spray, bar soap, shaving cream, deodorants, nail color and remover, fabric softener, dishwashing liquid, air fresheners, after shave, bleach, paint and varnish remover) Carcinogenic. "Prevent its contact with skin or eyes because it is an irritant and a sensitizer." "Always wash thoroughly after using this material and before eating, drinking...applying cosmetics. Do not inhale limonene vapor."

Based on this information, why are you advocating its use, especially since fleas tend to reside in the home where people attempt to eradicate them? All of the other alternatives are so much safer and this was so dangerous that it stuck out like a sore thumb.

Keep up the GREAT work.

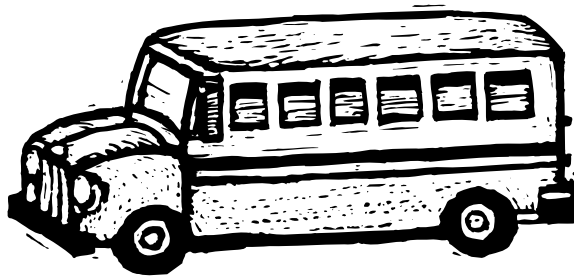


Angel Cohen
Las Vegas, Nevada

Dear Angel,

Limonene is a naturally occurring chemical used in many food products, perfumes and soaps for its citrus-like flavor and odor. It is also a registered active ingredient in pesticides products, and classified as a List 4B inert according to the U.S. Environmental Protection Agency

website's List of Other (Inert) Pesticide Ingredients ("inerts which have sufficient data to substantiate they can be used safely in pesticide products"). At the present time, the EPA R.E.D. Facts (September, 1994), states that, "A subchronic



study by the National Toxicology Program (NTP) using rats and mice resulted in decreased body weights, kidney disease and mortality at the highest dose tested. A chronic toxicity study done by NTP using rats resulted in decreased body weight, kidney disease and kidney tumors, which occurred due to a species-specific mechanism. Limonene is not considered a human carcinogen, a developmental toxicant, or mutagenic." Limonene is also listed as a volatile organic compound (VOC) by the EPA, which can be associated with irritation, odors and other health and comfort concerns. Those with existing sensitivities should be extremely careful when using a product containing limonene, or consider using another alternative. Even least- or less-toxic pesticides should be used with extreme caution, as they are still made to kill a living organism. All warnings on the label should be taken seriously, and all precautionary measures should be followed. Thank you for your heads-up on the hazards of limonene and your support of our work.

Pesticides in Schools, A Frustrating Battle

Dear Beyond Pesticides/NCAMP, As a physician (pediatric anesthesiologist) and the mother of a cancer survivor, I have always been acutely aware of the threat to our environment and health from the use and misuse of toxic substances, including pesticides and herbi-

cides. For a number of years, I have been a member of Beyond Pesticides/NCAMP (formerly NCAMP) and have always appreciated *Pesticides and You*, the *Technical Report*, and the information and literature I have requested and received from your organization.

Four years ago, I began a two-year-long advocacy attempt for use of Integrated Pest Management in my children's private school, but was consistently met with angry resistance. (Perceived aesthetics took precedence.) Finally, due to personal time constraints and lack of assistance, I gave up. Mothers gave me verbal support from behind the scenes, but would not join in my mission for fear of antagonizing the school administration and the social cliques. Later, the school did claim that it initiated a less toxic, but certainly not an IPM, program. I do not really know for certain. Further pursuit would necessitate a huge time commitment and would result in ostracism of my children.

At home, we have never had ChemLawn type services. We just maximize flowerbeds and let the crabgrass and weeds live in the grass. They are all green and look the same from a distance. My husband has always had an organic garden and orchard. So, it especially disappoints us to have our children in a toxic school, playground, and sports field environment. Maybe, someday...

I thank you, your staff, and your volunteers for your informed, conscientious, and tireless efforts for humanity and our planet. In the future, I hope I can be of valued assistance to your mission.

Elizabeth C. Jantzen, M.D.
Phoenixville, PA

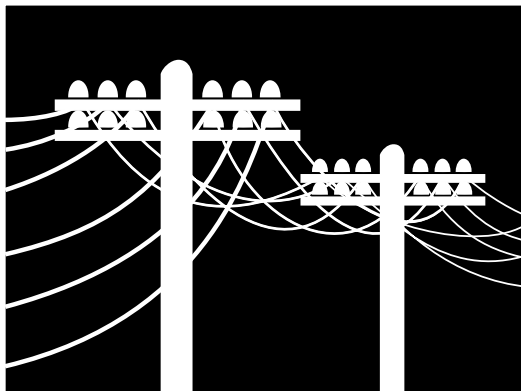
Dear Dr. Jantzen,

We know how frustrating it is to encounter resistance in the fight to reduce or halt pesticide use, especially in our schools. Every parent wants his or her children to have the best possible education in the best possible learning environment. Unfortunately, many people do not understand that the learning environment extends be-

yond the quality of school supplies, class size and location of the school building. In addition to childhood cancer, pesticides are increasingly being linked to learning disabilities, behavior problems and asthma. Safety at school now extends far beyond hall monitors, metal detectors and crossing guards; it includes the pest management practices of the school districts both inside and outside of the schools. In Pennsylvania public schools, pesticide applications are prohibited in "common access areas" during normal school hours or extracurricular activities, and there is a required 7-hour restricted entry after a pesticide application. Pennsylvania also has a registry for chemically sensitive individuals, for indoor and outdoor pesticide applications and for those within 500 feet of school property, with a 12 to 72 hour warning. Beyond Pesticides/NCAMP's toolkit, *Children, Pesticides and Schools: Adopting School IPM*, for teachers, administrators and concerned parents explains the hazards of pesticide use and how to implement an IPM program in your school. We also have several factsheets about children and pesticides that can serve as a great attention getter for those who aren't aware of the potential damage of pesticide exposure to children. Thank you for your letter of appreciation and support. Please let us know if you would like us to write a letter to your children's school. Good luck to you!

Poison Poles Kill Dogs

Dear Beyond Pesticides/NCAMP,
I am researching for a legal case my family is filing against our local power utility company after some of our show golden retrievers ingested copper naphthenate soaked drapes that had been wrapped around power poles in our yard. Three of our dogs were affected and one died. I am seeking as much information as possible on copper naphthenate — and it seems you may be the people to call upon. Your attention would be most appreciated.
Richard Perry
Australia



Dear Mr. Perry,
Chemical wood preservatives pose a tremendous threat to public health and the environment. The copper naphthenate soaked drapes were wrapped around the utility poles in your yard in order to re-treat the wood poles. Such external treatments are usually applied using formulations of copper naphthenate, which provide good surface protection, but does not migrate very deeply into the pole. Copper naphthenate is one of the many wood preservative chemicals that are complex combinations of chemicals, whose precise identity is generally unknown. Copper naphthenate is a copper salt of naphthenic acid. Naphthenic acid is a complex natural mixture of fatty acids found in petroleum. It is a byproduct of petroleum refining and has a variable composition. A typical copper naphthenate product would be about 19% copper naphthenate and 81% secret ingredients. The copper naphthenate may be contaminated up to 25% with hydrocarbons, such as benzene from the petroleum source. The toxicology of copper naphthenate has not been well-documented. The U.S. Environmental Protection Agency (EPA) reports that little of the required data has been submitted — very little acute toxicity data, no chronic toxicity data, and no inhalation data. Similarly, the Canadian Centre for Occupational Health and Safety has no information for most health effects of copper naphthenate. Inhalation of copper salts in dusts can lead to congestion of nasal membranes, congestions of the upper digestive, and perforation of the nasal septum. Very high concentrations can cause severe

symptoms of irritation. Chronic exposure to copper salts may result in anemia. Exposure to naphthenic acid increases the permeability of membranes, which could increase uptake of other toxic substances. Studies show that chronic exposure to copper salts has produced lung and liver damage, which sometimes progressed to cancer. Also, tests submitted to the EPA found copper naphthenate induces DNA damage. The hazards associated with such wood preservative chemicals and the use, storage and

disposal of the preservative-treated products is unnecessary, given that alternative materials to treated wood are available for many uses. Utility companies play a central role in either continuing or stopping the poisoning and contamination of the environment, their communities, and, ultimately, their customers. Utility companies in the U.S. and worldwide can and should take a new path and use safer alternatives to chemically treated wood, such as recycled steel, composite, or cement. For more information about wood preservatives used to treat utility poles, contact Beyond Pesticides/NCAMP for a copy of *Poison Poles*, \$22ppd or *Pole Pollution*, \$7ppd, or visit our website at www.beyondpesticides.org.

Write Us!

Whether you love us, hate us or just want to speak your mind, we want to hear from you. All mail must have a day time phone and verifiable address. Space is limited so some mail may not be printed. Mail that is printed will be edited for length and clarity. Please address your mail to:

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National Academy of Sciences Urges Biotechnology in Developing Countries

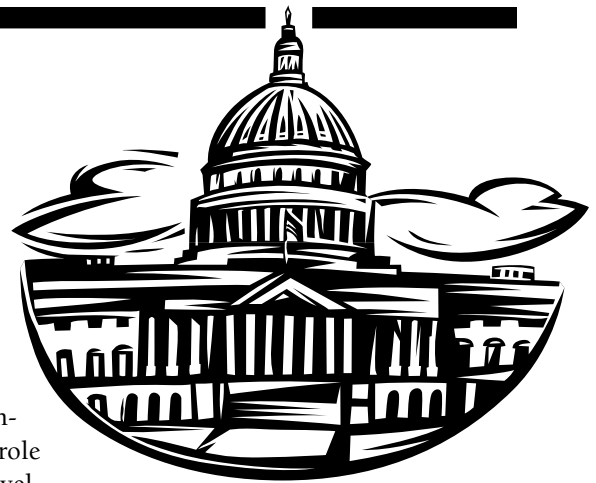
Over 30 years after the Green Revolution's assault on indigenous agriculture, U.S. scientists are back at it again. This time they're pushing potentially profitable genetically modified crops, once again with claims of feeding the world. Despite the growing opposition to genetically modified food in the U.S., the National Academy of Sciences (NAS), along with six foreign academies, have urged the increased development and use of genetically modified crops to solve hunger and poverty problems in developing nations. The Academies of Sciences in Brazil, China, India and Mexico, the Royal Society in London and the Third World Academy of Sciences backed the NAS proposal which was released July 11, 2000. The supporters of biotechnology argue that it is an important tool for farmers in developing nations, but opponents cite food allergies, increased pesticide use, genetic pollution and loss of indigenous knowledge as reasons to halt this agricultural takeover. Dr. Bruce Alberts, President of the National Academy of Sciences, told the *New York Times* that he believed the backlash against genetically modified foods in developed nations was threatening their use elsewhere. "It's easy for the United Kingdom and the United States to say we don't need more food, but this is the voice of the developing world that has faced a great deal of starvation in the past." Opponents believe these claims, reminiscent of the failed Green Revolution strategy, are an attempt to drum up domestic support for a threatened industry.

Environmentalists find it difficult to believe that the industry that developed terminator seeds, a technology that renders second generation seeds sterile, and Round-Up™ (resistant crops, genetically modified plants specifically designed to be doused with large quantities of herbi-

cides, could be concerned with the health of the developing world. According to Genetically Engineered Food Alert, a national biotechnology umbrella group, 71% of all genetically modified crops are engineered to be herbicide resistant, and 22% are modified to contain pesticides within their cells. Even scientists involved with biotechnology have begun questioning its role in agriculture. Ingo Potrykus, the developer of an altered rice strain, believes that while biotechnology could be harnessed for the good of humankind, he questions whether humanity will have the "collective will" to do so.

U.S. Rejects Pesticide Testing on Humans, Loophole Remains

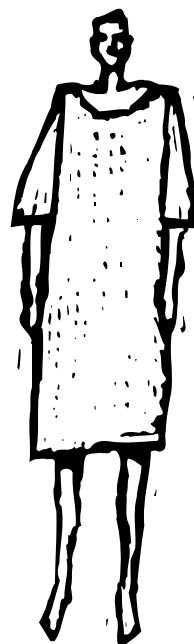
Should humans be used as guinea pigs when chemical manufacturers test the safety of pesticides? This is the question that the Environmental Protection Agency (EPA) was trying to answer when it created a scientific advisory committee to look into the issue. After mulling it over for two years, the panel shocked environmentalists and human rights activists when it said yes, humans should be used under certain circumstances. Specifically, the draft report released by the panel supported limited human testing in experiments intended to study how the human body processes pesticides. Despite the recommendations of the scientific advisory panel, top EPA officials restored some level of hope when they announced on June 7, 2000, that they would go against the recommendation and adopt an official policy of ignoring human pesticide studies in establishing legal limits for



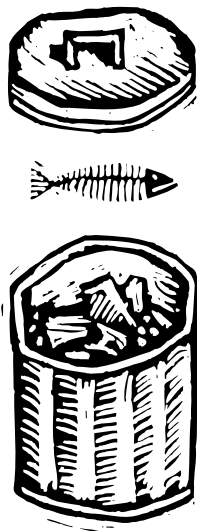
pesticides exposure. EPA insists that the decision overrides the advisory panel's recommendations. "There is nothing in this report that will change our policy," Steven Galston, director of science and policy in EPA's Office of Pesticide Programs, explained to the *Washington Post*.

Since the 1960's, pesticide companies have quietly submitted data from human studies to EPA, to replace regulations based on animal data, which many manufacturers claim to be too strict. Past studies have involved volunteers in prison, and in some cases even pregnant women in hospitals. Most experiments conducted in recent years have involved paying students and other people in need of money a few hundred dollars to be test subjects in the experiments, if they are willing to waive their right to sue.

Given the nature of these studies, EPA's recent public rejection of human testing may appear promising. However, the issue is not as straightforward as it may seem. It's true that EPA will not use data from human experiments to determine the specific "no observable effect level" (NOEL), which is the level EPA uses to set the reference dose, but EPA does accept human data on a case by case basis to determine the final safety factor applied to



the NOEL in setting the reference dose. For example, earlier this year, EPA cited data from a human study to justify lowering the children's safety factor mandated by the *Food Quality Protection Act* (FQPA) from 10-fold to 3-fold for the organophosphate insecticide ethion. *Take Action: Write to Carol Browner, Administrator, EPA, 401 M Street, SW, Washington, DC 20460 and let her know how you feel about chemical companies testing pesticides on humans. Urge the EPA to reject human experimental data under all circumstances, since it will only stop when the EPA refuses to consider such data.*



Another pesticide under investigation is the insecticide Tempo, manufactured by Bayer Corporation. Tempo, which is sold as a powder containing the synthetic pyrethroid cyfluthrin, is supposed to be diluted in water and sprayed only by licensed pest control operators. However, when Tempo is purchased on the street without proper instructions or instructions listed only in English, it is often spread on floors and other surfaces as a powder, exposing children

to up to 400 times the dose acceptable to EPA. Several formulations of methyl parathion, an organophosphate insecticide used primarily in the U.S. to control boll weevils on cotton crops, have also been found in people's homes and closets. (See the August – September, 2000 issue of *Technical Report*.) EPA plans to run a large-scale public education campaign to warn the residents of targeted communities about the dangers of pesticides.

EPA Asks Pesticide Manufacturers to Voluntarily Improve Safety Instructions on Pesticide Labels

While all pesticides have the potential to harm human health, recent data compiled by the American Association of Poison Control Centers indicates that 90% of all reported accidental pesticide exposures are from residential applications, with half of those involving indoor in-

secticides. In response to the center's statistics, EPA has asked pesticide manufacturers to make changes to the label instructions of indoor residential insecticides, with more specific use restrictions. Although the changes are voluntary, EPA requests that changes are made to the labels of all qualifying indoor insecticides that are released for shipment by the registrants after October 1, 2001. The agency believes that the label changes will improve its ability to estimate pesticide exposures as required by the *Food Quality Protection Act* (FQPA). The label changes do not apply to residential insecticides formulated as

baits, resin strips, impregnated tapes or other similar products.

Suggested label changes include statements regarding: when occupants should leave a treated area and when they can return, removal of children's personal items before spray applications, removal of exposed food and eating utensils, the removal of statements that instruct



users to "repeat as necessary," and placing the statement "READ ENTIRE LABEL BEFORE EACH USE" in bold capital letters on all indoor residential insecticides. The agency also discourages the use of concentrated insecticide products that must be diluted by the user, which increases the risk of accidental exposure. Although environmentalists have been asking EPA to improve pesticide labels for years, they are critical of the voluntary nature of this action. Moreover, there is a concern that EPA has found through its research that the majority of people do not read product labels, which is significant in the case of toxic chemical use. Overall redesign would better address this underlying problem, such as using a large stop graphic, a skull and crossbones or another symbol that would attract the user's attention.

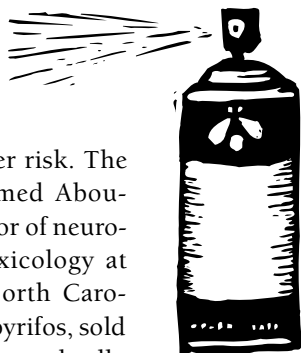
EPA Investigates Illegal Pesticide Sales to Poor Communities

"Tres Pasitos - three little steps, that's all your mouse will be able to take," explains a man peddling the illegally imported pesticide Tres Pasitos to a group of low-income residents in New York City. Highly toxic pesticides like Tres Pasitos, which contains the active ingredient aldicarb, are being sold illegally as a quick fix for roaches, rats and other urban pest problems in low-income communities. EPA is currently investigating these illegal pesticide sales, primarily in New York and New Jersey. Many of the pesticides under investigation are manufactured legally, but registered for use in agriculture or by licensed pest control operators. Because professional extermination can be expensive and least toxic remedies are not readily available, these cheap and highly potent pesticides are often sold to and applied directly by residents in low-income neighborhoods. When used incorrectly, these chemicals can be deadly.



Research Shows Dangers of Pesticide Combinations

Imagine the following scenario: Your neighbor has just begun an afternoon of yard work. She's wearing a layer of Deep Woods OFF (to protect herself from mosquitoes and has just applied a coating of Dursban™ (to the grass to take care of any potentially threatening lawn pests. Before continuing with the day's work, she decides to get rid of the trail of ants on her back porch with some Raid™ Ant and Roach Killer. While you may already know the dangers of these pesticides individually, new research shows that using the active ingredients of these chemicals together puts her at even greater risk. The study led by Mohammed Abou-Dania, Ph.D., a professor of neurobiology and neuro-toxicology at Duke University in North Carolina, reveals that chlorpyrifos, sold as Dursban, is even more deadly when used in combination with the pesticides permethrin and DEET, found in the ant killer and insect repellent, respectively. In his study, Dr. Abou-Dania first established the level at which chlorpyrifos has no effect on the nervous system of the lab animals. Then



individually, these chemicals produce no neurological problems at the established thresholds. However, when combined, they produce a toxic effect equivalent to the lethal dose of chlorpyrifos.

According to Dr. Goran Jamal, a neurologist at the Imperial College of Medicine in London, there are three reasons these chemicals are far more dangerous when used in combination than when used individually. First, the stress endured by animals when exposed to a combination of chemicals undermines the brain's protective layer, allowing 100 times more toxics to reach the brain. Second, tissue that has been exposed to a foreign chemical becomes more sensitive and receptive to other toxic substances. Third, certain chemicals bind to the enzymes that detoxify the body, making the enzymes unavailable to protect the body from other intruding chemicals. Dr. Jamal makes the following comparison, "It's like releasing 200 criminals in London and taking away the police officers that are usually on duty. There is bound to be some damage."

the level was determined for permethrin and DEET. When applied indi-

20/20 News Reporter John Stossel Admits His Anti-Organic News Story Was a Fraud

On February 4, 2000, ABC News correspondent John Stossel shocked viewers when he reported that organic food is not healthier than conventional produce, and may actually be dangerous. Mr. Stossel even went as far as saying that organic food could kill you. Citing research he said was commissioned by ABC News, Mr. Stossel told the viewers that organic food was more likely than conventional food to be contaminated with E. coli bacteria and that conventional produce had



no more pesticide residue than organic produce. "Our tests, surprisingly, found no pesticide residue on the conventional samples or the organic," he said in his news report. Perhaps this was a little too surprising for environmentalists, who know that pesticide residues often persist long after harvesting. After the report aired on 20/20, the Environmental Working Group (EWG) launched an investigation. Upon contacting the two researchers that were identified as having conducted the tests, EWG said Dr. Michael Doyle, a scientist with the University of Georgia, and Dr. Lester Crawford, director of Georgetown University's Center for Food and Nutrition Policy, both confirmed that they have never tested produce for pesticide residue for ABC. However, Dr. Crawford reported that he did test chicken for pesticide residues, and found pesticide residues only on the conventional meat. Mr. Stossel did not mention this finding in his report.

Despite repeated efforts by environmentalists to keep the story off the air, ABC rebroadcast the segment on July 7. At the end of the July re-airing, Mr. Stossel chided ABC correspondent

Cynthia McFadden, who anchored that night's 20/20 show, for buying organic produce to avoid pesticide residues. He once again angered environmentalists when he told Ms. McFadden, "It's logical to worry about pesticide residues, but in our tests we found none on either organic or regular produce." EWG president Ken Cook stated, "The chain of events makes it clear that Stossel knew there were no ABC News tests of produce for pesticides, but made up test results to sharpen his at-



tack on the safety of organic food. Any respectable newspaper would fire a reporter for fabricating material on which a news product was based, and couple that action with a front-page apology." Mr. Stossel did apologize for the false lab results to the 20/20 audience on August 11, 2000, however he did not retract his statement claiming organic food could kill you. Most environmentalists did not think this was enough and are still calling for his resignation. *For more information on the safety of organic food versus conventionally produced food, contact Beyond Pesticides/NCAMP. Take action: Send a letter to David Westin, President, ABC News, 47 West 66th Street, New York, New York, 10023, asking for Mr. Stossel's resignation. For a copy of the Environmental Working Group investigation, visit the EWG website at www.ewg.org/pub/home/reports/givemeafake/home.html or call Beyond Pesticides/NCAMP for a copy of our letter to ABC.*

Residential Pesticide Exposure Linked to Parkinson's Disease

New research conducted by Lorene Nelson, Ph.D., a neuroepidemiologist at the Stanford University School of Medicine, adds Parkinson's disease to the long list of problems, disorders and illnesses that have been linked to pesticide expo-

sure. Her study of almost 500 people recently diagnosed with Parkinson's disease is the largest study ever of its kind, and is the first to examine the connection between home pesticide use and Parkinson's disease. Dr.

Nelson and her colleagues compared the lifetime histories of Parkinson's patients with randomly selected control subjects. The results show that people exposed to in-home insecticides are 70 percent more likely to develop the disease than those

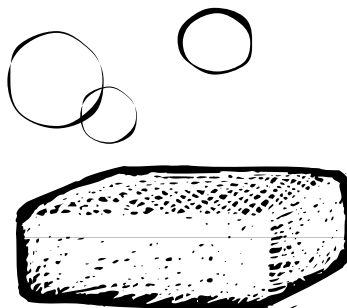
who have not been exposed. Exposure to garden insecticides carries a 50 percent increased risk of disease. Among herbicide users, risk of developing Parkinson's disease increases as the number of days that people are in contact with herbicides accumulates. Respondents who report handling or applying these products for up to 30 days are 40 percent more likely to develop the disease, whereas respondents that report higher levels of exposure, an average of 160 days, have a 70 percent increased risk of developing Parkinson's disease. Exposure to fungicides, while linked to other health problems, is not found to be a risk factor for Parkinson's disease in this study.

According to Dr. Nelson, damage to nerve cells in a part of the brain that produces the neurotransmitter dopamine leads to the balance and movement difficulties characteristic of Parkinson's disease. Therefore, people exposed to pesticides and other chemicals that have a particular affinity for this region of the brain are at greater risk for developing the disease. Parkinson's disease occurs most commonly in people over 60 years of age. The Parkinson's Institute reports that the disease affects more than one

million people in the United States alone. Although the findings of this study were released on May 5, 2000 at the American Academy of Neurology's 52nd Annual Meeting in San Diego, the full report will not be released until early 2001.

Doctors Encourage Consumers to Stop Using Antibacterial Soaps and Cleansers

Antibacterial cleansers are everywhere, from soaps and hand lotions to floor polishes and dishwasher detergent. You've got to rummage around the shelves at the grocery store just to find a bar of soap that isn't anti-bacterial. While these products claim to rid our lives of germs, cleaning with antibacterial cleansers can actually compromise our health. In July at the International Conference on Emerging Infectious Diseases, Dr. Stuart Levy, a microbiologist and physician at the Tufts University School of Medicine, insists that we eliminate the widespread use of antibacterial products. Dr. Levy explains that bacteria are a natural and needed part of human life. Dousing our living environments with antibacterial soaps can upset the balance of microorganisms, leaving behind only the strongest, most developed strains of bacteria. "By encouraging the unnatural selection of bacteria that have grown immune



to most, if not all, of today's antibiotics, we unwittingly endanger global health," Dr. Levy reports. According to findings presented at the conference, there are at least five organisms with strains that are already resistant to all antibiotics, including vancomycin, which in the past was considered a last line of defense.

Dr. Levy explains that we do not need to live in sterilized homes, and that a reasonable level of germs actually strengthens the immune system. In fact, an infant's immune system cannot develop properly when raised in an environment sterilized with antibacterial cleansers, he says. During the first year of life, if the immune system is not properly stimulated, the cells that make antibodies to fight bacteria will be underdeveloped, and the cells that produce antibodies to fight allergens will be overactive, resulting in increased susceptibility to disease, allergies and asthma. Dr. Levy adds that antibacterial cleansers only make sense when somebody in the family has a compromised immune system. He recommends returning to the basics - soap and water.

Twin Studies Show that Cancer Has Stronger Link to Environmental Factors than Genetics

Scientists have long debated the role that genes play in human health. With the Human Genome Project recently completed, many people are looking to genetics to cure diseases. However, a recent study by epidemiologist Paul Lichtenstein at Sweden's Karolinska Institute, suggests that focusing on genetics as a cure for cancer may not be our best course of action. The study, which examined 44,788 pairs of twins, reveals that the likelihood of developing cancer has far more to do with exposure to pollutants in the environment than genetics. Dr. Lichtenstein's results reveal that environmental factors are linked to twice as many cancers as genetic factors. In fact, only three types of cancer show a significant genetic correlation. Even prostate cancer, which carries the strongest genetic link, is only controlled 42% by genetic factors and 58% by environ-

mental factors. The other types of cancer showing a genetic link, breast and colorectal cancer, have less than a 35% link to genetics in the study.

The study, which was published in the July 13, 2000 edition of the *New England Journal of Medicine* (Vol. 343, No. 2), confirms what many physicians, scientists and public health advocates have known for years. For example, past studies have shown that people living in rural Asia have historically had a very low occurrence of breast and colon cancers. However, upon moving to the U.S., where these types of cancer are very common, their cancer rates increase dramatically. This knowledge of the environmental link to cancer has left many questioning U.S. policies on cancer prevention. "This raises the question of why aren't we doing more to identify avoidable risk factors for cancer, including occupational exposures," Devra Lee Davis, a cancer epidemiologist at Carnegie Mellon University, told the *Washington Post*. "You can't choose your parents. What you can do is control your exposures in your environment." *For more information or a copy of this article, contact Beyond Pesticides/NCAMP.*

Neighbor Notification Bill Passes in New York State

Despite discrepancies in the New York Senate and Assembly versions of the State's *Neighbor Notification Bill* (S.8223/A.1461-A), sponsored by Senator Carl Marcellino and Assemblyman Thomas DiNapoli, the two houses reached an agreement and a pesticide notification bill passed on June 22, 2000. The bill, which is a compromise between the more stringent Assembly bill and the weaker Senate

version, is far from perfect, but a good start. The final version requires statewide notification of pesticide applications in daycare centers and schools, but provides only county opt-ins, meaning the measures must be passed by individual county legislatures, for commercial and residential lawn applications. This has already been done in Suffolk County. The statewide provisions for daycare centers include 48-hour prior notification posted at drop-off locations, listing the pesticide to be used, how to get more information, and a warning statement. The bill also establishes a parent registry and requires that schools provide notification to all parents and staff three times a year, after the pesticides are used, including a complete listing of all pesticides applied in the school and the date and the location of applica-

tion. If counties choose to adopt the residential opt-ins, homeowners would be required to post signs in their yards noting that pesticides have been applied to the lawn, similar to the signs already used by commercial applicators. In addition, commercial applicators would have to notify the owners of abutting property 48 hours prior to an application. "Parents and homeowners have the right to know when pesticides are being used so that they can take reasonable and necessary precautions to safeguard their children, pets and themselves from unnecessary exposure to these chemicals," Senator Marcellino told Reuters newswire. *Take Action: Residents of New York, because much of this bill is dependent upon your counties, it is important to write or call your county government to let officials know how you feel about the Neighborhood Notification Bill. For more information, contact Environmental Advocates, 518-462-5526, and Long Island Neighborhood Network, 516-541-4321.*



Congress Wants to Weaken Children's Provision of Pesticide Law

Effort underway to pass amendments before end of session

If you think the risk assessment-based health standard of the *Food Quality Protection Act* (FQPA) is bad policy when it comes to protecting people from hazardous pesticides in food, water and around living spaces, note that things could get a whole lot worse under a bill now picking up steam in Congress. A majority in Congress has been convinced by the pro-pesticide lobby that decisions like the one recently announced by EPA on chlorpyrifos (Dursban™) and others pending on organophosphate pesticides take the idea of protection of children and other living things a bit too far. So, 234 U.S. Representatives and 39 Senators have signed on to the *Regulatory Fairness and Openness Act of 1999* (H.R. 1592/S. 1464), which would prevent the use of a higher safety standard in the face of inadequate health and safety information.

Despite the number of supporters, the bill, popularly known as the "Pombo Bill" in the House after its sponsor Richard Pombo (R-CA), and sponsored in the Senate by Senator Chuck Hagel (R-NE), is not without its opponents. A vote in the House Agriculture Committee was canceled on September 7, 2000. Fortunately, Representative Tom Bliley (R-VA), chairman of the House Commerce Committee and the original sponsor of FQPA, has voiced his opposition to H.R. 1592. Speaking to the American Bar Association's Special Committee on Pesticides, Chemical Regulation and Right to Know on June 27, Rep. Bliley had this to say about H.R. 1592: "The administration is opposed. The environmental community is opposed. It is not going to become law this year. I'm not going to drag it up and have my guys cast as anti-environmentalists."

Nevertheless, the bill could still make its way through committee to the House floor before the end of the congressional session. Recently, some lawmakers in the House have suggested attaching H.R. 1592 to a must-pass fiscal year 2001 appropriations bill. The vast majority of the bill's cosponsors are Republicans—in the House, 71% Republicans vs. 29% Democrats, and in the Senate, 85% Republicans vs. 15% Democrats.

What is the Pombo Bill?

If passed into law, H.R. 1592 would effectively block the implementation of the most health-protective provisions of FQPA. Despite FQPA's weaknesses (See *PAY*, vol. 16, no. 3 & 4, Winter 1996-97 for a more complete analysis of the FQPA), H.R. 1592 would remove what teeth FQPA does

have. FQPA was adopted unanimously in 1996 in response to the 1993 National Academy of Sciences report, *Pesticides in the Diets of Infants and Children*, that called attention to the specific vulnerability of children to pesticide exposure, and in exchange for the repeal of the Delaney Clause provisions in the *Federal Food, Drug and Cosmetic Act*, which banned cancer causing pesticides in processed food. Under FQPA, EPA is required to include an additional ten-fold margin of safety for children. This 10x safety factor can be lowered or eliminated only if the agency has "reliable data" in setting its acceptable risk levels.

Section 4 of the bill requires EPA to develop, for every decision on a pesticide, a lengthy report on the assumptions, models and any additional safety factors used in place of data that "are being developed" or "could be obtained." Then, section 5 of the bill prohibits the issuance of a more protective tolerance if it is based on "any information, calculation, or assumption described" in that report. In other words, the additional safety factors that are required under FQPA, when there are safety information gaps in the database, would be prohibited under H.R. 1592 because of the gaps in the data. H.R. 1592 will delay EPA action indefinitely as industry is given time to develop data while the current less protective standards remain in place.

That same report required under section 4 must identify risks based on "information that otherwise is not reasonably representative of risks to consumers or to major identifiable subgroups of consumers, on a national or regional basis." Again, section 5 of H.R. 1592 prohibits the issuance of a more protective standard based on those risks. That requirement and prohibition would reestablish the pre-FQPA process whereby small highly vulnerable subpopulations, such as infants and children, were not considered when setting standards. Requiring these reports before any action can be taken would bury EPA in paperwork that could delay action for years.

Write your U.S. Representative and Senators and tell them what you think about H.R. 1592 and S. 1464.

For more information about H.R. 1592/S. 1464, including the status of the legislation, list of cosponsors, and the complete text of the bill, visit the Thomas website at <http://thomas.loc.gov/>. Type in H.R. 1592 or S. 1464 in the slot provided for searching by bill number and click on "search." For sample letters that you can send to your Congress people and Representative Bliley, visit *Beyond Pesticides'* website at www.beyondpesticides.org.

Lawn Mowers and Leaf Piles

Fall is prime time for lawn care

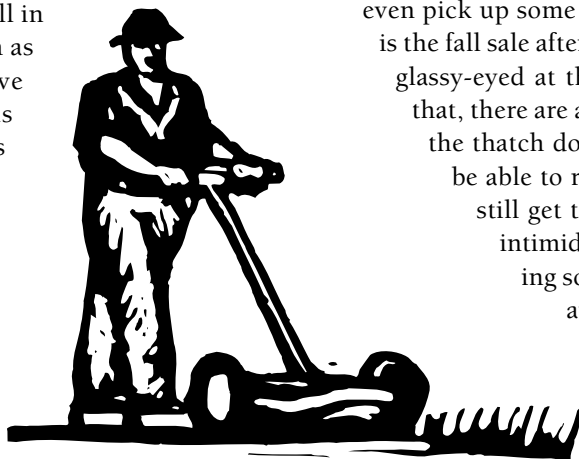
by **Becky Crouse**

We are nearing the end of summer. Already you can feel your calloused hands starting to soften with the thoughts of the upcoming mower-free winter. Before you get ahead of yourself, remember that autumn lawn care is vital to your lawn's health. It also requires some raking, so put down the hand lotion, stop gazing at the plummeting thermometer, and let's get your lawn ready for the impending winter.

Keep on Mowing

I know, Labor Day has passed, you have put away your patio furniture and traded your beach outings and barbecues for apple picking and baking, but your lawn is still growing. It doesn't know that Labor Day signals change for humans, and it doesn't care. As long as it is warm outside, your lawn will continue to remind you that it is there. This means you need to mow. Don't cringe, the frequency of your mowing should reduce as the temperature continues to drop, and you can finally use that handy leaf-mulching attachment for your mower. In the fall, the energy produced by photosynthesis is redirected for root growth and storage, which means that you can mow the grass a little shorter — to about 2 inches — to promote the production of new grass stems. This may help thicken your lawn and fill in some of those bare spots that form as the weeds die out. (The sensitive growing point for most weeds is near the top of the plant, whereas the sensitive growing point for grass is near the soil. Chopping the tops off the weeds will help to get rid of them.)

Leaving the shredded leaves and grass clippings on the lawn, as long as they don't accumulate to more than about a half-inch, will form a natural compost and feed the grass with mineral nutrients as they decompose. Unless you have that handy mulching attachment, you will want to rake up the falling leaves. OK, maybe you don't want to, but you will definitely need to. Allowing the leaves to sit on your lawn doesn't allow enough sunlight or oxygen through, and may lead to outbreaks of disease during the upcoming wet season. That will mean even more work for you later.



Thatch Therapy

Your next step: Dealing with thatch. Thatch is the layer of dead and living stems and roots that accumulate on the soil surface. When the thatch layer becomes thick, the roots will grow within the layer of thatch instead of establishing themselves deeply in the soil. The result is a lawn that is subject to moisture extremes with roots that aren't protected from tem-

...remember that autumn lawn care is vital to your lawn's health.

perature extremes and a thick layer that is harboring infectious fungi and disease. In short, your lawn isn't happy. What is the lawn keeper to do? Dethatch and aerate!

Dethatching involves removing that unsightly build up of decomposed stems and leaves sitting on the soil's surface and allowing fertilizer and water to penetrate and feed your starving soil. If you only have a few problem patches of thatch in your lawn, a thatching rake may be sufficient. You can buy one at your favorite lawn and garden store, and maybe even pick up some other fun tools while you're at it. (It is the fall sale after all.) If you are looking at your lawn, glassy-eyed at the thought of using a rake on all of that, there are also vertical mowers that cut through the thatch down into the soil surface. You should be able to rent one at that favorite store, so you still get to go. If it is all still sounding a little intimidating, you also have the option of hiring someone to do it for you, but that takes away all the fun.

Aerating will also help to decompose thatch. It loosens your soil, allowing air, water and nutrients to reach the roots of your grass that you have so effectively starved until now. Lawn grasses also root better in aerated soil, and oxygen will help the grass grow. Earthworms are your best soil aerators, but if they don't seem to be doing the job, or if you've killed them off by unwittingly applying a pesticide during the course of the summer, you're going to have to help out. If you only have a small area of lawn that has become compacted by

traffic, a special hollow-tined tool made especially for this purpose can be picked up at that lawn and garden supply store. If the job is a little large to be done by hand, rent a core aerator, a lawn-care machine that removes small plugs of soil, or call up your last-resort organic lawn care company to give you a hand. Your lawn will be much happier in the spring if you take these steps now.

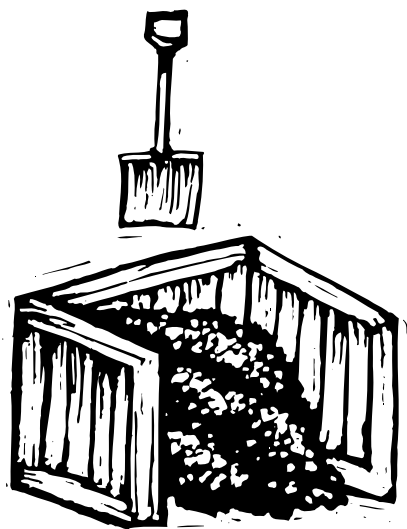
Proper Feeding

Fertilization will be your next concern. Your lawn may have been sending you signals about its needs all summer without you even realizing it. For example, grass loves nitrogen. Clover gets its nitrogen from the air, and grass from the soil. If clover starts taking over your lawn, chances are that your soil is nitrogen deficient. Dandelions love soil with a pH of 7.5, while grass loves a pH of 6.5. If your soil is alkaline, you will never conquer your dandelion problem. You can have your soil tested to determine its nutrient content and pH at your local cooperative extension.

If your soil is too acidic, add limestone to raise the pH. Limestone will also add calcium, which deters those pesky dandelions. (If you happen to like your dandelions, then you can skip this part.) You will need to wait about a week after adding lime to fertilize. If it is too alkaline, gypsum, sulfur, or peat moss will lower the pH.

Once your pH problem is solved, it's time to choose a fertilizer. By applying fertilizer in the fall, you give it plenty of time to settle into the soil before the spring when your grass will need its nutrients. You will want to select a fertilizer with nitrogen (to help grass grow), potassium (to give grass strength to survive the winter), and phosphorus (to foster strong root systems and aid in seedling germination) at levels corresponding with your lawn's needs. Be careful, because more is not better, and too much fertilizer can burn your lawn, which you have been so diligently caring for. Your fertilizer should release nutrients slowly, and should not be water soluble or you will lose most of your nutrients after the first rain. We, of course, recommend a good organic fertilizer or compost, which are both great sources of natural nutrients, easily "eaten" by your lawn as it needs sustenance, and harmless to microorganisms and earthworms. You can spread your fertilizer either by hand or with a mechanical distributor, purchased at that lawn and garden store again.

Now, amidst the flurry of your fall lawn chores, you may occasionally look around and notice your neighbors peer-



October is the best month to take care of your fall lawn-care chores. Here is a quick checklist to be sure that you are doing all that you can to keep your lawn healthy and happy.

- Continue to **MOW** through the fall, keeping the blade height slightly lower and using shredded grass clippings and leaves as mulch.
- **RAKE** your leaves if you don't have a mulching attachment for your lawn mower or if the layer of shredded clippings and leaves become more than a half-inch thick.
- **DETHATCH** your lawn if it has built up a layer of dead stems and leaves at the soil surface.
- **AERATE** the soil to allow oxygen, water, and nutrients to circulate.
- **TEST** the nutrient and pH levels of your soil to find out how to properly fertilize.
- **FERTILIZE** according to your soil's needs.
- **SEED** your lawn's bare spots, or overseed the entire lawn, if necessary.
- **MAINTAIN** your lawn until the cold really hits by continuing to mow and rake, making the final mow fairly short — about 1 1/2 inches.
- **ENJOY** your peace of mind knowing that, in the spring, your yard work is going to be reduced and your lawn is going to be healthier and thicker.

ing at you curiously, weed killer in hand, and scratching their heads in wonderment at your nifty new collection of lawn-care contraptions. This may be the ideal time to approach these folks and give them a little advice on achieving a healthy lawn without the herbicides and synthetic fertilizers. Maybe you can invite them to accompany you to the lawn and garden store and point out all the fun tools and nifty organic products that they, too, could be the proud owners of. If you could use some tips on effectively talking to others about reducing or eliminating their pesticide use, contact Beyond Pesticides/NCAMP for its guide, *Getting the Message Across* (4 pp).

After the brief detour with your neighbors, take a step back; look proudly at your happy, healthy soil, and smile, because you only have one more step. Yup, you guessed it. It's time to seed.

Becoming Seed Savvy

Are you confused by your choices in the grass seed aisle? Don't fret. Most of us are. Here are some basic guidelines for choosing a seed variety that will thrive in your lawn's conditions.



There are two major groups of grasses: cool season and warm season. Cool-season grasses, which include fine fescues, Kentucky bluegrass, and perennial ryegrass, are best for the northern half of the country. They typically grow in the spring and fall, when the ground is moist, and become dormant midsummer. Warm-season grasses, as you might guess, are more heat and drought tolerant than cool-season grasses and will do better in the Sun Belt or desert southwest. They typically start growing in the early summer. Warm-season grasses include St. Augustinegrass, bermudagrass, and zoysiagrass. If you live in a transition zone, you will want a mixture of cool- and warm-season varieties that will suit your climate.

You will want to take a look at that bag of seed before you haul it to the checkout counter. Be sure that your seed contains only fine-textured grass, check for a variety of names, and make sure that your mixture does not contain annual grasses, as they will not be back next year. You will also want the upgraded names of grasses, such as 'Merion' Kentucky bluegrass as opposed to plain old Kentucky bluegrass or common Kentucky bluegrass. **WARNING:** These days, many conventional seeds are also coated with fungicides that may put poisons in your soil, the very thing you have been working so hard to avoid. If you are having trouble finding fungicide-free seed at the local lawn and garden store, you can contact Seeds of Change (1-888-762-7333) for a catalog.

The Chemical-Free Lawn by Warren Schultz (Rodale Press, Emmaus, PA, 1989) offers these recommended mixes for some typical lawn conditions:

- A good general-purpose turfgrass for cool-region lawns is a mix of named Kentucky bluegrass and red fescue.
- For shade, a mix should include more fescue than bluegrass. Another option is a 40-40-20 mix of named Kentucky bluegrass, red fescue, and perennial ryegrass. For heavy use, plant 95 percent named turf type tall fescue with 5 percent Kentucky bluegrass.
- For open, sunny locations, a good mix of 40 to 60 percent 'Merion' Kentucky bluegrass, with the remainder made up of other improved bluegrasses.
- An equal mix of improved red fescue and improved Kentucky bluegrass is also good for the sun.

For a copy of Beyond Pesticides/NCAMP's least-toxic lawn care information packet, send \$4 ppd to Beyond Pesticides/NCAMP, 701 E Street, SE, Washington, DC 20003, 202-543-5450, or through our website, www.beyondpesticides.org.

Seed Savvy

Fall is the best time for seeding. You can fill in those ugly bare patches that have been mocking you all season and then look forward to a full, lush spring. To reseed, you need to roughen up the surface soil of those bare patches with a rake or shovel. (You must own one of those by now with all those trips you've made to your now least-favorite store, the local lawn and garden center.) Spread the grass seed over the loosened area evenly, and gently rake it to make sure that the seeds are actually coming in contact with your happy soil. Now apply a light layer of mulch or fertilizer and give your seedlings a nice drink. However, if you are looking over your lawn thinking that it is more of a bare patch than an actual lawn, you may want to reseed the entire thing. This can be accomplished by either overseeding (spreading grass seed over the grass you already have) or starting from scratch, tilling your entire lawn, and then spreading new seed. You can also hire someone to do this for you.



Upkeep

Keep an eye on your lawn, and be sure to keep it trimmed and leaf free as we head towards the end of fall. Give it a nice, short haircut as the final mow (about 1 1/2 inches), and then sit back in front of the fireplace with your hot chocolate and fresh-baked apple pie, think about those weekends that you won't be stuck doing yardwork, and look forward to spring.

It seems like a lot of work, and, if you are doing it for the first time, it is. But, if you keep your lawn up with proper maintenance year round, it will be thicker, healthier, happier, and require much less work in the end.

Wood Preservatives Cause Illnesses

Victims stories tell of trail of poisoning

by Greg Kidd, J.D.

With wood preservatives being among the most toxic chemicals known to humankind and representing over 30 percent of all pesticide use, the eerie silence of the U.S. Environmental Protection Agency (EPA) on wood preservative poisoning and contamination represents a longstanding failure to act in the public interest. The lack of adequate government attention to this means that people are hurt and children are made sick year in and year out. The stories recounted here describe the dimensions of the problem. They are the tip of the iceberg, where most of the harm and suffering remains uncollected, unreported, undiagnosed and unstudied. This occurs despite findings of widespread contamination with wood preservatives like pentachlorophenol (penta) in children. It occurs despite the knowledge that penta treated utility poles record the largest reservoir anywhere of the chemical's contaminant, dioxin. It continues even though penta can be banned without economic impact on utility companies, given the availability of cost effective alternatives. Similarly, railroad ties made out of recycled materials can be used at a competitive cost. Looking at wood preservatives takes us through a trail of horror stories from their production, to use in wood treatment facilities, to exposure through utility poles, to their disposal. At each one of these points, there are stories of poisoning and contamination.

Given that EPA does not operate a pesticide incident monitoring system, and instead relies on manufacturer reports of poisoning incidents, it is essential that Beyond Pesticides/NCAMP build a database of its own. We do this on all pesticides by collecting Pesticide Incident Report forms, which can be found on our website, <http://www.beyondpesticides.org>. In the case of wood preservatives, EPA has failed to move ahead expeditiously with a regulatory review of wood preservatives to which it committed itself over three years ago. This followed an agency finding in 1981 that wood preservative uses should only remain on the market because less hazardous substitutes could not be identified.

However, in a preliminary risk assessment of pentachlorophenol released in 1999, EPA found excessive risks to children

exposed to penta treated utility poles.¹ In a Beyond Pesticides/NCAMP survey, we found that 69 percent of responding utilities are in the practice of giving away utility poles taken out of service.²

There is no question that public exposure to wood preservatives is widespread and uncontrolled. People receiving free wood from utility companies seeking to avoid proper disposal of contaminated material do not suspect the hazards when they handle it and use it around their home and garden. Those purchasing lumber treated with copper chromium arsenate (CCA) at their local hardware store do not receive warnings on wearing protective equipment when handling the wood and proper disposal of the contaminated sawdust. As a result of widespread exposure, people are getting sick. This piece discusses some of the sicknesses that are being attributed to these chemicals.

If you think you have suffered adverse effects associated with wood preservatives in your home, community or workplace, or know of someone who has, please notify Beyond Pesticides/NCAMP.³ This information can be used as part of our effort to stop the use of hazardous wood preservatives.

BrightSpirit, Davenport, WA

As a cable TV installer for Cox Cable Company in Spokane, WA, BrightSpirit climbed 10 to 30 utility poles a day. When she began in 1982, at age 18, BrightSpirit was not familiar with the names or hazards of the chemicals that are pumped into the poles that she climbed, but she soon became very familiar with the strong chemical smell that stuck to her clothes and skin. The smell was penta, one of the three most commonly used wood preservatives. Penta is absorbed readily by the lungs, skin and stomach. Workers handling the most significant exposure first through skin contact and second through the air.

According to EPA the risk of cancer faced by people like BrightSpirit, who work with and climb on penta treated poles, is astronomical. For example,



BrightSpirit (right) with daughter Erin.

¹ U.S. Environmental Protection Agency, 1999. Science Chapter for the Reregistration Eligibility Decision (RED) Document for Pentachlorophenol (PC Code: 063001, Registration Case Number 2505).

² Beyond Pesticides/NCAMP. 1999. *Pole Pollution: New Utility Pole Chemical Risks Identified by EPA While Survey Shows Widespread Contamination.*

³ While we focus here on wood preservatives, Beyond Pesticides/NCAMP collects information through its Pesticide Incident Report form on all pesticides.

EPA has calculated that the people whose job it is to retreat poles in the field with a fresh dose of penta face a risk of cancer that is 3.4 million times higher than acceptable. Another huge risk comes from the contaminants of penta, dioxins, furans and hexachlorobenzene. EPA has determined that penta treated wood represents one of the largest reservoirs of dioxins in the environment.

BrightSpirit suffered from a consistent rash on her skin during her time as a pole climber. Skin contact with penta is known to cause both contact dermatitis and chloracne. When BrightSpirit realized that she was pregnant, she wisely took a desk job. Studies show that penta accumulates in fatty tissue and breast milk. BrightSpirit's daughter, Erin, was slow to learn to crawl. As she grew, it became clear that Erin was learning disabled. Now 18 years old, Erin suffers from serious short-term memory problems. She reads on a fifth grade level and simple math causes her stress. BrightSpirit is convinced that her exposure to penta, and dioxins during pregnancy is linked to her daughter's condition.

Shirley Simpson, North Little Rock, AR

As a result of the contamination caused by their neighbor, one of the largest producers of chemically-treated wood products, Koppers Industries, Inc., Shirley Simpson and other members of her community are working to force the company to clean up its act. Koppers produces chemically treated railroad ties and utility poles. Studies conducted by both EPA and the Arkansas Department of Environmental Quality (ADEQ) have found elevated levels of creosote, penta and arsenic, one of the constituents of CCA, in the local ground water. All of these chemicals are linked to cancer, while arsenic is a known human carcinogen.

Ms. Simpson can recount many horrible stories about the emissions coming from the Koppers plant. One recent example of a poisoning incident was on a clear day in August 1999, when Ms. Simpson and a neighbor were walking through the neighborhood collecting signatures on a petition for a drainage project. When they were about a block away from Ms. Simpson's home, they were overwhelmed with fumes coming from the plant. It instantly burned their eyes, nose and throat. By the time they arrived at her house, Ms. Simpson could hardly talk. The doctor stated that from all indications it was clear that she was chemically poisoned, but could not verify the chemicals without extensive testing.

Ms. Simpson's symptoms are consistent with dermal exposure to coal-tar creosote. Creosote can enter the body through the lungs, stomach and the skin. Skin contact with a few drops of creosote irritates and burns the skin and eyes. Ms. Simpson

has noted a large number of respiratory problems in her community. She has also noted elevated incidences of nerve disorders and cancer, both associated with chronic exposure to creosote and the other wood preservatives.

Ms. Simpson has discovered that grassroots action can make a difference. A public relations official of the ADEQ told her that the agency would not have become involved without Ms. Simpson's letter writing and organizing. In her effort to protect the health of her community, she initiated a lawsuit against Koppers. She has also decided to run for Alderman in her ward. One of the planks in her platform is to work towards a cleaner, safer and more prosperous community.

Steve Yokom, Lincoln, MI

Steve Yokom and other active members of his community have been working to get a power generating plant that burns chipped, treated wood to stop polluting the air. Most of the chipped wood that is burned is treated with creosote and some with penta. The plant also burns huge amounts of chipped tires that have been sprayed with insecticides in mosquito abatement programs. As a result of their efforts, Viking Energy stopped the wood chipping operation at the plant in early 2000 and has not received a permit to burn CCA treated wood, along with other demolition and construction waste. However, even without the chipping operation, massive amounts of toxic wood dust from the huge pile of chipped wood is blown across the area. It is not uncommon for the area around

the plant to have a strong chemical smell, so strong that people riding down the road alongside the plant report that it can take their breath away.

Since Consumers Power began burning treated wood in 1997, the residents of Lincoln have experienced what appears to be an elevation in ailments linked to acute and chronic exposure to creosote and penta, as well as other pesticides. People suffer from burning eyes and irritated skin. The asthma rate has increased dramatically in recent years. A large number of people in the community regularly experience cluster headaches, an incapacitating type of migraine.

The storage pile of wood chips and tires often grows above 40 feet in height. The pile sits uncovered in a wetland where rain can cause chemicals to leach out of the pile into the soil and ground water. One time the pile caught fire and burned out of control for four days before firefighters were called in. Mr. Yokom remembers the cloud of caustic smoke that irritated the eyes and lungs of the residents of Lincoln while the fire raged. Mr. Yokom is concerned about other communities that are facing similar situations, including the McBain power plant in Cadillac, MI that received a permit to burn CCA treated wood.



Caption: Shirley Simpson from her campaign literature.

J.D. Morris, Billings, MT

During the summer of 1997, after J.D. Morris, his wife and four children moved into their home, they noticed that the wooden deck attached to the back of their house gave off a chemical stink. The warm weather heated the deck and volatilized the chemicals in it. The Morris children began to complain about irritated, watering eyes, headaches and feelings of nausea as the fumes came in through their open windows. Mr. Morris put two and two together after seeing a program on PBS about toxic chemicals and environmental contamination and talking with a friend who smelled the fumes and was reminded of a transformer fire. On closer inspection, Mr. Morris determined that his deck was constructed of milled cross-arms from utility poles. Some of the planks of wood



The Morris children playing on the back deck before the family became aware of the hazards.

still had the aluminum tags that had been attached to the cross-arms and the drill holes from the bolts used to hold the cross-arms to the utility poles.

Mr. Morris decided to have a sample of the wood taken from his deck and analyzed by a laboratory that tests for pesticides and other types of synthetic chemicals. The lab found high levels of phenolic compounds (over 150,000 ug/kg), components of the wood preservative creosote in the wood sample. The levels in the wood prompted the lab to write to Mr. Morris with the following recommendations:

- 1) Discontinue use of the deck under circumstances where skin contact is possible. Avoid spreading the tar-like material to other surfaces exposed to human contact, especially inside of your home; and
- 2) Consider removing the source of the exposure by removing the deck and associated stained or contaminated materials and disposing of them properly.

Since then, Mr. Morris's twelve-year-old son has been suffering from headaches and regular bouts of nausea for which he has to take daily medication. In addition, a dermatologist has recommended that Mr. Morris have a biopsy conducted on an inch wide discolored and swollen persistent sore on his hand.

The Morris's cannot afford at this time to have the deck removed and disposed of (a local environmental organization estimated that it would cost approximately \$80,000 to

clean up the mess created by the wooden deck). Mr. Morris is pursuing a legal solution to his problem, asking that the local real estate interests take responsibility for removing the deck and cleaning up the environment. Mr. Morris notes that his is not the only family in his community that is facing health risks because toxic, chemically treated wood was used to build decks on other houses as well.

Johnny Shelton, Cullman, AL

Johnny Shelton began working with wood preservatives in 1993. For one year he worked at a small factory in Electric Mills, Mississippi that produced wood poles pressure treated with penta. The company, which has since gone out of business, produced between 100 and 300 poles each day. Mr. Shelton was responsible for climbing into the retort chamber to hook the cable to the cars loaded



Taylor Shelton at 18 months.

with freshly treated wood. As Mr. Shelton puts it, "I was waste deep in the stuff." When climbing over the poles, the strong chemical fumes that would burn his lungs often overwhelmed him. The fumes often caused Mr. Shelton to feel dizzy and vomit. He generally felt sick and run-down.

His employers never provided him with protective clothing, or even suggested that he wear any protection, and never stressed the risks associated with his exposure to penta. Mr. Shelton was told in an offhand way that if he got penta on himself or his clothing, a daily occurrence, that he should simply wash it off. At that time, he was told that penta could make him sterile, cause birth defects and cancer.

Mr. Shelton left the employ of the treatment plant and now works for a cable company, climbing poles and replacing old poles that are being taken out of service. He recognizes the same strong smell of penta as he climbs the poles and experiences skin irritation when his wrist touches the poles. When replacing old poles, he cuts the poles into six-foot lengths so that people can take them away to use around their homes. It is not uncommon for him to see all the plants die within a six-foot circle around the piles of cut up poles.

Mr. Shelton's son, Taylor, was born in November of 1998 with severe birth defects in his leg. The bones in young Taylor's ankle will not harden and he has swapped toes on that foot. The doctors have told Mr. Shelton that if his son's condition does not change by October of 2000 then his son's leg will have to be removed. Mr. Shelton is convinced that his exposure to penta is responsible for his son's birth defects.



The Schooling of State Pesticide Laws – 2000

A review of state pesticide laws regarding schools

Editor's note: This report updates an earlier report released in Pesticides and You, volume 18, no. 3, 1998.

by Kagan Owens and Jay Feldman

Pesticides are poisons, designed to kill and harm living organisms. You, your children, and school personnel are exposed to hazardous pesticides in the school setting. Many schools routinely apply pesticides in classrooms, gyms, playgrounds, athletic fields, cafeterias, and offices. Most schools do not have pest management or pesticide policies. Rather, they contract out for routine spraying of these hazardous chemicals or they use inadequately trained custodial staff. When pesticides are applied on a routine basis, they are often needlessly applied and are frequently overapplied. Children's health and worker safety concerns have caused parents and school employees across the country to take action to reduce pesticide use in the schools. Because of the inadequacies of protection on the federal level, state governments have, in some cases, attempted to step into the breach by regulating pesticide use and in some cases type of pesticide used.

Beyond Pesticides/NCAMP first surveyed state pesticide laws regarding pesticide use in schools and states that have passed laws attempting to curtail potentially dangerous exposure in the report, *The Schooling of State Pesticide Laws* (1998). Since the publication of this report, several states have passed laws that have addressed one or more of the following five criteria: (i) restricted spray (buffer) zones to address chemicals drifting into school yards and school buildings; (ii) posting signs for indoor and outdoor pesticide applications; (iii) prior written notification for pesticide use; (iv) prohibiting when and where pesticides can be applied; and, (v) requirements for schools to adopt an integrated pest management (IPM) program. These five criteria are essential ingredients in a program to protect children from pesticides used in schools.

Although there continues to be growing movement on this issue, pesticide use policies and practices remain deficient in the protection of children. Without minimum federal stan-

dards, the protection provided children is uneven and inadequate across the country. Just over half of the states, or 31 states, have adopted pesticide acts and regulations that address the protection of children by specifically focusing on pesticide use in, around or near schools.¹ Of these, only 20 states address indoor use of pesticides.²

Beyond Pesticides/NCAMP's survey of state requirements and recommendations regarding pesticide use in schools show that:

- Six states recognize the importance of controlling drift by restricting pesticide applications in areas neighboring a school;
- Twelve states require posting of signs for indoor school pesticide applications;
- Twenty-one states require posting of signs for pesticide applications made on school grounds;
- Fifteen states require written notification to students, parents, or staff before a pesticide application is made to schools; and,
- Thirteen states recommend or require schools to use IPM.

These laws are a great victory for children and are instrumental in improving protections from school pesticide use. However, to the extent that these laws do not prohibit the use of toxic pesticides around children and do not treat pesticide exposure as a public health issue by providing universal prior notification of pesticide use, they all to some degree compromise the protection of children. Massachusetts is the first state in the nation to prohibit the use of the most dangerous pesticides in and around schools. Although the Massachusetts' law has some weaknesses, it should be considered, along with Maryland's state school pesticide law, a model for other states, as it is a positive improvement and establishes landmark requirements regarding the use of pesticides.

Federal Role in School Pesticide Use Lacking

The variety of legislative and administrative responses by states has been prompted by concerns about the known and unknown hazards of pesticide use, as well as deficiencies in the federal regulatory review of pesticides. The vast majority of all pesticides registered for use by the U.S. Environmental Protection Agency (EPA) and state governments have never been fully tested for the full range of potential human health effects, such as cancer, birth defects, genetic damage, reproductive effects and neurological disorders. Indeed, pesticides can be registered even when they have been shown to cause adverse health effects. Due to the numerous pesticide formulations on the market, the lack of disclosure requirements, insufficient data requirements, and inadequate testing, it is impossible to accurately estimate the hazards of pesticide

products, much less lifetime exposure or risk. Active ingredients are tested individually and are rarely tested in combination with other ingredients, even those identified as synergists. In combination, ingredients can produce synergistic effects, making the particular mix of chemical many times more toxic than individual chemicals. Pesticides can "breakdown" when used to chemicals that are more toxic than the parent compound. Further, we have little control over or knowledge of many of our exposures, thus making determinations of our risks and hazards even more complex.

Many people consider pesticides "safe" because EPA registered the chemicals and allows the public and certified applicators to use it. According to the U.S. General Accounting Office (GAO) report, *Nonagricultural Pesticides: Risks and Regulations* (1986), "EPA believes that no pesticide can be considered 'safe.'"

Just over half of the states, or 31 states, have adopted pesticide acts and regulations that address the protection of children by specifically focusing on pesticide use in, around or near schools.¹ Of these, only 20 states address indoor use of pesticides.²

After 30 years on the market, EPA found in 2000 that one of the most commonly used pesticides in the country, chlorpyrifos (Dursban™), poses a significant risk to children, even if used according to the label directions³. And even though EPA and the manufacturers of chlorpyrifos agreed to phase-out its use in many settings, including schools, it can continue to be used until existing stocks are used up. The EPA chlorpyrifos announcement begins the process of getting high consumer and children exposure uses of Dursban™ off the market, but puts people at risk by not stopping its uses immediately.

All data available to us today suggest that children face hazards from pesticide use at school that are unacceptable. The U.S. General Accounting Office report, *Use, Effects, and Alternatives to Pesticides in Schools* (1999), confirms that our federal government is not doing enough to protect our nation's most precious resource, our children. The standard that EPA has principally used, according to GAO, "that school classrooms should only be treated when students are not present and that all treated surfaces should be dry before the students are allowed to return," is not a safety standard.⁴

Based on Beyond Pesticides/NCAMP's state survey in 1998, we wrote EPA requesting that it consider rulemaking to protect children from pesticides use in schools. Senator Joseph Lieberman (D-CT) wrote EPA after the publication of the GAO report in January 2000, requesting that EPA collect and review data on school exposures and develop a plan for a comprehensive survey on the use of pesticides in schools to better gauge the threat to students and staff. Today, more than a year and a half since our letter to EPA and nine months since Senator Lieberman's request, the evidence of EPA taking action to reduce exposure to children while at school is not any more clear.

Currently, federal legislation, the *School Environment Protection Act* (SEPA), has been introduced in both the U.S. House of Representatives and U.S. Senate, which establishes a very strong definition of IPM for schools and requires national standards on school pesticide use. In March 2000, the U.S. Senate went on record as supporting protection of children from school pesticide use through prior notification (for those pesticides associated with specific adverse effects) to all parents and the use of IPM.⁵

The Case for Protecting Children

The particular vulnerability of infants and children to the harmful effects of pesticides has garnered nationwide attention. In its ground breaking report, *Pesticides in the Diets of Infants and Children* (1993), the National Research Council, an arm of the National Academy of Sciences, confirmed that, "infants and children differ both qualitatively and quantitatively from adults in their exposure to pesticide[s]..."⁶ This is because children are not merely "little adults."⁷ They are growing and developing. Their metabolic rates are different than adults. There are differences in their ability to process, detoxify and excrete these compounds.

Children are more sensitive to pesticides because of their physiology and behavior. Children take in more pesticides relative to body weight than adults and have developing organ systems that are more vulnerable and less able to detoxify toxic chemicals.⁸ Children also have behaviors that expose them to higher levels of toxics than adults. They play on the floor inside and the ground outside. Unwashed hand to mouth activity is frequent. Children ingest dirt accidentally and purposefully. And, they are unlikely to understand or fully appreciate warning signs, even when they can and do read them.

Low levels of pesticide exposure can adversely effect a child's neurological, respiratory, immune and endocrine system. Some of the most commonly used insecticides in schools are nervous system poisons. These pesticides, most of which are in the organophosphate pesticide family, poison children by reducing the body's production of the enzyme cholinesterase, necessary to the transmission of nerve impulses, triggering a range of symptoms from nausea, dizziness, headaches, aching joints to disorientation and inability to concentrate.⁹ Other widely used insecticides, synthetic pyre-



throids, stimulate nerves causing hypersensitivity and are associated with asthma. Many pesticides affect the immune system, which can result in increased problems with allergies, asthma, hypersensitivity to chemicals and a reduced ability to combat infections and cancer.¹⁰ Many pesticides are linked to cancer. The commonly used weed killer 2,4-D has been linked to non-Hodgkin's lymphoma in scientific studies of farmers.¹¹ Studies show that children living in households where pesticides are used suffer elevated rates of leukemia, brain cancer and soft tissue sarcoma.¹² The probability of an effect such as cancer, which requires a period of time to develop after exposure, is enhanced if exposure occurs early in life.¹³

GAO documented over 2,300 reported pesticide poisonings in schools between 1993 and 1996.¹⁴ Because most of the symptoms of pesticide exposure, from respiratory distress to difficulty in concentration, are common in school children and may be assumed to have other causes, we suspect that pesticide-related illness is much more prevalent than presently indicated. Of the 48 most commonly used pesticides in schools: 22 can cause cancer, 26 can adversely affect reproduction, 31 are nervous system poisons, 31 can cause liver/kidney damage and 16 can cause birth defects.¹⁵

Children's exposure to pesticides at school occurs as a result of applications made before children enter the building and sometimes while they are present. The chemical fills the air in the room and settles on desks, counters, shades and walls. Exposure occurs from breathing contaminated air or touching contaminated surfaces. The residues can remain for days and sometimes break down to other dangerous compounds.

School is a place where children need a healthy body and a clear head in order to learn. Teachers and other staff are often forgotten when pest control operators arrive to make treat-

ments after schools. The school buildings and grounds are also used after school, on weekends, and during vacations by children and others involved in sports, music, and other extracurricular activities.

Schools often provide an excellent habitat for certain pests. Roaches find a lot of good food stuffed away in forgotten lunch bags. Head lice find it easy to move from host to host where children and their clothing are kept close together all day. Weeds that prefer compacted soils and out compete healthy grasses thrive on school athletic fields. Fortunately, learning to solve pest problems without chemical dependency also teaches students valuable lessons about health, their environment, and decision making.

Many times, if pest control is contracted out, school administrators or facility managers are unaware of the pesticides that are being applied in their schools. Despite all of the evidence, most school administrators are still unaware of the harm to children.

Restricted Spray (Buffer) Zones Around School Property

Pesticides move off the target site when they are sprayed, whether inside or outside. When sprayed outside, pesticides drift on to nearby property resulting in off target residues. Buffer zones can eliminate exposure from spray drift on to school property. As a result, states require buffer zones around schools. In order to adequately protect against drift, buffer zones should, at a minimum, be established in a 2-mile radius around the school's property. Aerial applications should have a larger buffer zone, at least 3 miles encircling the school. Buffer zones should be in effect at all times of the day.

Six states have recognized the importance of controlling drift by restricting pesticide applications in areas neighboring a school. These states, Alabama, Arizona, Louisiana, New Hampshire, New Jersey, and North Carolina, create spray restriction zones that range from 300 feet to 2 1/2 miles. Only in the case of gypsy moth spraying does New Jersey require the largest buffer zone of 2 and 2 1/2 miles, depending on the grade levels of the school. Otherwise, New Jersey sets a 300-foot buffer around schools. Louisiana, New Hampshire, New Jersey and North Carolina buffer zones are in effect for specific hours, either during commuting hours or regular school hours.

Posting Notification Signs for Indoor Pesticide Applications

States use different approaches in providing school pesticide use information to parents, students and staff. Some forms include the posting of notification signs and/or the distribution of notices directly to the affected population. Posted notification signs warn those in the school when and where pesticides have been or are being applied. This is a vehicle for basic right-to-know if the posting occurs in an area where it is easily seen by parents, students (old enough to understand, perhaps 12 or

older) and staff. It is important to post signs for indoor pesticide applications because of the extensive period of time students and school employees spend in the school building. Signs posted days before, rather than simply at the time or just after a pesticide application, are more protective. Prior posting may enable people to take precautionary action. Because of the residues left behind after an application, signs should remain posted for 72 hours. Signs should also be posted at all main entrances of the buildings and the specific area treated. Posted signs should state when and where a pesticide is applied, the name of the pesticide applied, and how to get further information, such as a copy of the material safety data sheet (MSDS)¹⁶ and product(s) label. Signs should be posted when a hired, commercial applicator, or school staff applies pesticides.

Twelve states require posting of signs for indoor school pesticide applications. Four states require posting before commencement for a specific time period. New York and Texas, the two strongest states in this regard, require posting warning signs at least 48 hours in advance of the application. Five states require signs to remain posted for a specific amount of time following the application. California has the strongest requirement, requiring signs to remain posted for 72 hours after the application. Virginia does not require schools to post notification signs, but does have a resolution recommending schools adopt such a provision.

Posting Notification Signs for Outdoor Pesticide Applications

For a wider range of protection, states should require posting pesticide notification signs for outdoor pesticide applications as well. Students who play sports or people continually on the lawns are at high risk when pesticide applications occur.

Twenty-one states have posting requirements when pesticide applications are made on school grounds. Massachusetts requires signs to be posted 48 hours in advance of the pesticide application in school buildings and on school grounds. New York requires signs to be posted 48 hours in advance, at child drop-off points, prior to pesticide applications in daycare centers. States should require signs to remain posted for at least 72 hours, as California and Rhode Island do. Seven states do not have any other requirements except posting requirements for school lawns. Nine states require posting for both indoor and outdoor pesticide applications. Connecticut and Georgia law specifically state that posting warning signs is required outdoors when a structural application continues outside the building. Massachusetts and Wisconsin require signs to be posted when pesticides are applied on nearby property.

Prior Written Notification

Written notification prior to each pesticide use is a good way to make sure that all parents, children and staff are aware and warned. Limited notification-based registries, as contrasted with universal notification for everyone, is a less effective

How States Around the Country Protect Children from Pesticide Exposure in Schools

State	Buffer Zones	Posting Signs ¹	Prior Notification	IPM	Prohibition of Use
Alabama	Aerial application, 400 feet.				
Arizona	Ground & aerial application, 1/4 mile, certain odoriferous & highly toxic pesticides.	Indoor & outdoor, school district establish posting requirements.	Parent & staff, universal 48 hour notice.		
California ²		Indoor & outdoor, post sign 24 hours prior to application, remain 72 hours.	Parent & staff registry, 72 hour notice.	Recommends.	
Connecticut		Outdoor & structural applications made to perimeter of building.	Parents & staff registry, 24 hour notice.	Recommends. ³	Pesticide applications prohibited during operating hours.
Florida		Outdoor, post sign beginning of application, no specifics on time to remain posted.		Recommends. ⁴	
Georgia		Indoor, prior posting, remain 24 hours. Outdoor, prior posting, remain until the following day.			
Hawaii				Defines. ⁵	
Illinois		Outdoor, post sign, remove following day.	Parent registry or universal notification, school decision, 48 hour notice.	Requires. ⁶	
Louisiana	Aerial application, 1000 feet, during school hours.		Parent registry, medical verification required, no time specified.	Requires. ⁷	Pesticide applications of restricted use pesticides, entry restricted for 8 hours after application
Maine		Indoor & outdoor, post prior to application, remain 48 hours.		Recommends. ⁸	
Maryland		Indoor & outdoor, "in-school notification" for all pesticide use in secondary schools. Indoor, "in school notification" for bait stations in elementary schools. Outdoor, post sign at time of application, remain 48 hours.	Parent & staff, elementary school, universal 24 hour notice. Parent & staff, secondary school, registry, 24 hour notice	Requires.	
Massachusetts		Indoor, post prior to application. Outdoor, post sign 48 hours prior to application, remain 72 hours. Aerial agricultural applications within 500 feet of school, post sign 10 hours prior, remain 48 hours.	Parent & staff, universal notification, outdoor applications. Parent & staff registry, indoor application, no time specified.	Requires.	Pesticide use prohibited when children present. Outdoor, pesticides that are known, likely or probable carcinogens, contain a "List I" inert ingredient or for aesthetic reason alone are prohibited from use. Indoor, certain pesticides are prohibited from use.
Michigan		Indoor, post sign after application, remain 48 hours. Outdoor, post sign after application, remain 24 hours.	Parent registry, 24 hour notice.	Requires. ⁹	Indoor, spray or aerosol insecticide, entry restricted for 4 hours after application. Outdoor, prohibits spray insecticide, 100 ft outside occupied area.
Minnesota			Parent registry, notification at "reasonable" time before application.	Defines. ¹⁰	
Montana		Indoor, post sign at time of application, remain "until dry."		Recommends. ¹¹	
New Hampshire	Aerial application, during commuting hours & outdoor activity in sensitive areas.	Outdoor, post sign, remain 24 hours.			Pesticides cannot be applied "where exposure may have an adverse effect on human health." ¹²

How States Around the Country Protect Children from Pesticide Exposure in Schools

State	Buffer Zones	Posting Signs ¹	Prior Notification	IPM	Prohibition of Use
New Jersey	Ground & aerial gypsy moth application, during commuting hours, 2 miles grade school, 2½ miles high school. Aerial application, 300 feet.	Indoor, permanent posting at central bulletin board, states next application date. Outdoor, post sign at start of application, remain 24 hours.	Parent & staff registry, no time specified.		Pesticide application prohibited during normal school hours or when area will be occupied within time for product to dry.
New Mexico			Parent registry, no time specified. Parent and staff universal notification, childcare center, 48 hour notice.		Prohibits use of certain pesticides when area occupied or will be for next 6 hours. Licensed childcare centers use of pesticides prohibited when children on premises.
New York		Indoor & outdoor, daycare center, post sign 48 hours prior to application. Outdoor, post sign, remain 24 hours.	Parent & staff registry, no time specified. Parent & staff, automatic notification 3 times a year, after application.	Recommends. ¹³	
North Carolina	Aerial application, 300 feet, when school occupied.				
Oregon				Defines. ¹⁴	
Pennsylvania			Parent & staff registry, medical verification required, school application & within 500 feet of school property, 12 to 72 hour notice.	Defines.	No applications in "common access areas" during normal school hours or extra-curricular activities, restricted entry 7 hours after application.
Texas		Indoor, post sign 48 hours prior to application, no specifics on time to remain posted.	Parent registry, indoor application, no time specified.	Requires.	Pesticides are grouped into lists. No indoor application of certain Green List when students in area. Other Green List & Yellow & Red List, restrict entry for 12 hours after application. Outdoor applications, Green List – students must be 10 feet away, Yellow List - 10 feet away, 12 hours restricted entry, Red list 50 feet away, 12 hour restricted entry.
Virginia		Resolution recommending schools adopt posting.	Resolution recommending schools adopt prior notification.		
Washington				Defines. ¹⁵	
West Virginia		Indoor, day care center, post sign 24 hours prior to application, no specifics on time to remain posted.	Day care employees, automatic 24 hour notice, level 3 or 4 pesticide. Parent registry, schools & day care centers, 24 hour notice of level 3 or 4 pesticide.	Requires.	Pesticides are grouped into levels. Students & employees restrict entry for 4 hours after level 3 pesticide & 8 hours after level 4 pesticide.
Wisconsin		Outdoor, post sign prior to application, remain until sunset following day. Farms within 300 feet of school, during duration of restricted entry pesticides.			

¹ Seven states require posting notification signs for outdoor lawn applications: Colorado, Indiana, Iowa, Kentucky, Ohio, Rhode Island, and Vermont. These states are not included because this is the only requirement the states have adopted to protect children and staff while at school.

² At printing time, the California law regarding school pesticide use, the *Healthy Schools Act*, is awaiting the Governor's signature.

³ Connecticut recommends schools develop IPM plan and requires technical schools have an IPM plan.

⁴ Florida State Board of Education Administrative Rules states that school boards should adopt policies and procedures for pest management programs that are in accordance with U.S. EPA, *Pest Control in the School Environment: Adapting Integrated Pest Management*, August 1993.

⁵ Hawaii state agencies are required to establish guidelines and review IPM procedures.

⁶ Illinois requires IPM for structural pest management only. Law has a strong definition of IPM.

⁷ Louisiana requires schools to have IPM policies. State law recommends the use of least toxic option, but definition does not state priority to use least toxic option.

⁸ Maine does not define IPM in its laws, but states that state "agencies shall promote the principles and implementation of IPM."

⁹ Michigan requires IPM plans be developed for indoor pest management only.

¹⁰ Minnesota law states that if a school is going to tout having an IPM program, it must fit the definition in the law.

¹¹ Montana law does not define IPM. The regulation discusses IPM, stating, "When pesticide treatment is necessary, the least toxic and most target-specific pesticide is chosen." The state has developed a model policy that defines IPM as using all methods.

¹² Although this language is open to interpretation, it is a stronger safety standard than that contained in the *Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)* which protects for "unreasonable adverse effects."

¹³ New York State Board of Regents, State Education Department, adopted recommendations that incorporated the essential elements of an IPM plan and notification.

¹⁴ Oregon only requires IPM for state agencies and higher education facilities.

¹⁵ Washington only requires IPM for higher education and state agencies.

means of notifying people and does not qualify as right-to-know because of its limited scope. Requiring that individuals place themselves on registries, sometimes only with a doctor's letter, affords only those who already understand concerns about toxic exposure the opportunity to be informed about pesticide use in the school. Registries also tend to be more costly and time consuming for the school to operate. For large school districts, it may require an extra staff person to keep the registry up-to-date and coordinate the notification. Prior notification should be 72 hours in advance to make sure the information has been received, to get further information regarding the pesticide, and to make arrangements to avoid the exposure, if necessary. Notification should state when and where a pesticide is to be applied, the name of the pesticide, the pesticide's adverse effects and how to get further information, such as a copy of the MSDS and product label.

Fifteen states have requirements to notify parents or school staff in writing before a pesticide application is to occur. Of these, seven states have provisions for universal notification. Six states have provisions for universal notification prior to the application, and one state, New York, requires notification three times a year, after the application has taken place. Arizona requires universal notification to all parents and staff in both primary and secondary schools. Maryland, Massachusetts and New Mexico require universal prior notification for only certain pesticide applications, depending on either type of school or where the application is to occur. Illinois leaves the decision to establish a registry or provide universal notification to the school. Thirteen states have provisions for prior notification for individuals listed on a registry. Louisiana and Pennsylvania require medical verification to be listed on a registry. Ten states' prior notification requirements, whether universal or registry, provide notice to both parents and school staff. Seven states require the posting of signs for indoor and outdoor applications and provide prior notification of a school pesticide application, which constitutes the widest range of notification activities. Arizona is the only state that makes provisions for students and staff who are not able to attend school because of the pesticide application. Virginia addresses the issue of pre-notifying people when pesticides are used in schools, but does not require it.

Prohibitions on Use

Limiting when and what pesticides are applied in and around schools is important to the reduction of pesticide exposure. Pesticides should never be applied when students or staff are, or are likely to be, in the area within 24 hours of the application. Nine states restrict the type and/or timing of pesticides that may be used in a school. In reality, certain types of pesticides, such as carcinogens, endocrine disrupters, reproductive toxins, developmental toxins, neurotoxins and pesticides listed by EPA as a toxicity category I or II pesticide, should never be used around children. Massachusetts is the only state that bans the use of certain pesticides by schools. Connecticut, New Jersey and New Mexico prohibit applying pesticides during school hours. Loui-

siana, Michigan, New Mexico, Pennsylvania, Texas and West Virginia have established entry restrictions for hours following an application. Texas has the strongest of such re-entry restrictions, requiring that the area treated with certain pesticides remain unoccupied for 12 hours after the application.

Integrated Pest Management

A good integrated pest management (IPM) program can eliminate the unnecessary application of synthetic, volatile pesticides in schools. The main elements of a good IPM program include: 1) monitoring to establish whether there is a pest problem, 2) identifying the causes of the pest problem, 3) addressing the cause by changing conditions to prevent problems, 4) utilizing pest suppression techniques, if necessary, that are based on mechanical and biological controls, and 5) only after non-toxic alternatives have been tried and exhausted, use the least toxic pesticide, as clearly defined. An IPM program should include a written policy guide and a prohibited and acceptable materials list. Monitoring eliminates the need for scheduled pest control visits and thus the unnecessary use of chemicals. A successful school IPM program relies heavily on good communication between all school users and personnel.

Least toxic control products are a major growth area and new materials and devices are increasingly available in the marketplace. Materials that could be considered after using other nontoxic methods include boric acid and disodium octobrate tetrahydrate, silica gels, diatomaceous earth, non-volatile insect and rodent baits in tamper resistant containers or for crack and crevice treatment only, microbe-based insecticides, botanical insecticides (not including synthetic pyrethroids) without toxic synergists, biological, living control agents, such as parasites and predators, soap-based products, and products that do not contain hazardous inert ingredients or contaminants listed on the pesticide label.

It is important to remember when controlling a pest problem to look for long-term solutions not just a temporary control, a key ingredient to cutting pest management costs. Instead of addressing the cause of pest problems, many pesticides only treat the symptoms, without changing the structural problems that create an environment conducive to their existence. Pesticides are often ineffective over the long term and the most common pests are now resistant to many insecticides. Any openings that pests are using to access the structure should be caulked, screened or repaired. Efforts to eliminate food sources can eliminate the pest problems.

Eighteen states define, recommend or require IPM in their state laws. Of these, only seven states require that schools adopt an IPM program. Six states recommend that schools use an IPM program. And, five states' laws define IPM, but do not require or recommend implementation in their schools. Unfortunately, IPM is a term that is used loosely with many different definitions. More and more, we hear pest control programs inaccurately described as IPM. Of the eighteen states, California, Illinois, Maryland, Massachusetts and Minnesota, have

comprehensive definitions of IPM, and allow only the least toxic pesticide to be used as a last resort. Connecticut, Florida, Louisiana, Michigan, Oregon, Pennsylvania, Texas, and Washington, define IPM as using all methods of pest management that are available, giving equal emphasis to pesticides, usually stated as the “judicious use of pesticides.” And four states, Hawaii, Maine, Montana and New York, fall somewhere in-between because the law does not clearly, if at all, define IPM in the law. For effective, least-hazardous pest management to occur, it is important that IPM is clearly defined.

Conclusion

Raising the level of protection across the nation to meet the highest possible standard of protection for children is essential. Where a state offers protection not provided by your state, advocate for it. Where policies exist, make sure that they are enforced. Enforcement of existing pesticide laws is also critical and often the most difficult phase of community-based efforts. Both the adoption of laws and ensuring their enforce-

ment once adopted, require vigilant monitoring and public pressure. Exemptions that waive notification requirements before or after pesticide use, such as during school vacations, undermine protection.

While this review shows that over half the states have taken some action, it describes limited action. Nearly half the states are silent on these critical issues. The degree of state activity suggests a level of concern that can and should lead to increased protection in the future. Parents and community members can help school districts improve their pest control practices by contacting the district and encouraging the implementation of an IPM and notification program. School administrators will be more conscious of their pest control policy if they know parents are concerned about this issue and tracking their program.

For information on state pesticide laws, local government and school districts that have passed school policies, and tools on how to get such policies at the federal, state and local level adopted, please contact Beyond Pesticides/NCAMP or see www.beyondpesticides.org.

Endnotes

- ¹ This review is intended to determine what each state's provisions are under its statutes and regulations regarding school pesticide use. It does not evaluate the enforcement or quality of the program that may be in place. This report does not fully examine all the administrative materials that have been developed or policies that may be adopted on the local level. This survey includes California and the provisions of the Healthy Schools Act 2000, which is expected to be signed by the Governor at time of publication.
- ² States that “address” indoor use of pesticides are based on whether the state recommends or requires schools post notification signs for indoor pesticide applications, provide prior notification of an indoor pesticide application, establish IPM program, or prohibit the use of certain pesticides in school buildings. States include: Arizona, California, Connecticut, Florida, Georgia, Illinois, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Jersey, New Mexico, New York, Pennsylvania, Texas, Virginia and West Virginia.
- ³ U.S. Environmental Protection Agency, Prevention, Pesticides and Toxic Substances, *Chlorpyrifos revised Risk Assessment and Agreement with Registrants*, Washington, DC, June 2000.
- ⁴ U.S. General Accounting Office (GAO), *Use, Effects, and Alternatives to Pesticides in Schools*, RCED-00-17, November, 1999, p. 4.
- ⁵ The U.S. Senate unanimously approved an amendment to the *Education Savings Account Bill*. S-1134 by Senator Barbara Boxer (D-CA) on March 2, 2000.
- ⁶ National Research Council, National Academy of Sciences, *Pesticides in the Diets of Infants and Children*, Washington, DC: National Academy Press, 1993, p.3.
- ⁷ Id, p. 4.
- ⁸ Calabreses, E.J., *Age and Susceptibility to Toxic Substances*, John Wiley & Sons, 1986; Natural Resource Defense Council (NRDC), *Intolerable Risk: Pesticides in Our Children's Food*, February, 1989; Spyker, J.M. and D.L. Avery, “Neurobehavioral Effects of Prenatal Exposure to the Organophosphate Diazinon in Mice,” *Journal of Toxicology and Environmental Health* 3:989-1002, 1977; Paigen, B., “Children and Toxic Chemical,” *Journal of Pesticide Reform*, Summer 1986.
- ⁹ Volberg, D.I., et al., *Pesticides in Schools: Reducing the Risks*, Robert Abrams, Attorney General of the New York State, New York State Department of Law, Environmental Protection Bureau, New York, March 1993; Bushnell, P.J., et al., “Behavioral and Neurochemical Effects of

Acute Chlorpyrifos in Rates: Tolerance to Prolonged Inhibition of Cholinesterase,” *Journal of Pharmacology. Exper. Thera.* 266(2):1007-1017, 1993.

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- ¹³ Vasselinovitch, S.D., et al., “Neoplastic Response of Mouse Tissues During Perinatal Age Periods and Its Significance in Chemical Carcinogenesis,” *Perinatal Carcinogenesis*, National Cancer Institute Monograph 51, 1979.
- ¹⁴ U.S. General Accounting Office (GAO), *Use, Effects, and Alternatives to Pesticides in Schools*, RCED-00-17, November, 1999.
- ¹⁵ Beyond Pesticides/NCAMP, *Health Effects of 48 Commonly Used Pesticides in Schools*, factsheet, August 2000.
- ¹⁶ Material Safety Data Sheets (MSDS) are regulated by the Occupational Safety and Health Administration and detail the hazards of the product ingredients. MSDSs are sometimes limited by the fact that they are completed by the product manufacturer.

Stolen Harvest: The Hijacking of the Global Food Supply



Vandana Shiva (South End Press, Cambridge, MA, 2000). Will genetically altering our food supply solve global hunger and lift struggling farmers out of poverty?

Or will it further enslave small farmers of developing countries to corporate agriculture? Biotechnology companies are spending millions to convince us that genetic engineering is in our best interest and will improve the quality of life in developing countries. Despite their best efforts, many people, including author Vandana Shiva, disagree. In her latest book, *Stolen Harvest*, she explains the reality of globalized, corporate agriculture. While third world farmers might be growing larger quantities of food under the new agricultural system, they have replaced a more sustainable, varied harvest with pesticide-intensive monoculture operations, which are immediately exported to industrialized countries, according to the author. With fields of crops, but little to eat, the farmers are more dependent than ever.

Ms. Shiva also attacks the General Agreement on Tariffs and Trade (GATT), based upon its institutionalizing and legalizing "corporate growth based on harvests stolen from nature and people." She explains why the globalization of agriculture and the introduction of free trade have, in fact, taken much needed food away from the world's poor and starving. Prior to GATT, it was a punishable crime in many countries, such as India, to allow corporations to export a harvest, while the people of the country are in need of food. Now the needs of the people are pushed aside in the name of free trade. She also points out that 32% of the world's commercial seed market, along with the whole of the genetically altered market,

is owned by ten large companies. For a copy, contact the South End Press at 1-800-533-4002 or southend@igc.org. Order directly from their website at www.lbbs.org/sep/sep.htm.

Pesticide Data Program: Annual Summary Calendar Year 1998

Robert L. Epstein, Pesticide Data Program



(United States Department of Agriculture, Washington, DC, 1999). U.S. Department of Agriculture Pesticide Data Program (PDP) has released its latest report on pesticide residue sampling

taken from a variety of crop foods. The data reported by PDP is used by a variety of organizations and agencies, including the Environmental Protection Agency (EPA), which uses it in dietary risk assessments and pesticide registration processes. Using 1998 data, PDP reports a total of 8,500 samples of 16 commodity groups taken from 40 states and 25 foreign countries. Of this, 7,017 are fruit and vegetables, 595 whole milk, 590 soybeans, and 298 corn syrup. Approximately 84% of all samples are domestic while 15% are imported. Out of all of the samples analyzed, more than half are found to have pesticide residues present. In fruits and vegetables alone, out of the 7,017 sampled, 61.2% contain pesticide residues, which has dropped from 65% in 1995. These commodities, along with the pesticide residues tested for, were chosen based on the EPA's data needs and the USDA's food consumption surveys. PDP also found that out of 8,065 samples tested, approximately 3% contain DDE, a metabolite of the infamous organochlorine DDT. While a small number of samples are found to exceed the EPA's tolerance on pesticide residues, attention is still not being paid

to aggregate exposure or the reactions between different chemicals. This document is a resource for those who wish to understand the level of pesticide residue the U.S. government finds acceptable on the food we eat. For a copy, contact the Residue Branch, USDA at (703) 330-2300 or e-mail them at Dawn.Fay@usda.gov.

State of the World 2000



Lester R. Brown et al. (The Worldwatch Institute, Washington, DC, 2000). OK, so we've survived Y2K...now what? As we race into the new millennium, the

Earth can no longer handle the consumption of our global society. Until the human race reaches ecological sustainability, our fate is sealed. Something has to be done to return our lifestyle to harmony with our environment. Lester Brown of the Worldwatch Institute has proposed a general way of life that could merge industry with environmental stability so that these terms would no longer be mutually exclusive. Issues addressed in his latest *State of the World* range from the phasing out of toxic chemicals in our foods and atmosphere to preserving what remains of our natural resources. His book highlights successful attempts currently in place, such as the 2000 Olympics, or "Green Games," which are using solar panels to supply a majority of the electricity for the buildings of the Olympic Village. At the close of the summer games, the village will be converted into a 1500-residence "solar-suburb," which will eliminate an estimated 7,000 tons of carbon pollution from our atmosphere each year. For a copy, contact the Worldwatch Institute, or order it directly from their website at www.worldwatch.org.

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- A Failure to Protect*. Landmark study of federal government pesticide use and pest management practices. \$23.00. *Summary and Overview* \$5.00.
- The Chemical-Free Lawn: The newest varieties and techniques to grow lush, hardy grass with no pesticides no herbicides, no chemical fertilizers*. By Warren Schultz. Published by Rodale Press. \$17.95 (14.95 + \$3.00 shipping).
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