

Pesticides and You

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

Cultivating the Community

New York City's Organic Gardens



The LowDown on Dursban

The EPA phases out chlorpyrifos (Dursban™), as use and sales in the home use market could continue for several years to come.

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New York City's Organic Gardens • Momentum to Protect Children from School Pesticide Use Catches Fire • The LowDown on Dursban™ • Alternatives to Using Chlorpyrifos

Letter from Washington

Negotiating the Public's Health

It's déjà vu all over again. The EPA's regulatory process is broken and your help is needed to fix it.

EPA took to the airwaves in June to announce another settlement with a pesticide producer on a widely used and highly toxic pesticide. This time the agency had reached a negotiated agreement on the insecticide chlorpyrifos, also known as Dursban™ and Lorsban™, providing for the phase-out of most home uses of the chemical, eliminating its use on tomatoes, and adjusting some other uses in what EPA calls risk mitigation. What we did not hear in EPA Administrator Carol Browner's announcement is that the agreement allows continued production of old label Dursban through the end of 2000, continued sales of the chemical through the end of 2001, and continued use of existing stocks (including through services of pest control companies) until supplies are exhausted.

Why is the decision so infuriating from the standpoint of public health, worker health and environmental protection? It makes absolutely no scientific sense to identify risks and hazards as high as they are for the residential uses of chlorpyrifos, call for these uses to be stopped by virtue of every safety threshold being exceeded, and then negotiate an agreement with the chemical manufacturer that allows people to be harmed for the next 18 months, in addition to an indeterminate phase-out period while existing stocks are being used up. From a worker health standpoint, for those handling and exposed to the chemical in agricultural production, the risk numbers are off the charts. But EPA is silent on these, while telling us that the agency will get to these issues during the next comment period that should go through mid-September. When EPA identifies an imminent hazard like chlorpyrifos, where people's nervous and immune system are damaged from exposure, where a child's brain development is impaired, where people's health is compromised and lives are ruined, why is it still negotiating compromises?

EPA says it compromises because any other process it could use under the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA) for cancellation would take longer. Not really! The agency, using its chemical suspension authority, can and should take immediate action under FIFRA where risks are as high as they are here. But the agency chooses to negotiate and craft a political compromise, despite the resulting compromise to people's health and children's future.

Beyond Pesticides/NCAMP sued EPA in the late 1980's when EPA negotiated an agreement with Velsicol chemical company to phase-out chlordane use and allow all existing stocks to be used up. Then the issue was cancer and the judge in the case found that the additional cancers that would be caused by leaving the chemical in commerce for the phase-out period, including the cost to cancer victims, was unacceptable. On a regulatory level, the judge also found that EPA's failure to evaluate the harm caused during the phase-out period was a violation of the agency's responsibility under FIFRA.

This is what the agency has done again. The risk assessors found with chlorpyrifos that continued exposure to most residential uses exceeds the agency's acceptable risk thresholds, and did not go any further to calculate the real harm caused to people during the long phase-out period, despite the statutory requirement in the *Food Quality Protection Act* to evaluate aggregate risk (a mixture of residential, food, water and other exposure). In effect, the agency has no scientific basis for accepting any scenario in which there is continued exposure to the high short-term risks of chlorpyrifos in a residential and worker setting.

But this is what EPA does. It negotiates bad decisions that allow people to be hurt. So bad, that the Attorney General of New York State, Eliot Spitzer, within hours of the EPA decision, wrote a letter to every major retailer in his state, requesting that they consider removing Dursban products from their shelves because of the immediate hazard that they present.

And now on to the insecticide malathion. EPA has just closed a comment period on malathion. We are facing the same problem. Will EPA again negotiate an agreement with Cheminova chemical company that compromises public health?

An article in this issue of *Pesticides and You* walks you through the chlorpyrifos decision, not only because of the chemical's vast use and wide public exposure, but because of what it tells us about the ineffectiveness of the regulatory process in protecting public health and the environment.

On an upbeat note, we also in this issue take you on a visit to a couple of really extraordinary community gardens in New York City's Borough of the Bronx. This is the tour that was taken by participants of the Eighteenth National Pesticide Forum, which was held in New York in April, 2000. The Taqwa Community Farm and The Enchanted Garden of JFK High School, both in the South Bronx, are organic gardens, one run by the community and the other by students, which serve as inspiration and hope for the future.

In more good news, groups across the country are experiencing tremendous success in their efforts to better protect children from pesticide use in schools. This issue brings you up-to-date on several states that have acted recently on schools and show us the real potential for change.



Best wishes.

— Jay Feldman is
executive director of
Beyond Pesticides/NCAMP

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Arkansas Utility Gets the Message, Wood Utility Poles Are Toxic and Must Be Phased Out

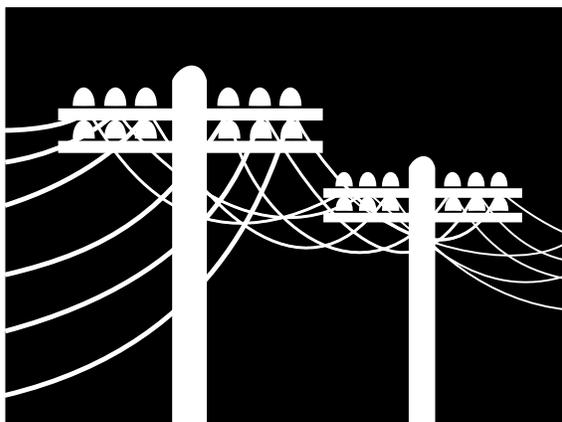
Dear Beyond Pesticides/NCAMP,
Thanks very much for the reports you sent. The one about the children [an Arkansas study found 100% of children tested had pentachlorophenol, a highly toxic wood preservative, in their urine] was interesting and your report *Poison Poles: a Report About Their Toxic Trail and the Safer Alternatives* will be very helpful. I talked with Connie Woodard who is with the North Little Rock electric department about the utility poles. They have already quit putting up the creosote poles and are replacing them with steel poles and will continue to change them out. I shared the information with her about the creosote on the poles and the health risks. She is planning to have a meeting with her people that climb the poles next week and again caution them to wear their protective gear. Thanks a lot.
Shirley Simpson
North Little Rock, AR

Dear Ms. Simpson*,
I'm very glad that the information we sent you is helpful. It is shocking that numerous studies have found pentachlorophenol (penta), a pesticide considered so toxic that it has been banned in 26 countries, in the blood and urine of so many people. The National Health and Nutrition Examination Survey II (NHANES II) found penta in 79% of the general U.S. population. The three major wood preserving pesticides – penta, creosote and copper chromium arsenate – all have serious adverse impacts on human health and the environment. Each of these pesticides has been shown to impair the immune system, interfere with reproduction and cause cancer.

It is great news that your local utility has decided to move away from the poison wood utility poles in favor of more environmentally friendly alternatives.

Thanks to people like yourself who are working to educate utility companies, we are seeing more movement toward steel, concrete and composite poles. These alternatives do not release toxic chemicals into the environment, last three times longer than wood poles, and do not require costly and hazardous retreatment in the field. For more information about penta see our latest report, Pole Pollution, available on our website, www.beyondpesticides.org.

*Editor's note: Ms. Simpson is featured in a Video News Release that addresses the



environmental justice issues and the human and environmental health risks associated with wood preservation plants. That video is available through Beyond Pesticides/NCAMP.

Student Wants to Make a Difference

Dear Beyond Pesticides/NCAMP,
I am a sixth grade student at Sakai Intermediate School on Bainbridge Island in Washington. In my social studies class, we are studying contemporary issues. I chose to study the usage of pesticides because I am very interested in environmental issues and I thought that it would be interesting to find out how pesticides affect the environment. When I am done with this project, I can alert the community where I live about the danger of pesticides and how they are harmful to animals and humans. I will also tell kids at my school about your organization so if they want more information, they can write to you. I am

very appreciative of any information you send me. I feel that it is my duty as the next generation to try to educate people on the misuse of pesticides. Hopefully, when I am grown, people will realize how dangerous pesticides are and will stop using them. I hope that I will be able to make a difference in the community I live in. Thank you very much for your time and help.

Janna Sanford
Bainbridge Island, WA

Dear Janna,

We appreciate your commitment to educating your friends and family on the unnecessary use of toxic chemicals in our environment. It takes people like you to make an impact on protecting the environment and public health. Educating others about the hazards of pesticides and the alternatives to their use is one of the greatest things you can do. Once you've educated your friends and family, begin talking with members of your community and school about adopting policies and practices that focus on eliminating the use of pesticides and provides incentives to use the least toxic method of pest control possible. There are several simple steps that everyone can follow to reduce and/or eliminate their use of pesticides and still control or prevent pest problems. For example, to prevent pest problems from occurring in lawns it is important to develop a healthy soil, plant well-adapted and pest resistant grass varieties, aerate the lawn regularly, don't allow too much thatch to build up, maintain proper soil pH and fertility, keep the lawn properly watered, and mow the grass with sharp blades set as high as possible. In your garden, plant pest-repellent herbs and flowers, use mulch to control weeds, implement intercropping, use crop rotations, harness beneficial animals. In your home and school, improve sanitation, establish physical barriers like screening windows and vents, and modify pests' habitats. In all cases, proper monitoring of pest populations, with action being taken only when populations exceed acceptable limits, is key. We are sending you information on pesticide hazards, alternative, and model policies.



Plane Sprays Pesticides on Mother and Daughter While Driving Across Country

Dear Beyond Pesticides/NCAMP, Following is my story of becoming poisoned by pesticides. In July 1999, my daughter and I were traveling in southeast Missouri on our way to Tennessee for a vacation. While driving, we observed a crop dusting plane over a field to our left flying west. Suddenly our windshield was covered with a white foamy mist. Not realizing what it was and being unable to see through the windshield my daughter, who was driving, turned on the wipers. Immediately we heard the plane flying directly over the car and the windshield was covered again. By this time we realized what it was, as we smelled it coming through the air conditioner system, my lungs were on fire, our eyes burned and we felt like we were choking. We stopped at a Highway Patrol station a few miles down the road near Sikeston, MO and reported the incident to a Trooper. He said, "They spray around my place all the time." We went on to Sikeston to the hospital emergency room, where a nurse told us, "He sprayed me the week before and I was in a convertible." She said her eyes and nose burned for an hour or two. Later, I ran an ad in the local newspaper and received several calls from people with testimonials on the use of pesticides in that area. Many who responded lived on small farms adjacent to the fields that had been sprayed. Many have had livestock killed and/or they can't grow gardens or shrubs

in their yards. Pesticides sprayed from the air have damaged their cars and barns with metal roofs. The following week after

the air assault I awoke in the middle of the night and couldn't get my breath. My doctor sent me to a lung specialist and after going through a multitude of tests, I was diagnosed with acute inhalation injury with subsequent airway reactivity. I was treated with steroid inhalants for three months. I have never smoked nor had any lung problems in my life. In addition to the breathing problems, I started having excruciating muscle pain in my knees and joints. An x-ray of my knees revealed nothing to explain the severe pain and swelling. I continue having such stiffness in my joints - I can hardly walk at times. I am pursuing all kinds of therapy and have gotten some relief. My daughter has been diagnosed with Fibromalgia and suffers pain every night. On top of my other problems, I have hives every day from an unknown cause, that I never had before. I have suffered some memory impairment as the relentless symptoms expand to my brain. The Missouri Department of Agriculture conducted an investigation as a result of my formal complaint, but it was incomplete. I have appealed to my Senators who asked the FAA for a full investigation with no result. I wonder if the American people will ever wake up to the fact that pesticides and chemicals are killing and maiming thousands of unsuspecting people every year.

Ruby Clingenpeel
Joplin, MO

*Dear Ms. Clingenpeel,
We are very sorry about you and your daughter's exposure to pesticides. Unfor-*

tunately, incidents like yours happen way too often. Incidents like yours reinforce the need for Beyond Pesticides/NCAMP to redouble its efforts to stop toxic poisoning and contamination and promote safe solutions by working with the public and policy makers. With your help, we can evaluate pesticide problems and pest management practices, document their effects on human health and the environment, and organize for the adoption of alternatives in our homes, schools, farms, and communities. We will send you our Pesticide Incident Record form for you to fill out so we can document your pesticide incident and improve our ability to put pressure on regulators and elected officials to better restrict pesticide use and promote alternatives. For a copy of the Pesticide Incident Record form, see www.beyondpesticides.org or contact us.



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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Public Awaits Final National Organic Standards Rule After Public Comment Period Closes

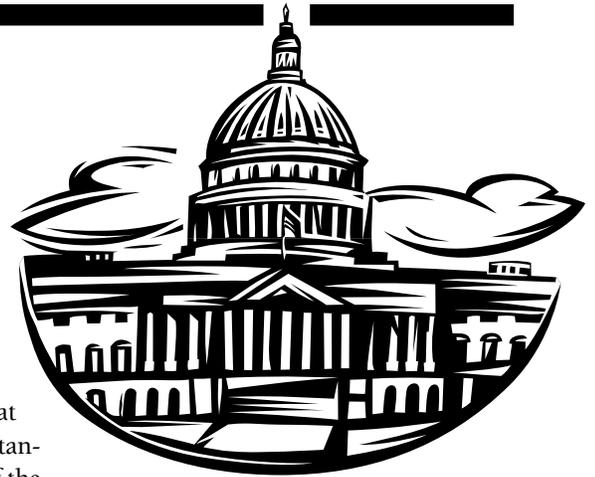
After evoking 280,000 public comments against its proposed organic rule in December 1997, the U.S. Department of Agriculture (USDA) is trying its hand at another proposal to implement the *Organic Foods Production Act* (OFPA). The public now awaits a final decision from USDA after the department closed its public comment period on the second proposed rule on June 12, 2000. OFPA requires that USDA develop national standards for organically produced agricultural products to ensure consumers a consistent and uniform standard for organic products. USDA's last attempt at a rule enraged the public by allowing the use of sewage sludge for fertilization, genetically modified organisms, and irradiation (the "Big Three") in organic food production. The new proposed rule contains several problem areas.

Although the revised rule contains several improvements from the 1997 proposed rule, the continuing problems are serious, according to organic food activists: • Food processors producing products labeled "95% organic," which affords producers the premiere front of the package organic label, may be allowed to incorporate 5% non-organic, synthetic ingredients, although OFPA limits this percentage to non-organic, non-synthetic. • The revised rule does not delineate residue limits for genetic contamination of organic crops due to genetic drift from farms growing genetically engineered crops, even though this problem is one of the most serious environmental threats to organic agriculture.

Under "excluded methods," instead of excluding the practice of genetic engineering and defining genetically modified organisms (GMOs) as a synthetic product, USDA leaves the door open for its use. • The proposal allows residues of pesticides equivalent to the average residues on chemically grown food. Organic food advocates have urged that USDA adopt the National Organic Standards Board recommendation of 5% of the legal residue limit or the average, whichever is less. • It allows temporary variances from the law, which is a potential loophole for prohibited practices. • Sewage sludge in the form of ash may find its way into fertilizer used in organic operations under the rule.



• Although antibiotics, growth hormones, and rendered animal protein cannot be administered or fed to animals, breeding cattle could receive paracitocides while lactating. The proposed rule additionally does not include any restrictions on using manure from "factory farms." • While the proposed regulations on organic animal husbandry require "access to outdoors," there is no clear definition of what constitutes "pasture" nor does USDA specify exact space requirements for humane housing and outdoor access for poultry, pigs, cattle, and other animals. • Under the proposed rule, private and state certifiers must apply for accreditation with USDA to continue to certify organic food. This is to ensure that there is a consistent and uniform organic standard across the country. Many certifiers feel that this approach will undercut the current authority of private certifiers to certify to a higher standard that is described on the label. **Take Action:** Write your U.S. Representative and Senators and ask them to make sure USDA's final regulations conform to the law across the board and on the above issues and cite docket number TMD-00-02-PR.



U.S. Senate Approves School Pesticide Notification Language

In a stunning legislative move, U.S. Senator Barbara Boxer (D-CA) was able to get the U.S. Senate on record as supporting 48-hour notification to parents before certain pesticides are used in schools. She successfully attached her amendment on March 2, 2000 to the *Education Savings Account Bill*, S. 1134. The bill faces a certain presidential veto and the Senator herself voted against the legislation she amended. That did not stop Sen. Boxer from getting the Senate to support notification before application of a pesticide that is a known carcinogen, a developmental or reproductive toxin, or an acute nerve toxin. The amendment, which is part of the *Children's Environmental Protection Act* (CEPA), also asks the Environmental Protection Agency (EPA) to help schools reduce their toxic pesticide use and distribute its booklet, *Pest Control in the School Environment: Adopting Integrated Pest Management* (IPM). Beyond Pesticides/NCAMP supports a detailed definition of IPM, because the term has been abused in the past by the pesticide management industry. Beyond Pesticides/NCAMP fears that a severely abbreviated federal policy in this area, without specifics and clear direction to EPA, will not offer children and school staff adequate protection, and relying on EPA to define this may be problematic.

The *School Environment Protection Act* (SEPA), S. 1716 and H.R. 3275, is a comprehensive approach that mandates prior universal notification, a clear definition of least-toxic IPM, and mandated EPA standard setting to ensure pesticides do not harm children and staff in schools.

In a similar move, Senator Boxer attached another amendment aimed at protecting children from the toxic hazards of pesticides, this time to a military appropriations bill, which passed on June 13, 2000 by a margin of 84 to 14. This amendment prohibits the Department of Defense's (DoD) routine use of certain highly toxic pesticides, specifically those containing a known or probable carcinogen or an acute nerve toxin and those of the organophosphate, carbamate, or organochlorine class, in any area owned or managed by the DoD that may be used by children.

A Pesticide "Cure" That Causes the Illness It's Marketed to Protect Against

Is the cure worse than the disease or the cause of the disease or both? Decide for yourself — AllerCare™ Dust Mite Carpet Powder and AllerCare™ Dust Mite Allergen Spray for Carpet and Upholstery, products marketed to kill pests that could trigger allergy attacks and asthma, have been recalled from store shelves as of January 14, 2000 for causing asthma attacks, among other symptoms. The products contain the active ingredient benzyl benzoate and are manufactured by SC Johnson and Son, Inc. The chemical industry is a big promoter of using its products to prevent pest-caused asthma. EPA urged the company to initiate this recall of the pesticide due to an excessive number of incidents reported by consumers who experienced adverse effects from using the product. EPA began receiving adverse effect reports from SC Johnson on the AllerCare™ products

in October, 1999, as required under Section 6(a)(2) of the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA). Over 400 incidents document severe to minor reactions to the products, including asthma attacks, respiratory problems, burning sensations, and skin irritation. Allergy and asthma sufferers appear to be most negatively affected by the use of the products, and most reactions occurred within 15-30 minutes of product application. EPA has also received some reports of reactions in pets. *If you have had an adverse reaction to these products, contact Jerry Blondell, EPA, Health Effects Division (7509C), 1200 Pennsylvania Ave., NW, Washington, DC 20460, 1-800-858-7378, nptn@ace.orst.edu. If you have these AllerCare™ products in your home, contact SC Johnson, 1-877-255-3722, for instructions on where to take the product for recovery, or for a refund.*

EPA Reverses Decision on Malathion's Carcinogenicity

Malathion, the pesticide that doused New York City residents to combat mosquitoes carrying West Nile Fever, is once again at the center of controversy. On May 10, just over a week before the Environmental Protection Agency (EPA) released its revised risk assessment for the widely used insecticide malathion, the agency was poised to classify this organophosphate pesticide as a suspected carcinogen. Reuters newswire reported that an EPA source, speaking on condition of anonymity, revealed, "The EPA scientists' risk assessment finds that malathion is a suspected carcinogen." However, when the final report was published the next day, the EPA claimed there was "insufficient evidence" to con-

sider malathion as a carcinogen. According to news reports, Cheminova, the pesticide's manufacturer, objected to the pesticide being labeled as a carcinogen and called for another interpretation of the EPA's data. Responding to Cheminova's grievances, and an analysis from its Pathology Working Group (PWG), which downgraded the severity of the types of tumors that were found in studies, EPA revised its cancer risk assessment, discounted its own scientists' opinions, and based its determination on the industry's analysis. Many environmentalists are convinced that the EPA's system of evaluating pesticides is flawed and possibly corrupt. Charging foul play, citizen groups met with EPA officials on June 28 and have called for an investigation by EPA's Inspector General.

In a series of memos, senior EPA toxicologist, Brian Dementi, questions EPA's downgrading of its original diagnoses of tumors found in laboratory animals exposed to malathion. The EPA toxicologist, in a memo to the Chairman of the Cancer Assessment Review Committee (CARC), concluded, "[U]nder EPA's Guidelines in evaluating the tumorigenic response, the PWG report should be discounted, and the original diagnoses retained." One of many concerns of citizen groups is that former EPA officials, such as past directors of the Office of Pesticide Programs and Assistant Administrators, are now employed as representatives of the pesticide manufacturers. In fact, two thirds of the highest-ranking officials from the EPA's Office of Pesticides and Toxic Substances have left the agency and are currently receiving at least part of their paychecks from pesticide interests. *For Dr. Dementi's comments on malathion, see http://www.epa.gov/pesticides/op/malathion/cancer_attach.pdf or contact Beyond Pesticides/NCAMP for more information.*



Around the Country



Ventura, CA and Anchorage, AK Schools Adopt IPM Policies

In a growing nationwide trend, more school districts and states are adopting safer pesticide policies. On November 13, 1999, the Ventura Unified School District (VUSD) school board unanimously passed an integrated pest management (IPM) policy that eliminates the use of dangerous pesticides in Ventura, CA schools. The VUSD policy is similar to San Francisco and Los Angeles Unified school pesticide policies. VUSD's policy requires all new school buildings be built to accommodate least-toxic IPM principles. The policy requires schools to eliminate the use of Category I and II (acutely toxic) pesticides, Prop. 65 pesticides (known to the state of California to cause cancer or reproductive damage), and any pesticide identified as a known, probable, or possible human carcinogen by the U.S. Environmental Protection Agency (EPA). It also calls for a six-month phase out of pesticides identified as neurotoxins or endocrine disruptors. VUSD's policy requires the district to maintain a registry of chemically sensitive individuals and notify these individuals before pesticide



applications occur.

While this is an important first step in protecting children and staff from pesticides in schools, many believe the establishment of a registry does not offer adequate protection. The pesticide lobby is promoting registries as a way to head off universal notification. Universal prior notification of parents and staff is necessary because they may not be aware of their need to know when pesticides are applied, and thus may not ask to be put on the registry, according to Beyond Pesticides/NCAMP. Further, universal notification treats pesticide exposure as a potential public health problem similar to other generalized health threats, such as a lice outbreak.

Another policy was passed in the Anchorage School District in late February 2000. The policy mandates the use of procedures that safely prevent and control pests while avoiding the unnecessary use of toxic chemicals. The district will use non-chemical prevention methods first, such as caulking and sanitizing, and will use pesticides only as a last resort. Under the plan, schools will provide universal notification to students, parents, and staff if pesticides are to be used by posting notices and sending notices home with students. *For more information, contact Californians for Pesticide Reform (CPR), 49 Powell St., #530,*

San Francisco, CA 94102, 415-981-3939, Pamela K. Miller, Alaska Community Action on Toxics, 135 Christensen Drive, Suite 100, Anchorage, AK, 99501, 907-222-7714, info@akaction.net.

Currently, Beyond Pesticides/NCAMP is collecting information on school districts that have good pesticide policies. To view a list of schools with such policies, see www.beyondpesticides.org. To add your school, contact us.

Organic Produce More Nutritious than Conventional, Says Australian Study

A new study shows that eating organic produce can be better for you than eating conventional produce. The study was commissioned by the Organic Retailers and Growers Association of Australia (ORGAA) and shows that organic produce grown in soil enhanced with minerals has up to ten times more mineral content than conventional produce. The Australian Government Analytical Laboratory found that organic tomatoes, beans, peppers and beets had higher levels of calcium, potassium, magnesium, and zinc than the same types of conventional produce. Calcium levels in some of the organic crops were eight times higher, potassium levels were ten times higher, magnesium was seven times higher and zinc was five times higher.



Chris Alenson, technical advisor for ORGAA, stressed that the study was not a replicated plot experiment with all variables considered and has not been published in a recognized journal, so the results "are only an indication and not a direct comparative study." The results were published in the ORGAA newsletter.

ter, July 1999. The study indicates that improvement of a soil's mineral content can in turn improve the nutritional content of organic produce, according to Alenson. The original soil used in the experiment was an acidic, volcanic soil low in mineral content. It was then mixed with rock dust (basalt) and mineral fertilizer, which contained calcium, magnesium, potassium, phosphorus, and trade minerals. "A lot more work needs to be done in this area, and to expand the nutrient elements to include more mineral elements, proteins, amino acids, and phytochemicals," said Alenson. *For more information, contact ORGAA at 03-9-737-9799 or oas@alphalink.com.au. Send \$1.50 to Beyond Pesticides/NCAMP for a summary of the study.*

Triple Resistant Canola Weeds Found in Alberta, Canada

Superweeds resistant to three herbicides used in genetically engineered crop production have been discovered in northern Alberta, Canada. The triple resistant canola weeds have arisen from the crossing of three different canola varieties genetically engineered to be herbicide-tolerant. The superweeds are resistant to the herbicides Roundup™ (glyphosate), Liberty™ (glufosinate-ammonium) and Pursuit™ (imazethapyr), according to *Western Producer* (Feb. 10, 2000). This is the first case of natural gene stacking in canola since genetically modified canola was adopted by farmers five years ago, according to Denise Maurice, agronomy manager with Westco Fertilizers, a fertilizer sales company.

The weeds were found in Tony Huether's field, a farmer who has decided to stop growing genetically engineered (GE) canola. In 1997, Huether seeded two fields with canola — one with a canola resistant to Roundup™ and the other with two canola varieties, one resistant to Liberty™ and one resistant to

Pursuit™. The two fields were only 30 meters apart. The year after he planted the fields, he discovered volunteer canola weeds resistant to Roundup where none had been planted. Double resistance was confirmed the first year, and the following year, triple resistance was confirmed. The mixing of all three herbicide-tolerant types has been blamed on bee and wind pollination between the two close fields. Researchers recommend at least 200 meters between fields of GE canola varieties and any other canola field to prevent genetic pollution. According to Huether, Alberta Agriculture has been testing his crops for herbicide-resistance without making the results public knowledge. "Many plants were taken and a lot of seeds taken and grown out in the lab and sprayed with the herbicide, and DNA tests done on it, and the results are not being made public. I feel that should be made public," he said.

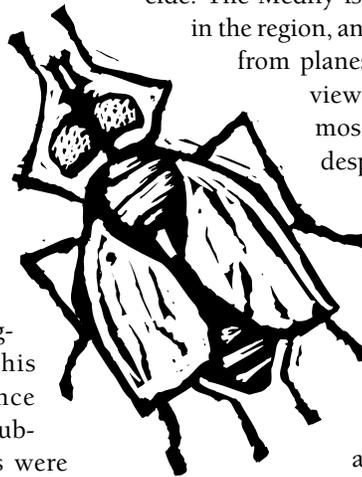
Canola scientist, Keith Downey, who created modern canola, stated, "We haven't created a superweed or anything like that." He said that adding 2, 4-D or a similar herbicide to a chemical mix will kill any wayward weeds, noting, "I don't think it means anything to consumers," according to *Western Producer*. *For more information on canola herbicide resistance, contact Beyond Pesticides/NCAMP.*

FL Health Department Epidemiologist Fired After Refusing to Alter Malathion Study Results

The Florida Health Department has fired epidemiologist Omar Shafey, who refused to alter a draft report on pesticide poisoning attributed to public exposure to the insecticide malathion, aerially sprayed in the Mediterranean fruit fly

(Medfly) eradication program. Dr. Shafey's version of the report linked illnesses in the Medfly spray zones in Lake, Manatee, and Highlands counties in Florida to the use of malathion in 1998 and included recommendations to cease spraying of the organophosphate pesticide. The Medfly is a serious crop pest in the region, and malathion sprayed from planes and helicopters is viewed as the cheapest, most effective solution, despite proven prevention and biological methods. Dr. Shafey's recommendations were cut from the final draft of the study, which went on to say that no association between the malathion spraying and the reported rashes, breathing problems, and other health effects could be established.

According to a March 18, 2000 *Tampa Tribune* report by Jan Hollingsworth, Dr. Shafey was fired for falsifying travel records, conduct unbecoming of a public employee, and threatening and/or abusive language, charges that Dr. Shafey calls "false and malicious." He plans to sue the agency under state and federal "whistleblower" laws, according to the *Tribune*. In firing Dr. Shafey, the department made no mention of Dr. Shafey's role in the Medfly report. "Falsification of records" charges come from Dr. Shafey's submission of an expense report for a trip to Chicago. State employees are entitled to \$50 per day expenses while on a business trip. An investigation into Shafey's trip determined that he worked only three-quarters of one day, resulting in an over-charge of \$12.50 to the department, according to the *Tribune*. "Conduct unbecoming" charges stemmed from an email Dr. Shafey sent to a colleague at the Center for Disease Control in which he noted that potassium chloride used in the state's first



execution by lethal injection had not been approved for that use by the Food and Drug Administration. Sharon Heber, director of the agency's division of environmental health, deemed the email "inappropriate." The abusive language charge came from Dr. Shafey calling his boss a "worm" and "the lowest form of life," upon learning of the agency's intent to fire him, said the *Tribune*. Copies of the *Tampa Tribune* article are available for \$1.95 at <http://archive.tampatrib.com> using the keyword "Shafey." For more information, contact Jan Hollingsworth, *Tampa Tribune*, 813-259-7607 or *Beyond Pesticides/NCAMP*.

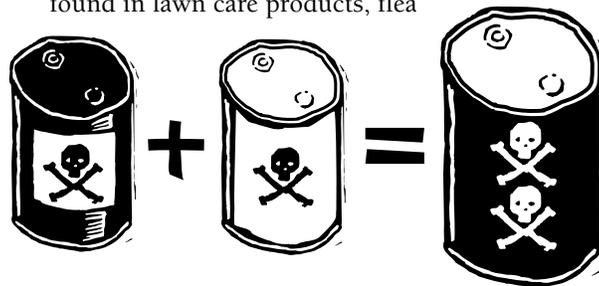
Research Shows Dangers of Pesticide Combinations

A new study shows that the insecticide chlorpyrifos is made more toxic when used in combination with other pesticides. Mohammed Abou-Dania, Ph.D., professor of neuro-biology and neuro-toxicology at Duke University in North Carolina, first established the level at which chlorpyrifos, a commonly used organophosphate, had no effect on the nervous system of the lab animals. Dr. Abou-Dania also looked at the pesticides permethrin and DEET. When applied individually, these chemicals produced no neurological problems at their established levels. However, when combined, they produced a toxic effect equivalent to the lethal dose of chlorpyrifos.

There are three reasons why these chemicals are far more dangerous when used in combination than when they are used individually, according to Dr. Goran Jamal, a neurologist at the West London Regional Neuro-Science Centre of the Imperial College's of Medicine in London. First, animals endure stress when exposed to a combination of chemicals, which in turn makes the protective role of the blood brain barrier less effective, allowing the level of toxics to cross into the brain to be 100 times higher. Second, tissue that has

been exposed to a toxin becomes more sensitive and receptive to other toxic substances. Third, certain chemicals bind to enzymes that detoxify the body, making the enzymes unavailable to protect the body from other intruding chemicals. Dr. Jamal makes the following comparison, "It's like releasing 200 criminals in London and taking away the police officers that are usually on duty. There is bound to be some damage."

The three pesticides used in Dr. Abou-Dania's study could easily be found in a typical American home. Chlorpyrifos, which is sold as Dursban™, is a commonly used insecticide that can be found in lawn care products, flea



collars, household aerosols, and termite controls. Permethrin, a synthetic pyrethroid, can be found in lawn care products, termite controls, lice controls, household foggers, and in insect repellants. DEET is one of the most common insect repellants, found in many insect sprays and lotions. (See story on phase-out of chlorpyrifos home and garden uses on page 10) For a copy of the study (22pp), send \$4.00 to *Beyond Pesticides/NCAMP*.

Study Finds Pesticides in Babies' First Bowel Movements

A recent study finds that newborn babies' first bowel movements contain residues of multiple toxic chemicals. The study, "Environmental Pollutants in Meconium in Townsville, Australia," by L. Deuble, et al., of the Department of Neonatology, Kirwinwas Hospital for Women in Townsville, Australia, and Department of Pediatrics, Wayne State University, Michigan, assesses the preva-

lence of pesticides, heavy metals and polychlorinated biphenyl (PCB) in meconium, or a newborn baby's first bowel movement. Meconium samples were collected from August 1998 to November 1998 from 44 newborn babies, frozen, and flown to the Department of Pediatrics, Wayne State University, MI, for analysis for the pesticides diazinon, pentachlorophenol, lindane, chlorpyrifos, malathion, parathion, chlordane, DDT, the industrial pollutant PCB, and heavy metals. Results were then linked to demographic data of race (either Aboriginal and Islander (AI) or not), birth weight (less than or greater than

2,500 grams, or 5.5 lbs.), gestational age, number of miscarriages, and thyroid status. Of the 44 samples analyzed, 21 were from babies weighing less than 2,500 grams. 35 (78%) of the total samples contained lindane, 19 (43%) contained pentachlorophenol, 26 (59%) contained chlorpyrifos, 15 (34%) contained malathion, 7 (16%) contained chlordane, 23 (52%) contained DDT, and 12 (27%) contained PCB. No samples were found to contain diazinon, parathion or heavy metals. Significantly, all babies less than 2,500 grams were positive for lindane, linking exposure to this pesticide with low birth weight. Additionally, more AI babies were exposed to chlorpyrifos. While DDT has not been available in Australia since 1981, lindane since 1985, and chlordane since 1995, these pesticides still exist in the food chain and can be passed from the mother to the fetus, explaining their presence in baby meconium. An average of three different pesticides was found in each meconium sample. Although individual pesticide concentrations were low, many babies were found to be positive for more than one pollutant and could have experienced additive or synergistic effects, says the study. For a copy of the study summary (4pp), send \$1.00 to *Beyond Pesticides/NCAMP*.

Momentum to Protect Children from School Pesticide Use Catches Fire, Four States Join the Movement

By Kagan Owens

Despite the industry theory of “hot spots,” that good things only happen in certain communities, the movement to protect children from school pesticide use is moving like wildfire across the country. Since the turn of the millennium, four states, Massachusetts, Minnesota, New York, and Vermont have passed laws that aim to protect children from pesticides used in schools, exemplifying the momentum on this issue. The four new state laws demonstrate the varying political climate in state legislatures and industry pressure across the country. Although these laws are a great victory for children, all show some degree of a compromise on providing universal prior notification and decreasing and/or eliminating toxic pesticide use in schools.

With the recent passage of the *Children's and Families' Protection Act*, Massachusetts becomes the first state in the nation to ban the use of the most dangerous pesticides in and around schools. When outdoor pesticides are used, the bill requires 48-hour prior universal notification to students, parents and teachers and requires signs to be posted prior to treatment and remain in place for three days following the treatment. However, the bill contains provisions to waive notification requirements if pesticides are used in a five-day period when school is out of session. Because of long residual lives of many pesticides and their by-products, this provision can undermine the value of notification in many cases. For indoor school pesticide applications, the bill prohibits the use of certain pesticide application methods in areas inaccessible to children and when children are on school property. All schools and state agencies are required to adopt an integrated pest management (IPM) plan. Although this bill has weaknesses, it should be considered, along with Maryland's school pesticide law, a model for other states as it is a positive improvement and establishes landmark requirements regarding the use of pesticides at school. (Signed by governor May 2000.)

Minnesota passed the *Janet B. Johnson Parents' Right-to-Know Act* which requires schools using pesticides classified by the U.S. Environmental Protection Agency (EPA) as toxicity I, II, or III and all restricted use pesticides to provide notification of the school's pesticide use at the beginning of the school year. The act provides for a notification registry for parents. Although this bill is a victory, parents and school staff consider this bill a stepping-stone to more restrictive and protective measures to pesticide use in schools and universal notification of their use. (Signed by governor May 2000.)



Regarding school pesticide notification provisions, New York's *Neighbor Notification Bill* set up a parent and staff registry for those requiring notice before each pesticide application, in combination with universal notice sent to all staff and parents three times a year. For daycare facilities, notice of each pesticide application must be posted two days prior to a treatment in a common area for parents and guardians to see. Pesticide applications made when a school or daycare facility is unoccupied for three continuous days following the application is exempted

from notification requirements. (As of printing, this bill is waiting for the governor to sign.)

Vermont passed two acts, the *Toxic Materials and Indoor Air Quality in Vermont Public Schools Act* and the *Pesticide Advisory Council, Funding and Providing Public Information on the Use of Pesticides Act*, which take a different approach to calling for decreases in school pesticide use. The *Toxic Materials and Indoor Air Quality in Vermont Public Schools Act* directs state agencies to create and maintain a clearinghouse of information to help schools identify and eliminate potential sources of environmental pollution in schools, provide technical assistance to schools, give workshops on environmental health for school personnel, develop a model school environmental health policy, and establish an environmental health certificate to be awarded to schools that have adopted and implemented a plan which goes beyond the provision in the model policy. The *Pesticide Advisory Council, Funding and Providing Public Information on the Use of Pesticides Act* authorizes the state's Pesticide Advisory Council to recommend benchmarks regarding the state goal of achieving an overall reduction in the use of pesticides and to issue an annual report detailing the state's progress in reaching those benchmarks. (Signed by governor May 2000.)

Although some of these new laws have limitations in their protection, all are instrumental in improving protections from pesticides for children while at school. The key to the success of these new laws is going to rely heavily on their implementation and keeping the state agencies and schools accountable.

Across the country, school pesticide laws and policies are becoming more commonplace and the state and community efforts to get such policies adopted are becoming more effective. The momentum behind the school pesticide use issue cannot be stomped out— it can only continue to further drive the movement to success for the rest of the nation. *For more information on state pesticide laws, contact Beyond Pesticides/NCAMP or visit us at www.beyondpesticides.org.*

Cultivating the Community

New York City's Organic Gardens

By John Kepner

In April 2000, participants of the 18th National Pesticide Forum, Solving a Public Health Crisis, had the opportunity to visit two community gardens in New York City, the neighborhood-run Taqwa Community Farm and the student-run Enchanted Garden at JFK High School, both in the Bronx. Members of the Green Guerrillas, a non-profit organization dedicated to the New York City community garden movement, led the tour.



Head gardener, Abu Talib tells the history of the Taqwa Community Farm to the participants of the 18th National Pesticide Forum, New York City.

In 1992, Abu Talib and the others received permission from the city to garden half of the vacant lot at 164th Street and Ogden Avenue, which at the time was littered with hypodermic needles and illegally dumped trash. The neighborhood pulled together, cleaned the lot and planted for their first season. They were told by the city that if the garden worked out, the following year they could have the rest of the lot. After only six months, they were given the full two acres.

Taqwa Community Farm

The neighborhood surrounding the Taqwa Community Farm, an organic community garden in the South Bronx, is not exactly a regular stop for most New York City tourists. But in this vacant lot where visitors to the neighborhood might have seen debris and despair, a group of local residents had a vision of hope and saw great resources for the community. "This community seemed like it had died; narcotics had taken over," recalls Abu Talib, one of the head gardeners and founders of the Taqwa Community Farm. "Neighbors asked me to get people together and do something for the community. We had several meetings and we talked, talked, talked and nothing happened. Eventually one sister said let's get us a lot. And God bless, there was a lot."



Daffodils brighten this formerly vacant lot in the South Bronx.



Abu Talib explains the health benefits of mudwort, which can be brewed as an herbal tea.

Since its start eight years ago, the garden has certainly been a success. Upon entering the Taqwa Community Farm, you realize that the gardeners have created an atmosphere of beauty and tranquility. Inside the gate, a path lined with daffodils and tulips leads to a trellis covered in grape vines, where the young gardeners finish their homework before starting their work in the garden. Side paths intersect the main walkway, wandering through the raised beds of wooden planks and imported soil, growing potatoes, spinach, string beans, collards, carrots, squash, peas and cabbage for the season's harvest. There are also blueberry, raspberry and mulberry bushes and recently planted fruit trees. Once, Talib was challenged by a neighbor who said there was no way that anyone could grow corn in the middle of the city. So that was exactly what he did.

Off to the side, native herbs grow in a pyramid-like raised bed structure. "I didn't plant it," insists Talib, "The birds

brought it, squirrels brought it, God brought it. We just cultivated it.” During the garden tour, Talib, who is also an experienced herbalist, explained the health benefits of several herbs growing at Taqwa to the participants of Beyond Pesticides/NCAMP’s National Pesticide Forum. “The knowledge is around, but it’s not making money for the drug companies. But I’m not into the drug companies. I’m into getting well, and the people here are well.”

In addition to Talib, there are over 100 families that have garden plots in the Taqwa Community Farm. In 1999 the gardeners produced over 5,000 pounds of organic food, half of which was donated through Taqwa’s own Grow and Give program. “We line two long tables with food,” explained Talib. “People who are hungry come in and take what they need. What the heck are people doing hungry in the country with the best land in the world? It’s not perfect, but I do the best I



A mural, mounted to the side of an adjacent building, depicts a summer afternoon in the Taqwa Community Farm.

can do to change this whole system around.” The Taqwa Community Farm also donates to local soup kitchens and is an active participant in the City Farms project, a collaborative program consisting of non-profit organizations, community gardens, and emergency food centers that work together to boost urban food production.

In the summer, the gardeners organize community barbeques in the garden, serving food from the season’s harvest. A mural on the side of an adjacent building depicts the important role that the garden plays in the life of the neighborhood. Ximena Naranjo, associate director at Green Guerrillas explains the importance of community gardens beyond food production, “It’s not Central Park, but people can feel like it’s their Central Park. The people who build community gardens are community leaders. They took it upon themselves to revitalize the community by creating a place where people can feel



The Enchanted Garden serves as an interdisciplinary learning space for the students of JFK High School.

safe. Everyone has a right to open space.” Abu Talib is also a firm believer in the empowerment of working in the garden, saying, “He who controls your breadbasket, controls your destiny. I think that one of the things we overlook if we have a garden, is that we’re not just raising food, we’re raising people.”

The Enchanted Garden at JFK High School

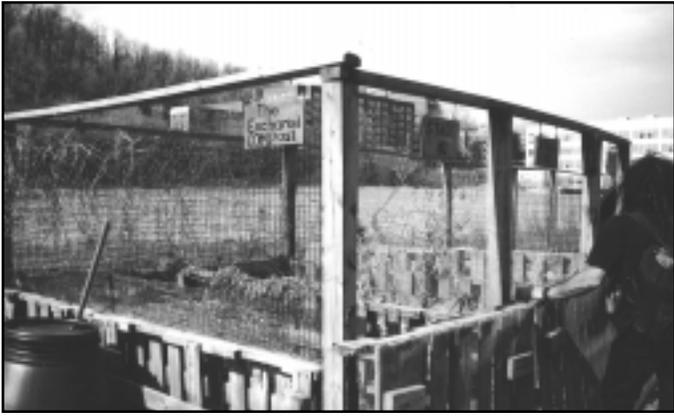
Five years ago a group of students from one of the most populated high schools in New York City were tired of looking at garbage piling up in the vacant lot surrounding their school and set out to convert it into a green, peaceful and productive garden. JFK High School, located in the Bronx, is a massive building with eight floors holding 4400 teenage students and



The students converted a water run-off ditch, once filled with bags of trash, into an aquatic garden, complete with goldfish and lily pads.

300 teachers. A group of 93 students, who make up the environmental club, now manage “The Enchanted Garden,” located next to their school parking lot.

The entrance of the garden brings you to the beginning of three paths from which to choose. The right path will take you to a small wetland full of cattails; the center path walks you through a shaded garden to a bridge that crosses a pond where goldfish and turtles live. The path to the left leads to eight raised beds for intensive food production. As a member of the City Farms project, the students established a relationship with a soup kitchen in Harlem, to which they donate part of their harvest. Tony Thoman, one of two teacher advisors to the Enchanted Garden says, “Involvement with City Farms has given our kids a view as to how the garden can be a food resource to the less advantaged in the community.”



Nutrients from the "Enchanted Compost" replenish the soil in JFK High's organic garden.

The garden is also a great resource for the students. Joyes Baby, a member of the environmental club recalls, "We planted an herb garden as part of our summer project. In September, we dried the herbs in our ovens at home and sold them in the teachers' lunchroom along with fresh cut flowers. We made \$220! Now we're doing research on how to make soaps and candles with our herbs." Through grants from the Hudson River Foundation, the Enchanted Garden provides rewarding summer jobs to several JFK High School students. Students also conduct research and produce pamphlets on the many butterfly and bird species living in the garden.

The presence of the Enchanted Garden at JFK High School has an undeniable, positive impact on the students as well as the ecological environment it embodies and sustains. The garden provides a holistic learning space where students learn to work as a team as well as express their individuality. They can enhance their scientific research skills or explore their artistic creativity. When one walks into the Enchanted Garden, there is a magical feeling, not only because the breeze carries a fragrance of roses and sage, but also because of the sense of empowerment and confidence heard in the students voices as they speak with pride and love for their garden.

The City Farms

Hunger and unemployment are a reality in New York City's low-income neighborhoods. From 1980 to 1997, the number of emergency food centers soared from 50 to over 1,000. While 450,000 New Yorkers were served by emergency food centers

every month, 73,000 people were still being turned away. These numbers mushroomed as welfare reform took effect. Simultaneously, the regional agriculture and the capacity to address food needs sustainably declined. In New York State alone, nearly 20,000 farms and over 1 million acres of farmland have been lost since 1980.

In March of 1996, a number of people gathered at the invitation of Just Food and the Green Guerillas to work towards a solution to this urban food crisis and to learn more about the city's community gardens and how they could serve as an important component in the process. What they learned was that although there were many independent gardens in the city, they were primarily ornamental gardens and food production was minimal. Looking at the tremendous and rising needs that could potentially be met by this huge, untapped resource, the organizers explored the role that their organizations could play in helping community gardens contribute to local food security.

Later that year, five groups consisting of Just Food, Green Guerillas, Cornell Cooperative Extension-NYC, Food for Survival, Inc. and Northeast Organic Farming Association-NY, formed the City Farms project. The City Farms helps people who live in low-income neighborhoods to create an urban agriculture network in New York City

"He who controls your breadbasket, controls your destiny. I think that one of the things we overlook if we have a garden, is that we're not just raising food, we're raising people."

**—Abu Talib
co-founder Taqwa County Farm**

and by helping regional farmers develop long-term relationships with New Yorkers and familiarity with urban markets.

The goals of this project include: improving the availability of fresh food in New York City's low-income neighborhoods by expanding the capacity of urban grower to pro-



In 1999, the City Farms Program produced over 10,000 pounds of food for the residents of New York City.

duce organic, nutritious food and distribute it to local residents through established food sites; promoting community-based entrepreneurship and economic opportunity through food production, processing, and marketing; strengthening urban markets for farmers by fostering relationships among city residents and regional growers; and building public support for the preservation of open space for food production. Currently, there are 15 gardens, located in each of the 5 boroughs, participating in the City Farms project. Both the Taqwa Community Farm and the Enchanted Garden are City Farms members.

Community Gardens Threatened by Development

Community gardens have been slowly losing ground in New York City for many years because of development and a lack of support from city hall. However, the fate of the gardens took a turn for the worse in May of 1999, when Mayor Guillian turned the garden lots over to the Department of



In a collaborative effort with the Cornell Cooperative Extension, gardeners set up a hydroponic gardening system in the Taqwa Community Farm.

Housing and Preservation. Immediately, 113 gardens were on the market for development. Today there are over 500 gardens in the city that could be bulldozed at anytime. New York City commissioner Richard Roberts claims that development of the lots is needed for affordable housing. They dismiss claims that the city is trying to make money in a hot real estate market.

While Ximena Naranjo and most gardeners agree that affordable housing is needed in New York, she contends that the city's intentions to sell the lots are not honorable. "There are 11,000 vacant lots in the city, but the gardens make the area more attractive and more profitable for the city." Naranjo also points out that the city was not selling the land just to be developed for low-income housing, but to the highest bidder.

One day before the city was going to auction the first 113 sites, the Green Guerillas hosted the *Save the Gardens* benefit

to raise money for the gardens. Author and urban farmer, Michael Abelman explained the importance of the gardens at the Green Guerillas benefit. "When the food system no longer fulfills the needs of the people, whether for economic or distribution reasons or because of concerns for food safety... they take the opportunity into their own hands. While many people may look to a new agriculture as the source of salvation, the truth is that the real revolution is taking place in the neighborhoods, backyards, and towns."



Gardener Bobby Watson explains the need for the gardens in the community.

Fortunately, people agreed with the Abelman and the Green Guerillas. On May 13, 1999, due in part to the support of foundations and celebrities like Bette Midler, the 113 gardens auctioned by the city were bought and preserved. "Community gardens reflect the personality and character of the neighborhoods they're in and are vital to improving the quality of life for all the citizens of New York," Midler told USA Today last May. Unfortunately, the fate of the remaining 500 gardens, however, remains in limbo. New York State Attorney General Eliot Spitzer has temporarily protected the gardens with a lawsuit stating that the gardens cannot be sold without an environmental-impact statement. The city is currently appealing the restraining order.

For more information on New York City's community gardens contact: Green Guerillas, 625 Broadway, 9th Floor, New York, NY 10012, (212) 674-8124, www.greenguerillas.org. For information on the City Farms contact Just Food at 307 7th Avenue, Suite 120, NYC 10001, 212-645-9880, www.justfood.org. For information on community gardens across the country or to get in touch with a garden in your area, contact the American Community Gardening Association, 100 N. 20th Street, 5th Floor, Philadelphia, PA 19103, (215) 988-8785, www.communitygarden.org.

The LowDown on Dursban; MOEd* Down By EPA

Do EPA Negotiations With Pesticide Manufacturers Compromise Public Health?

By Jay Feldman

It was widely reported in the media as the U.S. banning of chlorpyrifos (Dursban™), one of the most widely used home and garden insecticides. Buyer beware! Public exposure, use and sales in the home use market could continue for several years to come. Agricultural, golf course, mosquito control and containerized baits use will continue with no time limit.

On June 8, 2000, the U.S. Environmental Protection (EPA) announced an agreement it had reached with Dow AgroSciences which phases out most home uses of the commonly used insecticide, but allows sales to continue through 2001 and all existing stocks to be used by the general public and sold by pest control companies for as long as they last.¹ This announcement spurred New York State Attorney General Eliot Spitzer into action, calling on retailers in his state to stop the sale of Dursban immediately.²

Chlorpyrifos is in the family of approximately 40 widely used organophosphate pesticides, known neurotoxic chemicals that together can cause cumulative adverse effects. It is the third most commonly used home-use and commercially applied pesticide, with 11 million pounds applied annually, and is the thirteenth most commonly used pesticide in agriculture, with 13 million pounds applied annually.³ Chlorpyrifos is the active ingredient in over 800 pesticide products including Dursban™ and Lorsban™. Because of its high volume and common uses, chlorpyrifos represents one of the most significant sources of organophosphate exposure in non-occupational settings. It is used extensively in commercial buildings, schools, daycare centers, hotels, restaurants, hospitals, stores, warehouses, food manufacturing plants and agriculture. With the exception of uses on tomatoes, agricultural uses will continue under this decision.



Could EPA have struck a better deal with Dow than it did? Should EPA have struck a deal that allowed for continued exposure to many chlorpyrifos uses whose risks are off the EPA risk charts? Why doesn't EPA use its regulatory authority to cancel pesticides like chlorpyrifos and stop exposure as soon as the hazard is fully characterized? Does not the data support the conclusion that continued exposure to chlorpyrifos represents an imminent hazard? Why doesn't EPA just stop the use of this chemical, institute a product recall, and move on?

After the EPA press conference, Beyond Pesticides/NCAMP was quick to point out that the EPA chlorpyrifos announcement begins the process of getting high consumer and children exposure uses of Dursban off the market, but puts people at risk by not stopping its uses immediately. The decision allows for an 18-month phase-out of sales of deleted uses, and a lengthy period, probably years, during which pest control companies and other applicators can use up existing stocks of the chemical. Beyond Pesticides/NCAMP has expressed concern about the extraordinarily high risks associated with use during the phase-out period, some that exceed EPA levels of concern by over 100 times.

No public notice is required during the phase-out period for continued retail sales and use of existing stocks. Production of the phased-out products can continue until the end of 2000, and in some cases longer.

In a letter to major retailers, Mr. Spitzer said the voluntary pullback agreed to by EPA and chemical manufacturers does not go far enough in protecting children and pets. "The danger from this product is clear," Mr. Spitzer said in the letter to Wal-Mart, Home Depot, Ace Hardware and other stores. "We must do more to prevent exposure to this dangerous chemical" by yanking products with Dursban off the shelves immediately.⁵

* MOE, EPA's Margin of Exposure, measures adverse effects on humans in terms of effects seen in laboratory animals. Mathematically, it is the ratio of estimated actual human exposure to the level that had no adverse effect on laboratory animals. The exposure level causing no effect in animal studies may actually cause effects in humans because of factors like the different metabolism of humans compared to mice and rats and the genetic diversity of humans as opposed to uniform laboratory

strains. Generally, EPA considers MOEs below 100 to be "of concern," to take into account those factors. Under the *Food Quality Protection Act*, where the agency has a higher degree of uncertainty or inadequate data with which to make a determination that children will be protected, EPA must apply an additional 10-fold factor, making the MOE level of concern 1000. That is what EPA has done in the case of Dursban, making any level below 1000 unacceptable.

Commercial Pesticide Sprayers Hail Victory

Meanwhile, in the state of Georgia, the Georgia Pest Control Association (GPCA) is notifying its members and congratulating the industry for limiting the reach of the Dow agreement with EPA, explaining that pest control companies could continue to sell Dursban treatments as long as they had stocks.⁶ One can only suspect that this is going on throughout the pest control industry. On the EPA announcement, GPCA writes, "The National Pest Management Association has done a gargantuan job of meeting with EPA, manufacturers, the press and lawyers. Without their work, our industry would be facing much more stringent restrictions and more threatening legal issues."⁷

On continuing to sell Dursban to unsuspecting customers, GPCA explains that, despite the phase-out period, the pest control industry's use may go on for many years. GPCA says, "It's important to note, however, that any product in channel (in your warehouse, from distributors, etc.) can be used according to the label directions on the package. Distributors can not sell "old label" Dursban after February 2001, but you could still use what you might have in stock."⁸ GPCA also tells its members that Dursban will no longer be labeled for use in schools, hospitals, daycare centers and other indoor non-residential settings, except bait applications and any formulation in warehouses, ship holds, railroad box cars, industrial plants, and manufacturing or food processing plants.

Uses Continue for Golf Courses, Mosquitoes, Fire Ants, in Containerized Baits and Food Production

EPA negotiations with Dow also resulted in the allowance of continued uses that could certainly cause exposure (although application rates are being reduced through a phase-out process, allowing for old label stocks to be used up) to those who play golf or live near golf courses, live in communities with mosquito spray programs, or utilize indoor spaces that use containerized baits (those hockey puck-looking containers in the corners of rooms) for cockroach control.

Furthermore, the phase out of Dursban as a termite insecticide for new residential construction treatment will not take effect until the end of 2005. Nor will the prohibition on production kick in until the end of 2004. According to Dow, "This date may be extended, however, based on the results of an exposure study specific to this application."⁹ At this point, Dow

has not submitted to EPA any plan for conducting such a study, which presumably would involve human subjects living in new homes that had been treated pre-construction for termites. "Spot and local" treatment of existing buildings will not stop until the end of 2002.

The Big MOE: EPA Risk Assessment Shows Extraordinary Risk

As part of the ongoing implementation on the *Food Quality Protection Act* (FQPA), EPA has been working on the revised risk assessment for chlorpyrifos. Risk assessments are mathematical calculations, based on certain exposure assumptions, used to calculate human risk from toxic materials. A review of EPA's risk assessment for chlorpyrifos¹⁰ reveals the fact that the public and workers face immediate extraordinary danger from continued exposure to the chemical because the risk factors are far above EPA's level of concern. This raises serious

health concerns given the long phase-out period, the existing stock allowance, and continued worker/applicator exposure.

Using EPA's numbers, many of the risks the public and workers face exceed EPA levels

Chlorpyrifos is in the family of approximately 40 widely used organophosphate pesticides, known neurotoxic chemicals that together can cause cumulative adverse effects. It is the third most commonly used home-use and commercially applied pesticide...

of concern by over 100 times. For example, while EPA has set an acceptable Margin of Exposure (MOE) for residential exposure to chlorpyrifos at 1000, any number below that is defined as unacceptable. Normally EPA sets the MOE at 100, however, under FQPA, the agency has adopted an additional 10-fold margin of safety. Some of the risks EPA indicates for children include the following MOEs: 7.5-60 for lawn treatment of liquid formulation, 73 for lawn treatment of granular formulation, 110 for indoor crack and crevice, 360 for adolescent golfer. From a flea collar, a young dog is exposed to an MOE of 140 and a young cat 530.

Because FQPA specifically exempts occupational exposure and given an EPA history of allowing especially high risks to workers who use pesticides, the agency sets the worker MOE for chlorpyrifos at 100. Some of the risks EPA indicates for workers include the following MOEs: 6-23 for liquid hose-end sprayer for broadcast turf, 37-15 for liquid low pressure handwand for spot treatment of turf, 17 for hand application of granular for broadcast turf, and 100 for indoor crack and crevice.

Even some of the retained chlorpyrifos uses result in risks to workers that are very high, such as an MOE of 14 for the mixer/loader of spray planes treating for mosquitoes. In agriculture the risks are even higher. Some of the high risks EPA

indicates for farmers and farmworkers include the following MOEs: 23 for cranberries and corn, 34 for citrus, and 38 for sodfarms.

According to EPA, “Risk is measured by a Margin of Exposure (MOE) which determines how close the exposure comes to the No Observed Adverse Effect Level (NOAEL) taken from animal studies.”¹¹ Because of the uncertainty associated with the extrapolation of animal data to human effects, additional margins of safety are viewed as necessary to setting acceptable human exposure levels. However, when Beyond Pesticides/NCAMP raised the concern of the extraordinarily low MOEs associated with continued chlorpyrifos exposure, such as the 7.5 MOE for one type of exposure to children, an EPA science staffer said it is “not a level that will cause any effect.”

On the one hand, EPA scientists created the MOE approach to alert regulators to the need for action. On the other hand, EPA staff in a policy discussion with Beyond Pesticides/NCAMP on the MOE for chlorpyrifos diminished the value of the agency’s scientific standard. In raising the question of whether chlorpyrifos presents an imminent threat to public health and safety, an EPA attorney told Beyond Pesticides/NCAMP that there is “no clear threshold for imminent hazard,” rather it is a policy level decision.

Under the category of ecological risk, EPA has identified risks of concern for nontarget terrestrial and aquatic animals. In EPA’s words, “Chlorpyrifos use poses acute and reproductive risks to many nontarget aquatic and terrestrial animals for all outdoor uses assessed.”¹²

Provisions of the Agreement and Associated EPA Actions

Food Uses

Crop	Mitigation Measures	Effective Date
Apples	Production of chlorpyrifos products labeled for post-bloom application is prohibited (only production for pre-bloom, dormant application is allowed). Post-bloom use is prohibited. Tolerances will be lowered.	August – September 2000 Stop use (use prohibited) as of 12-31-00
Tomatoes	Production of products for tomato use is prohibited. Use will be canceled. Tolerances will be revoked.	August – September 2000 Stop use as of 12-31-00
Grapes	Tolerance will be lowered.	
All Agricultural Uses	Classify new end-use products for restricted use of package in large containers. New end-use products must bear revised Restricted Entry Intervals (REIs).	As of 12-1-00 As of 12-1-00

Home Uses

Site	Mitigation Measures	Effective Dates
Home lawn and most other outdoor uses	Classify new end-use products for restricted use or package in large containers (except baits in child resistant packaging) Use will be canceled.	As of 12-1-00 Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Crack and crevice and most other indoor uses	Classify new end-use products for restricted use or package in large containers. Use will be canceled.	As of 12-1-00 Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Termiticides	Classify new products for restricted use or package in large containers. Limit use to 0.5% solution.	As of 12-1-00 In label directions as of 12-1-00
Full barrier (whole house) post-construction use	Use will be canceled.	Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Spot and local post-construction use	Use will be canceled.	Stop formulation 12-1-00 unless label has stop use date of 12-31-02
Pre-construction use	Use will be canceled.	Stop production 12-21-04 Stop use 12-31-05

Non-Residential Uses

Site	Mitigation Measures	Effective Dates
Indoor areas where children could be exposed (such as schools)	Uses will be canceled	Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Outdoor areas where children could be exposed (such as parks)	Uses will be canceled	Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01

Non-Agricultural Uses That Will Remain

Crop	Mitigation Measures	Effective Date
Residential use of containerized baits	Already in child resistant packaging	(Use allowed to continue)
Indoor areas where children will not be exposed, including only ship holds, railroad boxcars, industrial plants, manufacturing plants, or food processing plants		New end-use product labels must reflect only these changes as of 12-1-00
Outdoor areas where children will not be exposed, including only:	Reduce application rate from 4 lbs/acre to 1 lb/acre	New end-use product labels must reflect only these changes as of 12-1-00
Road medians	Reduce maximum application rate to 1 lb ai/acre	
Industrial plant sites	Reduce maximum application rate to 1 lb ai/acre	
Non-structural wood treatments including: fenceposts, utility poles, railroad ties, landscape timbers, logs, pallets, wooden containers, poles, posts, and processed wood products	(Continue at current rate)	
Public health uses: Fire ant mounds (drench and granular treatment)	For professional use only	
Mosquito control	For professional use only	

The EPA Administrator Double Speaks

When EPA Administrator Carol Browner announced the agency agreement with Dow in June, she said, "With today's announcement, we are taking the fastest action possible for removing these household products from the market."¹³ Instead of educating the public on the phase-out and the risks associated with continuing exposure to existing stocks, Ms. Browner said at the press conference and stated in her press release, "This action will virtually eliminate home, lawn and garden uses by the end of the year."¹⁴ In fact, this is not factual. While the decision stops labeling of the withdrawn uses by the end of the year, the EPA agreement certainly does not eliminate these uses for many years.

Should EPA Stop Use in the Public Interest

When the Administrator tells the public that the negotiated settlement with Dow represents the fastest action possible to remove chlorpyrifos from the market, it is assumed that EPA has fully calculated the "aggregate" risks of exposure required

by the *Food Quality Protection Act*. In fact, according to agency documents, the full risk of continued exposure during the phase-out and use of existing stocks has not been calculated. EPA writes, "Aggregate risk is defined as the combined risk from exposure through food, drinking water, and residential uses." It continues, "The short-term and intermediate-term aggregate risks were not originally calculated for chlorpyrifos because the risks from residential exposure alone exceeded the Agency's level of concern based on currently registered uses."¹⁵ The same is said for long-term aggregate risk.

In effect, EPA is saying that it has not calculated the aggregate risks associated with continued exposure to chlorpyrifos during the period of phase-out and use of existing stocks. Given how high the individual exposure risks are for some uses of chlorpyrifos, it is likely that combined or aggregate exposures (i.e. lawn care, indoor use and food) during the time period of continued exposure qualifies chlorpyrifos, with EPA's own numbers, for a faster removal from the market, utilizing the "imminent hazard" provisions for pesticide suspension. Beyond Pes-

ticides/NCAMP argues that EPA has a duty to at least make the calculation before negotiating the public's health.

Analogies to Another Harmful Insecticide Chlordane

Environmentalists have criticized a long-standing pattern of EPA regulation by negotiation with chemical companies that has resulted in decisions that allow continued exposure to known hazards for extended time periods. It was the late-1980's when EPA announced a similar agreement on the termiticides heptachlor and chlordane. In August, 1987, EPA announced that Velsicol had voluntarily agreed to cancel the registration of the termiticide uses of heptachlor and chlordane. While Velsicol agreed not to sell or distribute the deleted uses of its products, the chlordane agreement, like the chlorpyrifos agreement, allowed all existing stocks to be used in any manner permitted prior to the agreement, including the deleted uses. This agreement followed the filing of a lawsuit by NCAMP in July, 1987, challenging EPA's failure to act on these hazardous chemicals. After the EPA agreement was announced, an action was filed in U.S. District Court (District of Columbia), *NCAMP v. EPA*, challenging the existing stock provision. After considering EPA findings of human health effects associated with continued exposure, Judge Louis Oberdorfer ordered in February, 1988 that "commercial use and commercial application of existing stocks of chlordane and heptachlor which have been the subject of voluntary cancellations shall cease."¹⁶ The court found that the agency's decision to permit continued use of the chlordane

stocks under the agreement constituted arbitrary and capricious action. The court further found that, "EPA's policy of exchanging use authorization on existing stocks for voluntary cancellations . . . does not satisfy the agency's obligation under 7 U.S.C. 136(a)(1)."¹⁷ During a successful appeal by EPA on questions of acceptable cancer risks, the agency, Velsicol and the pest control industry implemented a stop use and product recall of heptachlor and chlordane products. This approach represents the fastest way that hazardous products like chlorpyrifos can, and, according to many, should be taken off the market.

Conclusion

Many in the environmental community and those who have been the victims of pesticide poisoning and contamination believe that the public should expect more of its Environmental Protection Agency than decisions, like chlorpyrifos, which allow continued lengthy exposure to toxic substances known to cause harm. To these people, EPA's agreement with Dow AgroSciences reflects the worst of regulation by negotiation, compromises with the public's health, where compromise is not warranted or acceptable. Should thousands, or perhaps hundreds of thousands, more children have their nervous system weakened, brain development compromised or respiratory system injured? Should one more child be harmed? For whose benefit should this be done? There is certainly agreement that chlorpyrifos is not needed for home and garden use and wide recognition that there are less toxic ways of managing and preventing pests.

Action: You can speak up and let EPA know how you feel about this decision and regulation by industry negotiation. EPA has set up a comment period during which the public is invited to comment on the chlorpyrifos decision. It is expected that the comment period will run through mid-September. At the writing the docket has not been established, contact Beyond Pesticides/NCAMP for the docket number and send your comments by MAIL: Public Information and Records Integrity Branch, Information Resources and Services Division (7502C), Office of Pesticide Programs, USEPA, 401 M Street, SW, Washington, DC 20460; or by E-MAIL: HtmlResAnchor.opp-docket@epa.gov. Electronic submissions will be accepted in WordPerfect 6.1/8.0 or ASCII file. Tell EPA to stop the poisoning now.

Endnotes

- ¹ U.S. Environmental Protection Agency, Prevention, Pesticides and Toxic Substances, *Chlorpyrifos Revised Risk Assessment and Agreement with Registrants*, Washington, DC, June 2000.
- ² The Honorable Eliot Spitzer, Attorney General, State of New York, Albany, NY, letter to Arthur M. Blank, President/CEO, Home Depot, Inc., June 8, 2000.
- ³ U.S. Environmental Protection Agency, Pesticides Industry Sales and Usage, 1996-1997, Market Estimates, November, 1999, pp21-22.
- ⁴ Spitzer
- ⁵ Valera Jessee, Georgia Pest Control Association, *GPCA News Alert*, June 19, 2000.
- ⁶ Jessee
- ⁷ Jessee
- ⁸ Heather Woolford, Dow AgroSciences, Press Release, Dow AgroSciences Announces Changes in Use of Chlorpyrifos Products, June 8, 2000.
- ⁹ U.S. Environmental Protection Agency, *Overview of Chlorpyrifos Revised Risk Assessment*, June 8, 2000.
- ¹⁰ EPA, *Overview*, p.8.
- ¹¹ EPA, *Overview*, p.24.
- ¹² The Honorable Carol M. Browner, Administrator, EPA, *Dursban Announcement, Remarks Prepared for Delivery*, June 8, 2000, p.2.
- ¹³ Browner, p.2.
- ¹⁴ EPA, *Overview*, p.18.
- ¹⁵ The Honorable Louis F. Oberdorfer, United States District Court for the District of Columbia (February 23, 1988), *NCAMP v. EPA*, 679 F. Supp. 55 (D.D.C.1988), p.60.
- ¹⁶ Oberdorfer, p. 59.

Alternatives to Using Chlorpyrifos

By Kagan Owens

Chlorpyrifos, the active ingredient in over 800 pesticide products, is used to control numerous pest problems. When looking for alternatives to using this chemical you must remember that one chemical cannot be swiped out for another. In order to identify an alternative to using chlorpyrifos it is necessary to first identify the pest problem.

It is important to remember when controlling a pest problem to look for long-term solutions not just a temporary control. Instead of addressing the cause of pest problems, many pesticides only treat the symptoms, without changing the structural problems that create an environment conducive to their existence. Pesticides are often ineffective over the long term and the most common pests are now resistant to many insecticides.

Simple changes in your environment can significantly reduce pest populations. Before reaching for a pesticide, monitor the pest population, make structural repairs, use proper sanitation inside and outside, and modify the pest's habitat. Any openings that pests are using to access the structure should be caulked, screened or repaired. Some outdoor pests are attracted to spilled greasy or sugary liquids, improperly stored garbage, untended pet foods or explosions of naturally-occurring food sources like aphids or scale infestations on nearby plants. Efforts to eliminate food sources may eliminate the pest problems.

Following is a brief description of some alternatives to using chlorpyrifos to control common pest problems. Use Table 1 to identify which alternatives can be used to eradicate a specific pest problem.

Non-Toxic Solutions

Heat treatments are effective in controlling pest populations for those pests that have minimum and maximum temperatures beyond which they cannot survive. Heat treatments require raising the temperature of a structure to 120 degrees F or more. Special equipment composed of a heating unit, blowers and ducts carries the heat to the locations in the structure where the pests are causing damage. Heat treatment field tests have killed insects inside wood without damaging the building or furnishings, although certain sensitive appliances should be removed as a precaution.

Cold treatments of liquid nitrogen can also eradicate pests that live in a narrow temperature range. Liquid nitrogen can be pumped into walls, which freezes the pest, killing them, then warms and evaporates. Because nitrogen is a natural part of our

atmosphere, it does not have the dangers associated with the use of synthetic pesticides.

Electrical currents can be used to kill insects that nest in the walls of a structure. The Electorgun™ uses low wattage, high voltage, and high frequency to kill the insects. It does not emit microwaves, x-rays, ultraviolet rays or other potentially harmful radiation. Tests have shown the gun to be very effective. Existing pest holes and holes drilled into the nests by the operator are used as entry points for the electricity. Tests show that whereas some termites die immediately, others may take weeks to die, but that they all die eventually.

Fatty-acid soap and water can be used to control pests. The fatty acids in soaps serve as an insecticide killing pests on contact. Aphids, which attract ants, can be controlled by treating the aphids directly with insecticidal soaps. Direct action against individual fire ant nests include pouring boiling or soapy water directly into the hole.

Beneficial nematodes are microscopic soil-dwelling worms that actively search for insects like pre-adult fleas, fire ants, or termites in the yard. After invading the larvae or pupae, they release a bacterium that kills the host within 48 hours. The nematodes then feed on the pest's body, reproduce and seek out more pests. When all larvae and pupae are killed, the nematodes die off and biodegrade. Numerous pest problems can be controlled or eliminated by using biological controls that have a minimal impact on non-target species and offer long-term solutions.

Milky spore disease, *Bacillus popilliae* is a nontoxic way to control grubs. Commercial milky spore dust is made by inoculating beetle grubs with the disease and then extracting the spores, which resemble dust or powder when dry. The spores can be applied any time except when the ground is frozen or a strong wind is blowing. Grubs become infected when they feed on the thatch or roots of grass where the spores have been applied. As the infected grubs move about in the soil, then die and disintegrate, they release one or two billion spores back into the soil. This spreads the disease to succeeding generations of grubs. If the conditions are right, grub population high and feeding vigorously, and soil is at least 70 degrees F and very moist, the disease can spread through the grub population in a week or two. In general, however, the disease should not be thought of as a quick knockdown insecticide. It may take a season or two before it has a substantial impact.

**It is important to remember
when controlling a pest problem
to look for long-term solutions
not just a temporary control.**

Bacillus thuringiensis (B.t.) is a naturally occurring soil bacterium; it is a spore-forming rod and an insect pathogen. Different strains are toxic to particular kinds of insects. There are nearly 400 registered products that have been marketed in the country, providing effective control of such major insect pests as gypsy moths, mosquitoes, blackflies, and many others. These B.t. strains are only effective against insects in their larval feeding stages, since B.t. must be ingested to be effective. Depending on how much B.t. is ingested, insect larva soon stop feeding and are dead in a few days to a few weeks. B.t. is completely biodegradable, and does not persist in the digestive systems of birds or mammals. There is no evidence that B.t. goes on to reproduce in the wild. B.t.'s short biological half-life and high specificity makes the development of field resistance much more unlikely than with chemical pesticides if used in a targeted fashion.

Least Toxic Pesticides

Because of the high toxicity of conventional pesticides and the high levels of exposure to people and pests that result from their use, it is wise to avoid them. Pesticides are products that are designed to kill living organisms and should be treated with caution. If pesticides are used, it is best to go with baits or crack and crevice spot treatments and use the least toxic pesticide available and only after non-toxic alternatives have been tried.

Boric Acid is a low-toxicity mineral with insecticidal properties. It does not evaporate or volatilize into the air or pose the considerable health concerns associated with synthetic pesticides; however it can still pose health hazards and should be used with care. Insects travel through the boric acid, which adheres to their legs. When the insects groom themselves, they then ingest the poison, which causes death three to ten days later of starvation and dehydration. As long as the material is not allowed to become wet, its continuous presence ensures that hatching insects, which sprays commonly spare, are exposed and die. Because boric acid is a stomach poison, don't expect immediate results – it may take weeks or even months to completely get rid of the pest problem. While boric acid is somewhat slower acting than the synthetic pesticides, like chlorpyrifos, diazinon, or pyrethrins, it is highly effective over a long period of time. At least one study has shown that the combination of heat, 110 degree F for two hours with boric acid, will increase the speed at which the German cockroach is killed. As with any pesticide, keep boric acid pesticide products out of reach of children and only use it in locations where it will not come in contact with people or animals, such as in cracks and crevices, behind counters, and in baseboards.

Diatomaceous earth and silica aerogels are insecticidal dusts that kill pests by breaking through their outer cuticle, which protects them from excess moisture loss. When the dust comes in contact with the pest, it abrades their outer shell, dehydrating and finally killing the pest. Because the dusts are inorganic, they can remain effective for a very long time. Although they are made of inert material and are relatively safe, care should be taken to avoid inhalation. Be aware that they have been combined with pyrethrin insecticides in various products; and there are serious health concerns associated with the use of pyrethrins. With diatomaceous earth, it is important that natural, not swimming pool grade, be used. Swimming pool grade has been refined in such a manner that makes it more harmful to human lungs. Silica aerogels are higher in acute toxicity and tend to kill insects more quickly than diatomaceous earth. Silica aerogels are toxic to fish, so they should not be applied where they could run off into a stream, pond or lake.

If pesticides are used, it is best to go with baits or crack and crevice spot treatments and use the least toxic pesticide available and only after non-toxic alternatives have been tried

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aerogels are higher in acute toxicity and tend to kill insects more quickly than diatomaceous earth. Silica aerogels are toxic to fish, so they should not be applied where they could run off into a stream, pond or lake.

Botanical pesticides are derived from plants that are known to have insecticidal properties. It is important to remember that just because a pesticide is derived from a plant does not mean that it is safe for humans and other mammals or that it cannot kill a wide variety of other life. Many botanical insecticides are formulated with synergists. These have no insecticidal effect of their own, but serve to enhance the insecticidal effect of the botanicals. Carefully read the labels on all products before use to make sure that they do not also contain toxic pesticides. Some botanical pesticides can be quite toxic to humans and should not be used. Neem oil and garlic oil are two least-toxic botanical pesticides listed below. Others that can also be used as a last resort are citrus oils, mint oil, pine oil and herbal extracts.

Neem oil, extracted from the tropical neem tree, contains insecticidal properties that are composed of a complex mixture of biologically active compounds. It has a strong, unpleasant odor and a bitter taste. Its various active ingredients act as repellents, feeding inhibitors, egg-laying deterrents, growth retardants, sterilants and direct toxins. Neem has both contact and systemic action in plants. The active ingredients biodegrade rapidly in sunlight and within a few weeks in the soil.

Garlic oil exhibits antibacterial, antifungal, amebicidal and insecticidal qualities. Although garlic oils kill pest insects and some pathogens, it also kills beneficial insects and microbes. Thus, it is not recommend as an all-purpose spray for outdoor use.

If you have a pest problem, contact Beyond Pesticides/NCAMP for a detailed information packet on how to control the pest using non and least toxic methods.

Table 1. Non- and Least Toxic Alternatives to Using Chlorpyrifos

Ants

Heat treatment
Cold treatment
Electrical current
Fatty acid soap
Beneficial nematodes, *Steinernema* sp.
Spinosad
Diatomaceous earth
Boric acid
Botanical pesticides: d-limonene, mint oil, herbal extracts, orange oil, pine oil, garlic

Chinch Bug

Beneficial fungus, *Beauveria* spp.
Beneficial wasp, *Eumicrosoma beneficum*
Insecticidal soap
Silica aerogel

Cockroaches

Electrical currents
Heat treatment
Beneficial fungus: *Metarhiziumanisopliae*
Diatomaceous earth
Boric acid
Botanical pesticides: orange oil, mint oil, herbal oil, neem

Crickets

Beneficial fungal pathogen: *Beauveria bassiana*
Insecticidal soap
Diatomaceous earth
Boric acid
Botanical pesticides: neem

Fleas

Beneficial nematodes
Insecticidal soap
Boric acid
Diatomaceous earth
Silica aerogel
Botanical: limonene and herbal oil extract

Flies

Beneficial nematodes, parasitoids, parasitic mites
Botanical repellents
Diatomaceous earth
Silica aerogels

Gypsy moths

Microbial insecticide: *Bacillus thuringiensis*
Spinosad

Japanese beetles/grubs

Milky spore
Beneficial nematodes
Botanical pesticides: neem

Mosquitoes

Carbon dioxide traps
Bat houses
Purple martin houses
Microbial insecticides: *Bacillus thuringiensis Israeliensis*, and *Bacillus sphaericus*
Mosquito fish, *Gambusia affinis*
Botanical pesticides: herbal extracts, neem

Termites

Heat treatment
Cold treatment
Termite shield
Electrical currents
Beneficial nematodes, *Steinernema carpocapsae*
Microbial termiticide: *Metarhizium anisopliae*
Spinosad
Diatomaceous earth
Silica gel
Boric acid
Botanical pesticides: neem

Wasp and Hornets

Physical traps
Insecticidal soap
Boric acid
Diatomaceous earth
Silica aerogels
Botanical oil: mint oil

Webworms/Cutworms/Caterpillars

Beneficial Nematodes
Microbial insecticide: *Bacillus thuringiensis*
Spinosad
Beneficial Endophytic fungi
Insecticidal soaps
Free roaming chickens

Thank you 18th National Pesticide Forum Sponsors!

Beyond Pesticides/NCAMP joined forces with 22 organizational co-sponsors to make the 18th National Pesticide Forum, *Beyond Pesticides: Solving A Public Health Crisis*, a huge success!

This year's conference was held April 7-9, 2000 at the Lighthouse Conference Center in New York City. We would like to thank the organizational co-sponsors, all the conference attendees, the Lighthouse and a special thanks to the sponsors whose support allowed this event to transpire. Thank you!

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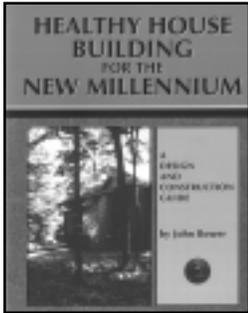
Lake Michigan Inter-League of Women Voters

Nutrition for Optimal Health Association

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Healthy House Building for the New Millennium: A Design and Construction Guide

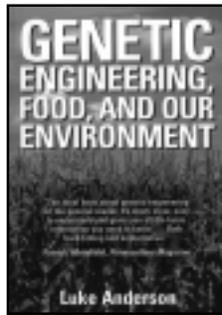


John Bower (The Healthy House Institute, Bloomington, IN, 2000). Home construction has changed dramatically over the years. But has it

been a change for the better? We go to great lengths to protect ourselves from fires, burglary, and other dangers, but we may have overlooked one very important aspect of our personal health and safety. Despite our efforts, we are needlessly exposing ourselves to 5-10 times more air pollution within our own homes than in the streets of a major city. These pollutants that are invading our bodies are the chemicals that are released into the air, or outgassed, from the synthetic materials in our homes, including the building components of the house itself. To avoid this unnecessary risk in a new home, John Bower takes the reader through the step-by-step construction of a model healthy house. *Healthy House Building for the New Millennium* covers the design and construction process in great detail, as well as giving an explanation of the common risks such as outgassing, pesticides, metals, and radiation. For a copy, send \$24.95 (ppd) to the Healthy House Institute at 430 N. Sewell Road, Bloomington, IN 47408 or call 812-332-5073. The Healthy House is also available as a 13-episode video series available for \$99.95 plus shipping and handling.

Genetic Engineering, Food, and our Environment

Luke Anderson (Chelsea Green Publishing Company, White River Junction, VT, 1999). Many people became aware of genetically engineered (GE) food for the



first time in 1996 when soybeans grown in the U.S. were engineered by Monsanto to be resistant to their best-selling herbicide, Roundup. As these crops became more abundant in our

fields and in our supermarket, we began to notice a few things. We saw butterflies die, heard reports of increased insect resistance and were introduced to the concept of genetic pollution. Since 1996, the European Union has rejected GE foods and the U.S. consumers have been voicing their concerns. Food manufacturers are beginning to pull genetically modified organisms from their products and have left the biotech giants squirming. In his recent publication, *Genetic Engineering, Food, and our Environment*, author and activist Luke Anderson presents an ideal introduction into genetic engineering for the general reader and answers the questions that you may still have on the topic. This short, easy to read book begins by explaining the concept of DNA, genetic engineering, and pest resistance. Other topics covered include the impacts of genetic engineering on agriculture and the environment, a discussion on bio patents, the public's rights, and the power of the biotech companies. For a copy, send \$7.95 to Chelsea Green Publishing Company, P.O. Box 428, White River Junction, VT 05001 or order it through the Beyond Pesticides/NCAMP website, www.beyondpesticides.org, under "Recommended Reading."

Pest Management in U.S. Agriculture



Jorge Fernandez-Cornejo and Sharon Jans (Resource Economics Division, U.S. Department of Agriculture, Washington, DC, August 1999). This report, published by the

Resource Economics Division of the U.S. Department of Agriculture, examines the use of various pest management practices for major field crops and selected fruits and vegetables. The report includes a breakdown of pesticide use by active ingredient and lists the change in number of pounds used per pesticide between 1991 and 1996. The results are mixed. For example, while the use of the herbicide Alachlor has been cut by about two-thirds, the use of the herbicide Glyphosate has quadrupled. Of the pesticides used during this time, herbicides are reported to be the most common. The main herbicide users are corn and soybean growers, while potato growers use the most fungicides and cotton growers use the most insecticides. The study also reports that cotton and potato growers make more use of Integrated Pest Management (IPM) practices than do producers of any other field crop. However, the goals and objectives of IPM vary widely among the growers, researchers, and activists. For a copy of this report, contact the USDA at 1-800-999-6779, ask for Pest Management in U.S. Agriculture (AH-717).

"No Pesticides Used Here" Lawn Signs



To ensure neighbors of your lawn's safety and to spread an important environmental message, why not purchase a colorful and durable lawn sign stating your use of non-toxic lawn

care methods? These signs offer a counter to signs warning people to stay off, due to pesticide use. Halleck Design's version states, "This lawn uses no chemicals or pesticides. It may not be perfect, but it's not harmful to kids, animals or rivers," and is available in a mix of colors. This sign costs \$28.75 (ppd) per dozen or \$6 (ppd) each. The Center for Energy and Environmental Education of the University of Northern Iowa offers three versions stating "Yards for Kids," "Yards for Nature," and "Yards for

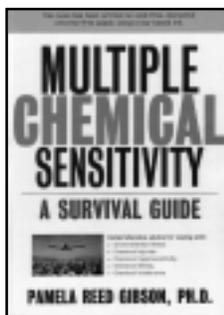
Health.” All three state “No Lawn Pesticides Used Here” and are available in yellow, pink, and blue. These signs each cost \$2.50 (ppd) and funds generated from sales support educational programs on ecological alternatives to pesticides. Contact: Elaine Halleck, Halleck Design, 2120 Medford Rd., #35, Ann Arbor, MI 48104, 734-677-1933 or Dr. Kamyar Enshayan, Physics Building, University of Northern Iowa, Cedar Falls, IA 50614-0150, 319-273-6895.

Unthinkable Risk: How Children Are Exposed and Harmed When Pesticides Are Used at School

Becky Riley (Northwest Coalition for Alternatives to Pesticides, Eugene, OR, April 2000). This new report from the Northwest Coalition for Alternatives to Pesticides (NCAP) discusses the risks of pesticide exposure to children while at school. Because pesticides persist in indoor air for hours after treatments, on indoor surfaces for days, weeks, and sometimes months, and can drift from the site of application, they cause unavoidable contamination, even when products are used according to label instructions, says the report. Additionally, because of their smaller size and developing organs, children are more susceptible to pesticide exposure. *Unthinkable Risk*, in evaluating schools, uses documented incidents of pesticide poisonings as well as information on how children are exposed, persistence of specific pesticides commonly used, and toxicity of these pesticides to show how children are affected by pesticides used. NCAP recommends that parents get involved in this issue and exercise their right-to-know when and what pesticides are sprayed in their child's school. The study also recommends that schools, school districts, states, and the federal government adopt pesticide policies that eliminate pesticides that are highly or moderately toxic, pose environ-

mental risks, are known or suspected to cause cancer, or damage the reproductive, nervous, immune, or endocrine systems, or are known to aggravate allergies, asthma or chemical sensitivities. *For a copy, send \$7ppd to NCAP, PO Box 1393, Eugene, OR 97440-1393, 541-344-5044, or download the report for free from www.pesticide.org.*

Multiple Chemical Sensitivity: A Survival Guide



Pamela Reed Gibson, Ph.D. (New Harbinger Publications, Oakland, CA, 2000). According to a 1996 study, approximately 4% of the U.S. popula-

tion is becoming chemically ill everyday. This extrapolates to over 11 million people having moderate to severe multiple chemical sensitivity (MCS). Author Pamela Reed Gibson, an associate professor at James Madison University in Harrisonburg, Virginia, has researched MCS and how it affects people's lives, careers, and relationships for over eight years. Throughout this time, she has gained an extensive databank of pertinent information and has used this information to create a handbook for those who suffer from multiple chemical sensitivity, as well as family members, friends, and professionals who want to help. *Multiple Chemical Sensitivity: A Survival Guide* describes the symptoms, details possible explanations, and provides step-by-step instructions for dealing with this illness. This practical guide provides readers with detailed suggestions on how to make their homes and workplaces safe, discusses the dilemma of medical help, and offers advice for patients to share with their doctors. Having experienced the skepticism and opposition towards recognizing MCS as an illness by much of the medical and scientific community, Dr. Gibson concludes her survival guide with advice on activism, public

education, and understanding the cultural response to MCS. For a copy, contact New Harbinger Publications, at 1-800-748-6273, or order it for \$13.56 through the Beyond Pesticides/NCAMP website, www.beyondpesticides.org, under “Recommended Reading.”

The Fate of Frogs: A Closer Look at Frog Deformities



Bryan M. Pfeiffer (Vermont Public Interest Research Group, Montpelier, VT, October 1999). By now the images are no longer surprising, even if they remain grotesque and dis-

turbing to look at: frogs with missing or extra legs, missing or misplaced eyes and other strange deformities. Ever since children in Minnesota and Vermont discovered large numbers of abnormal frogs in the mid 1990's, researchers have scrambled for answers in what has become an alarming environmental issue. Scientists have proposed several potential theories including parasite infestations, increased levels of predation, ultraviolet radiation, and toxic chemicals, including pesticides. The Vermont Public Interest Research Group examines all of these possible causes in their 1999 report, *The Fate of Frogs*. This report concludes that while a combination of many factors may contribute to the deformities in frogs, it would be foolish to say pesticides were not a factor. Methoprene, diuron, atrazine, diazinon, dithane and temephos have all been linked to amphibian deformities. Studies show rates of frog deformities up to 20 percent more likely in sites exposed to pesticides. The report goes on to examine similarities between frogs and humans, and to discuss the implications of endocrine disruption on humans. For a copy, contact the Vermont Public Interest Research Group at 802-223-5221 or download a free copy online at www.vpirg.org.

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- Tell the world that FREEDOM FROM PESTICIDES IS EVERY BODY'S RIGHT in teal, purple, and yellow. On 100% natural organic cotton. \$15 each; two for \$25.

Bumper Sticker

- "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 (\$1.00 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
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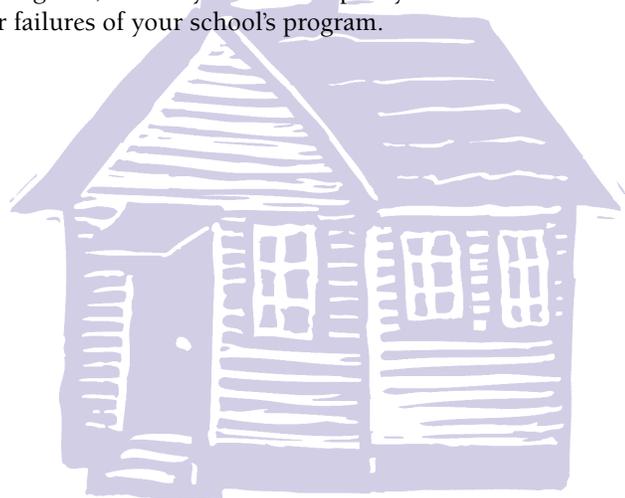
Check Out Beyond Pesticides/NCAMP's Two New Web Projects

www.beyondpesticides.org

Beyond Pesticides/NCAMP adds two pages to our website that provide more resources to find alternatives to toxic pesticides in your home, office, school and community.

Local School Pesticide Policies

The Local School Pesticide Policies web page identifies the ever-growing list of school districts that have adopted pesticide policies and programs requiring the use of integrated pest management (IPM), prohibit the use of toxic pesticides, and/or provide prior notification of a pesticide application. This webpage is a useful tool to find out where local school policies and programs exist across the country and will be an even more useful tool in the future as it is continuously updated with links to summaries of the policies, local contact information, links to websites of grassroots pesticide activists working on the school program, and a copy of the policy. To help improve this valuable guide, send us your school's policy and share the successes or failures of your school's program.



Getting the Alternatives You Need National Directory of Least Toxic Service Providers

The Getting the Alternatives You Need National Directory of Least Toxic Service Providers is Beyond Pesticides/NCAMP's national directory of home and garden, structural, and agricultural pest control service providers using least and non-toxic methods and chemicals. In order to help the public find these services, we are developing this national directory on our website. If you would like to recommend your pest control service provider, please let us know. We will then send them the *Getting the Alternatives You Need Survey*, which enables us to document the types of methods they employ. You can also download a copy of the survey to give directly to the company through the web page. Currently, you need to contact Beyond Pesticides/NCAMP for a list of least and non-toxic service providers in your area, but by the end of the year, you will be able to access this information directly from the web page.

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