

Pesticides and You

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



Photo courtesy of Senator Murray's office

Press Conference Unveiling the *School Environment Protection Act*, S. 1716, U.S. Senate, October 13,1999: (from left to right) Senator Robert Torricelli; Philip Landrigan, M.D., M.Sc. (blocked); Jay Feldman, Beyond Pesticides/NCAMP executive director; Vicki Rafel, National PTA vice-president of Legislation; Senator Patty Murray; Katharina and Alexandra's mother; Katharina (age 11); Alexandra (age 7); Katharina and Alexandra's father; Ruth Berlin, MD Pesticide Network coordinator; Jesse Rifkin (age 13)

The School Environment Protection Act of 1999

SEPA introduced in the U.S. Senate (S. 1716) and House of Representatives (H.R. 3275)

- Protecting Children from Pesticide Exposure in Schools
- Health Effects of 48 Commonly Used Pesticides in Schools
- San Francisco's Pesticide Phase-Out

Letter from Washington

Taking Action on Schools

The *School Environment Protection Act* (SEPA), S. 1716 and H.R. 3275, was introduced in the U.S. Senate on October 12, 1999 and in the U.S. House of Representatives on November 9. This legislation grows out of a lot of effort and success that has been achieved at the state and local level over the last decade. I joined Senator Robert Torricelli and Senator Patty Murray in a press conference on October 13 announcing the bill's introduction. We brought together a group of 100 initial public interest and business endorsers, including the National Parent Teacher Association, the American Federation of Teachers, National Education Association and numerous environmental, health and local groups from across the country. This was an exciting day for all those associated with Beyond Pesticides/NCAMP! *It could not have happened without your support of an organization focused on action.*

Now we are moving ahead with our outreach to educate people on the legislation. *If your organization, other organizations, religious and civic institutions, elected officials or others you know have not yet endorsed the bill, consider it and let us know.*

This legislation will give greater prominence to the issue of children and the hazards of pesticides and provide an opportunity to educate on the availability of alternative practices that are not reliant on dangerous chemicals. While I believe strongly that federal law is required to provide a minimum of protection for children across the country, the bill will also provide support and legitimacy for local efforts to adopt policies in your school, community or state. Our study earlier this year, *The Schooling of State Pesticide Laws*, identified 30 states that are doing something protective in the area of pesticides and schools, but protection is uneven from one community to the next.

S.1716/H.R. 3275 requires schools to develop plans that utilize alternative methods of pest management that are not reliant on toxic chemicals. If pesticides are used as a last resort, the school community, including parents, teachers and school staff, would be notified of their use with hazard information in advance. The bill clearly defines Integrated Pest Management (IPM), with specific acceptable materials. It also establishes a 12-member national advisory board of parents, teachers and pest management practitioners to oversee the process and begin a comprehensive review of all pesticides used in schools, prohibit the most toxic, and ensure that any pesticide used does not endanger children's health.

Children are at the heart of the issue. Our nation's most precious resource is our children. And yet, we as a nation allow the poisoning of our children. Sometimes the effects are vivid and dramatic, as captured by studies linking elevated rates of different types of childhood cancers to pesticide use in the home. In other instances, the effects may be more subtle and develop in the form of learning disabilities or problems with sexual physiological development.

Don't think that this press event went unnoticed by the pesticide lobby. Industry representatives were out in force at the press conference, standing around at the press conference and in the hallway outside with their own press releases and asking questions during the press conference in an effort to discredit the legislation. Of note were the American Crop Protection

Association's repeated references in its press material to pesticides as "safe." This type of mischaracterization violates the federal pesticide law, which prohibits manufacturers from describing pesticides as safe. Nevertheless, the tactic seems to be in vogue these days.

The spraying of the New York City Region & South

New York City Mayor Rudolph Gulliani, at a City Hall news conference, described the impact of spraying New York with malathion this Fall in this way: "There's no point in not spraying, because there's no harm in spraying." After a deadly mosquito-borne virus quickly emerged as a public health crisis over Labor Day weekend in September, 1999, it has become clear that the broad scale pesticide-intensive response was not without public health risks of its own. As helicopters took to the air and trucks rolled down residential streets spraying pesticides regularly for over a month, many are left wondering whether the cure is worse than the disease. Meanwhile, many public officials gloss over the real dangers of indiscriminate pesticide spraying, betraying the public's right to know the public health tradeoffs. We swung into gear, participating in various media discussions, publishing letters on the dangers of malathion in the *New York Times*, and *Newsday*, testifying before the New York City Council Committee on Health, and distributing a strategy for defining a reasonable response to insect-borne diseases.

Mosquitoes are best controlled through a prevention program that eliminates their breeding areas or disrupts their breeding cycle or larval stage through the use of biological larvacides. In a public health crisis, where infected adult biting mosquitoes are carriers of a deadly disease, spray programs are intended to "knock-down" their population. However, there are little and often no regulations on the books that establish a protocol for defining an insect-borne public health emergency and documenting its threat.

After a true emergency is defined and documented, short-term, targeted pesticide spraying may be justifiable, assuming full public disclosure and only if the program utilizes the least toxic materials available and is accompanied by strategic prevention efforts.

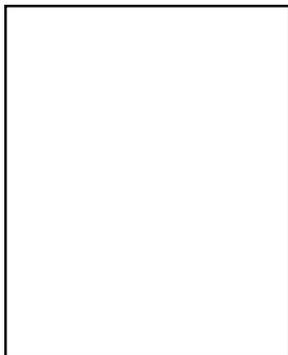
This issue is not going away and is expected to revisit the eastern seaboard in Spring 2000. With more public involvement, the response can be more reasonable than it was in 1999.



Here's to good health and a happy new year. Thank you for your support of Beyond Pesticides/NCAMP.

— Jay Feldman is
Executive Director of
Beyond Pesticides/NCAMP

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Lake Apopka Agricultural Contamination

Dear Beyond Pesticides/NCAMP,
We were surprised and glad to see your article "Massive Bird Kill in Lake Apopka, Florida: Pesticides Suspected" in the Summer 1999 issue of *Pesticides and You* (Vol. 19, No. 2, 1999, page 5). The pesticide problems impacting wildlife on the state's largest polluted lake, Lake Apopka, have received national and international attention. However, there is another side of the story that the public never hears. That is the story of the over 2000 low-income and minority (African-American, Hispanic, and Haitian) farmworkers who worked on the farms of Lake Apopka and who lived in the nearby farming communities. These men, women and, yes, even children, worked on the lands, fished in the water, and lived in the labor camps where the same pesticides, that impacted birds and alligators, were sprayed and applied.

While state agencies are furiously scrambling to conduct tests on soil and water samples to determine the exact cause of the shocking bird deaths, none have called for tests and health studies on the farmworkers. The Department of Health insists that the people face no health threats from eating "normal amounts" of fish from the lake. The reality is 50 years of continued pesticide use on the vegetable and surrounding citrus farms, two Superfund sites involving pesticides – one on the north and one on the south shore of the lake – mixed together with oil and fuel spills and leaks from farm equipment, have made the land and water of Lake Apopka a toxic soup. The bird deaths are only the most visible and dramatic of the pollution consequences. High percentages of cancer, diabetes, miscarriages, asthma, attention deficit disorder, and other problems among farmworkers and their children are the hidden killers and debilitators that go unnoticed and unaddressed. The Farmworker Association of Florida is calling for a serious health survey and study of the Lake Apopka farmworkers to be undertaken and for state agency

officials to address the farmworkers concerns. What happens on Lake Apopka could determine what direction environmental agricultural and human health issues are handled in the future in Florida, and perhaps, even the country.

Jeannie Economos
Lake Apopka Project Coordinator
Farmworker Association of Florida
Apopka, FL

*Dear Ms. Economos,
Thank you for pointing out the effects of Lake Apopka agricultural contamination on farmworkers. The extensive bird deaths are environmental indicators that pesticides are toxic chemicals not only to wildlife but in the end to public health. We look forward to working with you to stop the poisoning of farm workers and their families.*

Dursban™ Residue in Middle School

Dear Beyond Pesticides/NCAMP,
My daughter attended a middle school that sprayed pesticides directly into two of her classrooms with Dursban™ (chlorpyrifos). After the students arrived and settled in their homeroom, the teachers and students noticed a sticky substance on the desks, counters, floors and carpeting and the children were moved out. However, they were allowed to go into the classroom to get their books throughout the day. The school attempted to clean up the rooms, with help from teachers and students, and allowed the students back in the classrooms. My daughter was one of the students who was allowed to sit in the classroom day after day. No one was told that the sticky substance was a pesticide. Approximately two and a half months later a mother became aware of the pesticide application and the children were again removed.

Several strange things happened to Amanda during the time she was in the contaminated classroom that didn't make sense until we heard about the spraying. First, she came home with severe headaches which she had never complained

about before. For three nights she took pain medicine and I had to rub her head for her to be able to sleep. Then she got what looked like water blisters on her feet and we thought she had gotten athlete's feet. We applied the medicine for that diagnosis but it took awhile for it to go away. During this time she became very sensitive to being in close proximity to chemicals – she couldn't stand in front of my kitchen sink without her feet turning red and itching. This reaction continues even today. As it turns out, Amanda's Keds had been damp with the pesticide and, not knowing, she continued to wear those shoes every day. I wanted to share this with you.

TC Hardwick
Mt. Pleasant, SC

*Dear Ms. Hardwick,
We are so sorry about the unfortunate pesticide incident your child was involved in at school. It is incidents like these that have provided the motivation for Beyond Pesticides/NCAMP to work with U.S. Senators Torricelli and Murray on the School Environment Protection Act (SEPA). (See pages 9-15 and see www.beyondpesticides.org)*

Time-Release "Bug-Spray" in Kansas Holiday Inn

The following letter was sent to a hotel owner and copied to Beyond Pesticides/NCAMP. We think you will be as outraged by it as we are.

Dear Service Hotels and Resorts,
My wife and I were guests in your hotel on July 24, 1999, the Holiday Inn in Lawrence, Kansas. In fact, for several days preceding that date, we had a number of family members who were guests beginning on July 22, 1999 for the balance of the week for a family wedding.

During a group dinner, we noticed the odor of bug spray on several occasions. After the meal was concluded, we investigated a white plastic dispenser on the wall near our table and discovered that it contained a pesticide that was being dispensed every few minutes. Our

party included several children, including a toddler of 15 months, and a senior citizen aged 72.

Following the meal, we surveyed the hotel and discovered that these dispensers were located throughout the public space of the hotel. There was one mounted very close to the area in the lobby where omelets are prepared in the morning and a pasta bar is set up in the evenings. It was also reported to a member of our party that one of these dispensers had been placed in her confined office and was disabled after she noticed that it was making her sick.

Several members of our party have reported various illnesses following exposure to this pesticide for a period of up to one week or longer including fatigue, nausea, sinus headaches, hot flashes, and upper respiratory infections. These are incomplete reports based on hearing from no more than

four members of the party as of this date. A copy of the label from the can, which contains pyrethrins 1.76%, technical Piperonyl Butoxide 5%, and inert ingredients 93.24%, reads: "CAUTION - Do not use in nurseries or rooms where infants, ill or aged people are confined. Use 12 feet or more from exposed food or food handling or dispensing surfaces. DIRECTIONS FOR USE - It is a violation of federal law to use this product in a manner inconsistent with its labeling."

Our table was about one foot from the wall where the appliance was attached making it clearly less than 12 feet from exposed food and water that we all consumed over a two hour period. The spray was settling on our table for the entire period of time and we inhaled and consumed the pesticide with out meal. As I read the label, you were in violation of federal law on several counts. Moreover, the routine application of this pes-

ticide is unnecessary and undesirable from the perspective of the members of our party and by inference, the members of your staff.

When we reported our finding to the hotel personnel, they were patronizing at first, suggesting to us that this was merely a room deodorant. After being presented with the physical evidence and unable to deny our claim as to the nature of the product that was sprayed on our dinner, the charges for the evening's meal were credited back



and a small percentage reduction was credited to several of our rooms. By no means do we accept this as a final settlement of the injury and insult which this experience represents. I would hereby invite a settlement offer from you that would provide reasonable compensation to the members of our party and at a minimum provide for the following actions to

be taken: 1)Remove this pesticide product and other related products and the dispenser appliances from the Lawrence Holiday Inn property and all other hotel properties belonging to the corporation. 2)Provide appropriate notice in plain English to all employees of all hotel properties of their potential exposure to pesticide products. 3)Investigate and introduce as needed non-toxic alternative pest control methods. I would be happy to get you started with this research with appropriate referrals.

By sending a copy of this letter to the National Coalition Against the Misuse of Pesticides (NCAMP), we are placing you on notice that we intend to pursue this claim vigorously. Of course, we reserve the right to pursue this claim through the courts as necessary.

Rick Cagan
Hadensville, VA

Dear Mr. Cagan,
You should also send the complaint to the state agriculture department, the regional EPA office, the pesticide incident response officer at EPA's headquarters, and the manufacturer of the pesticide product. Beyond Pesticides/NCAMP can help you with follow up to this unfortunate incident in which you and your family were involved. The hotel's corporate office should send out a warning to its hotel mangers to stop this practice, or, to go even further, urge managers to reduce pesticide use where possible. Beyond Pesticides/NCAMP can suggest alternative pest management approaches as well. We also request that you fill out one of our Pesticide Incident Record forms which we use to document pesticide incidents and health effects. For a copy of Beyond Pesticides / NCAMP's Pesticide Incident Form, see www.beyondpesticides.org.



Kagan Owens is Beyond Pesticides/NCAMP's Program Director
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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New Legislation Will Gut Food Quality Protection Act

If you were getting frustrated with the politics that have slowed implementation of the *Food Quality Protection Act* (FQPA), now there is federal legislation to make this statute even more political – thanks to Representative Richard Pambo (R-CA) and Ed Towns (D-NY), who introduced the *Regulatory Fairness and Openness Act of 1999*, HR 1592 on April 28, 1999. The bill will require EPA to use “actual data” and “scientifically sound information” when making regulatory decisions under FQPA. Although this sounds good on the surface, it is code language for making it even more difficult for EPA to make timely and accurate risk assessments for pesticides. Specifically, the legislation will prohibit EPA to take any “adverse action against an existing tolerance” based on basic assumptions about the public’s exposure when there is a lack of scientifically proven data. Scientific studies of pesticides come primarily from industry labs. To view a copy, visit thomas.loc.gov and search for HR 1592. **Take Action:** Write to your U.S. Senators and Representatives about industry’s pressure to weaken FQPA.

Methyl Parathion and Azinphos-methyl Uses Banned (Sort of)

On August 2, 1999, Carol Browner, Administrator, EPA, announced that manufacturers of the organophosphate (OP) insecticide methyl parathion will withdraw the chemical’s uses on all fruits and some vegetables. The reported “ban” has left 75% of the chemical’s major uses in place. The move was made to protect children from exposures to methyl parathion residues left on “common foods eaten by children,” such as peaches, apples, pears, plums and tomatoes. The uses remaining for methyl parathion, a Toxicity Class I (highest) pesticide, include soybeans, corn, rice and wheat, which are commonly used in baby foods

and formulas, and cotton. Media reported EPA’s action as a ban that would eliminate most uses of methyl parathion.

EPA also announced that it would reduce the use of the OP insecticide azinphos-methyl. The tolerance level for azinphos-methyl on pome fruits (the apple family) will be lowered and its uses on cotton east of the Mississippi River and all sugarcane uses will be canceled. The restrictions come after completing reviews under the *Food Quality Protection Act* (FQPA), which requires EPA to review all OP pesticide registrations. EPA has failed to meet the August 3, 1999 deadline set under FQPA to review the first third of the OP pesticides.

Organophosphates can over-stimulate the nervous system, causing nausea, dizziness, confusion, and at higher exposures, respiratory paralysis and death. There are currently 39 OPs that are registered in the U.S. and are still under review, all of which affect the body in the same way. *Contact Beyond Pesticides/NCAMP.*

Chronic Adverse Effects Reporting Postponed

Over a year has passed since the EPA announced that it would delay, for at least one year, requiring pesticide companies to report incidents of delayed or chronic adverse effects associated with their pesticides to the agency. This means that EPA is currently unable to keep track of reports received by pesticide companies about exposures that may lead to chronic or delayed effects suffered months or years after the initial exposure to a pesticide. Thus, the agency does not have adequate or complete product safety information.

Under the *Federal Insecticide, Fungicide and Insecticide Act* (FIFRA), Section 6(a) (2), pesticide companies are required to notify EPA about reports from consumers about adverse health effects suffered due to exposure to their pesti-



cide. Acute reactions are required to be reported, but these are only a portion of the total number of adverse health effects due to pesticide exposure. For example, neural diseases such as delayed neuropathy are known to surface long after exposure to organophosphate pesticides.

EPA appeared to violate the *Administrative Procedure Act* when, without public notice or a public comment period, it changed the reporting rule eleven months after its publication in the *Federal Register*. Originally, EPA issued a rule (40 CFR 159) requiring adverse effects reporting in September 1997 that was scheduled to take effect on June 16, 1998. EPA further delayed the effective date until August 17, 1998. Then on August 4, 1998, the agency released Pesticide Registrant Notice (PRN) 98-4 which delayed “for at least one year” the requirement for reporting incidents where a person “may suffer delayed or chronic effects in the future.” The adoption of this new policy, and the consequential delay in the rule’s effective date, came after several EPA-industry workshops and discussions (sponsored by the pesticide industry) in Spring 1998.

Beyond Pesticides/NCAMP wrote to Marcia Mulkey, Director, Office of Pesticide Programs, EPA, inquiring when the reporting requirements for chronic and delayed effects would be reinstated. Ms. Mulkey’s response letter stated that PRN 98-4 did not exempt registrants from reporting chronic or adverse effects. “If the registrant learns of an exposure and an effect, the incident is reportable, regardless of whether the effect is immediate or delayed,” she states. According to Mulkey’s letter, PRN 98-4 only eliminated the requirement for registrants to report asymptomatic exposures (referred to as “may suffer” incidents). Addition-

ally, Mulkey writes, "EPA does have the authority to waive this reporting requirement without going through notice and comment rulemaking." **Take Action:** Contact Marcia Mulkey, Director, Office of Pesticide Programs, EPA, 401 M St., SW, Washington DC 20460. Express your concern about the postponed reporting of possible exposures associated with delayed and chronic health effects, and the lack of public input on this issue.

Environmentalists Call for Cancellation of Pesticide Linked to Golfer's Death

Beyond Pesticides/NCAMP and the Northwest Coalition for Alternatives to Pesticides (NCAP) submitted comments to EPA in response to the Reregistration Eligibility Decision (RED) for chlorothalonil (Case 0097), urging that the pesticide be banned. The comments point out that this fungicide and insecti-

cide is linked to the death of Navy Lt. George Prior, which was a direct result of his having played several rounds of golf on a course treated with the pesticide. Chlorothalonil is a widely used pesticide in agriculture and on golf courses and was identified by Navy pathologist Dr. Jonathan Lord as being responsible for burning off the flesh of Lt. Prior's body, eventually leading to his death.

Beyond Pesticides/NCAMP identified a series of deficiencies in EPA's evaluation of chlorothalonil. For example, the agency did not evaluate the impacts of toxic contaminants in products containing chlorothalonil, which include hexachlorobenzene (HCB) and dioxin. The agency also neglected to apply a ten-fold margin of safety to protect children, as mandated by the *Food Quality Protection Act*. An extra margin of protection is required in cases where incomplete data is available to determine a chemical's impact on children, which is the case with chlorothalonil. Additionally, EPA failed to consider the specific risks that are faced by farmworkers and their families.

In submitted comments, Beyond Pesticides/NCAMP states that until EPA begins to consider farmworkers and their families when making risk assessment decisions, all statements made by the agency regarding their attention to environmental justice can only be considered disingenuous.

View chlorothalonil's RED at www.epa.gov/oppsrrd/REDS/#C. For a copy of Beyond Pesticides/NCAMP's chlorothalonil comments, please send \$3 (ppd) to Beyond Pesticides/NCAMP.

Commonly Used insecticide, Dursban, Up for Review Under Food Quality Protection Act

One of the most widely used insecticides, chlorpyrifos, (Dursban™ or

Lorsban™), which douses homes and farms across the U.S. to the tune of 20-24 million pounds a year, is on EPA's operating table. The agency is in the process of determining which uses of the neurotoxic chemical will live or die. The review was announced in the *Federal Register* on October 27 as part of EPA's review process under the *Food Quality Protection Act* (FQPA) and invited public comments on the insecticide between the dates of October 27 and December 27, 1999. Beyond Pesticides/NCAMP has asked for an extension of this date and encourages individuals to write in their comments even after December 27th. A *U.S. News & World Report* investigation, "The Stuff In the Backyard Shed" (Nov. 8, 1999, pages 64-68), reports that since 1992, Dow AgroSciences and predecessor manufacturers have sent approximately 7,000 reports of chlorpyrifos-induced reactions to EPA. The agency, according to the report, suspects chlorpyrifos in 17,771 incidents reported to the U.S. Poison Control



Centers between 1993 and 1996. The preliminary risk assessment for chlorpyrifos indicates that risks from the use of this pesticide in residential settings, as well as its risks to applicators, are of concern.

Take Action: Write to EPA, telling the agency to take chlorpyrifos off the market. It is especially important for EPA to hear from people who have been harmed by this pesticide. If you have been harmed, contact Beyond Pesticides/NCAMP for a Pesticide Incident Record or see www.beyondpesticides.org. Comments can be sent to Public Information and Records Integrity Branch, Information Resources and Services Division (7502C), Office of Pesticide Programs/EPA, 401 M Street, SW, Washington DC 20460. Note on your letter docket control number OPP-34203. EPA's preliminary risk assessments can be viewed at www.epa.gov/pesticides/op/. The *Federal Register* announcement can be found at www.epa.gov/fedrgstr/.

New Board Members!

Two new members have joined the Beyond Pesticides/NCAMP Board of Directors this fall — Paul Repetto, Vice President of Horizon Organic Dairy of Boulder, Colorado, and Alan Cohen, President of Biological Pest Management of Washington, DC. We're excited to have them as part of the Beyond Pesticides/NCAMP team. They bring a wealth of experience to the organization. We thank Don Wartenburg, Ph.D., who is taking a break from his nine years of service to Beyond Pesticides/NCAMP. We also thank Ken Ogwaro for his service to the board.

Around the Country



Biotechnology in the News

Issues concerning genetically engineered (GE) crops have been in the forefront of the news in recent months. Numerous scientific studies have come out, warning the public that crops that have been genetically modified to produce their own pesticide in the form of *Bacillus thuringiensis* (Bt) need to be looked at more carefully. Concerns focus on whether these crops may damage the environment or if insects will become resistant to them faster than scientists previously thought. A study by John Losey, Ph.D. et al., at Cornell University, found that 44% of Monarch butterfly caterpillars in the study died within four days of eating milkweed that had been sprinkled with Bt corn pollen. Surviving larvae exhibited slow growth or reduced weight when compared to larvae that fed on milkweed leaves with no Bt pollen. This study, published in *Nature* (May 20,

1999, Vol. 399), is important because it challenges the safety assurances of the biotechnology industry.

Another study, "Development time and resistance to Bt crops," by Bruce Tabashnik, et al., shows that insects may develop resistance to Bt crops faster

than scientists previously expected. Refuges, which contain non-GE plants and are planted to surround GE plants of the same species, have been predicted to provide mating grounds where insects resistant to Bt crops and non-resistant insects can mate. The refuge theory states that this will achieve random mating patterns and will in turn slow insect resistance to Bt crops. Results of the study, which looked at pink bollworm moths, a common pest of U.S. cotton crops that can be controlled with Bt cotton, contradict the underlying refuge theory. The study found that resistant strains of bollworm larvae on Bt cotton take longer to develop than non-resistant larvae on non-Bt cotton. This difference in timing may lead to non-random mating, meaning that resistant moths will be more likely to mate with other resistant moths. To achieve random mating, which would prevent the recessive gene responsible for Bt re-

sistance in pink bollworms from emerging, resistant and non-resistant bollworms must reach developmental maturity at the same time, says the study. The study's results indicate that there is more to preventing insect resistance to GE crops than creating refuges. "There are some real concerns that resistance could evolve," said Bruce E. Tabashnik, Ph.D., head of the University of Arizona's department of entomology and an author of the study. *Send \$2 ppd for a copy of each study to Beyond Pesticides/NCAMP.*

Monsanto Co. Will Not Use the Terminator Seed

Monsanto Company, a biotechnology giant, announced October 4, 1999, that it would not develop or sell the biotechnology known as the "terminator seed." The announcement came as a result of Monsanto being targeted in increasing criticism of terminator technology, which would produce crops with sterile seeds. Terminator technology would be especially damaging to small farmers and growers in developing countries who cannot afford to buy new seeds each year and rely on using seeds that have been produced by the previous year's crops. Monsanto does not currently own patents on terminator technology, but it has made an offer to purchase the company that does, Delta & Pine Land Co., the world's largest cottonseed producer. The acquisition is currently being held up by a lawsuit claiming the

Hello and Many Thanks



Greg Kidd, J.D.

We say *WELCOME* to two new staff members of Beyond Pesticides/NCAMP. Greg Kidd, our new Science and Legal Policy Director, brings his skills with an MS in entomology from Cornell University and as an attorney. John Kepner joins us as our new Program Associate with a BS in biology from Penn State University. We say *goodbye and thank you* to Beth Fiteni, Beyond Pesticides/NCAMP Program Coordinator from September 1997 to September 1999.



John Kepner

merger would give Monsanto an unfair advantage over the agribusiness industry. Delta said it would continue to try to commercialize the terminator seed, according to the *New York Times*, October 5, 1999. *Contact Beyond Pesticides/NCAMP.*

Happenings in Organics



Baby Food.

Largely due to concern about children's susceptibility to toxics in the environment, issues around organic foods and food production have become in-

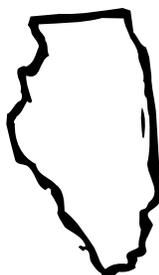
creasingly important to consumers. For example, Gerber, the largest producer of baby foods in the U.S., has decided to stop using genetically engineered corn and soybeans in their baby foods, according to the *Wall Street Journal*, July 30, 1999. In response to consumer demand and a written request from Greenpeace, the company is taking the change one step further by promising to eventually use only organic ingredients in their products. Gerber is owned by Novartis AG of Switzerland, which is the world's largest pesticide company and sells a line of GE seeds. Both Gerber and Novartis believe that GE foods will at some point receive a "clean bill of health," according to Al Piergallini, Novartis' CEO and president of the North American Consumer Health Division, based in Summit, NJ. Until then, the company will give consumers what they want.

Schools. To protect children from food residues from consumed at school, Berkeley Unified School Board voted to mandate that organic foods be served to the district's 9,400 students as often as possible. Also, two Boulder, Colorado school districts will offer organic food for students to purchase this year. The Berkeley organic food policy is funded by a U.S. Department of Agriculture grant and

will eventually require all food served in Berkeley school cafeterias to be certified organic.

Restaurants. On a similar note, Restaurants Nora and Asia Nora in Washington DC reports that they have become America's first certified organic restaurants, meaning that 95% of all ingredients used in the restaurants are certified organic. The restaurants, owned by Nora Pouillon, also use uniforms made from organic hemp fibers. *Contact Beyond Pesticides/NCAMP.*

Illinois Passes School Pesticide and Integrated Pest Management Bills



This past spring, the state of Illinois joined the list of states restricting pesticide use in schools. Public Act 91-0525, *IPM in Schools*, requires each school to adopt an integrated pest management (IPM) program

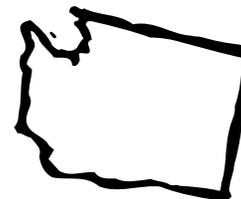
when economically feasible. A 1992 amendment to the IL Structural Pest Control Act encouraged the adoption of an IPM program, but a 1998 survey by the Safer Pest Control Project, an Illinois organization dedicated to pesticide reduction and promotion of safer alternatives to their use, found that 82% of Illinois schools continued to spray pesticides despite the encouragement. The act states that when the adoption of an IPM program would be more expensive than the school's current pest management policy, the school district must submit a proposal outlining a cost comparison of an IPM program. *IPM in Schools* also states that schools must maintain a registry or they must provide universal notification to all parents when pesticide applications occur. Notification in either case must occur 48 hours before pesticides are used and could be made in newsletters, bulletins, calendars or another form of correspondence published

by the school district.

Illinois Public Act 91-0099, the *Parent's Right to Know Act*, also requires that school districts establish a registry or provide universal notification to parents prior to pesticide applications on school lawns. Notification must occur 24 hours before pesticides are used on school lawns. The Act also states that school lawns must be posted immediately after pesticide applications to school lawns.

Beyond Pesticides/NCAMP does not support the establishment of registries because they do not fulfill the public health function that universal notification does. Many parents do not understand the *need* to know when pesticides will be applied, and thus may not ask to be put on a registry. *Contact Jill Viehweg, Safer Pest Control Project, 17 E. Monroe St., Suite 212, Chicago, IL 60603, 312-641-5575.*

Seattle and King County Phase out Most Hazardous Pesticides



On October 6, 1999, the city of Seattle and King County, WA announced they would phase out the

use of pesticides that are considered "most hazardous." This includes all pesticides that are known, likely, or probable carcinogens, endocrine disruptors, cause reproductive damage, are labeled as toxic to fish and wildlife, are Restricted Use Pesticides, are persistent (the active ingredients have half lives of more than 100 days), or leach quickly into streams or groundwater. The phase out will take effect by the end of June 2000. The city of Seattle also plans to reduce its overall pesticide use by 30% by 2002.

Puget Sound Chinook salmon were recently put on the Endangered Species List, and this is thought to be in part due to pesticides leaching into salmon habi-

tats. In response to salmon becoming an endangered species, the city of Seattle placed a public announcement in city papers, asking residents to “avoid using weed killers or harmful pesticides in your yard” to save salmon. At the same time, city crews continued to spray parks and roadsides with herbicides on a set schedule, sparking criticism from environmentalists. The pesticides to be phased out were labeled as “Tier 1” pesticides in a city study of pesticides used over the past several years which rated the products according to their hazards.

Seattle is continuing to use highly toxic herbicides on golf courses until an alternative to their use is found. “We will continue to monitor Seattle’s use of fungicides and pressure the city to set timelines for phase-outs of hazardous fungicides,” said Erika Schreder, director of pesticide reform, Washington Toxics Coalition. The herbicide Roundup™, containing the active ingredient glyphosate and extremely toxic in-



ert ingredients, is the most frequently used herbicide in King county. Under Seattle’s classification system, Roundup™ is classified as a “Tier 2” pesticide and will continue to be permitted.

Additionally, Lincoln Elementary School in Thurston County in Olympia School District 111 has developed a “zero pesticide policy,” developed by concerned parents, that will eliminate all pesticides used in the school. Contact Erika Schreder, Washington Toxics Coalition, 4649 Sunnyside Ave., North, #540E, Seattle, WA 98103, 206-632-1545, eschreder@watoxics.org.

Healthy Schools Act of 1999 Vetoed by California Governor Gray Davis

In an action that has angered environmentalists and public health advocates in California, A.B. 1201, the *Healthy Schools Act of 1999*, authored by Assemblyman Kevin Shelly (D-San Francisco/San Mateo), has been vetoed by California Governor Gray Davis. The agrochemical lobby weighed in heavily against the bill. In its original form, the bill required a ban on school use of pesticides that were classified by EPA as suspected carcinogens, nerve toxins, as causing birth defects or impaired growth and development. The *Healthy Schools Act* was watered down this past summer to a right-to-know bill that would require notification to parents before pesticides were used in schools, posting of signs, and central record keeping of pesticides used in schools. A.B. 1207 also would have provided schools with information and training on environmental issues and would have required the state to study indoor air quality in portable classrooms. The bill passed the California Legislature on September 10, 1999 in this form, and was subsequently vetoed by Governor Davis.

The bill was supported by over 50 medical, environmental, parent and teacher organizations, including the California Parents and Teachers Association (PTA), the American Lung Association and the American Academy of Pediatrics. “This healthy schools legislation was supported by medical, parent and teacher groups across the state, and opposed only by the chemical and pesticide industry. By vetoing this bill, the Governor has shown whose side he’s on,” commented Dr. Harvey Karp, spokesperson for the American Academy of Pediatrics, District IX.

A 1998 California Public Interest Research Group study found that 87% of surveyed California schools reported using pesticides that have been identi-

fied as causing cancer, birth defects, neurological problems, or impaired growth and development.

Contact Gregg Small, Pesticide Watch, 450 Geary Street, Suite 500, San Francisco, CA 94108, 415-292-1486.

Hartz Settles Case Over 11-Year-Old Girl’s Death Linked to Flea Shampoo

Hartz Mountain Corporation has recently settled a lawsuit with Delbert and Virginia Campbell over the death of their daughter, Lisa, while shampooing their pet beagle with a flea shampoo, according to the *Associated Press*, October 8, 1999. The parents say that their 11-year-old daughter’s fatal asthma attack in 1996 was brought on by using Hartz’ Two-in-One Rid Flea Shampoo containing synthetic pyrethroids in an enclosed area. The lawsuit called for monetary damages and asked that warning labels be put on the product, saying that products containing pyrethroids could cause breathing problems when used indoors. Hartz denies that the shampoo caused the asthma attack and will not disclose the terms of the settlement. According to the *Associated Press*, EPA is currently considering placing warning labels on pet products containing pesticides. **Take Action:** Write Carol Browner, Administrator, EPA, 401 M St., NE, Washington DC 20460. Tell her to immediately put warnings on products containing organophosphates, carbamates and synthetic pyrethroids alerting the public that “these products can cause respiratory/breathing problems that can be deadly.”



Hilary Melcarek is Beyond Pesticides/NCAMP’s information coordinator

School Environment Protection Act (SEPA)

Communities across the county are acting in increasing numbers to protect children from pesticides used at their schools, yet there are no national protections or standards in this area for children. To correct this situation and ensure national leadership in protecting children from a daily dose of toxic chemicals in their classrooms, playgrounds and ballfields, there is exciting federal legislation, entitled the *School Environment Protection Act* (SEPA). SEPA was introduced in the U.S. Senate (S. 1716) on October 12, 1999 by Senator Robert Torricelli (D-NJ) and Senator Patty Murray (D-WA) and in the U.S. House of Representatives (H.R. 3275) on November 9, 1999 by Representative Rush Holt (D-NJ).

SEPA is intended to set in place a process that creates incentives for schools to use pest management practices that do not rely on toxic pesticides. The legislation clearly defines preventive and least toxic pest management strategies in schools. It also requires safety findings on pesticides used in schools, specifically addressing adverse effects, such as cancer, genetic mutations, birth defects, reproductive dysfunction, neurological and immune system effects, endocrine system disruption, as well as pesticides rated as acutely and moderately toxic. Under the bill, if toxic pesticides are used in a school, parents, guardians, and staff will receive advance notice of use and information on product hazards. The legislation establishes a National School Integrated Pest Management (IPM) Advisory Board to oversee implementation, review and issue recommendations on future proposals to amend a list of least toxic pesticides, and initiate recommendations to restrict or discontinue school use of pesticides that may endanger the health of children.

This national effort has grown out of incredible success at the local and state level in adopting policies that protect children from pesticides and begin to establish pest management strategies that do not rely on pesticides. However the vast majority of school children in the U.S. remain unprotected. The time is right for national protection. Contact Kagan Owens, program director, Beyond Pesticides/NCAMP, for more information on SEPA.

Speak Out on the *School Environment Protection Act*, S. 1716, H.R. 3275

Let your Senators and Representative know how you feel about the necessity of protecting children and teachers from pesticide exposure at school. I will contact the following Senators and Representative to ask the he/she co-sponsor the legislation. _____

Sign my organization up as an endorser of the *School Environment Protection Act* (SEPA).

Name/ Title _____
Organization _____
Street _____
City State _____ Zip _____
Phone _____ Fax _____ Email _____

I will pass this information to my mayor, city council, local PTA and civic associations to see if they will endorse SEPA.

Please return this form to Beyond Pesticides/NCAMP, 701 E Street, S.E., Suite 200, Washington, DC 20003
(202) 543-5450 voice, (202) 543-4791 fax, ncamp@ncamp.org, www.beyondpesticides.org

The School Environment Protection Act Introduced

SEPA Unveiled at Jammed Press Conference in U.S. Senate

A press conference announcing the introduction of the School Environment Protection Act (SEPA) was held in the U.S. Senate on October 13, 1999, with the following speakers: Senator Robert Torricelli; Senator Patty Murray; Jay Feldman, Beyond Pesticides/NCAMP executive director; Philip Landrigan, M.D., M.Sc., Mt. Sinai Medical Center; Vicki Rafel, National PTA vice president of legislation; Jesse Rifkin (age 13); Katharina (age 11); and Alexandra (age 7).

Statement by Senator Robert Torricelli, Sponsor SEPA, S. 1716

Thank you for joining us today for the introduction of our legislation on pesticides and their environmental dangers in our nation's schools. For most of us, the most dangerous thing any of us remember facing in school was a surprise test. I know personally I found this to be a very daunting experience. That is no longer the case. The worst part and the most damaging part of a student's life may be in their own school because of environmental health dangers.

It is not surprising that as we learn more about the dangers of pesticides and other environmental problems, we find that they disproportionately affect children. Because of the early stage of their development and the growth of their organs and because of their small body size and weight, children are disproportionately impacted by pesticide exposures.



Senator Robert Torricelli

Indeed, studies have shown that children exposed to pesticides have elevated rates of childhood brain cancers. Pesticides have been linked to respiratory problems. According to the National Academy of Sciences (NAS), children in homes that regularly use pesticides, are at a four-fold higher risk of leukemia and a six-fold risk if there are pesticides used in their family's garden. This is no longer a theoretical problem. This isn't simply a question of a group of parents or teachers who are wondering whether there might be some connection. If these pesticides, based on studies by the NAS, are causing real and lasting health impacts because of their use in homes and gardens, then they almost certainly are having that impact on playgrounds and in schools, where children spend much or most of their waking hours.

Thirty states have taken the leadership in having some form of protection for children from pesticides, though they are almost all different, sometimes contradictory and without any uniformity. Many school districts, including 20 in my own state of New Jersey, have adopted integrated pest management programs, which require the need for pesticides

through non-chemical means — sealing cracks, fixing leaks — finding other means of keeping pests out of schools, other than using pesticides. And many report that they have virtually eliminated problems with cockroaches or other pests without using pesticides. It may take more time and require more leadership, but it is safer.

The fact is, most schools in America still do not have comprehensive plans, or do not address the problem, or do not know it exists. That is why Senator Murray and I are introducing S.1716, the *School Environment Protection Act*.



SEPA Press Conference: (Left to right) Robert Torricelli, Philip Landrigan, Jay Feldman, Jesse Rifkin, and Patty Murray.

To state simply: children should not be exposed to toxic pesticides, and if they are, their parents have a right to know, and immediately. Under the provisions of our legislation, each school district would be required to develop a plan to deal with pests and bug problems through the use of the least toxic method possible. All pesticides are not the same. School districts would be required to

inquire which is the least potentially damaging. Second, schools would be barred from using pesticides that the EPA has determined cause cancer, birth defects or neurological impairments — a prohibition. Until EPA takes action, however, if a school determines that all non-toxic pesticides are ineffective, and toxic pesticides are required, the school can use them, but only if all school staff and parents are notified 72 hours in advance. So anyone who works in the school, any parent with a child in the school, will know that pesticides are used and that there is a real and present danger. In an emergency, when the immediate health and safety of the child is threatened, conventional pesticides still could be used, but only if the entire school community is notified within 24 hours of use, giving parents and staff toxic information. And finally, the legislation creates a 12-member board, made up of educators, health professionals and industry representatives, to monitor the implementation of the bill and then to consider what else could be done and might be required to ensure the highest level of safety.

There are, for America, two ways to go with this problem. We can allow another generation of American children to pass through our schools exposed to pesticides, theorizing on the rates of cancer or neurological problems that might develop and wait for conclusive studies that will tell us precisely how many lives will be lost and how children will be

further impaired. Or we can act now based on the best scientific evidence available, which is overwhelming in the conclusion that we recognize that there are cancer risks, neurological problems, risks of asthma, and other developmental problems -- and act to prevent further impact on America's children. This is the route that Senator Murray and I have chosen. It is to some, I suspect, an unnecessary federal involvement. I couldn't disagree more. What is a more appropriate role for the federal government than to deal with exposure to what are federally registered products that are put in to this environment, requiring some uniformity based on federally-held knowledge for all of our children, asking districts simply to develop plans, use good judgement, or when necessary provide notification and the best and safest alternatives. It's an appropriate federal role. It's the right thing to do.

The only thing wrong with this program, this legislation, is that it wasn't done 20 years ago when we first had some of this knowledge. There is nothing we can do for so many of those who suffered unnecessarily while this knowledge was held and never used to protect children, but there's a lot we can do to ensure this never happens again. I'm enormously proud that my partner in this effort, is the senator from Washington, Patty Murray. She has so often been the leader in all children's issues all over the country, the most recognized voice on the floor of the United States Senate on the issues of family and children.

**Statement by Senator
Patty Murray,
Co-sponsor SEPA, S. 1716**

Thank you so much to Senator Torricelli for his tremendous leadership on this issue that I think is so extremely important and so common-sense. This bill should be passed overwhelmingly by both houses and put into effect today so that no child unintentionally is exposed to pesticides in any of our schools in the United States. I came to understand this issue quite personally in my own family some time ago. When my own son was about four years old, I was a mom at home. My son was out playing in my own backyard when I happened to glance out the window to see a commercial pesticide company spraying my neighbor's yard. My son was playing underneath a tree that hung over our fence and I watched in horrified astonishment as they sprayed him underneath that tree. I spent the next two weeks trying to find out what he was sprayed with, panicked because I didn't know if he was going to have an asthma attack, stop breathing or get cancer. I didn't know what to do. I didn't know whom to call and I couldn't believe that no one had the courtesy to let me know so that I could bring him in before that happened. I worked for a long time in my own state to get some common-sense laws to post notification in neighborhoods so that this wouldn't happen to any other child in my state. To know now that children go to school, where you can't see them as a parent, and play in a playground, and you as a parent never know



Senator Patty Murray

that they may have been exposed to a pesticide and they come home without your knowing is simply wrong. Whether it's your own backyard or your school, you have the right to know as a parent and you have a right to have the knowledge of what your child is exposed to so that you can take care of them and prevent them from being exposed, if you so choose. This legislation is so common sense it should be passed immediately. And I am really pleased to be here with Senator Torricelli to do all we can to protect our children in this country from being exposed to pesticides.

A good integrated pest management (IPM) plan must have a strong definition of IPM and least toxic pesticides. IPM and least toxic pesticides, as defined by SEPA, follow.

Integrated Pest Management

is a managed pest management system that:

- A. eliminates or mitigates economic, health, and aesthetic damage caused by pests;
- B. uses
 - 1. integrated methods,
 - 2. site or pest inspections,
 - 3. pest population monitoring,
 - 4. an evaluation of the need for pest control, and
 - 5. one or more pest control methods, including sanitation, structural repairs, mechanical and biological controls, other non-chemical methods, and (if nontoxic options are unreasonable and have been exhausted) least toxic pesticides; and
- C. minimizes the use of pesticides and the risk to human health and the environment associated with pesticide applications.

Least Toxic Pesticides include:

- A. boric acid and disodium octobrate tetrahydrate,
- B. silica gels,
- C. diatomaceous earth,
- D. nonvolatile insect and rodent baits in tamper resistant containers or for crack and crevice treatment only,
- E. microbe-based insecticides,
- F. botanical insecticides (not including synthetic pyrethroids) without toxic synergists,
- G. biological, living control agents, and
- H. materials for which the inert ingredients are nontoxic and disclosed.
- I. The term 'least toxic pesticides' does not include a pesticide that is determined by the Administrator to be acutely or moderately toxic pesticides, carcinogen, mutagen, teratogen, reproductive toxin, developmental neurotoxin, endocrine disrupter, or immune system toxin, and any application of the pesticide using a broadcast spray, dust, tenting, fogging, or baseboard spray application

Protecting Children from Pesticide Exposure in Schools

by Philip Landrigan, M.D., M.Sc.



Philip Landrigan, M.D., M.Sc.

Safeguarding children's health while at school is a priority for parents, teachers, school administrators, lawmakers, and clinicians. Yet children are continually and unknowingly exposed to toxic chemicals while in and around school buildings. Substantial scientific evidence indicates that children are at risk for disease as a result of these exposures.

Why Focus on Pesticides?

Pesticides are commonly used in schools as well as homes and day care centers to control roaches, rats, termites, ants, and other vermin. They are also used widely in agriculture in the U.S. Despite widespread use of pesticides, little is known about the actual levels of pesticide exposure in children from their food and environment. Consequently, little is known about the health effects of these exposures in children. Limited available data do indicate, however, that pesticides are likely to cause harm in humans even at low-level exposures.

Two of the most popular classes of insecticides used in the U.S.—organophosphates and carbamates—are designed as **neurotoxins**, poisoning the nervous systems of unwanted insects. These pesticides also affect the nervous systems of people. Organophosphates and carbamates harm both insects and humans by interfering with an enzyme in the brain, acetylcholinesterase, which regulates signals in the insect and human nervous systems.¹ Acute poisoning by these insecticides in humans has caused a myriad of short and long-term nervous system disturbances, including agitation, insomnia, muscle weakness, respiratory agitation, nervousness, irritability, forgetfulness, confusion, and depression.^{2,3}

There is substantial evidence in animal studies and limited evidence in studies of adult humans that *chronic, low-level exposure* to organophosphates may also affect neurologic functioning and neurodevelopment in humans.^{2,3} Given this evidence, there is a strong likelihood that *low-level chronic exposure* adversely affects *children's* nervous systems, resulting in lower cognitive function, behavior disorders, and other subtle neurological problems. Studies also indicate that exposure to organophosphates disrupts the part of the nervous system that regulates the motor functioning of the lungs. This has led researchers to hypothesize that pesticides are among the preventable causes of asthma in children.²

In addition to nervous system disruption, studies have noted links between cancer in children and their exposures to pesticides.^{4,5} Leukemia and brain cancer—the two most common forms of childhood cancer—have increased substan-

tially in incidence since the mid-1970s.⁶ However, these findings were limited by small sample sizes and imprecise information on children's actual exposure to pesticides. Other studies have found that parental exposure to pesticides is associated with certain birth defects such as neural tube defects.^{7,8}

Why Focus on Children?

Many pesticides may be more harmful to children, and at lower doses, than they are to adults. Children breathe more air per pound of body weight than do adults, and they are more likely to put toys and hands in their mouths than adults are. Both of these factors cause them to be exposed to a greater quantity of chemicals in their environment.⁹

Moreover, the nervous system undergoes rapid growth and development in the first years of life. During this period, structures are developed and vital connections are established. Indeed, development of the nervous system continues all through childhood, as is evidenced by the fact that children continue to acquire new skills as they grow—crawling, walking, talking, reading, and writing.

A child's developing nervous system is not well able to repair any structural damage caused by environmental toxins. Thus, if cells in the developing brain are destroyed by chemicals, there is a risk that the resulting dysfunction will be irreversible. The consequences can be loss of intelligence and alteration of normal behavior. Also, because children have more future years of life than adults, they have more time to develop chronic disease, such as adult forms of cancer, triggered by early exposures to toxins.⁹

A 1993 National Academy of Sciences report, *Pesticides in the Diets of Infants and Children*, called attention to the specific vulnerability of children to many pesticides. This report led to the Congress unanimously passing the 1996 *Food Quality Protection Act*, which calls for the EPA to establish standards for pesticide residues on foods that account for 1) children's unique sensitivity to environmental toxins and 2) children's exposure to multiple pesticides—both dietary and nondietary—with common toxic effects.⁹

Although there are no data on the levels of pesticide exposure in children, studies have demonstrated that adult exposure is widespread. For example, chlorpyrifos, an organophosphate pesticide, was found in 82% of approximately 1,000 adults whose urine was tested through the National Health and Nutrition Examination Survey.¹⁰ The detection of chlorpyrifos in the majority of those tested indicates frequent exposure, since chlorpyrifos is eliminated from the body in 3–6 days.¹¹ If chlorpyrifos is common in adults, exposure in children is likely also to be common. Levels in children may be even higher than those in adults given that children are potentially exposed to a great quantity of chemicals.

Why Focus on Schools?

Children are exposed to pesticides on a daily basis from multiple sources. Fruits and vegetables contain residues of pesticides applied in agriculture. Ninety percent of American homes use pesticides.¹² Schools are also common sites of pesticide use. A recent survey of Connecticut schools found that 87% of the state's school districts responding to a survey (77 of 147 school districts) sprayed pesticides inside school buildings; 32% sprayed pesticides routinely regardless of whether there was a pest problem.¹³ A 1998 survey of California school districts found that 93% of 46 responding school districts used pesticides.¹⁴ A 1993 survey of 261 New York schools found that 87% used pesticides.¹⁵

Eliminating pesticides from the school environment is critical to lowering children's total exposure. Children spend an average of 6-7 hours per day, 5 days per week, 180 days per

year, in school. The only other place in which children spend more time is their home. In order to protect children's health wherever they work and play, pesticide use in schools must be reduced, and families must be routinely notified whenever pesticides will be applied in schools.

The Center for Children's Health and the Environment (CCHE) at Mount Sinai School of Medicine supports efforts at the local, state, and federal level to avoid pesticide use in and around schools and to notify children and parents when pesticides will be used. CCHE's mission is to promote the health of children by conducting environmental health and policy research. CCHE was established in 1998 with the support of the Pew Charitable Trusts. CCHE's director is Philip J. Landrigan M.D., M.Sc., a pediatrician who chairs the Department of Community and Preventive Medicine at Mount Sinai. Questions or comments may be directed to Ashley Coffield in CCHE's Washington, D.C. office at (202) 776-1105 or e-mail ac@acpm.org.

Endnotes

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Alternatives to Using Pesticides in Schools: A Beyond Pesticides/NCAMP Factsheet

Those who argue that integrated pest management (IPM) requires an ability to spray pesticides immediately after identifying a pest problem are not describing IPM. Take for example the General Services Administration (GSA), the government agency that manages federal buildings, and its definition of IPM, "a process for achieving long-term, environmentally-sound pest suppression through the use of wide variety of technological and management practices." Control techniques in an IPM program extend beyond the application of pesticides to include structural and procedural modification that reduce the food, water, harborage, and access used by pests (GSA, Public Buildings Service, Specification No. BM-5-1, January, 1989, p.1). The IPM policy encourages the avoidance of pesticide use with the requirement: "The Contractor shall use non-pesticide methods of control wherever possible." The policy says that portable vacuums rather than pesticide sprays shall be used for initial clean-outs and that trapping devices rather than pesticide sprays shall be used for indoor fly control whenever

appropriate.

Albert Greene, National IPM Coordinator for the GSA, has successfully applied IPM in the 30 million square feet of indoor federal space that comes under the GSA's National Capital Region jurisdiction. Greene reports that since the initiation of the program in 1988, pest problems in the buildings have generally declined and occupant satisfaction has increased, all the while contractors use less than 2% of the pesticides that was routinely used. Greene states that "GSA's program is a conclusive demonstration that structural IPM works; that is can be pragmatic, economical, and effective on a massive scale."

In schools, we see repeated signs that alternatives work. Montgomery County Public Schools in Maryland is one of the best known examples of school IPM. Reduction of pesticide use by 90% and use of least toxic pesticides when pesticides are required have made school and work safer. Bill Forbes administers a pest management program for 200 sites. He reduced pesticide use from 5,000 applications in 1985 to none four years later, saving

the school district \$1800 per school and \$30,000 at the food service warehouse. School district employees who implement the system receive 60-100 hours of training per year. The success of his program is largely due to the preventive measures he uses and on-going monitoring to determine if, when, and where pest populations warrant action.

Steve Tvedten's company, Get Set, contracts with hundreds of schools in Michigan to do least toxic IPM. When contacted by a school, the company does an initial inspection to find problem areas, which are addressed immediately. They then meet with school personnel to train them in IPM methods and provide them with a manual. Their on-going service consists of periodic inspections and consultations. Parents are notified when any pesticides, including least toxic ones, are used in schools.

The above examples are just a sampling of effective IPM programs that dot the country. For additional schools that have successfully implemented IPM without using toxic pesticides, please contact Beyond Pesticides/NCAMP.

School Environment Protection Act (SEPA)

National Supporters

20/20 Vision
American Federation of State, County and Municipal Employees
American Federation of Teachers
Association of Birth Defect Children
Beyond Pesticides/ National Coalition Against the Misuse of Pesticides
Center for Children's Health & the Environment, Mount Sinai School of Medicine
Center for Health, Environment and Justice
Center for Occupational & Environmental Medicine, P.A.
Chemical Injury Information Network
Chemical Sensitivity Disorders Association
Children's Health Environment Coalition
Endometriosis Association
Environmental Working Group
Friends of the Earth
Gray Panthers
Kids for Saving Earth
Mothers & Others for a Livable Planet
Multiple Chemical Sensitivity Referral & Resources
National Center for Environmental Health Strategies, Inc.
National Center for Policy Research for Women & Families
National Coalition for the Chemically Injured
National Education Association
National Environmental Trust
National Wildlife Federation
Natural Resources Defense Council
Pesticide Action Network North America
Physicians Committee for Responsible Medicine
Physicians for Social Responsibility
Practical Allergy Research Foundation
Rachel Carson Council
Union of Concerned Scientists
U.S. Public Interest Research Group
Women's Environmental and Development Organization
World Wildlife Fund

Regional / Local Supporters

1 in 9: The Long Island Breast Cancer Action Network
Action for a Clean Environment (GA)
Agricultural Resources Center (NC)
American Public Information on the Environment (CT)
Bio-Logical Pest Management, Inc
BURNT (TN)
Californians for Alternatives to Toxics
California Public Interest Research Group
Cancer Awareness Coalition (NY)
Center for Environmental Connections (AZ)
Center for Race, Poverty and the Environment (CA)
Centro Independiente de Trabajadores Agrícolas (NY)
Chemical Connection: Public Health Network of Texans Sensitive to Chemicals
Citizens for a Better Environment (IL, MN, WI)
Citizens for Alternatives to Toxins (MI)
City of Evanston Environment Board (IL)
Clean Action Alliance of Massachusetts
Coalition Against Toxics (NJ)
Coalition for Environmentally Safe Schools (WA)
Colorado Coalition for Pesticide Restraint
Colorado for Alternatives to Toxics
Colorado Pesticide Network
Committee for Alternatives to Pesticides of the Green Decade Coalition (MA)
Connecticut Fund for the Environment
Earth Justice Ministries (CA)
Ecological Action of Rhode Island
Ecological Health Organization (CT)
Ecology Center (MI)
Environment & Human Health, Inc. (CT)
Environmental Advocates (NY)
Environmental Defense Center (CA)
Floridians Against Chemical Trespass
Great Swamp Watershed Association (NJ)
Greater Boston Physician for Social Responsibility's Human Health & Environment Project (MA)
Green Party of Arkansas
Hamilton-Wenham Pesticide Awareness Committee (MA)
Healthy Schools Network (NY)
Hilltown Anti-Herbicide Coalition (MA)
Hoosier Environmental Council (IN)
Illinois Environmental Council
Iowa Parents and Teachers Association
Institute of Pest Management, Inc. (MI)
Legal Environmental Assistance Foundation (FL)
Manasota 88 (FL)
Maryland Pesticide Network
Maryland Public Interest Research Group
Massachusetts Public Interest Research Group
Minnesota Center for Environmental Advocacy
Missouri – Safer Management of Pests and Landscapes
Missouri – Safer Management of Pests and Landscapes Jr.
Multiple Chemical Sensitivities: Health & Environment
Native Ecology Initiative, Inc. (MA)
New Jersey Coalition for Peace and Justice
New Jersey Environmental Federation
New York Coalition for Alternatives to Pesticides
Northwest Coalition for Alternatives to Pesticides
Oregon Environmental Council
Parents for Healthy Schools (NM)
Pennsylvania Clean Water Action
Pesticide Watch (CA)
Protect All Children's Environment (NC)
SAFE SCHOOLS (LA)
Safer Pest Control Project (IL)
Saint Paul Neighborhood Energy Consortium (MN)
Sarasota/Manatee Citizens Rally Against Malathion (FL)
Save the Bay (RI)
Sierra Club, New Jersey Chapter
Toxicology International, Inc. (VA)
Toxics Action Center (CT)
Vermont Public Interest Research Group
Volunteers for a Healthy Valley (CA)
Women's Cancer Resource Center (CA)
Women's Voices for the Earth (MT)

Partial list. If your organization has not yet signed on, please contact Beyond Pesticides/NCAMP, 701 E Street, SE, Suite 200, Washington DC 20003, 202-543-5450 (voice), 202-543-4791 (fax), ncamp@ncamp.org

Health Effects of 48 Commonly Used Pesticides in Schools: A Beyond Pesticides/NCAMP Factsheet

PESTICIDE	CANCER	REPRODUCTIVE EFFECTS	NEUROTOXICITY	KIDNEY/LIVER DAMAGE	SENSITIZER/IRRITANT	BIRTH DEFECTS
INSECTICIDE						
Acephate	C	X	X		X	
Allethrin			X	X	X	
Avermectin		X	X		X	X
Bendiocarb			X		X	
Bromacil	C			X	X	
Chlorpyrifos		X	X		X	X
Cyfluthrin	C	X	X	X	X	
Cypermethrin	C		X	X	X	
Diazinon		X	X	X	X	
Dichlorvos	X		X	X	X	
Fenoxycarb	B2			X	X	
Fenvalerate			X		X	
Hydramethylnon	C	X		X	X	
Isophenfos			X		X	
Lamda Cyhalothrin	D		X		X	
Phenothrin		X				
Piperonyl butoxide	C	X	X	X	X	
Prometon	D					
Propetamphos			X			
Propoxur		X	X	X		X
Pyrethrin		X	X	X	X	
Tetramethrin	C					X
Trichlorfon		X	X	X	X	X
HERBICIDES						
Atrazine	C, 2B(IARC)		X	X	X	X
Bensulide			X	X	X	
2,4-D	X	X	X	X	X	X
DSMA			X		X	
Dacthal	C			X	X	
Dicamba	D	X	X	X	X	
Diquat Dibromide		X	X	X	X	X
Endothall		X		X	X	X
Glyphosate		X		X	X	
Isoxaben	C			X		X
MCPA		X	X		X	X
MCPP		X	X	X	X	X
MSMA			X		X	
Pendimethalin	C	X		X	X	
Pronamide	B2	X		X	X	
Siduron					X	
Triclopyr	D	X		X	X	
Trifluralin	C	X		X	X	
FUNGICIDES						
Benomyl	C	X	X	X	X	X
Chlorothalonil	X	X	X	X	X	
Maneb	B2	X	X	X	X	X
PCNB	C			X	X	X
Sulfur					X	
Triadimefon	C	X	X	X		X
Ziram		X	X		X	X
Total	21 probable/possible	27	31	31	41	17

B2 = EPA's "probable human carcinogen, sufficient evidence in animals and inadequate or no evidence in humans"

C = EPA's "possible human carcinogen" rating

D = EPA's "not classifiable as to human carcinogenicity," usually due to inadequate data

X = Adverse effect demonstrated

X* = based on National Cancer Institute epidemiological evidence

2B(IARC) = International Agency for Research on Cancer, World Health Organization (IARC) states that the agent (mixture) is possibly carcinogenic to humans

Source: Environmental Protection Agency, California Department of Pesticide Regulation, Extension Toxicology Network, www.scorecard.org (Environmental Defense Fund).

- 1 C is EPA carcinogenic rating under EPA's weight-of-evidence category, meaning it is a possible human carcinogen.
- 2 Based on National Cancer Institute epidemiological evidence.
- 3 EPA classifies chloro-thalonil as a "Likely" carcinogen, the available tumor effects and other key data are adequate to convincingly demonstrate carcinogenic potential for humans.

San Francisco's Pesticide Phase-Out

What happens after the law is passed

by Gregg Small and Deborah Raphael

Three years after its passage in 1996, the San Francisco pesticide ordinance has effectively achieved its primary goal — reducing the health and environmental impacts associated with the use of pesticides by San Francisco City departments. The use of the most hazardous pesticides has been reduced to practically zero, the public's right-to-know has increased significantly though the posting of signs prior to and after an application, and public awareness of pesticide problems and alternatives has increased. This article is designed to provide an update on what has been learned over the past three years so that people in other communities can learn from San Francisco's successes and challenges.

The History

On October 8, 1996, the San Francisco Board of Supervisors voted unanimously to pass a cutting-edge ordinance that would significantly reduce the use of hazardous pesticides by all city departments. The policy, among other things, immediately banned the use of pesticides linked to cancer, reproductive harm, and those that are most acutely toxic; increased the public's right-to-know by requiring posting of most pesticide applications 72 hours before and after an application; established Integrated Pest Management (IPM) as the pest management framework for all departments; and, banned all pesticides except for a list of approved pesticides effective January 1, 2000. This policy was the strongest local policy in the nation and has successfully contributed to a movement to adopt similar policies through cities and school districts across the nation.

Why Pesticide Reform Was Needed in San Francisco

In 1995, staff from Green Corps and Pesticide Watch Education Fund (PWEF) undertook an audit of pesticide use by the San Francisco Recreation and Parks Department (Rec/Parks). Concerned about the public's exposure to pesticides in areas managed by the department, including Golden Gate Park and San Francisco's heavily used public golf courses, as well as potential pesticide run-off into the San Francisco Bay, staff from the organizations poured through reams of pesticide use reports, and found some shocking information. From December 1994 through November 1995, Rec/Parks used over 60 different pesticides, including 26 linked to cancer and 20 suspected of causing reproductive harm. Although

Rec/Parks was thought to be the largest user, with over 80 other departments within the city, their use of pesticides was just the tip of the iceberg.

Like many cities and school districts across the country, San Francisco City staff were caught on the pesticide treadmill. Very few staff were aware of the health and environmental impacts of their pesticide use. In addition, little or no training was offered to encourage staff to seek less harmful pest management practices such as monitoring, beneficial insects, and changing conditions to prevent pest problems from developing in the first place. Successive budget cuts reduced funding for preventive maintenance programs further tightening the grip of chemical pesticides.

Measuring Change: Has the Program Worked?

In terms of reducing product toxicity and risk, San Francisco has achieved concrete successes. All spray applications of pesticides used within public buildings have been replaced with baits, insect growth regulators, exclusion, sanitation, and education. Pesticides linked to cancer and reproductive harm, and those that have been identified as the most acutely toxic, are prohibited from use unless an emergency one-time application is approved by the citywide IPM Coordinator. Broadcast applications of pesticides have been eliminated from playing fields



Flowers planted on a median strip outcompete roadside weeds in San Francisco.

and parks.

Prior to the ordinance, public access to information had been nearly non-existent - even the building managers had no idea what was being applied at their sites though they authorized payment of the pest control bills. Now, a comprehensive system of Integrated Pest Management (IPM) Coordinators and site managers has been created. These individuals are responsible for maintaining records and establishing phone numbers for public access to pesticide use information. Landscape staff are required to scrutinize and justify each application of a pesticide and mandated annual reports to the County Board of Supervisors will hold whole departments accountable for their pesticide use.

Despite these successes, San Francisco's pest management program is not a finished product and still has a long way to go to achieve all of its goals. Many pesticides of concern, including glyphosate (RoundUp™) and several pre-emergent herbicides, continue to be used at relatively high levels. Col-

lecting data about what pesticides are being used remains a challenge. However, changes in behavior begin slowly and build in momentum as each barrier falls.

Integrated Pest Management (IPM): A Good Approach to Pest Management?

Many people are well aware of the abuse of the term IPM over the past decade. Although the term has been used inappropriately by people who continue to emphasize the use of hazardous pesticides, the basis of IPM is sound, and many departments within San Francisco are using IPM appropriately.

IPM, at its core, is about changing pest management practices to prevent problems from occurring in the first place, making the use of pesticides unnecessary. IPM programs require more than simply banning certain pesticides, although this is an important component. They require a paradigm shift within large bureaucracies. Institutional inertia must be overcome, and innovation encouraged. Changes must be adopted in how purchasing decisions are made, products are used, contracts are written, people are trained, information is provided to the public, and how staff at various levels and in various departments work together to find long term solutions instead of the usual short fixes.

While IPM in San Francisco does not mean the elimination of all chemical pesticides, the city's IPM program embraces a new paradigm for city workers around pest management decisions and tactics. City staff are not just replacing one toxic pesticide with another, but are taking the time to determine what is causing the pest problem and identifying the steps needed to prevent the problem from occurring in the future.

Protecting the Public's Right-to-Know

There are two major elements of the San Francisco right-to-know provisions: record-keeping and notification.

Notification: Under the ordinance, nearly all pesticide use requires 72-hour notification before and after application. Generally, city staff who plan to apply pesticides post signs with information including pesticide name, active ingredient, target pest, area to be treated, date and time of application, and who to contact for more information. The notification system has worked well in achieving its goal of providing warning to the public about pesticide use. The primary problem with this system has been vandalism of signs.

The only pesticide applications that are exempted from the prior notification are baits. If baits are used as part of a pest management program, a permanent sign indicating the use of the bait and who to contact for more information, is posted in a conspicuous location within the building.

Record-keeping: Under the ordinance, each department is responsible for keeping detailed information of each pesticide application, including details on the target pest, the name of the applicator, the application equipment used, the type and quantity of pesticide used, and the site and date of the application.

This has turned into one of the more challenging aspects of program implementation. In fact, not one department has been able to provide complete information for its pesticide use for the past three years. There have been two primary barriers to accomplishing this important component of the policy. First, in most departments, pest management has not been centralized or coordinated. This means that many people, from the janitor to an outside pest control company to gardeners, are responsible for managing pests within any one department. Now there are IPM coordinators in each department, which should improve the situation.

The second major problem has been designing an easy-to-use system for tracking records. With multiple departments and multiple staff responsible for pest management within most of those departments, designing a system that is user-friendly and accessible to everybody who needs it has been quite a task.

The first step to addressing this problem was designing a database program to track pesticide use with the software program Access. The database is based on a state mandated pesticide reporting form that each department must submit monthly to the County Agricultural Commissioner's office. Training sessions were given to appropriate supervisors and applicators and, in several cases, landscape staff were outfitted with computers in order to participate. The data system is designed to transmit the pesticide use information via e-mail to the citywide IPM Coordinator's office where a central database is compiled.

However, this data collection program has faced some hurdles. First, the old saying "garbage in garbage out" becomes a real issue when many people in a department are authorized to use pesticides. Staff may not be comfortable with computers and some still do not have workable systems accessible to them. In addition, the program is well-designed to track pesticide use but does not track prevention activities or non-chemical controls such as exclusion and vacuuming. The city is working to expand the database to better reflect the range of options important to an IPM program.

To address the problems with the tracking of pesticide use and pest problems, the city recently designed a computer tracking system and form for structural pest control staff. The form is easy to use and requires pest control staff to note not only pesticide use, but also other pest management practices that they use, including monitoring, beneficial insects, and baits. In addition, all new structural pest control contracts will require timely electronic submission of pesticide uses.

City staff are taking the time to determine what is causing the pest problem and identifying the steps needed to prevent the problem from occurring...

Coordinating a Large City Program

For a program to succeed in a city the size of San Francisco, effective coordination between city departments is critical. Coordination has worked well and departments are working together on issues such as training, hiring of personnel, and testing of equipment.

The key components to its success have been:

Technical Advisory Committee (TAC): The basic idea of the TAC is simple — bring together the major players involved in implementation of the policy for regular meetings to share information and find creative solutions to challenges.

Within the first few months of the passage of the ordinance, the Director of the San Francisco Department of the Environment, and the San Francisco Agricultural Commissioner, called the first meeting of the TAC. For the past three years, this group has met on a monthly basis. Attendance at these meetings ranges from 15-30 people, and usually includes: the seven major departments within the city who traditionally used the most pesticides; pest control companies who hold contracts with the city for services; IPM experts; public interest advocates, and staff from the Department of the Environment and the County Agricultural Commissioner's office.

The TAC has provided for regular, productive meetings which help to provide a sense of teamwork, and offers the opportunity for on-the-ground pest managers in different departments to share information and chronicle challenges. It also provides an opportunity to identify shared problems and possible solutions. For example, early in the process, departments recognized a need for increased funding, primarily for staff in some departments and training in all departments. After identifying this need within the group, Pesticide Watch worked with public interest, health, and environmental advocates within the city to successfully lobby Mayor Willie Brown to provide increased funds for these needs.

Pesticide Reduction Coordinator: The City of San Francisco has one full-time staff person who oversees the IPM program for the entire city. This person is responsible for coordinating all elements of the IPM program including development of the approved list of pesticides, data collection and pesticide tracking, contractor oversight, public relations, and training.

The existence of a single staff person accountable for program success is a critical part of any IPM program. The exact qualifications for this position will depend on the program, but certain skills have proven invaluable. The most important is the ability to coordinate and motivate a wide range of people who represent disparate viewpoints, each with their own set of barriers and challenges. The second is a firm understanding of IPM principles and the ability to access tech-

nical information and professional expertise when needed.

IPM Coordinators: As required under the ordinance, each of the 80 departments within the city must appoint one person to serve as an IPM Coordinator. For most departments this "coordinator" is really a contact person. Current IPM educational efforts have focused on the seven "biggest user" departments. Each of these departments has designated several IPM point people and one coordinator. The IPM Coordinators are responsible for data collection and for communication between the citywide coordinator and department employees. For example, when a particular department experienced a mouse infestation, fact sheets were distributed to the office staff through the department's IPM Coordinator.



Flowers on a median strip in San Francisco.

Training at All Levels

A common theme to most IPM programs is the importance of training. It is often said that all members of an institution must receive training to ensure the success of IPM efforts. San Francisco has demonstrated an on-going commitment to training from the level of the

Department Head to the groundskeepers, custodians, and office staff who usually drive the pest control process by issuing the complaints.

"Non-Technical Training": Working closely together, the office of the County Agricultural Commissioner and the Department of the Environment put together a training program aimed at building occupants, custodians, and site managers. Roughly 17 of these "non-technical" training sessions have been conducted so far. Outside consultants are hired to lead the sessions and a specialized IPM workbook for structural pest control was developed as a companion to the presentations. Participants are taught the basics of IPM including the specific role each individual plays in the pest identification and prevention process. These training efforts have been well received and are given to staff throughout the city including the public hospitals, libraries, Public Works and MUNI (public transit). Training also occurs in the form of presentations at regularly scheduled staff meetings.

Mayor Willie Brown helped to facilitate training of high-level staff by sponsoring a special training for department heads. The training was aimed at improving awareness of the specific requirements mandated by the city's ordinance as well as increasing the high level buy-in necessary for program success. The San Francisco Airport offers an IPM component as part of the regular safety training required of all new employees. Airport staff also developed a training manual to broadly describe the pests commonly found on airport property, as well as some of the exotics brought in by unsuspecting foreign travelers.

Other non-technical training has occurred in the form of fact sheets on the major insect pests, and the development of

a web site whose goal is to link interested parties to the myriad of information on less toxic pest control now available on the world wide web. Training can involve a combination of tactics that include written materials and actual control. For example, when the Station Agents (ticket collectors) in the subway stations complained about mice in their booths, the response was two-fold. First, educational materials (fact sheets) were distributed on the habits of rodents and the importance of sanitation and exclusion. Second, station maintenance staff placed traps and installed door sweeps on the bottoms of all booth doors, techniques mentioned as part of the training materials.

Technical Training: In San Francisco, like most other cities, nearly all structural pest control is done by outside contractors while in-house staff perform landscape pest control. Thus training has tended to focus on landscape issues, particularly weed and rodent control. For structural pest control, the applicators are outside contractors, making the bid process, rather than city-sponsored training, the crucial step in ensuring compliance with the IPM ordinance. A discussion of the bid process and working with outside contractors appears below in the section "Outside Contractors."

Technical training of landscape staff consists of presentations and product demonstrations in both large conference-like venues and smaller group workshops. Outside experts are brought in to discuss control issues relevant to landscape maintenance in San Francisco's often foggy and windy climate. In addition, training manuals prepared by outside IPM experts have become a significant tool for communicating control options other than chemical pesticides.

One unexpected consequence of these citywide training programs has been the opportunity for grounds-keepers with similar concerns and challenges to network with their peers across departmental boundaries, something that is very rare in large bureaucracies.

In-house staff were responsible for some of the training materials, like the fact sheets, while experts in the IPM field were contracted to create a variety of manuals and workbooks. The Public Utilities Commission worked with the Bio Integral Resource Center and experts to create a series of workbooks on pests of particular concern to the department. Each workbook walks the reader through an IPM decision making process and offers a number of control options from mechanical and reduced-risk chemicals to prevention and exclusion. Each workbook was part of a hands-on training session. Topics include Gophers, Yellow Star Thistle, Argentine Ants, Gorse, Brooms, and General Vegetation Management. While the Public Utilities Commission (PUC) developed the workbooks for their own staff, they have made them available throughout the city further fostering a sense of interdepart-

mental teamwork in our IPM efforts.

Budgetary Requirements

Limited resources often present the most significant barrier to implementing an IPM program. IPM programs emphasize long term solutions to on-going problems, yet most budget processes reflect short-term fixes. Training, equipment purchases, and additional labor all cost money and department heads do not give priority to pest control in their allocation of existing resources, given competing needs and budgets.

In San Francisco, roughly 35,000 employees fall under the ordinance. In addition, the IPM ordinance affects not only the 49 square miles of land within San Francisco's city and county borders, but also the city-owned property in seven surrounding counties, covering hundreds of miles.

San Francisco is utilizing an effective system to fund the IPM program. Even departments, identified as "big users" of pesticides, were each asked by the Mayor to transfer \$17,900

to the Department of the Environment for program coordination and development. This money is being used to fund the position of the citywide IPM Coordinator as well as to fund training, expert consulting fees, and materials for all seven departments and outreach to the remaining 70 city departments.

Other funding sources include a start-up grant awarded to the County Agricultural Commissioner's Office by the Environmental Protection Agency and private grants used to fund

specific projects. In addition, individual departments have drawn upon existing budgets to implement specialized training and pilot projects.

It is still too early to tell whether the short-term start-up costs will result in long-term cost savings for the city in terms of real dollars. It is likely that it will save the city very difficult to quantify but very real benefits including decreased costs for health care for poisonings and clean-ups, increased morale of city staff who are proud of an effective program, and decreased costs in pesticide purchases.

The Year 2000 List: Developing a List of Approved Use Pesticides

Under the ordinance, all pesticides are banned from use by San Francisco City departments effective January 1, 2000, except for a list of approved use pesticides. Compiling this list has been one of the major challenges in implementation. The intent of the ordinance was never to ban all pesticides. Because the definition of pesticides is so broad, many materials and methods that are defined as pesticides are critical components of an effective pest management program, including some safer oils, biological controls, and others. Rather, the

**IPM is about changing
pest management
practices to prevent
problems from occurring,
making the use of
pesticides unnecessary.**

intent of the list is to contain only those pesticides that are low risk to humans and safe for non-target pests.

In the first year of the ordinance, all acutely toxic category I, labeled "Danger," (as defined by EPA) pesticides and those identified by government agencies as linked to cancer and reproductive harm were banned. By the end of the second year, all acutely toxic category II, labeled "Warning," pesticides were banned except under specific exemption by the citywide Pesticide Program Coordinator. Now a four-step process has been established to compile a list that not only defines which pesticides may be used on city property but also sets parameters for how those pesticides are used.

Step 1 - Assembling a potential pesticide list (completed): Each city department was asked to submit a list of pesticides they wished to be considered for inclusion on the approved list, excluding the most hazardous pesticides that had been eliminated by previous bans.

Step 2 - Scientific review (in process): The city will assess the ecological impacts and human health concerns of each pesticide requested for use. A scientifically defensible evaluation tool was needed to conduct such a review. Philip Dickey of the Washington Toxics Coalition has developed an excellent system for assessing the potential effects of many commonly used urban pesticides, which is being used in both the City of Seattle and King County, Washington. San Francisco will run each of the "desired" pesticides through this rigorous analysis. Once the analysis is complete pesticides will be grouped according to the risk and hazard factors.

Step 3 - Combining science with need: A small committee composed of community members, city staff, and public interest advocates will be charged with reviewing the scientific analysis and sorting pesticides into tiers of relative toxicity (see below). The committee will need to weigh the environmental and human health impacts with the need for a particular pest management tool. Available alternatives will be considered as well as mitigating factors such as self-contained bait stations or the ability to exclude public access, and hence reduce exposure, on a golf course. The public will be invited into the process through publicly held meetings.

Step 4 - Final adoption: The San Francisco Commission on the Environment will then make the final decision on what will be included on the approved list. The list will be revisited every six months to determine if new, safer pesticides should be added and if some more hazardous pesticides can be dropped or their use further limited.

At the end of this process, a three-tier system for using pesticides will be established:

Allowed Products: This list will include products that are considered non-toxic, such as beneficial insects and bio-

logically-based pesticides, as well as those defined by the city as reduced risk. Products on this list will likely include insecticidal gels and containerized baits, some soaps and oils, organic acids, and inorganic salts like borates.

Limited Use: This list will include products that are of possible environmental and public health concern but whose use is required under the financial constraints and/or performance requirements of building and landscape maintenance. The list will dictate the specific circumstances under which a product may be used. For example, Roundup Pro™ will most likely be found on this list. However, use of this product would be limited to such situations as cracks in asphalt where use of a scraping tool would only expand the weakened areas of the surface and so increase the available area for future weed establishment.

Requiring Exemptions: Some products are considered to be of significant enough concern that their use must be restricted to emergency situations. For example, a fungal outbreak on golf course greens can

require a swift solution that is usually chemically based. For a product on this list to be used, a written request must be submitted to the citywide Pesticide Program Coordinator for approval. There currently is a debate within the Technical Advisory Committee (TAC) about whether this list should actually include specific pesticide products or whether it should simply be the process for exemption requests.

Compiling this list and developing a protocol has been extremely challenging. City staff have made tremendous strides in eliminating the use of many highly hazardous pesticides and have altered their practices to reduce the need for using pesticides in many other cases. Yet many still believe that they should have access to pesticides that Pesticide Watch and other public interest advocates have serious concerns about, including glyphosate, the active ingredient in Roundup™. The challenge facing the subcommittee charged with assembling the list can not be underestimated. IPM programs must balance the need for tools to cover a wide range of pest control problems with the imperative responsibility of protecting human health and the environment.

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Outside Contractors and Tenants on City Property

Ensuring compliance with an IPM ordinance means making sure all in-house staff are on board as well as any outside contractors who are hired for pest management purposes. We have discussed in detail the mechanisms for oversight of in-house staff, largely training and reporting. Outside contractors, usually structural pest control operators, can offer a special challenge when procurement of these services is spread across a large number of departments or even individual sites



Mulch effectively curbs weeds on a median strip in San Francisco.

throughout a city. In San Francisco, a citywide pest control contract has greatly aided consolidation of the oversight of both procurement and contractor performance. No department may hire a pest control contractor outside of the citywide bid. This type of restriction is quite common in municipal purchasing and so most departments have little trouble understanding the contracting procedure and following it closely.

Several sample contracts for IPM services are available (City of Santa Monica, National Capitol Region (Washington, DC), Santa Clara County) and San Francisco will be refining its contract in the first part of 2000. An effective contract must specify which pest management methods are allowable and preferable for each target pest. In addition, the contract must address pest-proofing as either the responsibility of the contractor or the contracting department. For example, is caulking or screen repair a reimbursable use of the pest control contractor's time? Finally, the contract must spell out the reporting requirements of the IPM program. Most contractors are not used to filling out detailed reporting forms for their clientele or submitting monthly summaries of pesticide products used. If these elements are viewed as important, they must be spelled out in the contract document.

Oversight of the contractor's performance is best achieved by tracking customer satisfaction along with the pest monitoring and control activities performed at each site. In large institutional settings, such as cities and school districts, the Quality Assurance Form (QAF) becomes the key communication and oversight tool for the IPM Coordinator. The QAF lists the number of traps, monitors, bait stations, etc. in place at a given site and documents any lapses in sanitation or structural deficiencies contributing to pest infestations.

One particularly successful program is at San Francisco's International Airport, which includes roughly 2.5 million square feet of building space on 7,000 acres, and is visited by about 40 million passengers a year. Pest control on such a large scale is no small feat. The Airport's IPM Coordinator receives the QAF's generated by the pest control contractor throughout the airport. In addition, each week the Coordinator performs a detailed monitoring tour of the entire airport facility. Combining the information on the QAF with his own observations, the IPM Coordinator generates a "Monitoring Form" detailing problem areas that require immediate attention. This form is forwarded to the Head of Environmental Services who then designates individual tasks to the appropriate maintenance staff members. Because of this system, rat infestations were curtailed by placing lids on all the trash cans at an open field used by the public for viewing airplane landings and takeoffs. Also, increased street sweeping has reduced the need for herbicides or labor for mechanical methods to

control weeds growing in curb areas.

San Francisco faces a tremendous challenge in implementing the IPM ordinance within city-owned properties that are leased by private tenants. Both the Port and Airport house hundreds of private tenants (each airline and shipping company is considered a private tenant). The IPM ordinance does specify that when an individual's lease comes up for renewal, the tenant must comply with all aspects of the ordinance. We hope to develop a tenant education program some time next year.

Oversight of individual tenants will most likely be on a complaint basis. In terms of outside contractors, the final challenge will be to implement the IPM ordinance for city operations that occur in non-city owned buildings. Again, the lease is the point of opportunity to establish pest management related requirements.

San Francisco has demonstrated an on-going commitment to training from the level of the Department Head to the groundskeepers, custodians, and office staff...

It Takes A Team to Succeed: Acknowledgements

The authors of this article are only two voices in a large collection of individuals who are responsible for the IPM program in San Francisco. The authors would like to acknowledge the following individuals for their dedication and leadership in crafting and implementing San Francisco's IPM program: Dave Frieders and Jay Seslowe of the San Francisco County Agricultural Commissioner's Department, Al Hom and Beryl Magilavy of the Department of the Environment, California State Assemblyman Kevin Shelley and San Francisco County Supervisor Leslie Katz, and current Director of the Department of the Environment, Francesca Vietor. We would also like to acknowledge the many members of the TAC who have shown strong leadership in taking new approaches to pest management within their departments.

Gregg Small is the Executive Director of Pesticide Watch and Pesticide Watch Education Fund and the President of the Beyond Pesticides/NCAMP Board of Directors. Gregg has served on the San Francisco Technical Advisory Committee since its inception. Gregg can be reached Pesticide Watch, 450 Geary Street, San Francisco, CA 94102, 415-292-1488, greggsmall@earthlink.net, or www.pesticidewatch.org.

Deborah Raphael is the Pesticide Reduction Program Coordinator for the Department of the Environment, City of San Francisco. Deborah can be reached at the Department of the Environment, 1540 Market Street, Suite 160, San Francisco, CA 94102, 415-554-6399 or debbie_raphael@ci.sf.ca.us.

One of the most successful elements of the San Francisco ordinance has been the change in pest management practices that have occurred in a number of city departments. Knowing that many of the traditional chemical tools were no longer available, many staff have experimented with new and innovative ways to reduce their reliance on chemical pesticides. Below is a summary of some of these changes.

Weeds

Annual Flowerbeds in Golden Gate Park: The Rec/Parks Department eliminated the use of pre-emergent herbicides in the highly visible flowerbeds outside the park's conservatory. First, staff experimented with solarization, a technique that failed in this site because the over-spray from sprinklers kept the plastic wet which cooled the soil below. The gardeners have since developed a successful system where the empty beds are watered and allowed to sit for two weeks to let weed seeds germinate. A flamer is then used to kill the seedlings as they surface. The system works so well that only occasional hand weeding is required to maintain the bed once the annuals are planted.

Public Utility Commission: On the steep slopes that surround one of the city's remote reservoirs a herd of goats is being used to clear brush including Poison Oak and Yellow Star Thistle to reduce fire hazard. Robin Bruer, the department's IPM Coordinator has contracted the services of the goats along with two dogs and a herder for 18 months.

The herd will circle the reservoir three times creating an open growth pattern in the vegetation. Using goats to clear vegetation will both reduce the risk of fire and protect the water supply from potential pesticide contamination.

A series of pilot projects from installing weed barriers to an intensive gopher and mole monitoring and trapping program have all reduced the need for chemical controls. In one heavy brush area, a fire road is being maintained by a set of experimental plots to test various mowing regimes and dozer blade removal techniques (in combination with and without pesticides). The project goal is to convert the vegetation pattern within the fire access area from dense brushland to perennial grasses and wildflowers using the most efficient and chemical-free methodology.

Golf courses

Recreation and Parks: San Francisco owns and operates a number of golf courses both within our county limits and in neighboring areas. Golf courses have traditionally been the most difficult settings to manage without the use of chemical controls such as herbicides and fungicides. The supervisor for Sharp Park and Golf Course, John Farley, has proved a willing partner in the search for less toxic management practices. John and his staff well understand that healthy turf means disease resistant turf and that means less of a need for pesticides. They are experimenting with the use of slow-release organic fertilizers and various aeration methods to im-

prove turf health. In addition, the staff have set up a monitoring system to track weather conditions at various points in the course as well as the presence of disease and prevalence of weeds such as English Daisy. John hopes that such detailed records will allow him to better understand when a disease outbreak can be waited out and when a chemical control is needed. Staff use mulch to prevent weeds in flowerbeds and selects plants sturdy enough to handle the nearly continuous stream of salt air that blows in from the ocean adjacent to the course. John's experiences on the golf course will be translated to turf areas throughout the city's neighborhood parks.

Cockroaches

MUNI (public transit): "There's no roaches in these coaches" is the word from Victor Lee and the maintenance division overseeing the "rolling stock" (buses, trains, trolleys, etc). Several years ago, buses were routinely sprayed with insecticides, whether insects were present or not. Now improved sanitation has been combined with a baiting program and the results have proved a success. Baits are applied only twice a year so the cost of pest control has been drastically reduced and the buses are filled with happy monitors (i.e. the passengers) who would definitely let staff know if cockroaches were riding along with them.

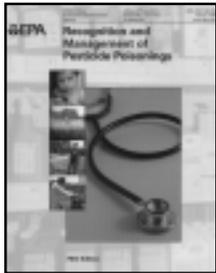
Roadsides

Public Works: Median strips are a very common challenge for an IPM coordinator. For beautification, many miles of these narrow planted areas are cropping up but rarely are resources planned for their maintenance and upkeep. Applying herbicides to medians carries an additional risk for the applicator - moving vehicles. The spray operator, Ralph Montana, charged with maintaining San Francisco's medians, and a great many other areas as well, decided to try planting wildflowers in several areas that seemed heavily prone to weed infestations. Three mixes of wildflowers were selected to match local climatic conditions and the resulting blooms require little maintenance. In addition, any volunteer weeds blend in with the less manicured look of the flowers and so no herbicides have been needed to remove them.

In addition to the examples cited above, outside vendors are invited to present information on their "alternative" products and train San Francisco staff to implement pilot studies to determine the efficacy of these technologies within the constraints of our microclimate and bureaucracy. Products that have been tested include "flamers" and hot water systems for weed control, corn gluten meal based products, and several predatory insects released as a means of biological control in our greenhouses and nurseries. The city is now exploring opportunities for working closely with local research institutions to act as an experimental demonstration site for new reduced risk technologies and products.

– Gregg Small and Deborah Raphael

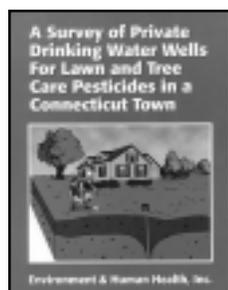
Recognition and Management of Pesticide Poisonings, Fifth Edition, 1999



(U.S. Environmental Protection Agency, Office of Prevention, Pesticides, and Toxic Substances, March 1999).

This fifth edition of *Recognition and Management of Pesticides Poisonings*, an update and expansion of the previous edition, incorporates new pesticide products not necessarily widely known among health professionals. The manual examines toxicity of classes of pesticides, signs and symptoms of poisoning, confirmation of poisoning and treatment for insecticides, herbicides, and other pesticides and deals mostly with short-term (acute) harmful effects of pesticides. The manual also contains an index of pesticides' common names and active ingredients. The Index of Signs and Symptoms provides tables of symptoms for different parts of the body and type of chemical associated with specific symptoms. The manual stresses that prevention of pesticide poisoning remains a much surer path to safety and health rather than reliance on treatment antidotes and treatments that may themselves be toxic and not entirely risk free. *For a copy, contact U.S. EPA, 800-490-9198, or see www.epa.gov/pesticides/safety/healthcare*

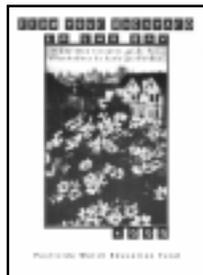
A Survey of Private Drinking Water Wells for Lawn and Tree Care Pesticides in a Connecticut Town



Susan S. Addiss, MPH, MURS, et al. (Environment and Human Health, Inc., 1999)

A new study of Connecticut private well water by EHHI finds six wells contaminated with chlordane, chlorpyrifos, chlorthalonil, dacthal, diazinon, lindane, and trifluralin. The report is based on well water tests by 53 homeowners. Approximately 500,000 people in Connecticut drink water from private wells. Of the homeowners surveyed, 72% used pesticides on their lawns and/or trees and 42% identified themselves as regular users of pesticides. 11% of the tested wells (six wells) contained trace levels of pesticides. One well, owned by a non-user of pesticides located near an orchard, contained five different pesticides. The study also stresses that there is no data available on how pesticides react with one another. Also, because pesticides are tested for toxicity one chemical at a time, synergistic effects are unknown, says the study. *For a copy, contact Nancy Alderman, EHHI, North Haven, CT 06473, 203-248-6582.*

From Your Backyard to the Bay: A bay area resource guide for alternatives to toxic pesticides

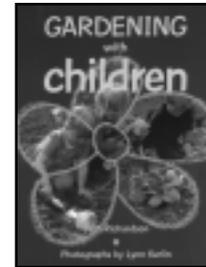


(Pesticide Watch Education Fund, San Francisco, CA, 1999)

Pesticide Watch Education Fund's recent publication, *From Your Backyard to the Bay*, is an activist's toolkit to strengthen the movement away from the use of toxic pesticides. The guide offers the reader information on less toxic alternatives to pesticides used in structures, lawns and gardens for common pests such as cockroaches, aphids, and termites. The guide also offers suggestions on how to deal with a neighbor or landlord who refuses to stop spraying pesticides that may drift onto your property. *From Your Backyard to the Bay* also provides contacts for those seeking pest control operators that use non-toxic alternatives, stores and farms to purchase organic foods and vegetables,

and organic nurseries and gardens. The guide lists groups and resources for people with multiple chemical sensitivities and laboratories that can test for pesticide residues. *For a copy of the guide, send \$7 to Pesticide Watch Education Fund, 450 Geary Street, Suite 500, San Francisco, CA 94102, 415-292-1486.*

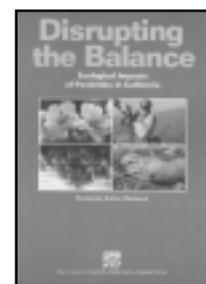
Gardening With Children



Beth Richardson (Taunton Press, Inc., 1998)

Children and adults alike can appreciate this instructional book on organic gardening. The author, Beth Richardson, is an experienced gardener, and uses her techniques to draw children into the joys of gardening at an early age, while giving not-so-experienced adults the confidence needed to motivate children. The projects outlined in *Gardening with Children* include theme gardens in which children grow the ingredients for their favorite dish (recipes are also included) and crafts made from garden-grown materials. The instructions have been successfully tested on children ages 4-14. *Gardening with Children* helps a parent teach their child about pesticides and the importance of organic gardening, as well as basic ecology of soils and plants. *For a copy, send \$19.95 to Taunton Books, 63 South Main St., P.O. Box 5506, Newtown, CT 06470-5506, 800-926-8776, or see www.taunton.com.*

Disrupting the Balance: Ecological impacts of Pesticides in California



Susan Kegley, et al. (Pesticide Action Network North American Regional Center, 1999).

Expecting fewer pests and increased

crop yields with more pesticide spraying, farmers increased their insecticide use 10-fold between 1945 and 1989. Despite the addition of these toxic chemicals to their fields and our food, crop losses nearly doubled in the same time period. Unfortunately, while the fields were being blanketed with poisons, the natural balance between pest and predator insects was upset. While trying to knock down the pest populations, the natural controls were destroyed and the detrimental insects were developing resistance to the insecticides. In the report, *Disrupting the Balance*, the Pesticide Action Network and Californians for Pesticide Reform take a look at the effects of pesticides use on birds, beneficial insects, and aquatic life, while examining their role in the web of life. The report concludes with a call to action by offering safe, ecologically sound alternatives in its final chapter, *Restoring the Balance*. For a copy, which are free to CA residents and \$10 for everyone else, contact Pesticide Action Network, (415) 981-1991 or panna@panna.org

Pesticide Report Card: Texas Schools Score from A to F in the Integrated Pest Management Program (Texas Pesticide Information



Network and Consumers Union, September 1999).

For the past four years, the parents of Texas school children have had their minds at ease. They thought, after the adoption of a statewide Integrated Pest Management (IPM) program in 1995, that their children would be free to learn in an environment without poisons permeating the air they breathed. In this report, the Texas Pesticide Information Network and the Consumers Union turn the report card on seven Texas school districts, grading them on their implementation of the IPM

programs. On average, the districts ranged from fair to poor. Although the schools were supposed to be using least toxic methods of pest control, five of the seven districts used category I or II pesticides, one lied about the chemicals it used, and another used a highly toxic herbicide to burn lines in their football field. Even though the focus of this report was on Texas, it is useful and interesting to anyone concerned with pesticides in schools, because of the focus on common flaws and overlooked problems with many IPM programs. For a copy, contact the Consumers Union Southwest Regional Office at (512) 477-4431 or write to 1300 Guadalupe, Suite 100, Austin, Texas 78701

Whose Trade Organization? Corporate Globalization and the Erosion of Democracy



Lori Wallach and Michelle Sforza (Public Citizen, 1999).

When the World Trade Organization (WTO) was founded in 1995, the U.S. Congress was promised a major decline in the trade deficit and \$1700 annual gain in real median family income. Neither of these has happened. Instead the WTO has taken power away from the people and their local governments and allowed corporations to rule with an iron fist, according to *Whose Trade Organization*, a book by Ralph Nader's Public Citizen. This report documents the troubling five-year record of the World Trade Organization. The book points out that people around the world are being stripped of their inalienable rights to good health and acceptable standards of living, all in the name of free trade. The WTO has empowered unelected trade bureaucrats sitting behind closed doors in Geneva to bypass local laws and societal standards, when mak-

ing decisions that will affect the health and well-being of people around the world. Among other topics, *Whose Trade Organization* examines the WTO'S impact on food safety standards, genetically modified food, the availability of medicine, and human rights. For a copy, contact Public Citizen at 800-289-3787 or visit the Public Citizen website at www.citizen.org

Protecting Groundwater from Pesticides: A Clean Water Action Guide (Friends of the Earth, November 1999)

If you rely on an underground drinking water source, you may have assumed that your well water was protected from contamination. After all, unlike streams, rivers and lakes, underground water sources lie beneath a protective barrier of soil and rock. Unfortunately, it is time to think again. Legally applied pesticides have found their way into our families' drinking water all around the country. Because weedkillers and other pesticides are used heavily in agriculture, lawncare, and utility right-of-ways, they have shown up with alarming regularity in our underground drinking water supplies. This type of contamination has become a particular problem in rural communities where nearly all homes use well water. The health risks associated with pesticide contamination range from cancer and Parkinson's disease to birth defects and infertility. In 1991, the EPA adopted a plan to deal with the issue of groundwater contamination by legal pesticide application by requiring states to adopt pesticide management plans, but has not yet implemented this strategy. This issue requires action now. Friends of the Earth most recent publication, *Protecting Groundwater from Pesticides: A Clean Water Action Guide*, is written for both novice and experienced activists alike to provide the information necessary to get involved with pesticide management decisions in your area. For a copy, visit the FOE website at www.foe.org/safefood/groundwater or call 202-783-7400.

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- "Is Your Lawn Toxic Green?" White letters on green background.
- FREEDOM FROM PESTICIDES IS EVERY BODY'S RIGHT. White letters on blue. Stickers \$2.00 each (\$.50 each when ordering 100+)

Books

- 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).
- Unnecessary Risks: The Benefit Side of the Risk-Benefit Equation*. Understand how the EPA's Risk-Benefit Analyses falsely assume the need for high-risk pesticides. Explains how "benefits" are inflated, how alternatives might be assessed, and the public's right to ask more from its regulators. \$10.00.
- Safety at Home: A Guide to the Hazards of Lawn and Garden Pesticides and Safer Ways to Manage Pests*. Learn more about: the toxicity of common pesticides; non-toxic lawn care; why current laws offer inadequate protection. \$11.00
- Voices for Pesticide Reform: The Case for Safe Practices and Sound Policy*. New study documenting stories of tragic pesticide poisoning and contamination, and successfully used alternatives that avoid toxic chemicals. \$20.00
- Poison Poles: Their Toxic Trail and the Safer Alternatives*. New study on largest group of pesticides, wood preservatives, and contamination associated with treated wood utility poles, and the availability of alternatives. \$22.00
- Toxic Deception*. By Dan Fagin, Marianne Lavelle and Center for Public Integrity. Published by Common Courage Press. \$21.00

Back Issues

- Back issues of *Pesticides and You* \$2.00 each
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- Estrogenic Pesticides
- Pesticides and Your Fruits and Vegetables
- Pesticides: Are you being poisoned without your knowledge?
- Pesticides in Our Homes and Schools

Testimony

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- Lawn Care Chemicals, 5/9/91 \$4.00
- FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act, 6/8/93 \$4.00
- Food Safety, 8/2/93 \$3.00
- National Organic Standards Board, 10/13/94 \$4.00
- Food Quality Protection Act, 6/7/95 \$4.00
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Other

- Getting Pesticides Out of Food and Food Production \$5.00
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- Least Toxic Control of Pests Factsheets \$6.00
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Top Ten New Years 2000 Resolutions

How you can build the pesticide reform movement with Beyond Pesticides/NCAMP.

Attend the 18th National Pesticide Forum in the spring of 2000 in New York, watch for more information in the next issue of *Pesticides and You*.

Write your U.S. Congressmembers about the *School Environment Protection Act* (SEPA), legislation that will protect children from pesticides in schools.

Survey your pest control and lawn care company with the *Beyond Pesticides: Getting the Alternatives You Need Directory Survey*, so we can include their least toxic services in the national directory of least and non-toxic service companies.

Complete Beyond Pesticides/NCAMP's *Pesticide Incident Report*, if you have been poisoned by a pesticide, or pass it along to someone you know. We will use it to provide weighty and powerful testimony in support of reforming the nation's pesticide policies and practices.

Request your utility company complete the *Utility Company Environmental Practices Survey* and adopt environmental practices, including purchasing alternative pole materials (no wood treated with wood preservatives).

Stay updated on pesticide issues: watch for action alerts and other pertinent information on Beyond Pesticides/NCAMP's improved website at www.beyondpesticides.org.

Include us in your bequest. Contact Beyond Pesticides/NCAMP on details.

Subscribe to Beyond Pesticides/NCAMP's *Technical Report*, our monthly bulletin on current pesticide science and policy, only an additional \$20 a year.

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Beyond Pesticides/NCAMP will assist you with all of these resolutions. Contact us for your New Years 2000 Resolution packet today!

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