

Pesticides and You

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



The Organic School Garden

Hands-on teaching of environmental health values

- The Safer Choice: How to avoid hazardous home, garden, community and food use pesticides • Triclosan Update: More information and feedback on this common antibacterial agent •

The Bush EPA: All Business, No Science.

Are we watching a rigged 1950's quiz show?

Like the television quiz shows of the late 1950's where corporate sponsors orchestrated the rigging of game shows (as captured in the award winning movie *Quiz Show*, based on the book *Remembering America: A Voice From the Sixties* by Richard N. Goodwin), the Bush EPA has been found to rig its science to meet desired corporate interests. While the nation watched Dr. Condoleezza Rice in her confirmation hearings for Secretary of State respond to questions from Senator Barbara Boxer (D-CA) by asking why the Senator would use the truth (i.e. her repeated and contradictory public statements on weapons of mass destruction) to try to impugn her reputation and credibility, another branch of government was preparing a report with a scathing indictment of the EPA manipulation of its scientific review to meet industry needs.

Inspector general finds EPA data rigged

A February 3, 2005 report by EPA Inspector General (IG) Nikki L. Tinsley (a Bush appointee) found that the administration's proposed rules for regulating mercury pollution, issued in January 2004, were biased by EPA senior management and not in compliance with the law. The report was requested by one Independent Senator and six Democratic Senators in April 2004. At the time, Senator Jim Jeffords (I-VT) said, "Congress and the public need to know whether EPA's rulemaking process can be trusted to put the public's health first." Senator Hillary Clinton (D-NY) said, "Once again, President Bush has decided to distort science to justify a policy that was tailor made for industry." The IG found that, "EPA's rule development process did not comply with certain Agency and Executive Order requirements, including not fully analyzing the cost-benefit of regulatory alternatives and not fully assessing the rules' impact on children's health." An administration spokesman disagrees.

While the corporate sponsors may no longer be sitting in the director's seat of TV quiz shows, they certainly, according to the IG report, orchestrated the outcome of a major regulatory proposal on controlling mercury pollution.

Risk assessment challenged as manipulated

Earlier that week, Beyond Pesticides and other groups submitted comments to EPA on the deadly wood preservative pentachlorophenol (PCP), which is still used to treat utility poles, railroad ties, pilings used in water, and other building materials. We said that the agency's risk assessment was absurdly inadequate and biased. The agency's revision and dramatic reversal of a five year old draft assessment is based totally on data provided to it by the Pentachlorophenol Task Force, a chemical industry group that has a vested economic interest in the continuing registration of PCP.

While the agency in a 1999 draft preliminary risk assessment acknowledged that children's exposure to utility poles in front yards, backyards and school yards was high, the 2004 preliminary risk assessment finds children's exposure "is not anticipated since play activities with or around these pole structures would not normally occur." The agency does say that soil around utility poles is contaminated as the chemical migrates out of the treated wood. In neighborhoods across the country, children can be seen with their faces against utility poles as they play hide and seek, playing in soil near utility poles, and using PCP-treated poles as "home base" when playing tag. Utility poles are often next to bus stops where people wait each day. People lean against them, tack notices on them, and otherwise are exposed because of their close contact with them.

Five years ago, EPA said it had to consider the risks associated with PCP's highly hazardous contaminants, dioxin and hexachlorobenzene (HCB). Today, EPA is moving to reregister PCP without any evaluation of these contaminants. This makes a mockery of even the pretense of scientific method.

An industry agreement derailed by media attention

Then there was the neurotoxic insecticide Dursban (chlorpyrifos) story at the end of 2004. Again, the Bush quiz show tested the limits of outrageous. The EPA was moving to break its June 2000 agreement to phase out residential Dursban use by allowing the company continued access to the large market of nearly 1/2 billion gallons of termite insecticides used for new home construction. When Beyond Pesticides broke the story to the media, one news service quoted an "EPA spokeswoman as saying the agency is 'still in talks with Dow' and 'nothing has been finalized'." Dow had given EPA a new reevaluation of indoor air contamination from Dursban, and based on that data, according to sources inside EPA, agreed to extend the phase-out by three years. In an unusual letter to Dow after the press attention, EPA Director of Special Review and Reregistration, Debra Edwards, Ph.D., said, "Communications from EPA staff to you late last month and earlier this month regarding prospective monitoring and suggesting EPA's willingness to grant an extension for this use were not official statement of a final EPA determination." Then comes the wink and a nod. Dr.

Edwards went on to say, "As I have noted, EPA remains open to discussing with you in the coming weeks the types of additional analyses or data that would allow EPA to make a determination regarding the reinstatement of this use." Oh, by the way, the letter was copied to three other chemical companies. *Stay tuned and stay vigilant.*

—Jay Feldman is executive director of Beyond Pesticides.



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Triclosan: Further Danger...

Dear Beyond Pesticides,

Aviva Glaser's 'The Ubiquitous Triclosan' was admirably deep and broad, but I offer a few points to intensify the danger and futility of this "antimicrobial." To begin, governments recommend (and hospitals prefer) to kill bugs with alcohol, and so should you in the kitchen and bathroom. Shown to be highly effective, alcohol critically kills without the inevitable development of resistance by the targeted bugs when they aren't quite killed off (as with triclosan). Alcohol is often formulated with moisturizer, for the skin. Also, frequent cleaning of highly communal surfaces (mailboxes, doorknobs, etc.) is a very effective prevention that public health folks usually fail to mention.

The structure of triclosan is very close to that of dioxins, especially to the most toxic dioxin ("TCDD"). Dioxins are an issue during its manufacture, not just via UV radiation after triclosan is released into the environment. In fact, the certification of the purity of triclosan for its U.S. manufacturer can only state that it contains "less than 1% total dioxins and furans." That is a massive source of such a toxin, especially in such intimate products as 3M's Skin crack care, Colgate's Total toothpaste, or in many mouthwashes (given the perpetual cuts inside our mouths).

Science has focused on the tiny portion that we dump into our drains and flows out into rivers, while ignoring its preferential partition into sewage sludge. Sludge is often used for compost, including agricultural, recycling triclosan (and other largely water-insoluble toxins) for another intimate contact.

Tony Tweedale, MS
Coalition for Health, Environmental
& Economic Rights
Missoula, MT

Dear Mr. Tweedale,

Thank you for your insight into the further danger that triclosan poses to public health and the environment. As conveyed in the Fall

2004 issue of *Pesticides and You*, this antibacterial agent is extremely common in everyday consumer products. Considering the potential damages discussed here and in the previous *Pesticides and You*, it is advisable to search out products that do not contain triclosan. Read ingredient listings when purchasing your personal care items, such as toothpaste, deodorant, soap and cosmetics. For more details, see *Around the Country* on page 6.

...And What You Can Do About It

Dear Beyond Pesticides,

Thank you for the informative and well-researched article regarding triclosan. Here's a copy of what I sent to Queen Helene, a personal care product company. Had you not written this article, I may not have suspected they would incorporate this chemical into their products.

"Greetings:

I first purchased your Aloe deodorant from the organic section of my local supermarket. I was looking for something without aluminum that would be safe and environmentally friendly. When they stopped carrying it, I purchased more from a health food store some distance away. I have just read a review of the chemical and environmental effects of triclosan in the Fall 2004 issue of *Pesticides and You*. I am shocked and dismayed that a product labeled natural, safe, gentle, and effective could pose such risk. I am angry that I was lulled into trusting this product."

Alice Sheppard, PhD
Presque Isle ME

Dear Dr. Sheppard,

Thank you for taking action to voice your concerns and speak out against the misleading labeling that is occurring in products nationwide. Voices are necessary to stop such invasion of personal health. The public has a right to know the dangers that triclosan poses in the products they purchase and use. As a

consumer of these products, an effective method to achieve this end is to let these companies know that you, as a customer, disagree with their use of this dangerous chemical. If you want to go even further, you can let others know of the problems associated with triclosan and spearhead a letter writing campaign.

Thank you again for your efforts. For more information on organizing your community to speak out against the dangers of chemicals in our communities and lives, contact Beyond Pesticides.

Backyard Ants

Dear Beyond Pesticides,

I have a horrible ant problem in my yard. An exterminator suggested Talstar, but I cannot find any information on it. Can you point me in a direction to see if it's less toxic?

Carey A Smith
California

Dear Ms. Smith,

Outdoor ants are normally not a problem. After all, the outdoors is their home, and the yard is certainly better than inside your home. In fact, ants in the yard are actually beneficial as they prey on flea and fly larvae, recycle organic matter, and aerate soil. However, in the case



of a severe infestation, there are ways to control these ants without the use of toxic chemicals.

If a pest control operator suggests a product and you are unsure of its safety, ask them to supply you with a Material Safety Data Sheet (MSDS). Most exterminators will have these available, and they provide some limited information on the product's toxicity, including the active ingredient. Your exterminator's choice, Talstar, contains the active ingredient bifenthrin, a synthetic pyrethroid. Beyond Pesticides rates this chemical as toxic, as synthetic pyre-

throids have irritant and sensitizing properties. They are also connected with neurotoxicity and endocrine disruption. Bifenthrin specifically is rated as a possible carcinogen by the Environmental Protection Agency (EPA). In addition, there are environmental concerns with its use, which creates a problem since these are outdoor ants. Bifenthrin is highly toxic to aquatic animals and bees, and is moderately toxic to birds. Scientists are particularly concerned about possible bioaccumulation in birds.

To avoid the use of chemicals on outdoor ants, take preventive measures first. Ant populations may bloom because of the surrounding vegetation or groundcover. Cleaning and cutting back vegetation will make it less attractive to ants. In addition, eliminate their food source by cleaning all spills and storing garbage in tightly fitted containers. Do not leave pet food out for long periods of time. When outside, place the bowl in a tray of water. This moat will deter ants. Adding soap to this water will be more effective, but be sure your pet won't drink it.

Another ant attractant to consider is other insects. Ants feed on "honeydew," a sweet substance produced by insects that feed on plant sap, such as aphids and scale. Controlling these insects may help control your ant problem.

To directly control your outdoor ants, pour boiling or soapy water down the hole of the nest. Alternatively, digging up the colony will destroy the nest as well, however this is rather labor intensive.

As a last resort, only if the nest is located in a dry area should boric acid be used. Sprinkle it around the openings. Always be cautious with boric acid and keep away from children and animals.

Lawn Pesticide Problems

Dear Beyond Pesticides,

The homes in my neighborhood frequently use TruGreen ChemLawn services. It is difficult for us to spend time outdoors as the smell is annoying and irritating, and

I worry about neighbors coming into our house and tracking in pesticide residues. I am interested in raising awareness in my own neighborhood, and I would like a list of communities where pesticides are not applied so freely around parks, homes, schools, and businesses.

Mara Natrakul
Rosemount, MN

Dear Ms. Natrakul,

It is unfortunate that use of lawn chemicals on other residential lawns is invading your personal health. Your problem is sadly a common one, as suburban lawns and gardens receive far heavier pesticide applications per acre than most other land areas in the U.S., including agricultural areas.

These lawn chemicals are associated with cancer, birth defects, reproductive effects, neurotoxicity, and liver and kidney damage. You are right to be concerned about

tracking of these chemicals into your home: research has shown this to be true. One study found residues of the toxic herbicide 2,4-D contaminating indoor air and surfaces, exposing residents at levels ten times higher than preapplication levels.

All of these dangers are unnecessary, as a healthy green lawn is entirely possible without the use of pesticides through techniques such as aeration, use of native and naturally pest resistant grass species, proper mowing and watering, and keeping soil at a proper pH. Even when pests do pop up, there are plenty of least-toxic options to address them on the market, including vinegar-based products, essential oils and fatty acid soaps.

Communities in the U.S. that have addressed these concerns by banning hazardous pesticides in public areas like parks include Arcata, CA, Cleveland Heights, OH and Santa Barbara, CA. Municipalities in Canada, such as Halifax, Toronto and Chelsea, have gone even further by banning use of all cosmetic and aesthetic use pesticides in their jurisdictions. Some towns in the U.S. are proposing similar ordinances, but many are prevented from adopting restrictions because of state laws

that take away that authority. Legislators in several states have introduced bills to reverse these preemption laws.

The question is, how can you convince your community to go pesticide-free? Start with your family, friends and neighbors. Reach out to them in a friendly, non-confrontational manner and let them know the dangers that pesticides pose and the viability of alternatives. When you have a group of people that are interested in making some changes, hold a meeting. Discuss logistics on getting the word out further, through pamphlets, fliers and community events. Reach out to members of the community that hold a direct interest, such as doctors and environmental and public health groups. With a diverse backing, draft a policy and approach community officials. If your first approach isn't fruitful, don't give up. Change takes time and understanding from the entire community. Use petitions and letters to the editor to keep educating. Beyond Pesticides offers assistance for changing your community's approach to lawn care, including model policies, studies, governmental reports, testimony and fact sheets. See www.beyondpesticides.org/lawn or call (202) 543-5450.



Write Us!

Whether you love us, disagree with 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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U.S. Supreme Court Hears Case on Right to Sue for Pesticide Damages

If you're harmed by a faulty product, you usually have a right to compensation. However, if that faulty product is a pesticide, you're in a gray area. The pesticide industry wants to be able to say that if the Environmental Protection Agency (EPA) registers its product, the manufacturer cannot be held liable if the product causes harm. The courts have been split on the issue, but have often sided with the pesticide industry. On January 10, 2005, this issue made it to the U.S. Supreme Court for the first time when it heard arguments in the case *Bates v. Dow Agrosciences*. This case involves Dennis Bates and other Texas farmers who applied an herbicide called Strongarm (diclosulam) to prevent weeds in their peanut crops, but Strongarm stunted the peanut crops, causing serious economic damage. The Texas farmers went to state court in an effort to make the pesticide makers pay for damage to the crops. The pesticide makers successfully argued that they are shielded from court challenges by federal law, the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA), the key dispute now before the U.S. Supreme Court.

The importance of the case, however, goes beyond the right to recover for crop damage. The Supreme Court's ruling may also determine whether people harmed by pesticides generally can hold pesticide companies accountable for making and distributing dangerous chemicals. Beyond Pesticides, Physicians for Social Responsibility, Farmworker Justice Fund, Sierra Club, Natural Resources Defense Council, Defenders of Wildlife, Public Citizen, and Trial Lawyers for Public Justice filed a friend of the court brief written by

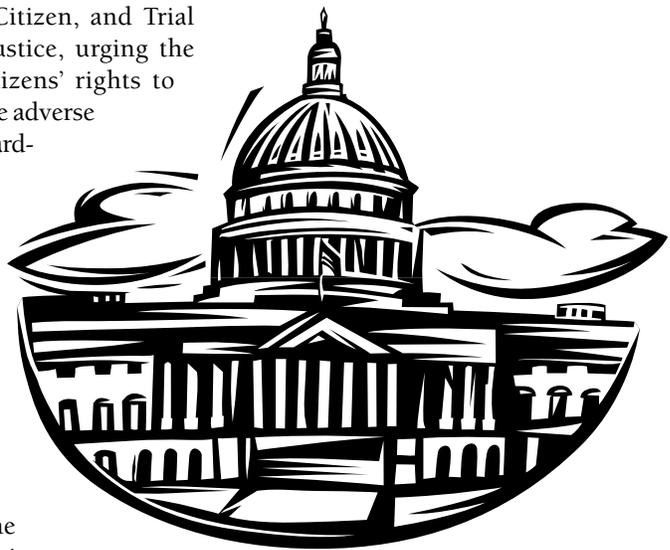
Earthjustice, Public Citizen, and Trial Lawyers for Public Justice, urging the Court to preserve citizens' rights to recover damages for the adverse effects of pesticides regarding property or health impact. "Pesticides are registered by EPA under a risk assessment review process that implicitly does not consider all aspects of potential harm," said Jay Feldman, Executive Director of Beyond Pesticides. "The potential for court review of cases in which people are harmed creates a strong incentive for the development of safer products." The high court is expected to make a ruling by the end of the year.

Groups Sue EPA For Failing to Protect Children From Rat Poisons

West Harlem Environmental Action (WEACT) and the Natural Resources Defense Council (NRDC) filed a lawsuit on November 9, 2004 in U.S.

District Court in New York to challenge EPA's reversal of child safety measures, charging that the change violates federal law. Poison Control Center data shows that tens of thousands of children are poisoned by rodenticides every year and has increased

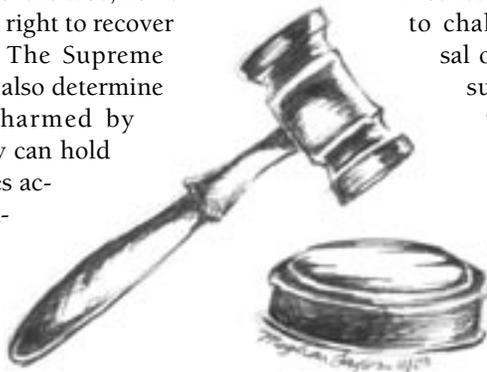
annually since EPA's policy reversal. In 1998, EPA determined that rat poison exposures are an unreasonable health risk and ordered manufacturers to include two safety measures aimed at protecting



children: an ingredient that makes the poison taste bitter and a dye that would make it more obvious when a child ingested the poison. Studies have found that these safety measures do not undermine the effectiveness of the rat poisons. In 2001, however, the Bush Administration revoked the safety regulations, announcing that it "came to a mutual agreement with the rodenticide [manufacturers] to rescind the bittering agent and indicator dye requirements." According to the plaintiffs, African-American and Latino children suffer disproportionately. "EPA is allowing the chemical industry to continue to sell rat poisons without adding ingredients that would protect children," said Aaron Colangelo, an NRDC attorney. "There is an easy and effective solution to the problem, but the agency sided with industry instead of our kids."

NIH Says Pediatricians Need More Training on Environmental Health

A group of experts made up of physicians, nurses, and educators have issued recommendations to incorporate environmental health into pediatric medical and nursing education. The recommendations are



part of a study conducted by the National Environmental Education and Training Foundation (NEETF), which suggests that government organizations focus on advancing children's environmental health issues. Each year, thousands of children are harmed by exposure to pesticides and other toxic chemicals in the U.S. According to a statement released by the National Institutes of Health (NIH), new research shows that doctors and nurses need more environmental health training to prevent, recognize, and treat diseases caused by environmental exposures. "We know pediatricians want to provide the best care possible," said Dr. Allen Dearry, National Institute of Environmental Health Sciences (NIEHS) associate director. "We want them to have the tools they need to protect their patients against environmental hazards." Leyla Erk McCurdy at NEETF adds, "It's essential that we give more priority to pediatric environmental health. By following our recommendations, pediatric health care providers will be better equipped to recognize, treat, and prevent diseases related to factors in the environment." The study results were published in the December 2004 issue of *Environmental Health Perspectives* (<http://ehp.niehs.nih.gov>).



Secret Deal To Abandon Dow's Dursban Phase-Out Exposed, EPA Upholds Ban... For Now

A deal is a deal. On December 20, 2004, Beyond Pesticides exposed a secret deal between the Dow Chemical Company and EPA that would have allowed home termite uses for new homes to continue for at least

another three years beyond the end of 2004 for phase-out production and end of 2005 for prohibition on use. Stories on the subject appeared in the *Washington Post* and newspapers around the country. The original phase-out deal was announced in June 2001 when Dow and EPA agreed to a five-year phase-out agreement that would end most residential uses of the neurotoxic insecticide chlorpyrifos (marketed as Dursban).

In the afternoon of December 20, the Scripps-Howard News Service confirmed with EPA spokeswoman Enesta Jones that the agency is "still in talks with Dow" and "nothing has been finalized." A Dow spokesman, Garry Hamlin, told the news service that EPA officials notified the company in December that the agency would wait as long as three years for the company to conduct additional tests before reaching a decision on whether to ban the pesticide's use in construction.

Immediately after the story broke, the Natural Resources Defense Council (NRDC), along with Beyond Pesticides and others, sent a letter to EPA requesting the agency make public Dow's petition and background data that would support the agency's turnaround on the phase-out and that it promptly halt all backroom negotiations with the corporation. The next day an EPA official notified Beyond Pesticides that it would be writing a letter to Dow, indicating that it would not lift the ban. The official told Beyond Pesticides that there were "some emails" that "could have led some to believe, even some within Dow," that there was an agreement to lift the ban pending more studies, but that these "emails/verbal agreements" did not constitute an "official agreement." The official also noted that the EPA letter to Dow is a very "unusual step" to take in a typical phase-out process. Beyond Pesticides believes that the press attention helped keep EPA on track for now, but the agency is still considering extending the phase-out based

on a review of a new theoretical risk analysis conducted by Dow.

Awareness of Lawn Pesticide Dangers Evokes Chemical Industry Reorganization

Lawn and Landscape Magazine announced the merger of industry trade groups Associated Landscape Contractors of America (ALCA) and Professional Lawn Care Association of America (PLCAA), which formed the "Professional Landcare Network" on January 6, 2005. The merger comes at a time when Canadian municipalities are banning cosmetic (aesthetic) lawn care pesticides and awareness is growing in the U.S. It comes on the heels of the industry's launching of Project Evergreen, which is running an advertising campaign to fight the growing pesticide-free lawn trend. Environmentalists see this as a strategy by companies stuck on using outdated, toxic technologies to stay afloat in a market ready to transition to organic techniques. In a previous 2003 interview, Tom Delaney, then vice president of government affairs for PLCAA told *Lawn and Landscape Magazine*, "State and local activity is undermining customers' appreciation for the very benefits of our members' lawn and landscape services. We have learned from the recent activity in Canada that we must put more resources into being proactive to control the issues that can hurt our members' businesses." The new, larger Professional Landcare Network, which represents more than 4,000 member companies, chose its winning name from a list of 76 possible names developed by a communications firm after much deliberation and feedback. Jason Cupp, a member of the Professional Landcare Network board of directors told *Lawn and Landscape Magazine*, "We are so excited about this name choice." For more information on the industry's response to reduced lawn care pesticide use, see Beyond Pesticides' "Get A Grip" feature at www.beyondpesticides.org, or contact Beyond Pesticides.



Twenty Years Later, Activists Still Demanding Justice for Bhopal Victims

December 3, 2004 marked the 20th anniversary of the world's worst industrial disaster, the explosion at the Union Carbide pesticide factory in Bhopal, India, and activists across the globe declared it a Global Day of Action to demand that Dow Chemical resolve its legal and moral responsibilities for the "Hiroshima of the chemical industry." While Dow Chemical has plenty of skeletons in its own closet, most notably its production of Agent Orange and Napalm in the Vietnam War as well as the continued production of dozens of toxic pesticides, Dow's responsibilities in Bhopal are a result of its acquisition of Union Carbide's assets and liabilities in 2001. The day was commemorated with organized protests at more than 60 colleges and universities worldwide. Many students were specifically protesting against college affiliations with Dow, including recruitment, investment, and financial contributions. "Students are outraged," said Ryan Bodanyi, the National Coordinator for Students for Bhopal. "They don't want their colleges and universities associated with a corporation that maintains its profit margins by

poisoning people and blithely standing aside as they die. Dow-Carbide's callous disregard for the value of human life hasn't changed much since the Vietnam War, and students aren't going to be any more forgiving now than they were then."

On December 3, 1984, thousands of people in Bhopal were gassed to death after a catastrophic chemical leak at a Union Carbide pesticide plant. More than 150,000 people were left severely disabled and 20,000 have since died of their injuries in a disaster now widely acknowledged as the world's worst-ever industrial disaster. None of the six safety systems at the plant were functional, and Union Carbide's own documents prove the company cut corners on safety and maintenance in order to save money. Twenty years after the Bhopal disaster, those who survived the gas remain sick, and the chemicals that Union Carbide left behind in Bhopal have poisoned the water supply and contributed to an epidemic of cancers, birth defects, and other afflictions. Since its purchase of Union Carbide in 2001, Dow refuses to clean up the site, provide safe drinking water, compensate the victims, or disclose chemical information to physicians. *For more information on what you can do to avoid contributing to Dow's profits and protect your family, see "The Safer Choice" article on page 9 of this issue.*

Washington State Misleads Public on Pesticides in Salmon Streams

Numbers can be twisted to show almost any result, and it seems like the government is doing it more and more. This past November, the Washington State Department of Agriculture (WSDA) was no exception when, regarding an ongoing study of pesticide residues found in two watersheds critical for endangered salmon, it stated, "No pesticide residue was found in 96 percent of the agricultural and urban stream samples." The WSDA press release quickly came under attack by Washington Toxics Coalition (WTC), a statewide environmental pesticide and toxics organization, after the state refused to clarify its statement. According to the *Seattle Post-Intelligencer*, Bridget Moran, the manager of the state Agriculture Department's Endangered Species Program, explained that 155 samples were collected and individually tested for 144 specific pesticides totaling roughly 22,000 tests. Pesticides were detected 862 times, which is how the state came up with the 96 percent rate for finding no pesticide residues. Ms. Moran admitted that 100 percent of the samples actually contained pesticides. "This is not the way most scientists would present that data," said Philip Dickey, PhD, a staff scientist with WTC. WSDA reported that 2,4-D, one of the most commonly used herbicides on lawns, gardens and other outdoor space, was the chemical found most often. The study also showed that five pesticides exceeded EPA drinking water guidelines and three exceeded chronic standards.

Common Fertilizer Found To Leach Arsenic and Lead

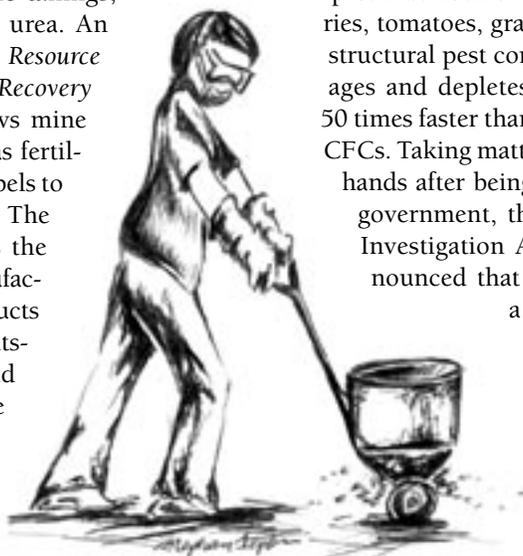
Yet another reason to go organic in the yard. A study published in the October 15, 2004 issue of the journal *Environmental Science and Technology* (Vol. 38, No. 20) identifies lead and arsenic contami-

nation from a common plant fertilizer used on lawns and highlights an urgent need to move toward organic practices and products. The study, "Arsenic and Lead Leaching from the Waste Derived Fertilizer Ironite" by Brajesh Dubey and Timothy Townsend of the University of Florida, finds that Ironite, a commonly used plant fertilizer, can release enough lead and arsenic to be classified as hazardous waste because the levels exceed the U.S. hazardous waste toxicity characteristic limit. The fertilizer is a mixture of mine tailings, sulfuric acid and urea. An exemption in the *Resource Conservation and Recovery Act* (RCRA) allows mine waste to be sold as fertilizers, requiring labels to list nutrients only. The study contradicts the claims of the manufacturer, Ironite Products Company of Scottsdale, AZ, that "lead and arsenic are present as the minerals arsenopyrite and galena and that the elements in these forms are very stable in the environment and not available in a form which is toxic." This study not only raises concerns about human exposure through direct ingestion the product or possibly contaminated soil, but also is of concern to municipalities that are struggling with unacceptably high levels of lead and arsenic in their storm water outflows.

Campaign Targets Food Treated with Ozone-Depleting Pesticide

Since chlorofluorocarbons (CFCs), formerly used in aerosols and coffee cups, were banned by the *Clean Air Act* amendments of 1990, the Earth's ozone

layer has not received the same attention it used to. Yet, we continue to contribute to its depletion—even after signing the *Montreal Protocol*, the international treaty designed to save the ozone layer, in 1988. Under the *Protocol*, the world's developed countries are supposed to complete the phase out of methyl bromide use by 2005; however, the Bush Administration reversed course for the phase-out set by the Clinton Administration in the 1990's. The U.S. has repeatedly sought an exemption from the treaty for methyl bromide, a pesticide used on grapes, strawberries, tomatoes, grain storage, and in structural pest control, which damages and depletes the ozone layer 50 times faster than the now-banned CFCs. Taking matters into their own hands after being let down by the government, the Environmental Investigation Agency (EIA) announced that the launching of a campaign to convince supermarkets in the U.S. to stop selling food grown with methyl bromide on November 23, 2004. EIA, an independent,



international non-profit organization, is investigating the supply chains for major supermarkets and will be campaigning to have products produced with methyl bromide removed from shelves across the nation. EIA President Allan Thornton stated, "There are viable alternatives to the use of methyl bromide. Supermarket chains such as Safeway, Whole Foods, Albertson's, Kroger and Wal-Mart need to ensure that their shelves are free of produce grown or treated with this deadly chemical. We will be writing to major supermarkets to ask them to stop supporting the continued use of methyl bromide." Aside from depleting the ozone layer, methyl bromide has been found to cause birth defects and brain damage in laboratory animals. *For more information on the campaign, visit www.eia-international.org.*

New York County Aims To Reduce Pesticide Use On Private Lawns

Deciding that the Environmental Protection Agency (EPA) has not done enough to protect citizens from the toxic effects of lawn care pesticides, the non-profit group Grassroots Environmental Education launched a partnership with Westchester County, NY to encourage a reduction in pesticide use on private property by offering safe alternatives to homeowners, landscapers and businesses. The groundbreaking initiative is designed to help protect the health of Westchester County residents by reducing their exposure to so-called aesthetic or cosmetic pesticides and reshape the market forces of supply and demand that fuel the addiction to lawn pesticides. "Pesticides can affect our health and contaminate our water supply—it's as simple as that," said County Executive Andrew Spano, who has spearheaded the county's efforts to educate citizens about the risks of pesticide exposure and the need for water quality protection. "The goals of the Grassroots Healthy Lawn Program is to reduce the use of pesticides by offering healthier alternatives for keeping lawns green. The fact that we can do all this at no cost to the taxpayer makes this an ideal program, and one I'm proud to support." The program will employ a multi-lateral approach that includes working with local landscapers to establish and sustain a non-toxic alternative lawn care program that they can offer to their customers, encouraging merchants, from Home Depot to local garden stores, to carry and promote a full line of non-toxic lawn and garden products, and educating the public about the inherent dangers of pesticides and the safe alternatives now available to them. Beyond Pesticides provides consumer resources to organic and least toxic lawn care services through its *Safety Source for Pest Management*. Go to www.beyondpesticides.org/lawns or contact Beyond Pesticides for more information on chemical lawn care facts and figures, as well as tips on what you can do.



Monsanto Assault on U.S. Farmers Detailed in New Report

Who says the chemical companies are the farmer's friend? Family farmers are regularly sued by a huge biotech company after their fields are contaminated by pollen or seed drift from patented genetically engineered (GE) crops. A new report by the Center for Food Safety (CFS) shows that Monsanto's use and abuse of U.S. patent law is a form of extortion targeting family farms in the U.S. and abroad. CFS launched its investigation to determine the extent to which farmers have been affected by litigation arising from the use of GE crops. "These lawsuits and settlements are nothing less than corporate extortion of American farmers," says Andrew Kimbrell, Executive Director of CFS. "Monsanto is polluting American farms with its genetically engineered crops, not properly informing farmers about these altered seeds, and then profiting from its own irresponsibility and negligence by suing innocent farmers." The report, *Monsanto vs. U.S. Farmers*, finds that Monsanto's efforts to prosecute farmers can be divided into three stages: investigations of farmers; out-of-court settlements; and litigation against farmers Monsanto believes are in breach of contract or engaged in patent infringement. CFS notes in the report that, to date, Monsanto has filed 90 lawsuits against American farmers in 25 states that involve 147 farmers and 39 small businesses or

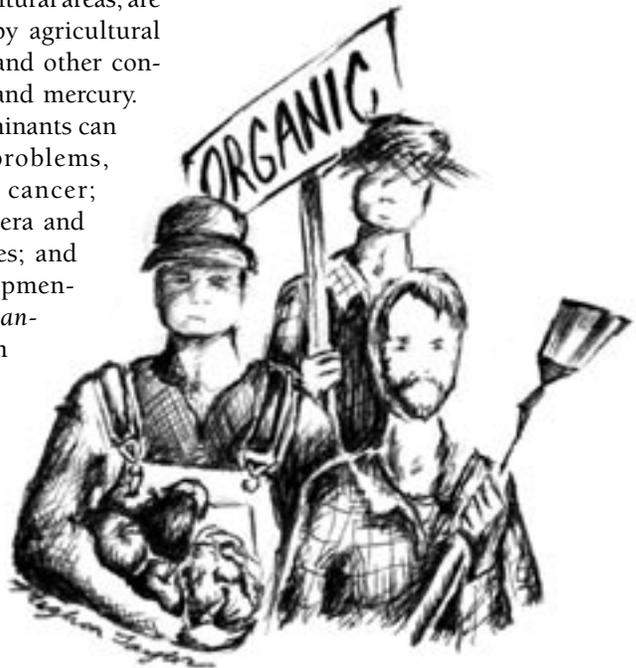
farm companies. Monsanto has aside an annual budget of \$10 billion dollars and a staff of 75 devoted solely to investigating and prosecuting farmers. According to CFS, Monsanto would like nothing more than to be the sole source for staple crop seeds in this country and around the world. "Monsanto is taking advantage of farmers with their marketing and their threats and lawsuits," says Rodney Nelson, a North Dakota farmer sued by Monsanto. "It's

hard enough to farm as it is. You don't need a big seed supplier trying to trip you up and chase you down with lawyers."

Report Shows Latinos Disproportionately Vulnerable to Pesticide Exposure

Hidden Danger, a new report by the Natural Resources Defense Council (NRDC), shows that Latinos suffer environmental health problems more than the general population. Latinos, who now comprise the majority in some of the nation's most polluted urban and agricultural areas, are particularly threatened by agricultural pesticides, air pollution and other contaminants, such as lead and mercury. Exposure to these contaminants can cause serious health problems, including asthma and cancer; giardiasis, hepatitis, cholera and other waterborne diseases; and neurological and developmental problems. *Hidden Danger* reports that too often government authorities, businesses, farm operators and landlords fail to provide warnings in Spanish about environmental health threats, while federal and state agencies have not collected relevant data or con-

ducted studies assessing environmental health threats in Latino communities. "We have an information gap," says Adrianna Quintero, author of the report and NRDC's director of Latino outreach. "On the one hand, government agencies have not done an adequate job investigating the link between pollution and Latino health. On the other hand, those agencies, businesses and other authorities have not adequately warned the Latino community about the health risks we know are there. No matter how you slice it, Latinos are not getting the information they need to protect themselves." According to *Hidden Danger*, almost 90 percent of U.S. farmworkers are Latino, and many of these laborers and their families are routinely exposed to toxic pesticides. U.S. Latino communities can better protect themselves from pollution-related health problems, the report notes, but only with a concerted effort by government and industry. It also calls for federal and state action to strengthen water and air quality safeguards, ban or restrict the use of hazardous pesticides, and tighten controls on polluters. *Download a free copy of the report in English or Spanish from the NRDC website at www.nrdc.org/health/effects/latino/contents.asp.*



Triclosan Hazards...Continued

Trade group misleads on common antibacterial agent

By John Kepner

In the Fall 2004 issue of *Pesticides and You* (Vol. 24, No. 3), Beyond Pesticides published “The Ubiquitous Triclosan,” an article examining the health and environmental effects, efficacy, regulatory history and alternatives to the common antibacterial agent triclosan. In a nutshell, the article (which is available online at www.beyondpesticides.org/pesticides/factsheets) reports on data that show triclosan and similar antibacterial agents affect the central nervous system, are linked to increased allergies and asthma, may promote bacterial resistance, cause environmental damage, may degrade into dioxin, and in many cases are no more effective against germs than regular soap and water. Ever since its publication, feedback from members and the public has been pouring in to Beyond Pesticides.

As you can read in the *Mail* section of this issue of *Pesticides and You* (see page 2), Tony Tweedale of Missoula, MT wrote to say that, in addition to being converted to dioxin when exposed to UV light as we reported, the initial structure of triclosan itself is very similar to dioxin. Mr. Tweedale writes, “The structure of triclosan is very close to that of dioxins, especially to the

most toxic dioxin (“TCDD”)...In fact, the certification of the purity of triclosan for its U.S. manufacturer can only state that it contains ‘less than 1% total dioxins and furans.’ That is a massive source of such a toxin, especially in intimate products...” Also after reading the article, Alice Sheppard, PhD, from Presque Isle, ME read the label of her deodorant and found that to her surprise it contained triclosan. She wrote to the manufacturer, outraged that she was misled by their claim that it was “natural, safe, gentle, and effective.”

While the direct feedback on the triclosan article has been very positive and appreciative, it also managed to spark a negative reaction from the Soap and Detergent Association (SDA). The trade group that represents manufacturers of cleaning products that often contain triclosan, issued a press release claiming that Beyond Pesticides’ triclosan article was sounding a “false alarm.” Their response does not address the vast volume of independent scientific assessments raising problems (30 cited in the Beyond Pesticides review), but points to a few equivocal studies, two done in collaboration with a soap manufacturer, and then misrepresents these findings.

Soap and Detergent Association (SDA) Defends Triclosan Beyond Pesticides Responds

Editor's Note: The Soap and Detergent Association issued a press release on December 22, 2004 charging that Beyond Pesticides article on triclosan is a “false alarm.” What follows is a portion of SDA's release and Beyond Pesticides' response.

Soap and Detergent Association Washington, DC, December 22, 2004

An activist group's report attacking a major antibacterial ingredient used in some consumer products is nothing more than a “false alarm,” according to the Soap and Detergent Association (SDA). SDA, which represents manufacturers of cleaning products and their ingredients, was responding to a statement issued by the activist group Beyond Pesticides concerning use of the ingredient triclosan. SDA rebutted the group's claims that triclosan promotes antibiotic resistance and poses other health risks.

Triclosan has been safely and effectively used in hygiene products for nearly 40 years. The use of these beneficial hygiene products should not be discouraged based on reports that do little more than stir up hypothetical fears rather than describe real-life, present day scenarios. The activist group's report is little more than a false alarm that could unnecessarily scare consumers. In recent years, several national, regional, and inter-governmental agencies

have reviewed the available data on antibiotic resistance. None have identified resistance associated with the use of antibacterial products or compounds as a concern under current conditions of use (see examples and response in box below).

Beyond Pesticides response

Beyond Pesticides finds the Soap and Detergent Association's December 22, 2004 press release, “SDA Responds to Activist Group's ‘False Alarm’ on Key Antibacterial Ingredient,” very misleading. While the trade association did little to counter the links between triclosan and its adverse impacts on human health and the environment or its lack of efficacy in real world use, such as hand washing, it did focus a lot of attention on antibacterial resistance. Beyond Pesticides believes the claims in SDA's press release, however, are full of half-truths and misinformation.

Beyond Pesticides' review of the scientific literature in “The Ubiquitous Triclosan” includes 67 citations with multiple findings of concern regarding health and environmental effects. SDA, on the other hand, not only points to a handful of studies, some of them produced by manufacturers with financial interest in triclosan's continued use, but it does so with misleading characterizations of the facts.

Triclosan: Point – Counterpoint

Editor's Note: What follows are SDA's claims distributed in a press release in response to Beyond Pesticides' article "The Ubiquitous Triclosan," and Beyond Pesticides' rebuttal.

- 1. SDA claim:** In June 2002, a European Commission Scientific Steering Committee completed a comprehensive and thorough scientific review and analysis of data on antibiotic resistance regarding triclosan. The panel reported that, "There is no convincing evidence that triclosan poses a risk to humans or to the environment by inducing or transmitting antibacterial resistance under current conditions of use."

BP response: SDA cites a European Commission study that finds no risk of antibacterial resistance. However, this conclusion is based specifically on examining triclosan products in their pure form at "high biocidal concentrations." The same report also states that bacterial resistance may be a concern at sub-biocidal and bacteriostatic concentrations, such as residues that remain up to 12 hours following a hand-washing or tooth-brushing, wastewater effluent that is emitted into waterways (triclosan is not removed by wastewater treatment plants), and impregnated plastics.

- 2. SDA claim:** Research presented by University of Manchester (UK) scientists Peter Gilbert and Andrew McBain reported that, "The risk of bacteria developing antibiotic resistance after exposure to the biocide triclosan may not be as great as previously believed. Indeed a number of field studies conducted of homes and clinics were unable to link antibacterial use patterns with changes in resistance." The research was presented at the 104th General Meeting of the American Society for Microbiology in May 2004.

BP response: SDA cites a presentation of a British study to back up its assertion that bacterial resistance is not as bad as once thought. While this study did not find resistance in all bacterium, it did find that repeated exposure to triclosan causes resistance in two potentially deadly types of bacteria—*Escherichia coli* and *Klebsiella* bacteria.

- 3. SDA claim:** A scientific review written on the use of triclosan by noted researcher Denver Russell—published in the May 2004 *Journal of Antimicrobial Chemotherapy*—stated that "comprehensive environmental surveys have not demonstrated any association between triclosan usage and antibiotic resistance."

BP response: SDA cites another study from the UK, which states that "comprehensive environmental surveys" have not shown resistance. However, the study does acknowledge lab studies that show resistance and in the very next sentence suggests that "frivolous and unnecessary" triclosan uses should be eliminated. Given the fact that it works no better on hands than ordinary soap and water, Beyond Pesticides believes that most home uses would fall in the unnecessary category.



Some common household products that contain triclosan.

- 4. SDA claim:** Research from the September 2003 issue of *Applied and Environmental Microbiology* reported that the "emergence of antibiotic resistance through triclosan in the kitchen is highly improbable."

BP response: SDA's citation essentially references the same data as #2, only this time the print version, rather than proceedings from a meeting. The journal citation does reveal that Drs. Gilbert and McBain did their research in collaboration with Procter and Gamble, a company with a financial stake in the success of triclosan.

- 5. SDA claim:** A study in the October 2003 *Journal of Applied Microbiology* "refutes widely publicized, yet unsupported, hypotheses that use of antibacterial products facilitates the development of antibiotic resistance in bacteria from the home environment."

BP response: SDA cites a study examining the cross-resistance of triclosan and antibiotics (exposure to triclosan leads to antibiotic drug resistance). This is a case of different studies supporting different sides of an issue. While the one study SDA cites does not show cross-resistance to the particular drugs chosen for the study, Beyond Pesticides' article cites two studies that do show such resistance is likely to occur.

- 6. SDA claim:** "In addition, no credible evidence has been presented to date that triclosan could be converted into a harmful dioxin in waterways nor that it would pose any risk for humans or the environment." Beyond Pesticides' report references work conducted by researchers at the University of Minnesota, which in fact states that exposing triclosan in water to sunlight "produces only a very mildly toxic chemical—perhaps 150,000 times less toxic than the types of dioxin considered the most dangerous."

BP response: SDA refers to University of Minnesota research, stating that the study shows that UV light converts

Reflections by Former EPA Attorney James Handley on Triclosan and the EPA Review

In addition to the response from SDA and the letters published in the Mail section, Beyond Pesticides also received the letter below from James Handley, a former EPA enforcement attorney. Mr. Handley shares his insights and experience litigating an enforcement case against the manufacturers of Microban (triclosan) for making false claims, which are illegal under federal pesticide law. In addition to examining problems specific to triclosan, his letter examines problems with the entire pesticide regulation process.

Thanks for the excellent article "The Ubiquitous Triclosan." Triclosan is indeed ubiquitous and Microban International, the manufacturer of a triclosan-based plastic additive which has been used in toys, sandal foot beds, public railings, etc., has made it more so. Their leading products, "Microban Plastic Additive B," is marketed for protection against human pathogens, which is far beyond any scientific support accepted by EPA in registering this pesticide. EPA registration supports only *bacteriostatic* effects which means that Microban Additive B has been shown to control the growth of organisms that cause aesthetic or economic damage to the treated article, but *not* micro-organisms infectious to humans.

Beginning in 1998, Robert Darnell, Brenda Mosley and I initiated and litigated an enforcement case against Microban for making health-related claims that are not supported by its EPA pesticide registration. The company's liability was hardly in doubt: we even obtained copies of the registration documents that appeared to have been altered to omit crucial restrictive language; apparently these alterations were made in order to market Microban's alleged health benefits to companies such as those that make children's toys. In 2004, EPA enforcement finally prevailed on all issues in its second appeal of this matter before the Environmental Appeals Board. The Board upheld EPA's interpretation of the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA) penalty provisions: as the literal language of FIFRA §12(a)(1)(B) states, each *sale or distribution* is a violation, therefore counting the number of *documents* in which Microban's unlawful claims were made undercounts violations. As a result, the Board affirmed EPA enforcement's assessed penalty of \$160,500 for 32 violations of FIFRA, one for every shipment made to the toy manufacturer.

From my point of view as a former EPA enforcement attorney (which may or may not be the view of EPA), this case illustrates a number of interesting points: Most obvious was the huge effort required to mount a successful prosecution of FIFRA violations. The case took months of preparation and had to be appealed twice before the legal issues relating to how FIFRA counts violations were properly resolved. Also striking is the disproportionately small penalty when viewed in context of the companies involved, the economic gains obtained and the potential harm to public health and the environment. Triclosan is a very profitable product and is being used to obtain competitive advantage in the marketing of a wide range of products mentioned in your article. Yet the benefits for most of its uses are certainly not evident in its EPA registration, if they exist at all.

EPA generally does not explicitly consider benefits (or the lack thereof) in the context of its registration process. FIFRA obliges EPA to register a pesticide if it does not cause "unreasonable adverse effects." (EPA has decided that the marketplace can adequately determine whether or not a pesticide is effective.) The exception is for pesticides for which health claims are made. Microban has avoided the need to provide efficacy data by registering its Additive B only as a bacteriostatic -- i.e., for the very limited purpose of controlling microorganisms in the treated article. Thus, no one should think that EPA's registration of Microban implies that EPA has found the product to be effective or useful, much less that its benefits outweigh its risks. EPA simply does not consider that for bacteriostatic agents.

As the Microban case held, any pesticidal claims beyond bacteriostatic claims are unlawful because for whatever reason, the company has not provided supporting data for those claims in the registration. (As you note, Microban is also regulated by FDA for "drug" uses mentioned in your article, and for those, it is my understanding that a more explicit risk/benefit analysis *does* apply.)

Thanks again for an excellent article. I hope as you make more consumers aware of the very limited situations in which triclosan may be beneficial, and the many more situations where its use is either not beneficial or potentially harmful, its use will become far less ubiquitous.

triclosan into a "very mild" form of dioxin. While it is true that dioxins have a range of toxicity and 2,8-DCDD falls on the less harmful end of the spectrum, the study's author, Kristopher McNeill, PhD, warns, "Repeated exposure to chlorine [chlorinated water] could chlorinate triclosan. After chlorinated triclosan is discharged, sunlight could convert it into more toxic dioxins. Such a process might be a source of highly toxic dioxin in the environment."

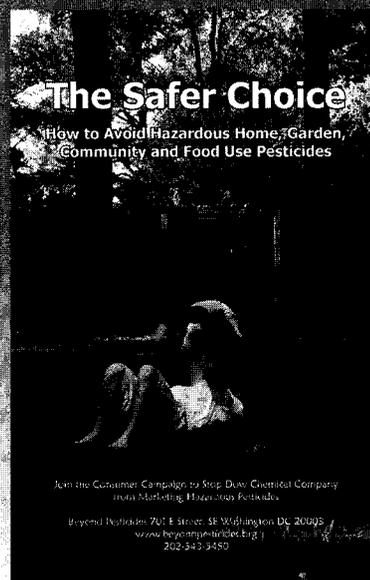
Beyond Pesticides believes that misinformation such as that presented in SDA's press release misleads the public and contributes to the overuse of antibacterial agents such as triclosan. Beyond Pesticides does not argue against the use of antibacterial cleansers in all cases. Certainly hospitals, medical profes-

sionals and those with compromised immune systems depend on effective antibacterial agents. However, Beyond Pesticides believes that promoting the overuse of these chemicals is a disservice to the very people that depend on them the most, because of documented resistance. Most importantly, there are safer alternatives that SDA could promote when a sterile environment is needed.

Companies and governments around the world are rejecting triclosan because of the weight of scientific evidence identifying health and environmental problems. In Europe, the Danish, Finnish and German governments have encouraged citizens not to use such antibacterial products on a regular basis. In the UK, four major grocery chains have banned triclosan from their products.

The Safer Choice

How to Avoid Hazardous Home, Garden, Community and Food Use Pesticides



Editors Note: This article is reprinted from Beyond Pesticides The Safer Choice brochure, a full color booklet aimed at exposing Dow Chemical's continued marketing of hazardous pesticides, and providing options for safer alternatives. Copies of this consumer brochure, as well as an in-depth packet may be ordered from Beyond Pesticides.

JOIN THE CONSUMER CAMPAIGN TO STOP DOW FROM MARKETING HAZARDOUS PESTICIDES

The Dow Chemical Company (and its pesticide division Dow AgroSciences) produces some of the most hazardous home, garden, and food use pesticides that invade our lives on a daily basis -- toxic chemicals that are dangerous to children, families and the environment. Safer alternative practices and products are now widely available, which make these pesticides unnecessary.

As part of a consumer campaign to stop corporations from marketing hazardous pesticides that are not needed, this booklet informs choices in the marketplace and helps consumers avoid harmful low-level toxic exposure. While the primary focus of this brochure is non-food use pesticides (home, garden and community), many of the hazardous pesticides identified also have food and forestry uses,

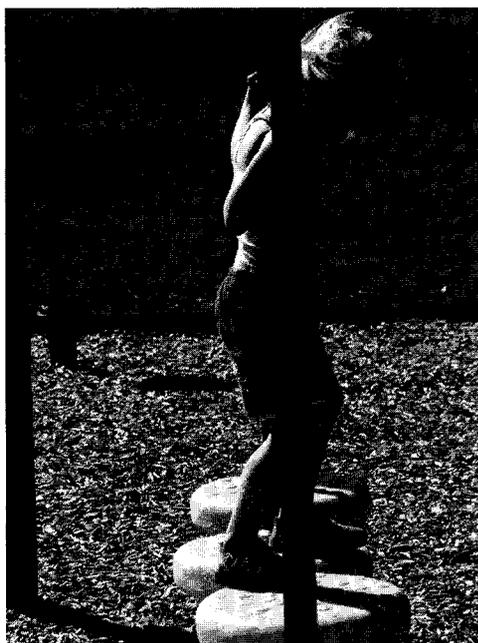
which are noted. However, Dow Chemical markets dozens more pesticides that are strictly food use chemicals, but not detailed in this brochure.

HOW TO USE THIS BOOKLET

This booklet focuses on seven toxic Dow Chemical pesticides, a combination of weedkiller (herbicide) and insecticide products that are widely used and available in the marketplace. It is intended to summarize the health and environmental concerns associated with each product, identify how it is commonly used in the home and garden, community and food production and then offer suggestions on alternatives to using these toxic chemicals. A more detailed companion handbook with citations for the facts in this booklet and details on safer alternative practices and products is available from Beyond Pesticides at www.beyondpesticides.org and in hard copy format.

THE CONSUMER LINK TO DOW CHEMICAL

It is often difficult for consumers to identify the chemicals that they are purchasing either in a product or through a contracted service. This is particularly true with Dow Chemical products because most



of the hazardous pesticides that Dow Chemical produces are used in products marketed by other companies, such as the weedkiller 2,4-D, which is the primary herbicide in the Scotts Company's Weed and Feed lawn product. This brochure identifies three categories in which consumers can take steps to stop the use of hazardous Dow Chemical pesticides, protecting families and the environment.

■ **Products that have Dow ingredients.** It is common for consumer products to contain Dow Chemical-produced ingredients. To avoid these hazardous chemicals, you must read the label ingredient statement and avoid products marketed under other company names – such as the weedkiller 2,4-D, which is in Scotts Weed and Feed, Miracle-Grow's Weed and Feed, and many other products.

■ **Pest control or lawn care companies that use Dow products.** When hiring a service company to take care of a pest problem or lawn, the company may use a hazardous Dow Chemical product. In fact, sometimes a company uses restricted chemicals that are not directly available to consumers, such as sulfuryl fluoride, used for drywood termite and household insect control and marketed under the trade name Vikane.

■ **Food commodities grown with Dow products.** If you eat chemically-produced food, from vegetables to grains to nuts, you are probably ingesting the Dow Chemical products that are listed in this brochure, which have both non-agricultural and agricultural uses. None of these products are acceptable in organic production, so buying organically produced food is a good way to avoid them.

ADVOCATING FOR CHANGE TO PROTECT PUBLIC HEALTH AND THE ENVIRONMENT

In order to combat the widespread use of the hazardous Dow Chemical products listed in this brochure and curtail their impact on health and the environment, we can make personal choices in the marketplace to avoid these chemicals. In addition, we can influence community deci-

sions as well as urge corporations to stop using or supporting the use of these chemicals. This booklet makes suggestions on advocating changes in community management practices in schools, parks, libraries, and hospitals, and influencing food company decisions to utilize food ingredients that are not grown with these hazardous chemicals.

WHY THE DOW CHEMICAL COMPANY?

It's true, there are a lot of companies that are getting rich off of producing poisonous chemicals. So why target the Dow Chemical Company?



■ Dow Chemical is a leader in the chemical industry in producing poisons that contaminate our bodies and the environment through a variety of exposure routes. As a major player in the industry, we need to focus on Dow to stop producing these poisons and move to safer alternatives;

■ Dow Chemical has been a leader in obscuring the science, weakening the regulation of these and other deadly chemicals, and fighting to deny those harmed by their pesticides the right to compensation - in a case currently before the U.S. Supreme Court (*Bates v. Dow*); and,

■ Dow Chemical purchased Union Carbide in 2001, thereby acquiring its assets and liabilities. Union Carbide was responsible

for the 1984 gas leak in Bhopal, India, which remains the worst industrial disaster in human history, referred to as the Hiroshima of the chemical industry. Despite years of public pressure, Dow refuses to clean up the site, provide safe drinking water, compensate the victims, or disclose chemical information to physicians.

Take Action:

Protect your family from toxic hazards and help the families of Bhopal receive justice by boycotting the Dow products. Contact Dow Chemical CEO Andrew Liveris, 2030 Dow Center, Midland, MI 48674 or 989-636-1000, and demand that Dow clean up and compensate Bhopal, remove its dangerous products from the market and compensate those harmed by pesticides.

2,4-D

The Killer Weedkiller

Trade Names: Weed and Feed, Weed B Gon, Spectracide, Weedone

2,4-D is a highly toxic herbicide used to control many types of broadleaf weeds. With over 40 million pounds used annually, it is the most commonly used pesticide in the non-agricultural sector and the fifth most commonly used in agriculture. Dow AgroSciences is the sole U.S. producer of 2,4-D, which it sells to other chemical and lawn care companies to formulate into finished products. Over 70 different products contain 2,4-D as their active ingredient, including: Scotts Weed and Feed, Miracle-Grow Weed and Feed, Ace Green Turf Weed and Feed, and many more.

HEALTH AND ENVIRONMENTAL CONCERNS

- A 2003 study found 2,4-D in the dust of 63% of homes.
- 2,4-D is an endocrine disruptor, which can interfere with

hormone function and contribute to breast and testicular cancer, birth defects, and learning problems.

- Several studies have linked 2,4-D to non-Hodgkin's lymphoma.
- According to EPA, the risk of short-term toddler exposure to treated lawns is above the agency's level of concern even without taking into account indoor air exposure.
- Dogs of owners who regularly use 2,4-D on their lawns are twice as likely to get cancer.
- Mixtures of 2,4-D and other commonly used lawn chemicals are capable of inducing abortions in laboratory animals.
- 2,4-D made up a major portion of Agent Orange, linked to long-term disease in Vietnam War veterans.

KEEP 2,4-D OUT OF YOUR...

HOME & GARDEN

Used on: lawns and gardens, especially "weed and feed" products.

****What You Can Do:** Effective management techniques that include organic products and cultural practices prevent weeds and eliminate the need for toxic chemicals.

- Hire only service providers that use organic and least-toxic techniques and cultural practices.
- Corn gluten makes an excellent pre-emergent herbicide and is sold at most garden stores. Brand names include Bio-Weed, Concern and GreenSense.
- Fatty-acid soap products, such as Safer and Sharpshooter, can control weeds that have already sprouted.
- For a homemade spot treatment, try boiling water, vinegar, or a mixture of 1 cup vinegar and ¼ cup lemon juice.
- Of course, don't forget good old fashioned hand-pulling!
- Refer to p. 15 for more details on effective cultural practices.

COMMUNITY

Used on: golf courses, schools, parks, and for invasive weed control.

****What You Can Do:** Contact your local golf courses, schools and parks and ask them not to use 2,4-D. Explain the health effects and recommend an integrated pest management program which uses pesticides only as a last resort. For invasive weed management, contact your local government as well (see p. 19 for more information on invasive weed control).

FOOD

Used on: oats, corn, wheat, sorghum, asparagus, apples, citrus, pears, strawberries, and sugarcane.

****What You Can Do:**

- Buy organic food products whenever possible.
- Tell Tropicana Products Inc., P. O. Box 049003, Chicago, IL 60604, 800-237-7799, to stop buying oranges grown with 2,4-D.



Chlorpyrifos

The Neurotoxic Nightmare

Trade Names: Dursban, Lorsban, MaxAttrax Roach Baits

Chlorpyrifos is a widely used broad-spectrum insecticide used to kill a wide variety of insects in the urban, rural and farm environment. Dow AgroSciences is the primary manufacturer of chlorpyrifos worldwide and the only manufacturer in the U.S. In 2000, EPA and Dow reached an agreement to stop the sale of most residential uses for chlorpyrifos because of its health risks to children. Dow still markets Dursban (chlorpyrifos), for home use in baits, on golf courses and in non-residential buildings, and for mosquito control. Dow also produces Lorsban for use on a wide variety of food crops.

HEALTH AND ENVIRONMENTAL CONCERNS

■ Chlorpyrifos belongs to the family of organophosphate pesticides, a highly toxic class of pesticides that affects the

central nervous, cardiovascular and respiratory systems.

■ Chlorpyrifos has been linked to thousands of pesticide poisoning incidents, leading all other pesticides for acute poisoning in 1997.

■ A 1996 study of children exposed to chlorpyrifos in utero found extensive and unusual patterns of birth defects, including brain, nervous system, eyes, ears, palate, teeth, heart, feet, and genitalia.

■ Even at extremely low doses, chlorpyrifos was found to affect the learning abilities of female rats to a larger extent than males. Similarly, newborn animals were shown to be more susceptible to chlorpyrifos exposure than adults.

■ Other studies showed that chlorpyrifos exposure caused structural alterations in developing brains.

KEEP CHLORPYRIFOS OUT OF YOUR...

HOME & GARDEN

Found in: bait stations for roach control, such as Hot Shot MaxAttrax Roach Baits.

****What You Can Do:** Effective integrated pest management incorporates mechanical, sanitary and least toxic pesticide products.

- Clean and eliminate any potential food and water sources.
- Caulk and patch cracks and other entry points into your home.
- Use non-volatile boric acid based bait stations and products.

COMMUNITY

Used on: golf courses, offices, and for public health mosquito control.

****What You Can Do:**

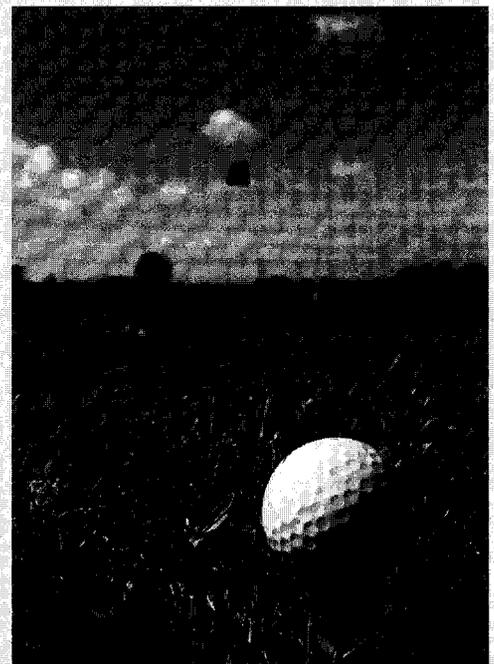
- Contact local golf courses and let them know that Dursban is dangerous to children.
- Contact your office building manager and ask them not to use or hire companies that use chlorpyrifos baits. Recommend an IPM program, which uses pesticides only as a last resort.
- If your community is spraying for a mosquito-borne disease, contact your local mosquito management officials (Dept. of Health, Mosquito Abatement District, etc.) and ask that they switch to a Bt-based larvicide as the first line of defense.

FOOD

Used on: grain, cotton, fruit, nut, and vegetable crops.

****What You Can Do:**

- Buy organic food products whenever possible.
- Mott's is a major producer of apple products consumed by children. Contact Mott's, 900 King St., Rye Brook, NY 10573, and ask them to stop buying apples sprayed with Lorsban.



Sulfuryl Fluoride

The Fatal Fumigant

Trade Names: Vikane and Profume

Sulfuryl fluoride, a gas fumigant, is used to control termites and other insects in structures, vehicles, wood products. Dow AgroSciences is one of the major manufacturers of sulfuryl fluoride, producing it at a plant in Pittsburg, California, and marketing it under the names Vikane and Profume. Vikane is a restricted use pesticide, for sale to and use only by certified applicators. In 2001, Dow received a permit to manufacture sulfuryl fluoride for post-harvest fumigation on certain agricultural commodities.

HEALTH AND ENVIRONMENTAL CONCERNS

- Because it is a colorless, odorless gas, Vikane poses an acute inhalation hazard. Labels contain the word "Danger," EPA's highest acute toxicity category.
- Repeated or prolonged exposure to sulfuryl fluoride

may cause injury to lungs and kidneys, weight loss, anemia, and general ill health.

- EPA did not require any cancer tests for the registration of sulfuryl fluoride and little is known about its carcinogenic potential.
- There have been documented cases of people becoming seriously ill or dying after entering treated houses.
- According to the Agency for Toxic Substances and Disease Registry, subsets of the population may be susceptible to the effects of fluoride, including the elderly and people with nutritional deficiencies and cardiovascular and kidney problems.
- Excessive fluoride has also been linked to memory loss, Alzheimer's, neurological impairment, kidney damage, cancer, genetic damage, and more.

KEEP SULFURYL FLUORIDE OUT OF YOUR...

HOME

Used in: fumigants used by professional pest control providers for drywood termite control.

****What You Can Do:** Alternatives do exist! Make it clear to your pest control provider that you don't want them to use Vikane in your home. The following is a list of alternative options:

- Heat treatments and liquid nitrogen are effective in controlling termites and carpenter ants that have minimum and maximum temperature thresholds.
- Electrical current technology, such as Electrogun, can be used to kill insects that nest in the walls of a structure.
- Boric Acid is a stable, low risk insecticide effective against termites. Ask a professional to use it instead of fumigation.
- Diatomaceous earth and silica aerogels are insecticidal dusts that can be used to prevent termite infestations.

COMMUNITY

Used in: schools, workplaces, public buildings and hospitals.

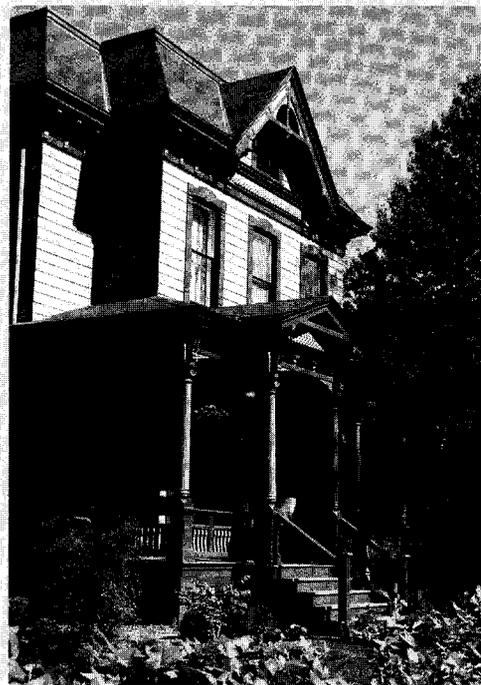
****What You Can Do:** Contact your local schools, hospitals, offices and other public buildings, and ask them not to use Vikane when they have termite problems. Recommend an integrated pest management program that uses pesticides only as a last resort.

FOOD

Used in: warehouses and transport containers that contain nuts, dried fruits, cereals and grains (corn, oat, rice, wheat, etc.).

****What You Can Do:**

- Buy organic, especially for dried fruit and nuts.
- Ask the Sun-Maid Raisin Company, 13525 So Bethel Ave, Kingburg, CA 93631, to make sure their warehouses are and shipping companies are not fumigating with Profume.



Clopyralid & Triclopyr

The Deadly Duo

Trade Names: Confront, Transline, Lontrel, Turflon

Clopyralid and triclopyr are two powerful weed killers used to manage unwanted plants in lawns and turf, pasture, rights-of-way and various crops. Dow AgroSciences formulates these chemicals together for non-agricultural uses in a product called Confront, and alone in Lontrel (clopyralid) and Turflon (triclopyr). For agricultural uses, both chemicals are formulated in various products with other herbicides such as 2,4-D (see p. 14). Transline (clopyralid) is commonly used for invasive weed management.

HEALTH AND ENVIRONMENTAL CONCERNS

■ EPA tests show that clopyralid causes "substantial" reproductive problems, including reduced fetal weight, skeletal abnormalities, and hydrocephaly (accumulation

of excess fluid around the brain).

- In laboratory tests, triclopyr caused a significant increase in the incidences of breast cancer and genetic damage in rat embryos. Studies also link triclopyr to kidney and reproductive problems.
- In 2002, Dow agreed to remove all residential use from the label of clopyralid products after numerous studies documented widespread contamination of compost with high levels of clopyralid. This led to a ban in New York state.
- Studies have shown both triclopyr and clopyralid to be very stable in soil with the potential to leach into groundwater and contaminate surface water.
- EPA has not evaluated the carcinogenic potential for either clopyralid or triclopyr.

KEEP CLOPYRALID AND TRICLOPYR OUT OF YOUR...

COMMUNITY

Used on: golf courses, parks, schools, rights-of-way, and for invasive weed control.

****What You Can Do:** Contact your local schools, parks and golf courses, and ask them to not use Confront or Lontrel on their lawns. Alert them to the dangers of clopyralid and triclopyr, and recommend an integrated pest management program that uses pesticides only as a last resort. Effective management techniques that include organic products and cultural practices prevent weeds and eliminate the need for toxic chemicals.

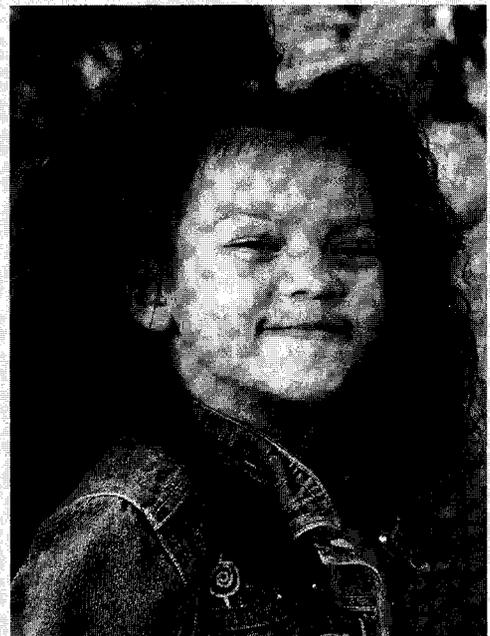
- Ask golf course managers and park and school superintendents to only hire service providers that use organic and least-toxic techniques and cultural practices.
- As an alternative for park and schoolyard uses, recommend corn gluten (Bio-Weed, Concern and GreenSense) as a pre-emergent herbicide and fatty-acid soap (Safer, Sharpshooter).
- For invasive weeds, recommend an integrated weed management program that focuses on mechanical methods, grazing, biological controls, soil health and native plant restoration, and uses pesticides only as a last resort.

FOOD

Used on: wheat, barley, rice, field corn, sugar beets and oats.

****What You Can Do:**

- Buy organic food products whenever possible.
- Contact the Pepperidge Farm Company, 595 Westport Avenue, Norwalk, CT 06851 or www.pepperidgefarm.com/contact.asp, 888-737-7374, and ask them to stop buying wheat sprayed with clopyralid and/or triclopyr.



Atrazine

The Gender Bender

Trade Names: Keystone LA and Atrazine

Atrazine is the second most commonly used agricultural pesticide in the U.S., and the first most commonly detected in rivers, streams and wells. Dow AgroSciences sells one product containing atrazine, Keystone LA, which is registered for use on corn. Annually, 75% of all corn in the U.S. is treated with atrazine. Other atrazine formulations are registered for use on sorghum and sugarcane. Atrazine is also sold as a weedkiller for use on lawns by a number of companies, not including Dow.

HEALTH AND ENVIRONMENTAL CONCERNS

■ Atrazine is an endocrine disruptor, which can interfere with hormone function and can contribute to breast and testicular cancer, birth defects, and learning problems.

Atrazine can affect levels of testosterone, progesterone, estrogen and thyroid hormones.

- Recent studies show that exposure to levels of atrazine found in the environment, even at levels far below EPA's drinking water limits, demasculinizes tadpoles and turns developing frogs into hermaphrodites – with both male and female sexual characteristics.
- Other studies have found that atrazine delays puberty and affects prostate development in rats.
- Several studies have shown that atrazine causes genetic damage, even at extremely low concentrations.
- Atrazine is an immunotoxic chemical, which means it disrupts the normal functions of the immune system, enhancing the risk of infectious disease or cancer.

KEEP ATRAZINE OUT OF YOUR...

HOME & GARDEN

Used on: lawns and gardens.

****What You Can Do:** Effective management techniques that include organic products and cultural practices prevent weeds and eliminate the need for toxic chemicals.

- Hire only service providers that use organic and least-toxic techniques and cultural practices.
- See alternatives outlined in the 2,4-D section on p. 14. Also try the following cultural practices:
- Plant well-adapted, pest-resistant grass varieties. Call your cooperative extension to determine preferable grass species.
- Aerate the soil and de-thatch regularly. Soil compaction is one of the largest causes of weed problems.
- Use organic fertilizer once a year and maintain proper pH.
- Mow with sharp blades set as high as possible.
- Water properly so that the water absorbs down to the root zone. Avoid frequent, shallow waterings.

FOOD

Used on: corn. Atrazine produced by other companies is also used on sugarcane, sorghum, and pineapples.

****What You Can Do:**

- Buy organic corn and corn products whenever possible.
- Kellogg's, the maker of the popular breakfast cereal Corn Flakes, as well as many children's cereals, is a major brand often marketed as healthy. Contact Kellogg's, Consumer Affairs, P.O. Box CAMB, Battle Creek, MI 49016, www.kelloggs.com/contact/index.html, and ask them to stop buying corn crops that have been treated with atrazine, especially those that go into breakfast cereals and other food products marketed to children.



Picloram

The Persistent Pesticide

Trade Names: Tordon, Pathway and Grazon

Picloram is a persistent herbicide used to control broad-leaf weeds and woody plants, especially on rights-of-way, rangeland and pastures, and in forestry. It is frequently used in invasive weed management programs as well. Dow, picloram's sole manufacturer, markets it under the trade names Tordon, Pathway, and Grazon. EPA designates picloram as a restricted use pesticide, for use by licensed applicators only. Picloram is banned in California. In some products, Dow formulates picloram with 2,4-D (see p. 14).

HEALTH AND ENVIRONMENTAL CONCERNS

■ Picloram products have been associated with reports of human poisoning. Exposure causes skin and eye irrita-

tion, headaches, fatigue, and memory loss. Picloram is also linked to liver, kidney, and spleen damage.

■ Studies of picloram and 2,4-D in combination have demonstrated that this mix causes birth defects and decreases in birth weights of mice. Exposed livestock have increased mortality and frequency of intestinal cancer.

■ Because it is persistent and highly mobile in soil, picloram is a commonly detected contaminant in ground and surface water. This is especially worrisome because picloram is highly toxic to fish and has been linked to fishkills following roadside use.

■ In 1995, EPA's Ecological Effects and Groundwater Branches recommended that picloram be cancelled. However, its Office of Pesticide Programs failed to act.

KEEP PICLORAM OUT OF YOUR...

COMMUNITY

Used on: roadsides, rangelands, rights-of-way, forest lands and in invasive weed management.

****What You Can Do:** Contact your state department of transportation, utility company and open space managers, and ask them not to use picloram-based products. Alert them to the dangers of picloram and recommend an integrated pest management program that uses pesticides only as a last resort. An integrated approach that focuses on ecosystem and soil health eliminates the need for toxic herbicides. Successful alternative strategies for invasive weed management include:

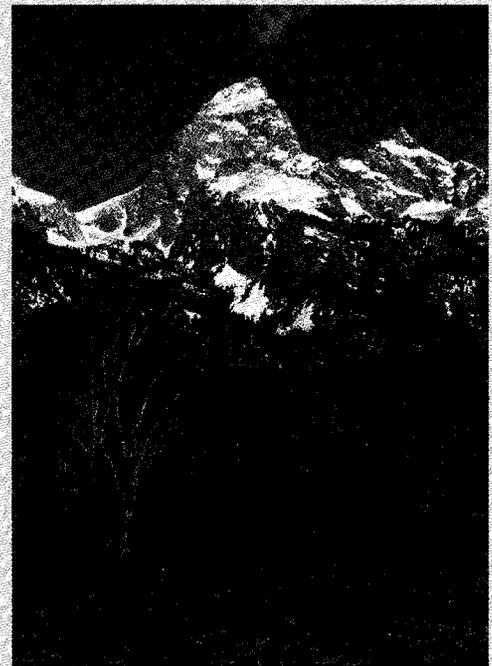
- Mechanical controls, such as hand pulling and weed harvesting machines.
- Biological control agents, such as beneficial insects, can selectively remove one weed species from a pasture, range, and/or natural ecosystem. The use of biological controls is economical and once established, these insect species provide permanent, effective control of the weed or other pests.
- Grazing is a non-toxic solution to invasive weed management that improves soil health through fertilization and aeration. Commercial grazing companies, such as Ewe4ic Ecological Services, can be hired to manage weeds on isolated rangelands or in city parks.

FOOD

Used on: wheat, barley, and oats grown in areas west of the Mississippi River.

****What You Can Do:**

- Buy organic grains whenever possible.
- Write to Quaker Oats, P. O. Box 049003, Chicago, IL 60604, www.quakeroats.com/qfb_ContactUs/index.cfm, 312-821-1000 and ask them to stop buying oats grown using picloram.





The Organic School Garden

Hands-on teaching of environmental health and social values

By Meghan Taylor

At Beyond Pesticides' 22nd National Pesticide Forum, held in April 2004, forum participants had the opportunity to visit several of Berkeley, California's organic school gardens. Beebo Turman, project director at Berkeley Community Garden Collaborative (BCGC), led the tour. The following is a portrayal of the school gardens that were toured, The Edible Schoolyard and the Willard Greening Project, with lessons on how you can start an organic garden at your community's school. This article is dedicated to Karl Linn, an inspiration to the Berkeley and national community gardening movements, who died on February 3, 2005.

The Edible Schoolyard: A model for the country

Overlooking the San Francisco Bay and Golden Gate bridge, a one-acre organic garden rests on the campus of Martin Luther King Jr. Middle School in Berkeley, CA. The soil is bursting with fresh produce, herbs, vines, berries and flowers, all surrounded by fruit trees. On a shed hangs scores of blue, green and red gloves. Shovels, hoes and handmade signs marking tomatoes and other vegetables sit waiting for the students to make use of them in their outdoor classroom. In the center of the garden sits the circular Ramada, which means shade structure in Spanish, covered with deciduous vines and climbing annuals including kiwi, runner beans, and chayote. A compost area, chicken coop, wood fired oven, and picnic tables all add to the vitality and richness of the *Edible Schoolyard*.

Ten years ago, this haven for vegetables, wildlife and students was an asphalt parking lot. In 1995, Alice Waters, chef,

author and owner of the famous Chez Panisse restaurant in San Francisco, had an idea to create a school garden. Her idea was transformed into reality through outreach with landscape architects, chefs, gardeners, teachers, and other design professionals. Now, in 2005 the garden provides an invaluable resource for students, staff and the entire community.

Seed to table

The *Edible Schoolyard* teaches students the fundamental lesson of "seed to table." This lesson creates a bond between students and the natural world. Students learn every aspect of how their food is created. They start with seeds and work in the soil, composting, caring for plants, learning to respect ecosystems, and learning the dangers of chemicals and pesticides. The children learn an important lesson: to tolerate certain insects, worms and other beneficial organisms, and to keep the garden healthy from detrimental insects.

"Seeds" are transformed into lessons of the "table" through cooking classes incorporated with student electives and humanities curriculum. Students learn origins of staple ingredients, grinding wheat into flour and making their own butter. They learn about a diversity of plants and foods, growing food from other cultures and cooking international cuisine. They prepare menus, cook and taste, set tables and bring in fresh flowers from the garden. They share in food, conversation and cleanup. The lesson comes full circle when the students compost food scraps from their meal to help their own garden grow more healthfully.

Foods are grown year-round, and the summer time is no exception. *Edible Schoolyard* provides a valuable model, as it

is the only school garden with a summer program. Students garden, weed, and harvest for two hours in the morning, and prepare their lunch from their work, eating on the garden's picnic tables.

Funding the garden

Edible Schoolyard began through the support of two private foundations: Chez Panisse Foundation and the Center for Ecoliteracy. Currently, it is supported by a number of foundations, individual gifts and benefit events. When staff is inspired with new ideas such as a pizza oven or a tool shed, they write grant proposals to make it happen.

In addition, this particular school garden is a high publicity spot. Both Fred Rodgers and Martha Stewart have filmed there in the past, which helps with the fundraising. Beebo Turman pointed out that there are other monies available for school gardens, high publicity or not. See *Lessons Learned* later in this article for tips on how to fund a school garden.

Community outreach and education

Edible Schoolyard conducts community activities that raise both awareness and funds. They once had a fundraiser in the school gym, food included, and showed an environmental film. As a result, \$13,000 was raised for the garden. "It was for the *Edible Schoolyard* but also to inform the neighbors and others in the area about what's happening, that this is not the only school doing this, and to help the community support school gardens," said Ms. Turman.

Other areas of the community are also involved with the *Edible Schoolyard*. Staff at the Berkeley Horticulture Nursery have been regulars at the *Edible Schoolyard's* garden committee meetings for the past ten years. The Nursery donates plants, as well as time. One employee visits the garden once a week for two hours to work with the students.

Another active community member, Karl Linn, a landscape architect, psychologist, retired University of California Berkeley professor and national community garden advocate, helped found the EcoHouse Project. The EcoHouse, located directly adjacent to the Karl Linn community garden, is a solar power demonstration house that teaches children about renewable energy and resources. It is made of recycled wood and has a

permaculture garden in the back. Ms. Turman said of Karl Linn, "He believes in community gardens to bring the people together to meet each other. There's a whole feeling of working together that is something that you just can't replace anywhere else."

The Willard Greening Project: Facing challenges head on

The *Willard Greening Project* at the Berkeley Unified School District (BUSD) was begun by PTA member Yolanda Huang, and has provided immeasurable benefits to the school and surrounding community. Unfortunately, in June 2004, Ameri-corps, a principal sponsor of *Willard Greening*, pulled its funding due to what many *Willard Greening* advocates say is the faulty accounting methods of BUSD. Since then, the garden has been struggling. Ms. Huang and others in the community

are putting up a fight for its survival. During the Beyond Pesticides tour in April 2004, the participants witnessed the garden's beauty and invaluable benefits that they are trying so hard to maintain today.



Students collect eggs from their chickens at the *Edible Schoolyard*.

What the garden gives

Before *Willard Greening*, the soil on the school property was abysmal, unable to support any life. The project began by ripping up the concrete and filling the space with soil. City compost was applied to begin to bring back the health of the land. Since then, the soil has been cover cropped and sifted to promote its health. As the land was repaired and beautified with a plethora of plants and crops, a community came together. Students were excited. So were residents. The change

that occurred was immense.

Students learned about composting, rotating crops, proper watering and irrigation, how cover crops work, and other principles that exemplify and instill the fact that chemicals are not necessary to grow healthy food. *Willard Greening* head gardener Matt Tseng pointed out the garden's healthful bounty of peas, potatoes, strawberries, carrots, tomatoes, peppers, artichokes and fava beans among a multitude of other crops.

Overall, the *Willard Greening Project* incorporates a nutrition class, a gardening club, lunches and beautification projects in addition to helping students learn how to grow and cook food and care for land organically. It is a community-wide treasure.



These seedlings will eventually produce food for lunch at Martin Luther King Jr. Middle School.

Transforming the food culture

Willard Greening's nutrition class has been monumental in student's understanding of food in culture. Mr. Tseng says that the first lesson students learn is the benefits to eating "whole foods," as opposed to processed foods. The students learn to read labels and decipher a healthful food choice from an unhealthy one. At the same time, Berkeley Unified School District does not have soda and candy machines and is making a concerted effort to provide healthier food. Great change has occurred. "We've seen that the kids are more open in that they try things they never would have tried. The question is whether they make the change in their daily lives. That's a lot harder because we're up against how all of society eats, and the fast food lifestyle. Many kids here are not sitting down to eat a meal [at home], either because both parents are working or just different family situations. On a smaller scale, we've been successful in getting kids to realize that something that is green and goes on your noodles isn't nasty. It's pesto and it's delicious," said Mr. Tseng.

Willard Greening has been a doorway for students to live healthier lives. The challenge of confronting the societal value of convenience and the promotion of processed and fast food is a daunting one. However, teaching young, developing minds about healthy alternatives hands-on, and letting them actually *feel* the difference, is a vital step toward a deeper cultural understanding of the importance of whole, healthful foods that do not depend on chemicals in their production and processing.

Lessons learned: Tips for starting a school garden in your community

Through the words and actions of Mr. Tseng and Beebo Turman, and other garden staff of the Berkeley Community Garden Collaborative, much can be learned about how to start an organic school garden, and how to thoughtfully incorporate the garden into student life. Following are some tips to assist

A school garden is a great project that can appeal to an eclectic mix of the community, including local environmental groups, organic advocates (find some at your local organic store), gardening clubs, cooking clubs, and the Parent Teacher Association (PTA) or Parent Teacher Organization (PTO).

you in this rewarding endeavor. A great resource of this information, and something to look at in detail when planning a school garden, is the *Edible Schoolyard* website at www.edibleschoolyard.org.

Getting started

- Reach out to the public for support. A school garden is a great project that can appeal to an eclectic mix of the community, including local environmental groups, organic advocates (find some at your local organic store), gardening clubs, cooking clubs, and the Parent Teacher Association (PTA) or Parent Teacher Organization (PTO).
- School garden advocates should hold a meeting with school administrators and landscape architects, chefs, and designers to help, as Alice Waters did at Martin Luther King Jr. Middle School.
- Custodial staff may have concerns about the garden and kitchen proposal, such as attracting pests and maintenance problems. Be understanding of their concerns and work together to create a solution.

Creating the garden

- Create a space where the class will meet at the beginning and end of each gardening session. For example, *Edible Schoolyard* fashioned a shade structure and hay bale seats.
- Make the garden organic and naturally sustainable. Consider your locale's native flora, fauna and grass species, as well as the climate in deciding which plants to grow throughout the year.
- Leave room in the soil for flowers, as these will add a sense of beauty to the entire space.
- Treat the land as a whole garden for the entire school, instead of dividing it up into sections for each class.

Working with students

- Begin classes with a greeting ritual.
- Adult supervision is very important. Set boundaries so that students will know where they are allowed to go.
- Engage students in hands-on applications for a memorable learning experience—not just pencil and paper exercises.
- Construct lessons so that students can work together in small groups.
- Trust the students in designing and planting.
- Highlight a multi-cultural approach in raising foods and planning menus. Focusing on new, international experiences is a great learning technique that can complement other classes students are taking.
- Incorporate a time for reflection of activities so that students can learn from mistakes and try new methods.
- Incorporate a cooking element to the curriculum so that students can cook the food they grow. Introduce each class session with ingredients and methods, and encourage tasting throughout.
- Have students set a table, with plates and utensils and perhaps a floral centerpiece from the garden. After the meal, engage students in designated cleanup jobs.
- Define set times for cleanup.

Teacher collaboration

- There should be both full-time garden and kitchen teachers.
- Teachers and the garden and kitchen staff should meet regularly to discuss curriculum development. Lessons taught in the classroom can complement the experiences that students have in the kitchen and garden, making the entire learning process integrated.
- Use blocks of time of 90 minutes or longer for the most successful and intensive garden and kitchen experiences.

Community outreach and fundraising

- Heightening community awareness of the benefits the school garden to the entire community is a great way to raise funds.
- Hold community-wide events in the garden: show a film, have a bake sale.
- During events, hand out fliers or pamphlets on the benefits of the garden to the entire community. Students can help create the materials with research and artwork.

- Community awareness cultivates support from people, organizations and local businesses that would like to become involved, donate supplies or funds, or volunteer their time.
- While individual assistance and donations are vital, it is important to acquire grants that will bring your garden to life and sustain it.
- There are local, state and national grants available. Seek out those that concentrate on environmental programs, science education, gardens and habitats.
- *Edible Schoolyard* and the *Willard Greening Project* both receive funding from the California Nutrition Network, a state agency that acts to enable low-income residents of the state to “adopt healthy eating and physical activity patterns as part of a healthy lifestyle.” The Network’s funding is principally from contributions from state and local governments that qualify for Federal Financial Participation dollars from the U. S. Department of Agriculture’s Food Stamp Program. Check out similar programs in your state.
- Resources for grants on the web:
 - Schoolgrants.org is a great web resource for tips on grant writing for school projects like gardens, and includes sample proposals and listings of foundations and opportunities. They also publish a bi-weekly newsletter listing grant opportunities.
 - The North American Association for Environmental Education also provides a comprehensive listing of grant opportunities. Check their site out at <http://eelink.net/grants-eespecificresources.html>.
 - Kids Gardening has a searchable database of grants by region on their website at: <http://www.kidsgardening.com/resources/resource.asp>.



The wood fired pizza oven makes the Edible Schoolyard a great place for student picnics.

Managing Healthy Sports Fields

A guide to using organic materials for low-maintenance and chemical-free playing fields

Paul Sachs, Wiley Publishers, Hoboken, New Jersey, © 2004, 244 pages, \$55.00.

This book is a primary resource for managers of high-impact turf maintenance, especially those managers or others who are interested in truly understanding the complexities of the biological system that nurtures healthy turf. It could also be a useful resource for parents to refer to schools facility or field turf manager(s) at their child's school, as well as government officials in charge of public parks and other areas where sports are played or other high turf impact occurs. Author Paul Sachs provides valuable insights and key strategies of a systems-approach to turf management that can liberate the modern turf manager from dependence on the use of pesticides while not compromising the quality of the turf itself.

This book is not for the technically weak-hearted or those who just want the basic 1-2-3's of organic lawn care. Any systems-approach requires a certain depth of understanding of that system and Mr. Sachs succeeds in providing just that.

The text highlights the essential details of understanding and creating good soil fertility, nutrient management, grass selection, pH balance, composting, methods of soil analysis, cultural practices and natural management of pests. Also discussed are tips on handling or avoiding various stresses that lead to pests, including those caused by pesticide use, compaction, animal damage, and weather effects. A superior index is provided so that managers can reread certain sections as an issue presents itself.

Not very often does a resource on managing high impact turf without the use of chemicals come along from someone with such utmost authority to speak on the issue. Mr. Sachs is a self-taught scientist at heart as well as by trade, a prolific au-

thor, and the founder and owner of North Country Organics in Bradford, Vermont and Ecological Turf Consultants, a firm that specializes in helping clients reduce or eliminate the use of chemicals on golf courses, sports fields, or other expanses of turf. North Country Organics manufactures and supplies natural fertilizers, soil amendments, and non- and least-toxic pesticide products and is a member of the Northeast Organic Farming Association.

Mr. Sachs has had 18 years of hands-on experience studying soil system dynamics and has used his expertise to serve

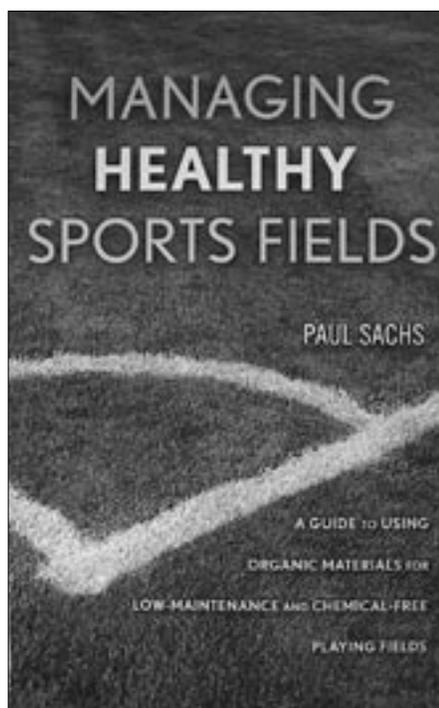
stand on, there will be no doubting of Mr. Sachs' authority to speak on the issues of turf management nor a questioning of the logic behind the organic methodology.

Those who believe that organic lawn care is a nice idea but would never work for turf that suffers the rigorous demands of sports and other high-impact activities will be pleasantly surprised. "Grasses are naturally resilient and competitive organisms designed to withstand the rigors of grazing animals," writes Mr. Sachs.

"Turf—or more accurately, the turf manager—can become dependent on chemicals as easily as people can be come dependent on drugs. Also like drugs, the more often chemicals are used, the more often they seem to be needed. Although the playing field is largely a man-made system, it can be, nonetheless, a system that functions with balance and ecological grace."

Unlike many believers in the organic method, Mr. Sachs takes a purely pragmatic approach. The non-believer may be relieved to find that Mr. Sachs does not argue that pesticides are damaging to the environment and human health, but rather sticks to what he can prove—the damage they cause to turf. He concludes the book by advocating that we first start to change perspectives on turf management by changing our language. "The term *sports field* often brings to mind an expensive facility where professional sporting events take place, whereas a *playing field* may be envisioned as a place where young people play. Does the tolerance threshold on a playing field have to be as low as it is on a sports field?"

More information on North Country Organics, founded in 1983 with the concept that any type of agriculture or horticulture can be productive, successful, and more profitable without compromising the earth's delicate ecosystem with harmful chemicals, can be found at <http://norganics.com> 802-222-4277, or info@norganics.com.



on the Technical Advisory Panel for the National Organics Standards Board for the U.S. Department of Agriculture. He is author of four books and hundreds of journal articles from basic organic lawn care to complex analyses of soil management and processes. Regardless of what side of the chemical fence the reader may

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R E S O U R C E S

T-Shirts

- "Pollution Prevention Is the Cure." full color graphic on 100% natural organic cotton Patagonia™ T-shirt. Sizes S, L, XL, XXL. \$10 each; 2 for \$15.
- Beyond Pesticides' Praying Mantis T-shirt. Printed on slate blue, 100% organic cotton with soy ink. Sizes S-XL. \$15 each; 2 for \$25.

Books

- A Failure to Protect*. Landmark study of federal government pesticide use and pest management practices. \$23.00. *Summary and Overview* \$5.00.
- Unnecessary Risks: The Benefit Side of the Risk-Benefit Equation*. Explains how the EPA's Risk-Benefit Analyses falsely assume the need for high-risk pesticides, 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 and why current laws offer inadequate protection. \$11.00
- Voices for Pesticide Reform: The Case for Safe Practices and Sound Policy*. A study documenting stories of tragic pesticide poisoning and contamination, and successfully used alternatives that avoid toxic chemicals. \$20.00 *Summary: Voices for Pesticide Reform* \$5.00
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- Agriculture: Soil Erosion, Pesticides, Sustainability
- Estrogenic Pesticides
- Pesticides and Your Fruits and Vegetables
- Pesticides – Warning: These Products May Be Hazardous to Your Health
- Pesticides in Our Homes and Schools

Testimony

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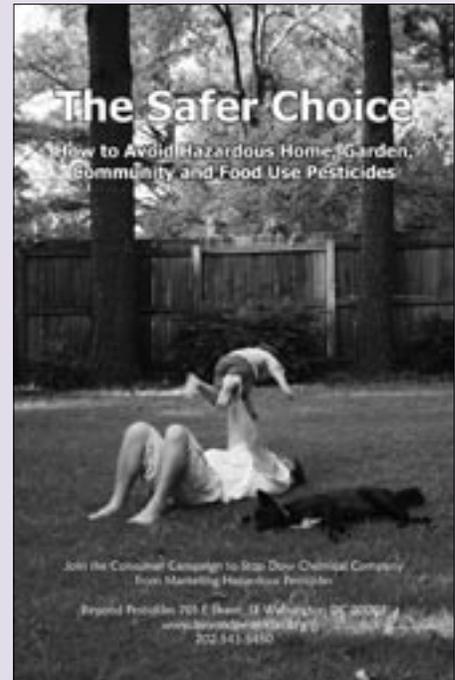
The Safer Choice: How to Avoid Hazardous Home, Garden, Community and Food Use Pesticides

Join the Consumer Campaign to Stop Dow From Marketing Hazardous Pesticides

Dow Chemical Company (and its pesticide division Dow AgroSciences) produces some of the most hazardous home, garden, and food use pesticides that invade our lives on a daily basis—toxic chemicals that are dangerous to children, families and the environment. Safer alternative practices and products are now widely available, which make these pesticides unnecessary. As part of a consumer campaign to stop corporations from marketing hazardous pesticides that are not needed, this booklet informs choices in the marketplace and helps consumers avoid harmful low-level toxic exposure.

How to Use This Booklet. This booklet focuses on seven toxic Dow pesticides, a combination of weedkiller and insecticide products that are widely used and available in the marketplace. It is intended to summarize the health and environmental concerns associated with each product, identify how it is commonly used in the home and garden, community and food production, and then offer suggestions on alternatives.

Hard copies of the booklet and a more in-depth packet are available from Beyond Pesticides. It can also be downloaded for free at www.beyondpesticides.org/dow.



Pesticides and You

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