

Pesticides and You

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

TOXIC WARNING SIGNALS



WARNING TO PARENTS, SEE PAGE 6

The Environmental Risks of Transgenic Crops: An Agroecological Assessment ■ What's Coming to Market? ■ Toxic Warning Signals ■ How to Avoid Pesticide Injury (and what to do if you can't) ■ Beyond Pesticides, Getting the Alternatives You Need ■ The War on Weeds ■ Pressure Building to Stop Implementation of *Food Quality Protection Act*

Local and State Efforts Win Big as Fed Fumbles

Congratulations to all those who participated in our campaign to stop the proposed USDA organic rules from going forward with standards that would undermine the meaning of organic and the protection it now affords our health and environment. USDA has said clearly that the big three issues—irradiation, fertilization with sewage sludge, and bioengineered inputs—will not be included as allowable in certified organic agriculture and food products when the new rule is issued. Similarly, USDA acknowledged that it erred in ignoring the National Organic Standards Board determination of acceptable materials in organic as defined by the *Organic Foods Production Act*. (See more on page 7 in this issue.) Of course, the battle is not over. It is just starting over with a new proposal expected before the end of 1998; a lot of issues regarding synthetics are still on the table.

In May, I attended the Governor's signing of landmark school pesticide law in the state of Maryland and stood with grassroots leaders from parent, teacher and environmental groups in the state which together successfully supported the legislation, led by Ruth Berlin, NCAMP vice president and coordinator of the Maryland Pesticide Network. The law signals a willingness at the state level to: (i) codify language that only allows pesticide use "when other reasonable non-toxic means have been exhausted;" and, (ii) treat exposure to pesticides as a public health issue (and adopt the precautionary principle) by providing universal notification and adverse effects information to all parents of elementary school age children before pesticide use occurs in the schools (advance warning). This expands notification beyond the type the pesticide industry advocates --where a registry system only notifies specific people.

In this issue, there are three stories of note along these lines, with NCAMP members leading the charge in similar success stories. In Ohio, with the leadership of long-time NCAMP members, a local school district stopped using pesticides on all their grounds (page 2). In San Francisco, NCAMP board member Gregg Small, director of Pesticide Watch, working with CALPIRG and other groups, was successful in the adoption of a broad IPM and pesticide notification law (page 8). In North Carolina, NCAMP board president Allen Spalt, director of the Agricultural Resources Center, working with other environmental groups, negotiated an agreement with the state's utility companies to allow people living along rights-of-way to opt out of spray programs (page 8). All these policies show real progress and a shift in public understanding and action on pesticides and the promotion of alternatives.

This is all happening in direct distinction to what is going on in our nation's Capital. Efforts are underway from every

quarter to undermine the promising provisions in the *Food Quality Protection Act*, particularly specific language which allows additional protections for children and requires attention to cumulative effects of pesticides in the body (page 31). While the law is always left open to interpretation and new definitions, scientific methods and risk assessment calculations, industry is pressuring EPA, USDA and the White House to slow down the process and adopt the weakest possible standards and risk assessment assumptions.

Meanwhile, as the state of Maine blocked genetically engineered corn from being used there (page 9), transgenic agriculture is picking up steam nationwide without adequate regulation. An article by University of California-Berkeley professor Miguel Altieri explains the serious ramifications of genetic engineering in agriculture, which is increasingly using herbicide and insect resistant crops (page 10).

From Washington, DC, there is a revival of The War on Weeds with a growing hysteria pushing for massive herbicide spray programs in the West and throughout the country (page 30). Both Vice President Al Gore and Secretary of Interior Bruce Babbitt have weighed in and sound an alarm that requires more public attention and involvement. In a related development, NCAMP challenged the Drug Enforcement Agency's draft Environmental Impact Statement and proposal to approve widespread herbicide use (2,4-D, glyphosate and trichlopyr) for cannabis and ditchweed eradication (page 5), although we are pleased that paraquat is no longer a part of the program.

A special section on NCAMP's *Toxic Warning Signals and Alternative's Project*, with a full explanation of our new webpage, shows dramatically why we must push on with the adoption of alternatives. With this issue, we launch our effort to develop the new directory, *Beyond Pesticides-Getting the Alternatives You Need: A directory to provide a comprehensive listing of least and non-toxic services covering home and garden, structural pest control, agriculture, extension services and product suppliers*. See page 28 and see how you can help NCAMP to effectively move the alternative agenda.

Thanks for helping move NCAMP ahead. As always, we look forward to hearing from you.



Jay Feldman is Executive Director of NCAMP

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Affiliations shown for informational purposes only

Nursery Educates Customers on Pesticide Hazards and Alternatives

Dear NCAMP,

We are in the retail nursery and garden center business, as well as landscaping and irrigation contracting. Much of our time is spent educating customers as to the dangers of commercial pesticide and fertilizer usage. We sell only non-toxic alternatives to these products. Response to the alternatives has been good and we are finding people to be more and more concerned about products they have used in the past.

Bryanne Hamilton
Southern Horticulture
St. Augustine, FL

Dear Bryanne,
Kudos to you for the work that you do. You and your business are vital in moving our communities away from pesticide dependency. Thank you for making safe, alternative pest management services and products available to the public and promoting awareness of the problems with pesticides. We, too, see more and more people concerned about pesticide hazards and looking for alternatives. In fact, we are assembling a new directory of businesses like yours that are offering alternatives. We are sending a form to complete with specific information. To our readers: Please provide us with information on alternative products or services by completing the form on page 29 in this issue.



Student Tests Efficacy of Natural Alternatives

Dear NCAMP,

I am finishing up my science fair project for my 9th grade science class. The main point of my project concerns botanical pesticides. I made three different pesticides: a jalapeno pepper concentration, a garlic and mineral oil mixture, and a lemon peel mixture. Each of these pesticides was applied to the source of food for the pests I was testing, tobacco hornworms. 20 ml of the pesticides I made was poured onto the hornworm's growth medium, and within 24 hours, there were significant results. Some of the hornworms under the garlic labeled containers were dead, and others were sick and listless. Currently, the garlic pesticide has proven to be more efficient than the others. Why was the garlic pesticide so efficient?

Kristen Etensohn
Cumberland, RI

Dear Kristen,
We are glad to know that you have sought out research on botanical pesticides. More research is definitely warranted on them. We checked *Common Sense Pest Control*, published in 1991 by Taunton Press in Newtown, CT, which states that organic gardeners have been using homemade garlic preparations as insecticides for years. Garlic oil is also known for its antibacterial, antifungal, and amebicidal effects. Unfortunately, garlic oil can also kill beneficial insects and microbes and is therefore not recommended for an all-purpose spray in gardens. Garlic oil's qualities are attributed to its volatile compounds alliin, allicin, citral, geraniol and linalol. Kiallyl disulfide and diallyl trisulfide, also present in garlic, have been identified as causing mortality in mosquito larvae. Extracts obtained with a water and alcohol mixture appear to have more fungicidal and bactericidal effects than does the essential oil. Garlic solutions have been reported to destroy 4 species of larvae mosquitoes and



larvae of the Colorado potato beetle. Garlic, in a variety of forms, is also recommended as repellents for ants, beetles, caterpillars, grasshoppers, grubs, leafhoppers, moths, spidermites, thrips, and whiteflies. And garlic tablets are recommended as a flea control for pets.

NCAMP Members Stop Herbicides At Their Local School

Dear NCAMP,

I am a long-time subscriber and supporter of NCAMP. I just wanted to let you know that my husband and I with a handful of other parents recently stopped the Worthington Ohio School district from applying herbicides on all school grounds for weed control. We are also looking into alternatives to pesticides for indoor use and on athletic fields.

Dessie Kardaras
Worthington, Ohio

Dear Dessie,
Thanks for keeping us updated. Congratulations to your family and all the other parents that helped stop the school's application of herbicides for weed control. Organizing with others is the key to success. Caring parents like yourselves help to decrease our children's exposure to pesticides at school. Keep up the good work to eliminate the threat of pesticide exposure

throughout all the school's buildings and grounds! NCAMP continually catalogs local pesticide ordinances, school board policies and the like. Please send us a copy of your policy, or let us know how we can get a copy, so we can pass it to others as an organizing tool!

Keeping NCAMP Environmentally Correct All the Way Around

Dear NCAMP,

Please stop using carbonless paper for invoices. It is hazardous to human health and uses formaldehyde. Thank you.

Carol Westinghouse
Burlington, VT

Dear Carol,

Thank you for noting the problems with carbonless paper. NCAMP tries to take advantage of the most efficient and environmentally sound office products available. We are currently in the process of updating our database program so that we will eliminate the need for carbonless invoices. We have also converted the paper used for NCAMP's letterhead to processed chlorine free! So look for it in the future. We've been using 100% post consumer recycled paper for years.

Pesticide Applicator Worries About His Health and Memory Loss

Dear NCAMP,

I am a sprayer of pesticides including Mosquitomist™. I am worried about the use of this chemical. While spraying this chemical, I was exposed to it quite frequently and now have a memory loss. I was exposed to the chemical by having it sprayed over my head while I was shutting it off. I am worried about my health.

Larry Schaugnessy
St. Peters, Missouri

Dear Larry,

When handling any pesticide, it is necessary to be extremely careful and avoid exposure to the extent possible.

If you think that your loss of memory may be linked to a pesticide exposure, get medical treatment immediately. Mosquitomist's™ active ingredient, chlorpyrifos, listed on the product's label, is a chlorinated organophosphate that is widely used as a mosquito larvicide, against fire ants and in structural pest control. Chlorpyrifos is acutely toxic to bees, birds, mammals, aquatic life and certain species of algae. Acute exposure to this nervous system poison can result in symptoms like nausea, stomach cramps, headaches, vision disturbances, muscle twitching, and in extreme cases, respiratory arrest. Chlorpyrifos has also been linked to delayed peripheral neuropathy, altered brainwave and sleep patterns and behavioral changes. Because we have been exposed to varying levels of toxic materials over our lives, at different vulnerable points in our lives, live in communities and homes with multiple pesticide use patterns and have unique genetic make-ups, the effect of pesticide exposure incidents will differ. Pesticide exposures may also make you more sensitive to chemicals over time. As a pesticide applicator you are in a higher risk than the average population and should have a physician monitor your health. Unfortunately, for applicators such as yourself and those handling pesticides, EPA allows far greater exposure and hazard than for the general public. Overall, EPA now acknowledges that it has dramatically understated the hazard of multiple exposure to organophosphate pesticides. (See story on pesticide law, page 31.)

Alternative Flea Control for Dogs Reported

Dear NCAMP,

My dog, a German Shorthair Pointer, has a severe allergy to fleas, while I have problems with pesticides. I have searched for less toxic alternatives to

reduce the inflammation from her reaction to flea bites. Recently, I found a non-toxic remedy that not only reduced inflammation, but also deters fleas. The essential oil, Rosemary - 4 drops to 8 ounces spring water. Chamomile and calendula (marigold) in the same proportion created sort of a synergistic effect in that it helped the deterrence and healing process even more. I keep the cup refrigerated in a plant mister. The mixture keeps its potency for only 24 hours, when refrigerated. When I check



my dog daily for fleas, I spray her coat with the mixture to reduce any inflammation. My veterinarian, who strongly believes in chemical controls, was astounded when he could not find a single flea on my dog and all the swelling was gone. Rubbing fresh pennyroyal inside her leather collar has also worked. I can no longer get pennyroyal in essential oils because it is so toxic. Fresh pennyroyal is toxic, but using one sprig is all that is needed to deter fleas. Thought I'd share this finding, in case others have a similar problem.

Bunny Snow
Lafayette, LA

Dear Bunny,

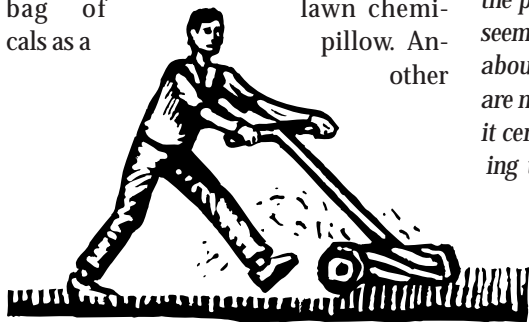
Thank you for sharing your alternative pest management success with us. NCAMP collects information on alternative pest management success stories so that we can share it with others. **To our readers: If you would like to share your successful pest or lawn care management successes, please con-**

tact NCAMP and we will send you an *Alternative Success Form*.

Pesticide Advertising Misleads the Public on Safety Questions

Dear NCAMP,

I am a member of NCAMP and feel I must comment about some of the lawn chemical advertising I have seen on TV this spring. The advertising I am talking about are Preen commercials and Scott's commercials. One commercial shows a man lying on the lawn using a bag of lawn chemicals as a pillow. Another



one shows what looks to be a teenage boy pushing a chemical spreader wearing shorts and sandals! Yet another one shows children playing on a lawn barefoot while they talk about getting rid of dandelions with this particular lawn pesticide.

I used to own a small lawn care business: I was a certified applicator and I learned when applying chemicals to wear appropriate clothing. Shorts and sandals are not appropriate clothing. You should avoid contact with these chemicals. When I was in business some of the chemicals I would buy from a commercial distributor had the exact same active ingredients that any homeowner can purchase. The commercial applicator is supposed to wear protective clothing - why not the homeowner when applying chemicals? Consumers should not be misled into thinking these chemicals are harmless to apply.

As you have said before, and I agree with you, the chemical industry wants to give the public a false sense of safety about pesticides. I would also like to say that I

have used no pesticides on my lawn for years and it looks fine. I went out of the lawn care business because of health and environmental concerns of using lawn pesticides. Thank you for allowing me to comment about this very important issue.

Allen Tork
Hastings, NE

Dear Allen,

By law, pesticide use must be in accordance with the product label. Unfortunately, the label is usually inadequate in conveying safety concerns about a pesticide and the limitations of risk assessments used to register it. There are laws and regulations against misleading the public on the safety of pesticides. It does seem that some of the commercials you write about teeter on this border: The commercials are not directly saying that they are safe, but it certainly seems as though they are implying that they are, as it is easier to attract potential customers in this manner. Pennsylvania and New York have settled lawsuits against pest control and lawn care providers that have made broad false and misleading safety claims regarding their pesticides. NCAMP believes that commercial applicators and lawn care service providers should implement least and non-toxic pest management strategies that do not rely on the use of chemicals. Thank you for your work to alert the public to the dangers of pesticides.

A Call to Stop Local Utility Herbicide Spray Program in Pennsylvania

Dear NCAMP,

I am worried about a spray program that is being implemented by my local power company. This so called 'herbicide solution' will be implemented throughout our entire county to eliminate foliage under the power lines. They actually knocked on my door and asked my permission to spray on my property. Ours is a rural area in which most residents rely on well water and I am worried about the effects. I hope

you can advise me of a way that I can stop this program and advise others in my area. I am hoping to find out as much as I can and put together some information that I can pass along to neighbors and anyone else who is interested. I hope you can help.

Marti Craig
North Strabane, PA

Dear Marti,

NCAMP provides individuals, communities and organizations with information on pesticides and alternatives as well as how to use this information as organizing tools. We have helped numerous people stop hazardous pesticide spray programs and put alternatives in place. NCAMP can send you factsheets on commonly used pesticides, alternatives to using chemicals on rights-of-way, and your state's pesticide rules and regulations regarding spraying rights-of-way—information useful to a campaign. Environmentalists and power company officials in North Carolina recently completed an agreement to allow for non-spray areas along rights-of-way. (See page 8 in this issue.) Pennsylvania is actually only one of six states that requires some sort of notification of rights-of-way spraying. By knowing your rights and by knowing what other community and state regulations are doing, you can more effectively organize.

Write Us!

Whether you love us, hate us, or just want to speak your mind, we want to hear from you. All mail must have a day time phone and a 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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fax: 202-543-4791
email: ncamp@ncamp.org



Drug Enforcement Agency Readies Itself to Eradicate Cannabis With Herbicides

In April 1998, the Drug Enforcement Agency (DEA) released a Draft Supplemental Environmental Impact Statement (DSEIS) regarding a change in its efforts to eradicate the weed cannabis. The agency has been trying to rid the U.S. of cannabis since the 1980s by using 2,4-D, glyphosate, and paraquat. This year, DEA decided to replace paraquat with Garlon (trichlopyr). The label for this product says it should not be used near waterways or where animals graze, and it is toxic to fish. However, one of the forms of cannabis being targeted is called ditchweed, which grows along waterways. Why is the DEA involved in weed control? Because cannabis is in the marijuana family, and though ditchweed is not the kind cultivated for use as a drug, its growth is still illegal in the U.S. The DEA program is not mandatory for states, but is available to them for their nonfederal land and for Indian land. DEA is free to spray on federal land without states' permission. Public comment on the DSEIS was not solicited widely by the agency, so many groups found out late in the process of its existence. For this reason, NCAMP wrote to Rep. D. Scaggs (D-CO), who sits on the DEA Appropriations Committee, and Rep. P. DiFazio (D-OR), a consistent

pesticide control supporter, asking them to urge the agency to extend their 45 day comment period to 90 days. The agency did reply that comments would be accepted through June, and NCAMP wrote detailed comments pointing out the dangers of the chemicals, especially to children, encouraging the use of alternatives (and common sense about the illegality of ditchweed) instead. *Contact: Jack Edmundson, USDA/APHIS, Unit 149, 4700 River Rd, Riverdale, MD, 20737, 301-734-8274, fax 301-734-5992.*

States say Consumer Safety Information Program on Pressure Treated Wood is a Failure

At a May 1998, meeting of the State FIFRA Issues Research and Evaluation Group (SFIREG), state pesticide officials reported the failure of a program that was established to inform the public of the dangers of treated wood. The program began in 1985 through a voluntary agreement between EPA and the wood treatment industry. The two parties agreed that the wood treatment industry would produce Consumer Information Sheets



(CISs) and ensure that they reached purchasers of treated wood products through retail stores. The CISs instruct people to wear protective gear when sawing, and how to properly dispose of sawdust containing cancer causing inorganic arsenicals. However, state agencies say that these sheets are not being distributed, and that many retail store employ-

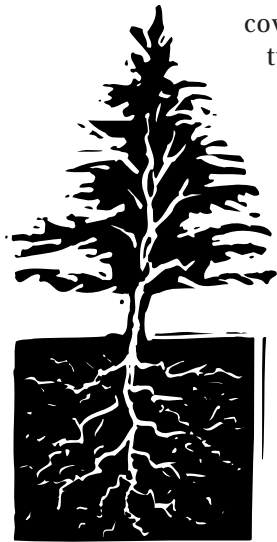
ees are not even aware of the safety sheets' existence. For this reason, some EPA officials believe it is time for the voluntary agreement to become a mandatory requirement. In 1999 the Antimicrobials Division of EPA is also expecting to complete the Registration Eligibility Decision (RED) for wood treatment chemicals, which also include potential carcinogens pentachlorophenol and creosote. *Contact: Nader Elkassabany, Chemical Review, Manager (Wood Preservatives), Office of Pesticide Programs, EPA, 401 M Street, SW, Washington, DC 20460, 703-308-8783.*

Pesticide Data Program Finds More Pesticide Residues on Food

The most recent Pesticide Data Program (PDP) summary by USDA reports that 71.8% of food samples tested in 1996 had at least one pesticide residue. This is a 6.8% increase over 1995. The agency analyzed 4,856 food samples including fresh and frozen fruits and vegetables, frozen canned items, apple juice, wheat, and whole milk. The food had originated from 35 states and 10 foreign countries. In total, 9,217 individual pesticide residues were detected, and of these, 243 were presumptive violations— 9 in which the tolerance for that particular food was exceeded and 234 in which no established tolerance exists for that chemical/food pair. Processed food tended to show fewer residues than did fresh produce. The PDP was established in 1991 to collect data on pesticide residues on food, and the reports are used by EPA when performing risk assessments. While industry cites few tolerance violations as proof of safety, safety activists point out the weak data available for creating the tolerances. *Contact Robert Epstein, Associate Deputy, Administrator for Science and Technology, Agricultural Marketing Service, USDA, PO Box 96456, Rm 3522-S, Stop Code 0222, Washington, DC 20090.*

USDA Biological Gypsy Moth Control in OH & WI

At first, NCAMP was dismayed to find out that the Animal and Plant Health Inspection Service (APHIS) decided to bypass a public comment period regarding a gypsy moth spraying in parts of Ohio and Wisconsin. But, APHIS relieved the concern when it informed us that the spray material would be solely Bt (*Bacillus thuringiensis*), whereas Dimilin™ had been used in the past. When all life stages of the moth were discovered in these two states, the emergency spraying was deemed necessary to prevent the further spread of these pests. The moths damaged trees and already infest 17 states and Washington DC.



Interestingly, APHIS said spraying will be less extensive in NJ and surrounding states this year because a treatment of *entomophaga mai maiga* fungus from about 40 years ago suddenly resurged and negatively impacted the moth population. Contact: Coanne O'Hern, Plant Protection & Quarantine, APHIS, 301-734-8247. See www.aphis.usda.org, and Federal Register online at [#98-025-1](http://wais.access.gpo.gov/docket).

Progress Made on Phaseout of Persistent Organic Pollutants (POPs)

In response to the international recognition of the harm caused by persistent organic pollutants (POPs), the United Nations sponsored an Intergovernmen-

tal Negotiating Committee (INC) meeting in Montreal, Canada from June 29-July 3, 1998. The meeting is one of four which will produce an international binding treaty on POPs phaseout by the year 2000. The June INC meeting adopted the report of the Intergovernmental Forum on Chemical Safety that took place in Manila in 1996 and the United Nations Environment Program

Governing Council Decision 19/13C as its guiding documents, which provides a strong basis for action toward reducing POPs. A contact group convened to discuss the Criteria Experts Group which will be responsible for determining the criteria for adding new chemicals to the list of POPs to be phased out. POPs are a health and environmental concern because they persist in the environment for

WARNING TO PARENTS

YOU WILL NOT SEE THIS IN YOUR LOCAL STORE!

WHEN USING THE REPELLENT DEET ON CHILDREN, BEWARE!

In April 1998, EPA quietly announced that products containing the popular insect repellent, DEET (N,N-diethyl-meta-toluamide) can no longer be labeled as "child-safe," and must contain new restrictions when using on children. The only problem is that EPA has allowed 26 months for product manufacturers to apply the new label restrictions, while retail stores may continue to sell products with the old label for another 50 months. In other words, you won't hear about this in your store or from the manufacturer for a long time. Activists believe this time period is too long, considering the product's potential health hazards. Most repellents contain 15% or lower DEET concentration. Even at this level toxic encephalopathy has been reported—symptoms include weakness, disorientation, seizures, coma, and even death. DEET is used by one-third of the U.S. population and has gained popularity due to publicity about encephalitis and Lyme disease caused by mosquitoes and ticks, respectively. The agency says, "Where appropriate, consider non-chemical ways to deter biting insects—screens on windows and doors, netting when camping, and long sleeves and slacks." Activists note that this is more than the agency has said in the past about the use of alternatives.

NEW BROAD RESTRICTIONS

The new DEET label will inform users to take the following precautions.

- Do not allow young children to apply this product
- Do not apply near children's hands or face
- Apply only enough to cover exposed skin and/or clothing
- Do not apply over cuts, wounds, or irritated skin
- Thoroughly wash all treated skin with soap and water after returning indoors
- Wash treated clothes before wearing again
- Do not spray aerosol forms inside

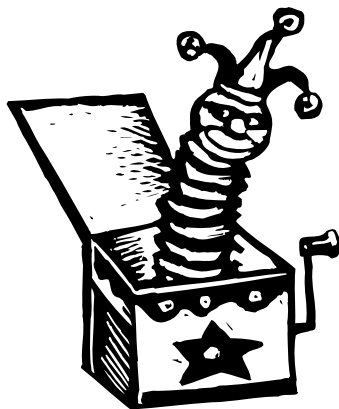
This said, EPA studies also show that people generally do not follow label directions. Seemingly unaware of these developments, the National Consumer's League issued a press release in April 1998 that said DEET is "the most effective repellent." and said the higher the concentration, the longer it works.

For a copy of DEET's Registration Eligibility Decision (RED), Questions and Answers—Reregistration of the Insect Repellent DEET, contact EPA, Office of Pesticide Programs, 401 M Street, SW, Washington, DC 20460, 703-305-5805.

long periods and can travel via wind and water across national boundaries. There are 12 specifically under scrutiny, most of which are pesticides. When ingested, they tend to bypass the liver and bioaccumulate in fat tissues. They may be neurotoxic, carcinogenic, and/or disruptive of the endocrine system. Many groups have convened to address this issue over the past decade, including one among the U.S., Canada, and European Union which took place in June 1998. A lot of work has been done in the Great Lakes region because POPs contamination of fish and water is high. *Contact: Karen Perry, International POPs Elimination Network Coordinator, c/o Physicians for Social Responsibility, 1101 14th St, NW, Suite 700, Washington, DC 20005, 202-898-0150, and see their webpage at <http://www.psr.org>.*

EPA Takes Action on False Safety Claims About Disinfectants in Plastic Toys

New “germ fighting” toys were recently introduced onto the market with claims that parents do not need to worry about their kids getting germs from toys because of a pesticide in them. EPA has found that these claims are illegal. The agency issued a civil administrative complaint charging Microban Products Co. of Huntersville, NC with making unsubstantiated public health claims. The



manufacturer and toy companies that use their pesticide additive had claimed that the treated toys would protect children from bacteria such as *E. coli*, staph and strep. Hasbro's Playskool division introduced 15 toys with the pesticide. The company sites a tremendous interest in its highchair with an antibacterial tray. EPA says the pesticide is registered “to protect the plastic in the products from

deterioration” or “inhibit bacterial growth in plastic.” EPA is seeking \$160,000 in civil penalties and issued a warning to others to stop unapproved public health claims associated with goods such as toys, cutting boards and sponges. The *Federal Insecticide, Fungicide and Rodenticide Act* makes it illegal to issue claims about pesticide uses that have not been approved.

Big Win on First Round of Organic Standard

STAY TUNED FOR SECOND ROUND

As a follow-up to our last issue of *Pesticides And You* which was specifically dedicated to USDA's recently proposed Organic Rules (December 1997), NCAMP is happy to report that through efforts of activists around the country, the proposed rule was retracted and is expected to be re-proposed within several months. USDA received over 260,000 public comments. It was an unprecedented response level for a USDA proposed rule, and clearly far more than the agency expected. In a press statement on May 8, 1998, Secretary of Agriculture, Dan Glickman stated, “USDA is committed to developing national organic standards that organic farmers and consumers will embrace.” He assured consumers that none of the “big three” issues—irradiation, genetic engineering, and biosludge—would be considered as acceptable organic practices in the revised rule. He even went on to say that it is part of USDA's task to “stimulate the growth of organic agriculture, and develop export markets for this growing industry.”

NCAMP, along with the Organic Farmers Marketing Association and other groups, submitted 75 pages of comments on the rule. NCAMP proudly received notice that our campaign to rally public input, through a radio appearance and distribution of a two-sided pre-made comment sheet, generated 10,000 standardized responses and thousands of comments—the fifth most comments from any one campaign! Much thanks to those who took the time to respond!

On July 22, 1998, Keith Jones, recently appointed Director of the National Organic Program, invited the National Organic Standard Board (NOSB) and the public to a meeting regarding the new standards. At the meeting, Secretary Glickman stated that the agency will only consider those materials recommended by the NOSB for inclusion on the National List of substances acceptable for use in organic agriculture. He also indicated the agency's support of a rule more consistent with the spirit of the *Organic Foods Production Act of 1990*, and acknowledged that organic production is a mainstream concern of the American public. NCAMP anticipates an improved rule that will be more satisfactory to all parties involved. A short public comment period will accompany the release of the new proposed standards, so get your pens ready!

NC Utilities Allow Landowners to Say No to Herbicides on Rights-of-Way

Environmentalists and private landowners in North Carolina have been victorious in an agreement reached with utility companies concerning rights-of-way spraying on over 75,000 miles of power lines. Landowners may now opt out of the spray program and flag their property as a no-spray area to be maintained mechanically at no extra charge. Originally the utilities had decided to begin broadcast spraying. Duke Power, Carolina Power and Light, and Nantahala Power will use inserts in customers bills to describe the agreement, chemicals used, application methods, and resources for more information but will not disclose spray schedules. Allen Spalt, director of the Agricultural Resources Center, NCAMP president and a central participant in the negotiations, says, "Implementation of this will depend on their good will and our vigilance in monitoring." *Contact Allen Spalt, Agricultural Resources Center, 115 W. Main St., Carrboro, NC 27510, 919-967-1886, aspalt@mindspring.com*

Methyl Bromide Victims File Lawsuit

Nine injured people have joined a lawsuit against Archer Daniels Midland (ADM) for its methyl bromide use. Santos Fernandez died from indirect exposure to the chemical in October of 1997 when it traveled through vents into his art studio. The plaintiffs include investigators of Fernandez's death who suffered nausea, fatigue, and headaches after visiting the art studio, a former ADM employee who was hospitalized for intense symptoms and a coma after multiple workplace exposures, and workers at the Northern State's Power Company hydroelectric plant who experienced headaches, blackouts, and loss of

memory from the odorless methyl bromide that seeped into their workspace. ADM claims it met all legal safety requirements. The plaintiffs claim that tunnels were not sealed, no smell agent was added to the chemical, and state authorities were not notified as required. *Contact NCAMP.*

Activist Cindy Duehring Called "Toxic Avenger" by People Magazine

Once described as "lively," she never leaves her foil-lined house in LoCreek, North Dakota, must filter the air, has only three visitors who bathe with detox soap before entering, and cannot even use her own voice, lest the sound sends her into a seizure. This story of Cindy Duehring was featured in the February 9, 1998 issue of *People* magazine. Duehring, founder of Environmental Access Research Network (EARN) in 1986, an NCAMP seed grant recipient, was exposed to pesticides during a routine exterminator's visit 12 years ago. She became extremely sensitive to various stimuli such as perfumes and bright light, and has gotten progressively worse symptoms since then. She continues to respond to information requests from people around the world, and received Sweden's Right Livelihood Award. *People* magazine notes that an estimated 15% of Americans suffer from a form of chemical sensitivity, though patients' illnesses are often dismissed as psychosomatic. *Contact EARN, PO Box 1089, Minot, ND 58702.*

San Francisco & State of Maryland Lead the Way in School Pesticide Reform

Standing as a model for all other schools, the San Francisco Board of Education

unanimously adopted a new policy that forces Integrated Pest Management (IPM) to be the first option of pest control. The new policy requires notice of intent to spray and completely bans carcinogenic pesticide use. Chemical pesticides are allowed only when alternative methods fail. Parents and teachers became alarmed when a CALPIRG/Californians for Pesticide Reform report, *Failing Health: Pesticide Use in California Schools*, issued in January discussed the lack of safety precautions in California schools. A similar measure was put in place in 1996 for the city's municipal property.

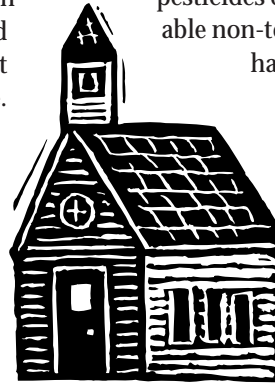
A state law passed in Maryland on April 14, 1998, requires schools to use pesticides only "when other reasonable non-toxic means have been exhausted."

It also requires that parents of elementary school children are notified 24 hours prior to pesticide application and given their adverse effects information. This landmark legislation is the first statewide school notification

and alternatives system of its kind in the nation. Legislation of this type had been blocked in the state legislature by school boards and industry for over a decade. The bill does contain compromises, including a registry notification system for middle and high schools and exemption for pesticides use on the grounds outside of school buildings. *Contact Pesticide Watch, 450 Geary St., Ste 500, San Francisco, CA 94102 415-929-1486 or NCAMP.*

Survey Finds 3 Out of 10 Shoppers Buy Organic Food

Three in ten shoppers buy organic food, concludes a national survey of shopping habits conducted for *Shopping for Health*,



co-released by the Food Marketing Institute and *Prevention Magazine*. Of the 1005 shoppers surveyed, 42% look for organic claims on food labels, and 35% are willing to pay higher prices for organically grown food. Shoppers choose organic food for positive health effects, nutritional value, and reduced environmental impact from growing practices. Over 50% surveyed said they would be more willing to buy organic food products that had an official organic seal, ironic in light of recent controversy on the USDA proposed organic rule (See *organic update page 7*). Shoppers expressed concern with organic food prices and



food quality, though price ranked lowest in importance in a list of characteristics including taste, freshness, health effects, and nutrition. Contact Kai Robertson, Food Marketing Institute, 800 Connecticut Ave., NW, Washington, DC 20006, 202-429-4590 or Staci Foley, *Prevention Magazine*, 33 E. Minor St., Emmaus, PA 18098.

Children's Cancer Cluster Identified in Florida, Pesticides Suspected

Thirty-four cases of childhood brain, nervous system and other cancers have been diagnosed in St. Lucie County, Florida, reported *The Stuart News/Port St. Lucie News* in June. Parents have directed their

concern at pesticides. In early 1998, state health officials were to begin a study looking at a number of environmental factors including: air contamination in homes, contamination of canals and waterways, pesticides from citrus groves, buried construction material, abandoned cattle vats (pits dug on cattle ranches and filled with pesticides for cattle dips), and leaking underground gas tanks. Contact NCAMP.

California Reports Increase of Pesticide Related Illness

The California Department of Pesticide Regulation released a report at the end of 1997 saying that reports of pesticide-caused illnesses increased from 1300 in 1994 to 1600 in 1995, a 23% increase. Incidents linked to agricultural pesticides increased by 46% and nonagricultural pesticide incidents rose by 6%. This information ends a decreasing trend of reported incidents in the early 1990's. The U.S. General Accounting Office has said that California has the most comprehensive system for reporting pesticide illnesses in the nation. Even so, state officials say that the reporting system catches only a small portion of actual poisonings, possibly only 1% of all poisonings in the state.

Genetically Engineered Corn Blocked in Maine

Maine is the first state to prohibit the use of genetically engineered corn. The corn incorporates a gene added from *Bacillus thuringiensis* (Bt) that produces endotoxins that kill the European corn borer. Maine law requires proof of need before a pesticide can be registered and the companies (Novartis Seeds and DeKalb) did not show data on European corn borer problems in Maine. Due to unanswered questions about the role of genetically engineered plants in promoting insect resistance to Bt pesticides, organic farm-

ers and environmentalists opposed the proposed registration. The Maine Green Party testified, saying it was time for states to, "Step into the breach" left by a lax EPA registration process that "relies way too heavily on industry information." In September a petition was filed by an international collection of groups seeking to cancel EPA registration of Bt crops. Contact Sharon Tisher, Chair, Public Policy Committee, Maine Organic Farmers and Gardeners Association, PO Box 2176, Augusta, ME 04330, 207-622-3118 or NCAMP.

Once Banned Pesticide in Use Again in Louisiana

EPA approved in June the use of the toxic insecticide carbofuran despite a 1991 agreement between the agency and FMC Corporation, the chemical's manufacturer, to phase out most of its uses, including rice, by 1994. 39,000 pounds of carbofuran were approved for use on 75,000 acres of rice. The 1991 agreement ended an EPA Special Review that found the chemical caused unreasonable risks to birds — one granule can kill a small bird. The agreement was very specific — 2500 pounds of granular carbofuran for continued use on five crops, including bananas, cranberries, cucurbits, spinach for seed, and pine progeny. Then the pressure on EPA increased. Risk analysis aside and without considering organic methods, EPA extended carbofuran use on rice to August, 1996 because no registered chemical alternatives were available. It then allowed the State of Louisiana to issue a "Special Local Permit" for 1997-98, and raised the production cap to 250,000 pounds. Carbofuran's history again took a turn when a 1997 request for an extra 30,000 pounds was denied. However, due to "refined" dietary risk assessments and lower risk calculations, the agency reversed its position again in 1998. This is even a lot for NCAMP to swallow. Contact: Dan Helfgott, OPP, EPA, Special Review Branch, 703-308-8054.

The Environmental Risks of Transgenic Crops: An Agroecological Assessment

Is the failed pesticide paradigm being genetically engineered?

Miguel A. Altieri

Genetic engineering is an application of biotechnology involving the manipulation of DNA and the transfer of gene components between species in order to encourage replication of desired traits (OTA 1992). Although there are many applications of genetic engineering in agriculture, the current focus of biotechnology is on developing herbicide tolerant crops and on pest and disease resistant crops. Transnational corporations such as Monsanto, DuPont, Novartis, etc., which are the main proponents of biotechnology, view transgenic crops as a way to reduce dependence on inputs such as pesticides and fertilizers. What is ironic is the fact that the biorevolution is being brought forward by the same interests that promoted the first wave of agrochemically-based agriculture. But this time, by equipping each crop with new "insecticidal genes," they are promising the world safer pesticides, reduction in chemically intensive farming and a more sustainable agriculture.

As long as transgenic crops follow closely the pesticide paradigm, such biotechnological products will do nothing but reinforce the pesticide treadmill in agroecosystems, thus le-

gitimizing the concerns that many scientists have expressed regarding the possible environmental risks of genetically engineered organisms. The most serious ecological risks posed by the commercial-scale use of transgenic crops are (Rissler and Mellon 1996; Krinsky and Wrubel 1996):

- The spread of transgenic crops threatens crop genetic diversity by simplifying cropping systems and promoting genetic erosion;
- The potential transfer of genes from herbicide resistant crops (HRCs) to wild or semidomesticated relatives thus creating super weeds;
- HRC volunteers become weeds in subsequent crops;
- Vector-mediated horizontal gene transfer and recombination to create new pathogenic bacteria;
- Vector recombination to generate new virulent strains of virus, especially in transgenic plants engineered for viral resistance with viral genes;
- Insect pests will quickly develop resistance to crops with

Bacillus thuringiensis (Bt) toxin;

- Massive use of Bt toxin in crops can unleash potential negative interactions affecting ecological processes and non-target organisms.

The above impacts of agricultural biotechnology are herein evaluated in the context of agroecological goals aimed at making agriculture more socially just, economically viable and ecologically sound (Altieri 1996). Such evaluation is timely, given that worldwide there have been over 1,500 approvals for field testing transgenic crops (the private sector has accounted for 87% of all field tests since 1987), despite the fact that in most countries stringent procedures are not in place to deal with environmental problems that may develop when engineered plants are released into the environment (Hruska and Lara Pavón 1997). A main concern is that international pressures to gain markets and profits is resulting in companies releasing transgenic crops too fast, without proper consideration for the long-term impacts on people or the ecosystem (Mander and Goldsmith 1996).

Actors and Research Directions

Most innovations in agricultural biotechnology are profit driven rather than need driven, therefore the thrust of the genetic engineering industry is not really to solve agricultural problems, but to create profitability. This statement is supported by the fact that at least 27 corporations have initiated herbicide tolerant plant research, including the world's eight largest pesticide companies Bayer, Ciba-Geigy, ICI, Rhone-Poulenc, Dow/Elanco, Monsanto, Hoescht and DuPont, and virtually all seed companies, many of which have been acquired by chemical companies (Gresshoft 1996).

In the industrialized countries from 1986-1992, 57% of all field trials to test transgenic crops involved herbicide tolerance and 46% of applicants to the U.S. Department of Agriculture (USDA) for field testing were chemical companies.

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Crops currently targeted for genetically engineered tolerance to one or more herbicides includes: alfalfa, canola, cotton, corn, oats, petunia, potato, rice, sorghum, soybean, sugarbeet, sugar cane, sunflower, tobacco, tomato, wheat and others. It is clear that by creating crops resistant to its herbicides a company can expand markets for its patented chemicals. The market for HRCs has been estimated at more than \$500 million by the year 2000 (Gresshoft 1996).

Although some testing is being conducted by universities and advanced research organizations, the research agenda of such institutions is being increasingly influenced by the private sector in ways never seen in the past. Forty-six percent of biotechnology firms support biotechnology research at universities, while 33 of the 50 states have university-industry centers for the transfer of biotechnology. The challenge for such organizations will not only be to ensure that ecologically sound aspects of biotechnology are researched and developed (nitrogen-fixing, drought tolerance, etc.), but to carefully monitor and control the provision of applied non-proprietary knowledge to the private sector, so as to ensure that such knowledge will continue in the public domain for the benefit of all society.

Biotechnology and Agrobiodiversity

Although biotechnology has the capacity to create a greater variety of commercial plants, the trends set forth by transnational corporations create broad international markets for a single product, thus creating the conditions for genetic uniformity in rural landscapes. In addition, patent protection and intellectual property rights contained in GATT, inhibiting farmers from re-using, sharing and storing seeds, raises the prospect that few varieties will dominate the seed market.

Although a certain degree of crop uniformity may have certain economic advantages, it has two ecological drawbacks. First, history has shown that a huge area planted to a single cultivar is very vulnerable to a new, matching strain of pathogen or pest. And, second, the widespread use of a single cultivar leads to a loss of genetic diversity (Robinson 1996).

Evidence from the Green Revolution leaves no doubt that the spread of modern varieties has been an important cause of genetic erosion, as massive government campaigns encouraged farmers to adopt these varieties and abandon many local varieties (Tripp 1996). The uniformity caused by increasing areas sown to a smaller number of varieties is a source of increased risk for farmers, as the varieties may be more vulnerable to disease and pest attack and most of them perform poorly in marginal environments (Robinson 1996).

All the above effects are now ubiquitous to modern varieties and it is expected that, given their monogenic nature and fast acreage expansion, transgenic crops will only exacerbate such effects.

Environmental Problems of Herbicide Resistant Crops

According to proponents of HRCs, this technology represents an innovation that enables farmers to simplify their weed management requirements, by reducing herbicide use to post-emergence situations using a single, broad-spectrum herbicide that breaks down relatively rapidly in the soil. Herbicide candidates with such characteristics include glyphosate, bromoxynil, sulfonyleurea, imidazolinones among others.

However, in actuality the use of herbicide-resistant crops is likely to increase herbicide use as well as production costs. It is also likely to cause serious environmental problems.

Herbicide Resistance

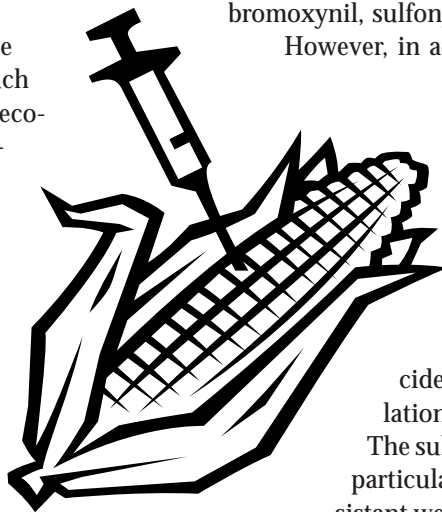
It is well documented that when a single herbicide is used repeatedly on a crop, the chances of herbicide resistance developing in weed populations greatly increases (Holt et al. 1993).

The sulfonyleureas and the imidazolinones are particularly prone to the rapid evolution of resistant weeds and up to now fourteen weed species have become resistant to sulfonyleurea herbicides. Cocklebur, an aggressive weed of soybean and corn in the southeastern U.S., has exhibited resistance to imidazolinone herbicides (Goldburg 1992).

The problem is that given industry pressures to increase herbicide sales, acreage treated with these broad-spectrum herbicides will expand, exacerbating the resistance problem. For example, it has been projected that the acreage treated with glyphosate will increase to nearly 150 million acres. Although glyphosate is considered less prone to weed resistance, the increased use of the herbicide will result in weed resistance, even if more slowly, as it has been already documented with populations of annual ryegrass, quackgrass, birdsfoot trefoil, and *Cirsium arvense* (Gill 1995).

Ecological Impacts of Herbicides

Companies affirm that bromoxynil and glyphosate, when properly applied, degrade rapidly into soil, do not accumulate in groundwater, have no effects on non-target organisms and leave no residues in food. There is, however, evidence that bromoxynil causes birth defects in laboratory animals, is toxic to fish and may cause cancer in humans. Because bromoxynil is absorbed dermally, and because it causes birth



defects in rodents, it is likely to pose hazards to farmers and farm workers. Similarly, glyphosate has been reported to be toxic to some non-target species in the soil—both to beneficial predators such as spiders, mites, carabid and coccinellid beetles and to detritivores such as earthworms, as well as to aquatic organisms, including fish (Pimentel et al. 1989). As this herbicide is known to accumulate in fruits and tubers suffering little metabolic degradation in plants, questions about food safety also arise.

Creation of “Super Weeds”

Although there is some concern that transgenic crops themselves might become weeds, a major ecological risk is that large scale releases of transgenic crops may promote transfer of transgenes from crops to other plants, which may then become weeds (Darmency 1994).

The biological process of concern here is introgression, that is, hybridization among distinct plant species. Evidence indicates that such genetic exchanges among wild, weed and crop plants already occur. The incidence of shattercane (Sorghum bicolor), a weedy relative of sorghum and the gene flows between maize and teosinte demonstrates the potential for crop relatives to become serious weeds. This

is worrisome given that a number of U.S. crops are grown in close proximity to sexually compatible wild relatives. There are also crops that are grown near wild/weedy plants that are not close relatives but may have some degree of cross compatibility, such as the crosses of *Raphanus raphanistrum* R. X *Sativus* (radish) and Johnson grass X Sorghum corn (Radosevich et al. 1996).

Reduction of Agroecosystem Complexity

Total weed removal via the use of broad-spectrum herbicides may lead to undesirable ecological impacts, given that an acceptable level of weed diversity in and around crop fields has been documented to play important ecological roles such as enhancement of biological insect pest control, better soil cover reducing erosion, etc. (Altieri 1994).

HRCs will most probably enhance continuous cropping by inhibiting the use of rotations and polycultures susceptible to the herbicides used with HRCs.

Such impoverished, low plant diversity agroecosystems provide optimal conditions for unhampered growth of weeds, insects and diseases because many ecological niches are not filled by other organisms. Moreover, HRCs, through increased herbicide effectiveness, could further reduce plant diversity, favoring shifts in weed community composition and abun-

dance, favoring competitive species that adapt to these broad-spectrum, post emergence treatments (Radosevich et al. 1996).

Environmental Risks of Insect Resistant Crops

According to the industry, the promise of transgenic crops inserted with Bt genes is the replacement of synthetic insecticides now used to control insect pests. Since most crops have a diversity of insect pests, insecticides will still have to be applied to control pests other than Lepidoptera not susceptible to the endotoxin expressed by the crop (Gould 1994).

On the other hand, several Lepidoptera species have been reported to develop resistance to Bt toxin in both field and laboratory tests, suggesting that major resistance problems are likely to develop in Bt crops which through the continu-

ous expression of the toxin create a strong selection pressure (Tabashnik 1994). Given that a diversity of different Bt-toxin genes have been isolated, biotechnologists argue that if resistance develops alternative forms of Bt toxin can be used (Kennedy and Whalon 1995). However, because insects are likely to develop multiple resistance or cross-resistance, such strategy is also doomed to fail (Alstad and Andow 1995).

Others, borrowing from past experience with pesticides, have proposed resistance management plans with transgenic crops, such as the use of seed mixtures and refuges (Tabashnik 1994). In addition to requiring the difficult goal of regional coordination between farmers, refuges have met with poor success for chemical pesticides, due to the fact that insect populations are not constrained within closed systems, and incoming insects are exposed to lower doses of the toxin as the pesticide degrades (Leibee and Capinera 1995).

Impacts on Non-Target Organisms

By keeping pest populations at extremely low levels, Bt crops can starve natural enemies as these beneficial insects need a small amount of prey to survive in the agroecosystem. Parasites would be most affected because they are more dependent on live hosts for development and survival, whereas some predators could theoretically thrive on dead or dying prey.

Natural enemies could also be affected directly through inter-trophic level interactions. Evidence from studies conducted in Scotland suggest that aphids were capable of sequestering the toxin from Bt crops and transferring it to its coccinellid (lady beetle) predators, in turn affecting reproduction and longevity of the beneficial beetles (Birch et al. 1997). Sequestration of plant allelochemicals by herbivores

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which then affect parasitoid performance is not uncommon (Campbell and Duffey 1979). The potential of Bt toxins moving through food chains poses serious implications for natural biocontrol in agroecosystems.

Bt toxins can be incorporated into the soil through leaf materials, where they may persist for 2-3 months, resisting degradation by binding to soy clay particles while maintaining toxin activity (Palm et al. 1996). Such Bt toxins that end up in the soil and water from transgenic leaf litter may have negative impacts on soil and aquatic invertebrates and nutrient cycling processes (James 1997), all aspects that deserve serious further inquiry.

Downstream Effects

A major environmental consequence resulting from the massive use of Bt toxin in cotton or other crops occupying a larger area of the agricultural landscape, is that neighboring farmers who grow crops other than cotton, but that share similar pest complexes, may end up with resistant insect populations colonizing their fields. As Lepidopteran pests that develop resistance to Bt cotton, move to adjacent fields where farmers use Bt as a microbial insecticide, may render farmers defenseless against such pests, as they lose their biological control tool (Gould 1994). Who will be accountable for such losses?

Impacts of Disease Resistant Crops

Scientists have attempted to engineer plants for resistance to pathogenic infection by incorporating genes for viral products into the plant genome.

Although the use of viral genes for resistance in crops to virus has potential benefits, there are some risks. Recombination between RNA virus and a viral RNA inside the transgenic crop could produce a new pathogen leading to more severe disease problems. Some researchers have shown that recombination occurs in transgenic plants and that under certain conditions it produces a new viral strain with altered host range (Steinbrecher 1996). The possibility that transgenic virus-resistant plants may broaden the host range of some viruses or allow the production of new virus strains through recombination and transcapsidation demands careful further experimental investigation (Paoletti and Pimentel 1996).

The Performance of Field-Released Transgenic Crops

Until early 1997, thirteen genetically modified crops had been deregulated by the USDA which were already on the market or in the fields for the first time. Over 20% of the U.S. soybean acreage was planted with Roundup (glyphosate) toler-

ant soybean and about 400,000 acres of maximizer Bt corn were planted in 1996. Such acreage expanded considerably in 1997 (transgenic cotton: 3.5 million acres, transgenic corn: 8.1 million acres and soybean: 9.3 million acres) due to marketing and distribution agreements entered into by corporations and marketers (i.e. Ciba Seeds with Growmark and Mycogen Plant Sciences with Cargill).

Given the speed with which products move from laboratory testing to field production, are transgenic crops living up to the expectations of the biotechnology industry? According to evidence presented by the Union of Concerned Scientists, there are already signals that the commercial-scale use of some transgenic crops pose serious ecological risks and do not deliver the promises of industry (Table 1).

The appearance of "behavioral resistance" by bollworms in cotton, that is the herbivore was capable of finding plant tissue areas with low Bt concentrations, raises questions not only about the adequacy of the resistance management plans being adopted, but also about the way biotechnologists underestimate the capacity of insects to overcome genetic resistance in unexpected manners (*The Gene Exchange* 1996)

Similarly, poor harvests of herbicide resistant cotton due to phytotoxic effects of Roundup™ (glyphosate) in four to five thousand acres in the Mississippi Delta (*New York Times* 1997) points at the erratic performance of HRCs when subjected to varying agroclimatic conditions. Monsanto claims that this is a very small and localized incident that is being used by environmentalists to overshadow the benefits that the technology brought on 800,000 acres. From an agroecological standpoint however, this incident is quite significant and merits further evaluation, since assuming that a homogenizing technology will perform well through a range of heterogeneous conditions is incorrect.

Conclusions

We know from the history of agriculture that plant diseases, insect pests and weeds become more severe with the development of monoculture, and that intensively managed and genetically manipulated crops soon lose genetic diversity (Altieri 1994, Robinson 1996). Given these facts, there is no reason to believe that resistance to transgenic crops will not evolve among insects, weeds and pathogens as has happened with pesticides. No matter what resistance management strategies will be used, pests will adapt and overcome the agronomic constraints (Green et al. 1990). Diseases and pests have always been amplified by changes toward homogeneous agriculture.

The fact that interspecific hybridization and introgression



are common to species such as sunflower, maize, sorghum, oilseed rape, rice, wheat and potatoes, provides a basis to expect gene flow between transgenic crops and wild relatives to create new herbicide resistant weeds. Despite the fact that some scientists argue that genetic engineering is not different than conventional breeding, critics of biotechnology claim that rDNA technology enables new (exotic) genes into transgenic plants. Such gene transfers are mediated by vectors that are derived from disease-causing viruses or plasmids, which can breakdown species barriers so that they can shuttle genes between a wide range of species, thus infecting many other organisms in the ecosystem.

But the ecological effects are not limited to pest resistance and the creation of new weeds or virus strains. As argued herein, transgenic crops can produce environmental toxins that move through the food chain and also may end up in the soil and water affecting invertebrates and probably ecological processes such as nutrient cycling.

Many people have argued for the creation of suitable regulation to mediate the testing and release of transgenic crops to offset environmental risks and demand a much better assessment and understanding of ecological issues associated with genetic engineering.

This is crucial as many results emerging from the environmental performance of released transgenic crops suggest that in the development of "resistant crops," not only is there a need to test direct effects on the target insect or weed, but the indirect effects on the plant (i.e. growth, nutrient content, metabolic changes), soil and non-target organisms must also be evaluated.

Others demand continued support for ecologically based agricultural research, as all the biological problems that biotechnology aims at, can be solved using agroecological approaches. The dramatic effects of rotations and intercropping on crop health and productivity, as well as of the use of biological control agents on pest regulation have been confirmed time and time

again by scientific research (Altieri 1994, NRC 1996). The problem is that research at public institutions increasingly reflects the interests of private funders at the expense of public good research such as biological control, organic production systems and general agroecological techniques (Busch et al. 1990). Civil society must demand a response to the question of whom the university and other public organizations are to serve and request for more research on alternatives to biotechnology. There is also an urgent need to challenge the patent system and intellectual property rights intrinsic to the GATT, which not only provide transnational corporations with the right to seize and patent genetic resources, but also accelerates the rate at which market forces already encourage monocultural cropping with genetically uniform transgenic varieties.

Among the various recommendations for action that non-governmental organizations, farmers organizations and citizen groups should bring forward to local, national and international fora include:

- End public funded research on transgenic crops that enhance agrochemical use and that pose environmental risks;
- HRCs and other transgenic crops should be regulated as pesticides;

Table 1. Field Performance of Some Recently Released Transgenic Crops

CROP	PERFORMANCE
Bt transgenic cotton.	Additional insecticide sprays needed due to Bt cotton failing to control bollworms in 20,000 acres in eastern Texas. The Gene Exchange, 1996; Kaiser, 1996.
Cotton inserted with Roundup Readgô gene.	Bolls deformed and falling off in 4-5 thousand acres in Mississippi Delta. Lappe and Bailey, 1997; Myerson, 1997.
Bt corn.	27% yield reduction and lower Cu foliar levels in Beltsville trial. Hornick, 1997.
Herbicide resistant oilseed rape.	Pollen escaped and fertilized botanically related plants 2.5 km away in Scotland. Scottish Crop Research Institute, 1996.
Virus resistant squash.	Vertical resistance to two viruses and not to others transmitted by aphids. Rissler, J. (Personal communication).
Early FLAVR-SAVR tomato varieties.	Did not exhibit acceptable yields and disease resistance performance. Biotech Reporter, 1996.
Roundup Ready Canola.	Pulled off the market due to contamination with a gene that does not have regulatory approval. Rance, 1997.
Bt potatoes.	Aphids sequestered the Bt toxin apparently affecting coccinellid predators in negative ways. Birch et al., 1997.
Herbicide tolerant crops.	Development of resistance by annual ryegrass to Roundup. Gill, 1995.

- All transgenic food crops should be labeled as such;
- Increase funding for alternative agricultural technologies;
- Ecological sustainability, alternative low-input technologies, the needs of small farmers and human health and nutrition should be pursued with greater vigor than biotechnology;
- Trends set by biotechnology must be balanced by public policies and consumer choices in support of sustainability;
- Measures should encourage sustainable and multiple use

of biodiversity at the community level, with emphasis on technologies that promote self-reliance and local control of economic resources as a means to foster a more equitable distribution of benefits.

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TOXIC WARNING SIGNALS



When NCAMP launched its *Toxic Warning Signals and Alternatives Project* we wanted to put a human face on the pesticide poisoning epidemic in the U.S. Regulatory agencies prefer to deal in statistics of acceptable risk and harm. They rationalize the numbers of pesticide-caused cancers, neurological disorders, organ failures, behavioral effects, reproductive problems and deaths as reasonable in light of pesticide benefits. We thought if we could put the poisoned human faces before state and federal regulators and politicians we might begin to get somewhere.

Often poisoning incidents are dismissed by EPA as a matter of misuse perpetrated by bad actors in an otherwise sound pesticide use and regulatory system. What emerges, however, from the daily public reports are unrealistic and unfounded regulatory assumptions regarding (i) how pesticides are typically used, (ii) user and public understanding about the potential hazards of pesticides, (iii) the inability to control pesticide drift, (iv) the unresponsiveness of state enforcement agencies, and (v) user and public knowledge of the alternatives to toxic chemicals for pest management.

The continued rationalization of 4.5 billion pounds of pesticide use annually makes the *Toxic Warning Signals and Alternatives Project* absolutely necessary on an ongoing basis. We collect the sad facts on our Pesticide Incident Report form. We take the facts and publicize them, share them with regulatory officials and the media, help people find more facts, litigate, and build a base of political power to turn this situation around.

We are now reaching out to people with NCAMP's new website and webpage *How to Avoid Pesticide Injury (and what to do if you can't)*, which is published here. Thanks to long-term NCAMP board member Terry Shistar, who herself endures the frequent assault of pesticides while living with her family in Kansas, we are effectively reaching out with the webpage she designed. Shortly, we will post NCAMP's incident forms, as a means of collecting an even greater volume of reports. On the flip side, NCAMP is collecting Alternative Success Reports, which illustrate that the hazards people endure are unnecessary in light of the viability of alternatives.

It is painful to hear all the stories that people bring to NCAMP, not being able in most cases to offer adequate relief, not being able to fix the serious adverse effects. With *Toxic*

Warning Signals we believe that we can together amass the strength as a nation to stop the daily assault and begin to prevent pest problems and when they occur address them in a safer way.

What follows are some of the reports we have received recently. Let us hear from you or someone you know.

Here is what we are hearing:

Homeowners in rural Louisiana were poisoned after their home was treated for termites.

"I need to get my voice heard on the matter of pesticide poisonings. We were exposed to Dursban™, permethrin and others we have not identified due to the company not furnishing us with the application slips when the chemicals were applied. A national pesticide treatment company (Terminix)

treated our home for termites. The person told us that there was no problem and that we could stay in the house during and after the treatment. This guy trenched around the outside perimeter of the house and sprayed these chemicals from 8:30 am to 5:30 pm. What he really did was flood the underneath of the house until the fumes entering the inside overcame me. He was too large a person to crawl around the piers and the bond beam around the perimeter of the house. We called the LA Department of Agriculture. No one wants to listen. We finally found the company franchise owner who flew out to meet with us. He had an attorney draw up a purchase contract to buy our home and 2 1/2 acres. After receiving these documents he wanted us to sign a document releasing him of all liability. We then refused the sale. This occurred back in 1993 and



now we are being forced to settle the claims on our house and tort damages in arbitration hearing. My wife and I have been found to have medical problems including chemical encephalopathy, visual and strength loss and other findings. I am no longer able to handle this and am in a state of depression with no more strength to continue fighting."

A New York homeowner also writes about a termite application gone bad.

"Your organization has provided me helpful, relevant information regarding our situation, for which we are grateful!



We had our residence treated for termites by Terminix twice in 1996. To make for a good story, we now have a major infestation. At first we had what appeared to us as flying ants, a half dozen or so. Saw the commercial for a free inspection and took them up on it. Naturally the sales pitch had our house falling down if we didn't get treatment immediately. We bought it hook, line and sinker, to preserve the value of our property. After each treatment, injected through/in cinder blocks, we had leakage of the chemical the following day and a strong odor (particularly in the winter of 1996-97) that still is sporadically present in our home. We were given a product label for Equity™. With a 3-year-old son I am phobic of any toxic substances and told the salesman such. Cleverly, he said one thing and did another. Numerous calls, over 50 during that period, left me assured that the chemical was harmless because of its innocuous inert ingredients. Numerous swarms were noticed in January, which had never occurred prior to the [initial] treatments. After a month or so of re-inspections, the regional management referred us to a local company and Orkin, [who] would take care of the problem. The Orkin rep walked in and with his twenty-five years in the business immediately identifies a "misapplication." Told me, by the odor, Equity™ was not used but Dursban TC™. Our cinder block foundation was pumped full from the inside, which is illegal in New York State, and no ventilation was installed or plastic covering laid in an elevated sub-floor area, to prevent the chemicals from coming up into our living quarters. We got in touch with our Department of Environmental Conservation/ECON. We still [had] no resolution, living in the home because ECON does not have enough "factual" information to say it's unsafe. Air testing this past summer found we have as much as 720 ppm of chemicals like benzene, xylene and toluene, just to name a few of those "innocuous inerts." My wife has had two miscarriages and my son now is a likely candidate for leukemia. We are preparing a civil lawsuit for the toxic tort aspect of this offense. The numerous violations documented by the state official who inspected our property will result in nothing more than Terminix doing what they should have done during the initial treatment (plastic & ventilation, which I have already installed). We still have the chemical odor and are currently in the process of moving out.

I am sure this is not the first horror story you have heard and most likely not the last. But to my family and me it has disrupted our life and most certainly our future. Keep up the good work on behalf of those 'unheard voices'."

The continued rationalization of 4.5 billion pounds of pesticide use annually makes the Toxic Warning Signals and Alternatives Project absolutely necessary on an ongoing basis.

Office workers in Virginia got sick after a termite treatment of their building.

An office worker on the first floor of a building, built on a slab, inhaled vapors from a termite application to the building with Dursban TC™. She reports that, "People were drilling holes in concrete sidewalks and applying pesticide. We started feeling ill for days afterwards." There was no warn-

ing, no precautions taken. A complaint was filed with the Virginia Department of Agriculture. Another worker writes that she has been tested, and the test shows "below normal cholinesterase levels in blood serum eight weeks after application." She reports having flu-like symptoms since the incident. The chemical was described as drifting in from outside and possibly seeping into the flooring of the ground floor.

Another worker reports that she "began choking and feeling mentally disoriented, burning eyes and throat." She smelled the product. She says, "I was sick for about a month and a half with intermittent nausea." When the state enforcement agency was called, she was told that they couldn't sample the air, only soil, and that "their job is to protect consumers from fraudulent business claims, such as saying they used Dursban™ when they really used water." She was also told by a state official that the "odor we kept smelling for weeks was "only the petroleum distillates used as solvents." No investigation was done by the state.

A homeowner in New Jersey developed skin problems after using a weed chemical.

He applied a herbicide in a spray bottle and was exposed on his skin. Although he used rubber gloves, there was a pinhole in one finger that allowed the chemical into the glove and in contact with the skin. Now he reports, "I have a chronic skin inflammation on my right thumb and forefinger." He is under doctor's care and indicates that he was led to believe that pesticides were safe.

A woman in upstate New York reports routine spraying by "ChemLawn and small operators" resulting in sickness.

She reports spraying by lawn care companies under all weather conditions, including windy days. She is not notified before or when pesticides are being used. She says she "smelled it in and outside of the house and was made ill upon breathing the



TOXIC WARNING SIGNALS

fumes." The spraying has caused her to get dizzy and weak and suffer heart irregularity. While she is reporting a specific incident, she describes this as a daily occurrence.

Past pesticide use reported in North Dakota continues to poison

An NCAMP member writes, "When I was growing up on our farm in northeast Ramsey County, North Dakota, in the mid-40s, it was common throughout our community to spray the milk cows daily during the fly season. It was done with a kerosene-based DDT pesticide solution to control the fly problem. I have just found out recently that instead of using the oil, or kerosene spray solution regularly, we should have only used it infrequently.

In their book, *DDT-Killer or Killers*, published in 1946, authors O.T. Zimmerman and Irvin Lavine (formerly head of Chemical Engineering, UND) advise on page 111 as follows: "For direct application to the animals, the oil solution, of course, should not be used, but either the emulsion or the dispersion of wettable powder, applied as a spray at the rate of about one quart per adult horse or cow, will effectively control the horn fly as well as other flies for a few weeks or more."

So beginning in about 1946, and continuing for a period of several years, I and all other children in my farming community were exposed to a potent toxic substance on a daily basis during the fly season. It would enter our bodies through our skin, because the organic solvent dissolves the natural oils that protect against dermal transmission. We drank it in our milk, we ate it in our butter, we ate it in the meat, and we breathed the spray mist.

Since 1977, many friends from my rural childhood community have died. Several from various types of cancers, others from liver problems, heart disease and brain aneurysms. DDT was banned in 1972. Now, whether my friends' deaths were related to our misuse of DDT when we were children or not I don't know, but I suspect so and wish someone would take a look at the possibility. By contrast, not a single city friend of my approximate age who was not exposed to DDT regularly as a child has died.

Before closing, I must make one important point. None of the adults in our community, of course, knew that we were causing harm to our animals by spraying them with kerosene-based DDT. If anyone had suspected that was the case, they also would have then understood that doing so would harm people, and it would have stopped. If anyone is responsible for

our misuse of DDT, it would have to be the manufacturer."

The poisoning continues. He writes, "If you live on a farm that has a barn on it that was used to house milk cows between 1946 and 1972, then you should know that it might be contaminated with the pesticide DDT. DDT has a half life of between 2 and 20 years. So, if the barn on your farm was sprayed with DDT, you might want to keep anyone, especially small children, from entering these barns until the Environmental Protection Agency has tested it to see if it is still toxic."

A man in Philadelphia, PA tells of spraying in his apartment.

The spraying with diazinon for cockroaches in his apartment building has resulted in a strong persistent odor and health problems. The strong odor and resulting health problems provided the only notification of the pesticide's use. He reports, "The label says to dilute with water for residential use. I found full strength in a spray bottle used in the building." He was lead to believe that the pesticide was safe when he inquired.

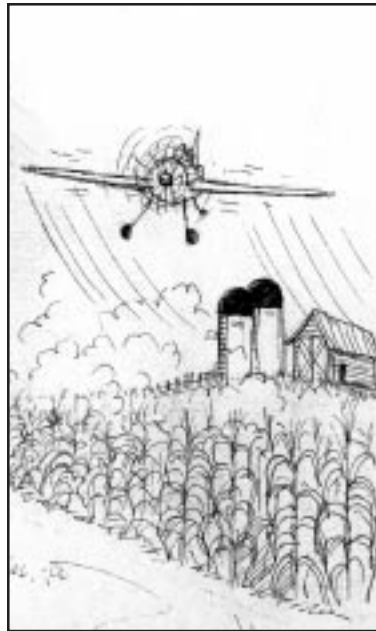
Teachers in a Florida school report spraying of school building and resulting illness.

Several teachers report that the inside of their school was sprayed for roaches, ants and lice. When they returned to school after vacation, dead roaches were observed everywhere in the building. Teachers report being poisoned by getting pesticides on their skin, by breathing vapors and through the ingestion of residues on utensils. Individuals suffered from coughing and headaches. Five teachers are diagnosed as chemically sensitized. Three were approved for workman's compensation. Cans of malathion were observed in the building and a questionable combination of

pesticides were admittedly used within the school. While initial investigative reports by the state were released, the final report was not.

An individual in Pennsylvania reports contamination and poisoning after using moth repellents in home.

After being led to believe that the pesticides he was about to use as a moth repellent in his home were safe, he used two chemicals that together formed a very toxic vapor. The chemicals were reported as naphthalene and paradichlorobenzene. According to the individual, "Both products (in fine print)





say do not use with another moth preventive chemical. It does not say that if you do, you create a lethal nerve gas which permeates everything and has no antidote." Scans on the individual reveal brain damage. "We have lost everything we owned, our house and all our personal belongings."

From the malathion spray area for medfly in Florida, there are many reports of illness.

On the morning of June 10th, those of us who live on 29th Street, NW, considered in the buffer zone because of its proximity to the Manatee River, were sprayed with hoses full of malathion. Malathion was on everything including lawn chairs, cars, our children's toys. The stench of garlic was so strong that we had to cover our mouths and noses outside. My three neighbors and I happened to be there at the time and ran out to try and stop the sprayers. Some of us had placed "No Spray" signs on our doors which were ignored. Three of the adults exposed fell ill. We experienced tightness of chest, partial loss of vision, nausea, vomiting, dizziness, burning sensations on our tongues and skin.

The children arrived home from school a few hours later. The same children who started "Kids Who Care," a group of grade school age children who rallied to educate the community on malathion, fell ill that night. What happened on 29th Street and to all of Bradenton and Palmetto? What can we do to protect our children?

Children sickened by the application of malathion in Bradenton, Florida in the attempt to eradicate the medfly included 428 complaints that were called into the Department of Health. They dismissed many of them as being the "flu." Interestingly enough, these "flu-like" symptoms are standard for organophosphate exposure. People respond to malathion exposure differently as is noted below in a small group of children chosen over the many who fell ill.

- Sean, age 8, came home from school after all the trees and bushes had been hosed down with malathion. He played for a while outside but began to feel sick. By late afternoon he was sick to his stomach. His tongue began to burn and he developed a rash all over his body.
- Matthew, age 12, arrived home from school 3 hours after his home and the lot next to it were hosed down with malathion. He played outside for a while. As the night wore on he began to have flu-like symptoms with wheezing.
- Steven, age 10, played outside with his two brothers after school. By early evening, however, he felt so tired (extreme fatigue) that he cancelled his end of school overnight and

went to sleep at an unusually early hour.

- Eric, age 13, went swimming a few hours after his home was ground sprayed with hoses full of malathion. By evening he had developed a bad headache which was followed immediately after by a nosebleed.
- Samuel, age 10, played in a yard where the trees and bushes had been sprayed a few hours earlier with malathion. Symptoms a few hours later included a headache, sore neck and extreme fatigue.

Farmworker death linked to pesticide exposure on the farm.

While riding his bike to the orchards where he worked, 17 year old Jose Antonio Casillas collapsed and died. When discovered by emergency workers he had white foam running from his nose and mouth, reported the *Salt Lake Tribune* on July 5, 1998. Casillas' uncles say that he was sprayed with

pesticides on June 20 while he was working in a peach orchard and complained of an intense headache. He was soaked again by pesticides from a spray tractor on June 26, the day before his death. After the last exposure, Casillas' uncle said the boy began "vomiting, sweating, suffering from diarrhea and complaining of more headaches." The symptoms he experienced are consistent with pesticide poisoning. Todd Grey, the state's chief medical examiner who performed the autopsy said, "Exposure to various pesticides is very hard to prove...I may get a negative toxicology report, but it does not prove that someone did not die from exposure to pesticides." Casillas had no training about the dangers of pesticides and did not know that



they are poisonous. Antonio Guerra, an outreach worker for the Utah Farmworker Health Program said, "He was so healthy, he was strong...He lifted weights, he rode his bike; after work when everyone else was exhausted he played soccer. Then one day he just dies?"

Send in your experiences to NCAMP. Together change will happen.

Please help us prevent more harm to people and the environment. Send NCAMP your story or the story of someone you know by using NCAMP's Pesticide Incident Form, Ecological Effects Report or Alternative Success Report. Contact NCAMP, 701 E Street, SE, Washington, DC 20003, 202-543-5450, 202-543-4791 (fax), e-mail: ncamp@ncamp.org, or find the forms on NCAMP's website: <http://www.ncamp.org>.

How To Avoid Pesticide Injury

(and what to do if you can't)

Terry Shistar

The first three steps are actions you can take ahead of time to avoid pesticide drift and injury. If spraying is about to occur or has already occurred, skip to step 4

.....

1 Notify people who might be spraying in your area.

Tell them you don't want to be exposed to pesticides through drift, runoff, or vaporization. You might tell people about any disabilities (chemical sensitivities, allergies, and asthma, for example) that might cause their spraying to deny you access to your own property and the use of public facilities. (This is an approach that is successful for some people.) If you have a farm that is certified organic where the certification is in danger, some people respond to lost money. Similarly, bees are vulnerable to insecticides. (On the other hand, some people worry that notifying people about such things will provoke spiteful pesticide attacks. Use your best judgment on this.)

2 Ask those people who might spray near you to notify you in advance so that you can protect yourself, your family, and your property.

Unfortunately, the experience of many people is that the times that they don't notify you are the times when the spraying is worst—for example, when they've been waiting for days for the wind to die down, and they finally give up. However, if you are notified in advance, it will help in several ways.

Some communities have laws requiring notification of impending pesticide applications in some or all cases. Some states have passed laws that prohibit communities from passing such ordinances. NCAMP is currently compiling a list of statutes and ordinances concerning notification. Contact us for information.

3 If county or township roadside spraying is a problem, post your roadside with "do not spray" signs and notify the appropriate county/township personnel.

That may not be as easy as it sounds. For example, in some townships, the road grader is the one who sprays. He may not work in an office. You have to reach him at home, and he may not return messages.

4 If you know that there will be spraying in your area:

- Try to find out what chemical will be sprayed, and get a copy of the label.

If the sprayer won't give you a copy, get the name of the product as completely as possible, and call the state enforcement agency and ask for a label. Or check out our manufacturer links for label files. (See page 25.)

- If it's possible, get sensitive individuals out of the area

during and immediately after the spraying.

Ha! Where to? Usually when they are spraying one place, they are spraying all over. That's why we said, "If it's possible..." If you can't, stay inside during the spraying and immediately after, with the windows closed. Then it gets tricky. At what point is it better to open the windows and let in fresh air? That will depend on a lot of things, including the temperature (chemicals vaporize faster in hotter weather), rain (some will wash off, but some will be activated by rain), wind direction (towards you or away), and, of course, what was sprayed. If the stuff is smelly, then your nose can be a guide, but sometimes the smell comes from stuff that's added to the actual poison—you don't know that the poison is gone just because the smelly stuff breaks down.

- When driving through an area that has been sprayed, close your windows and vents, putting your car's fan on maximum recirculation.
- Don't allow pets to run through sprayed areas. Besides the hazards to them, they can track pesticides into the house, where they last longer than they would outside.

5 When they spray:

- Protect yourself. Don't forget things like clothes hanging on clotheslines!
- Gather information and write it down:
 - Date and time.
 - Description and/or photos of plane, truck, or other application device:
 - Plane: number, color, flight pattern, how turns were made
 - Truck: license number, business name.
 - Other: type of device, identification, how far away, how was spray directed?
 - Can you see spray being released off target?
 - Weather conditions:
 - Wind direction and speed. If you don't have an anemometer, you can call the nearest airport and/or look at clues like how smoke rises, do leaves rustle, do flags extend, do branches move, etc.
 - Temperature
 - Humidity and sky conditions.
 - Any effects you notice immediately: smell, strange behavior of bees, irritation to eyes or mucous membranes, headache, nausea, other symptoms.



- What property is being sprayed?

6 If there is drift, or you suspect drift, of the pesticide onto you or your property, call the state agency and EPA to file a pesticide misuse complaint. Ask them to send an investigator.

In addition, you should report any application that drifts into a body of water (in many cases, this is illegal) and anything that appears unsafe (spraying around a school bus stop, for example.)

7 After the most urgent steps have been taken care of:

- Call the landowner, farmer, or pesticide applicator to find out what pesticide was used.

The name could be given as a trade name or a common name (“active ingredients”). Try to get both. Other important identifiers are the Chemical Abstracts System (CAS) numbers for the active ingredients and the manufacturer.

- Find out possible ill effects of exposure and what you can do to mitigate them.

An important source of information is the pesticide label. The label is somewhat useful as a source of information about the pesticide hazards, but it is also a legal document that prescribes application methods and precautions. It may be available from the applicator, the state agency, NCAMP, or the manufacturer’s web page.

The product’s material safety data sheet or MSDS may be obtained from the applicator, state agency, or through the links on NCAMP’s website.

Additional information is available from several sources, including the NCAMP: 202-543-5450 <http://www.ncamp.org> ncamp@ncamp.org and the Northwest Coalition for Alternatives to Pesticides (NCAP: 541-344-5044 <http://www.ncap.org>, info@pesticides.org)

- Take recommended medical measures.

Wash herbicide residues off valuable trees and shrubs after taking samples.

- Document the damage.

In the case of herbicides, it is important to document the condition of susceptible plants before and after the damage is apparent. Most herbicides will show their effects 1-7 days after the application. Take photographs immediately after the application to show condition of plants before the chemical affects them, and later take follow-up

shots from the same angles. (Take notes.) Try to take pictures or a series of pictures that focus on leaves and growing tips of plants, but which also establish their location relative to some recognizable landmark. Take samples of vegetation near and at several distances from the site of application. Place in separate, clean, tightly sealed plastic bags (double-bagging is better) in the freezer.

In the case of physical illness of people or animals, see a physician or veterinarian to confirm symptoms, obtain a diagnosis, and receive treatment. Get a written report signed by the physician or veterinarian. (Note: Many physicians and veterinarians are not familiar with the symptoms of pesticide poisoning, many of which resemble symptoms of a cold or flu. Tell them about your exposure, and ask them to check the symptoms. Blood tests may be necessary.)

In the case of a bee kill, examine the hives immediately. Unusual behavior, lack of bees in the hive, and unusually high mortality (more than 100 bees per day) are good indications of pesticide poisoning. Call the state agency to arrange for a hive inspection. Collect a handful of dead bees and put them in the freezer in a clean tightly sealed plastic bag for possible analysis.

Try to eliminate other possible causes for the damage: disease, pest damage, drought, low oxygen levels in ponds, etc.

It is always helpful to have an impartial witness accompany you in collecting the evidence. (Note: If the state agency sends an investigator, he/she will do these things. However, the investigator often arrives too late—two weeks or more after the incident—to document the damage.)

Write all this down as soon as possible. Keep a record of every phone call and conversation regarding the incident (name, date, time, and substance).

Write letters confirming your understanding of the substance of the phone call when you receive important information—state the major points of the conversation and request a response within five days if the other person disagrees with your statements.

8 Legal recourse.

There are two main avenues of legal recourse—action taken by the state or EPA against the applicator because of violations of the law and civil action to recover compensation for damages.



Continued on page 25

Using Links from NCAMP's New Webpage

How to Avoid Pesticide Injury (and what to do if you can't)

GO TO NCAMP's Website WWW.NCAMP.ORG and look for this page.

This page has tools that will help empower you by accessing information about chemicals, who to contact, questions you should be asking, and how to find assistance with pesticide problems.

How to contact your regional EPA

On the menu bar at the top of the page is a link entitled EPA links. By clicking on this link you will receive a page with the addresses of the ten regional Environmental Protection Agencies (EPA) headquarters. The page presents the regions by number and lists all states in that particular region in case you do not know what EPA region your state is in. You can also access this information from the EPA link under the section "Use inconsistent with the label is a violation of state and federal law," and "If there is drift, or you suspect drift..."

How to contact your State Pesticide Regulatory Agency

This link, State Agencies, is also located at the top of the first page. This link takes you directly to a page within the National Pesticide Telecommunications site that allows you to find the address of your state pesticide agency. A map of the U.S. is displayed and you simply click on your state. You will then be given the name, address, phone number of the agency and a direct link to the agency's home page. The page also discusses reasons why you should contact your state agency and what information you may be able to receive. This link is also located under the section "If there is drift, or you suspect drift, onto your property..."

How to find a specimen label for a specific chemical

The third link at the top of the page is entitled Labels. To access a label using this link you need to know the manufacturer that produces the chemical of interest. When you click on this link you go to a page where you will scroll through names of manufacturers until you find the one you want and click on that name. You will be connected to either the exact page from that manufacturer's web page where you access the labels by brand name or you will go to their home page and will need to find the information about labels from there. This link is also listed as manufacturer's web page available under the section "Find out possible ill effects of exposure and what you can do to mitigate them."

How to find a Material Safety Data Sheet (MSDS) for a specific chemical

Links to Material Safety Data Sheets (MSDSs) are located at the top of the page and under the section "Find out possible ill effects of exposure and what you can do to mitigate them." This link will take you to a C & P Press page where you type in the brand name of the chemical you are looking for and if you know the manufacturer, you can also specify that information. It will give you a listing of links to all the products under that name and who manufactures them. You can then choose a link for a MSDS or a label for that chemical.

How to contact your State Health Department

The link entitled State Health Departments is on the menu at the top of the page. When you click on this link you will be connected to a page within the Association of State and Territorial Health Officials website. This page allows you to click on your state and be directly connected to their home page where you can find an address and other information about the agency. This link is also located under the section "You may recover compensation for damages."

Help with finding an attorney

This link, Find an Attorney, is located at the top of the page and under "You may recover compensation for damages." Either link takes you to a page compiled by NCAMP that discusses issues such as past successful litigation strategies, what background information you should be collecting, who you should sue, public disclosure and costs. The page also includes commentary from an attorney that covers issues such as attorneys being paid off by industry, what kinds of cases are potentially successful, and what to look for in a lawyer.

How to find a testing laboratory

This link connects you to a page of information from NCAMP concerning testing laboratories and what they can do to help you. The Find a Lab link is on the menu bar and under "You may recover compensation for damages." The page evaluates why you might need a lab, what kind of testing should be done, what type of methodology the lab must perform, what you should know about their methods, and how the results should be presented to you.



Continued from page 23

- **Use inconsistent with the label is a violation of state and federal law.**

Many labels prohibit drift or use in ways that will injure people, non-target plants, endangered species, water resources, etc. There are also other provisions of the state pesticide law (of which you should get a copy from the state agency) that may apply. This is what the state agency investigator is supposed to do. You may need to be a squeaky wheel to keep the process moving. If the department does nothing for 120 days, then EPA may step in. (Of course, by that time, most pesticide residues are long gone.) We suggest you call EPA immediately, even though they will just refer you to the state. At least they will be aware of the incident.

- **You may recover compensation for damages.**

You should file a pesticide complaint with the state agency and ask them whether you need to take any other steps if you think you might be seeking to recover damages in court. In some states, failure to file a form with the state can weaken your case. In addition, the investigation can provide valuable information. Some things to do if you may pursue this route:

Estimate the value of the damage and notify the applicator. Many settle quickly because they want to avoid court costs and additional insurance costs. (But don't forget to file the forms, etc. with the state agency meanwhile.)

If you hire an attorney, try to find one who is familiar with this area of law. We have heard many stories of people who suspected that their attorneys were being paid off by the pesticide applicator, especially in rural areas. NCAMP, NCAP, other pesticide-related organizations, or your chapter of the Sierra Club can try to help you locate someone. Contact NCAMP for advice or see our website.

Above, we mentioned asthma as a disability. Chemical sensitivity is now recognized by some agencies (eg, HUD) as a disability protected by the *Americans with Disabilities Act*. This is a possible way of protecting you in the future.



If you go to court to recover damages, you will need to show two things: (1) that the damage was caused by the applicator's use of a pesticide, and (2) the amount of the damage.

- **Documentation that the damage was caused by the applicator's use of a pesticide:**
- The documentation above.
- The report of the state agency investigation.
- Residue analyses. These should be performed by the state agency, but if they do not respond promptly, then

the analyses won't be worth anything. In that case, the samples you collected may need to be analyzed. The state health agency can supply a list of laboratories that can do the analysis. Be sure that the lab tells you the detection level for their method. Be sure that the lab can analyze for the pesticide involved in the type of material (soil, plant or animal tissue, water) that you have. More information about choosing labs is available directly from NCAMP on our website.

- Documentation of the amount of the damage.
 - County agents can give an estimate of the value of shade trees and ornamentals.
 - Estimates of past yields and yields of unaffected fields are useful in estimating crop damage.
 - Keep records of visits to doctors, time missed from work, medication, etc. for health-related injuries. If the attorney is experienced in personal injury cases, he/she should know the right questions to ask.
 - Keep track of the costs of determining the damage.
- 9 **Tell us what happened.**
NCAMP monitors the effectiveness of state and federal enforcement programs, so we will know the real risks associated with pesticides. Please tell us what happened and how well the state agency and EPA responded.
- 10 **Join NCAMP and help eliminate pesticide problems.**
NCAMP works to help you and others when you have been injured by pesticides. We also work to eliminate these problems by demonstrating to decision-makers the real costs associated with pesticide use. You can help us by joining us today.

Beyond Pesticides:

Getting the Alternatives You Need

A national directory to provide a comprehensive listing of least and non-toxic services covering home and garden, structural pest control, agriculture, extension services (that are working with alternatives) and product suppliers.

O.K. You're concerned about pesticide hazards and want to use alternative practices and/or products and services. You care about the global environment and getting your community and communities across the nation and anywhere in the world off the pesticide treadmill. Where do you go? You or someone you know has identified a problem — termites, ants, an array of weeds. It may be that your school, city parks and recreation areas, or neighbor is using pesticides. If you don't want to do it yourself, where can you find the local, regional and national assistance to turn this situation around?



Everyday at the National Coalition Against the Misuse of Pesticides (NCAMP) we hear from people who want to do the right thing when facing an existing or preventing a potential pest problem. To better promote alternative pest management methods, NCAMP is assembling a national directory that will help increase local and national efforts to take the pesticides out of pest control and identify local service providers who are doing it right. Our list is already growing, but it needs your input.

We would like to know what has worked for you so that we can pass it on to others. Tell us what you are doing and how you have succeeded by putting us in touch with local or national companies, a pest control advisor (could be an extension agent or private company), and/or a supplier. Provide us with examples of sites that have had success with alternative approaches —your school, golf course, parks, home, city, etc.

In this day and age where businesses want to project a “green” image, it is important to evaluate exactly what is going on with companies that are providing the alternatives to pesticides.

Help us move beyond pesticides.

Attached you will find a survey form that can be used to ensure that the directory contains accurate and complete information. Please either fill out the form or pass it directly to the company being listed. We have set the end of 1998 as the publication date for the first edition, so please return the form as soon as possible.

If you have any questions, please contact NCAMP at 202-543-5450 or ncamp@ncamp.org.

Sincerely,

Kagan Owens
Information Coordinator

DEAR PEST MANAGEMENT/LAWN CARE SERVICE PROVIDER,

The National Coalition Against the Misuse of Pesticides (NCAMP) is a national membership organization of grassroots groups and people established to identify hazards of commonly used pesticides, and reduce and where possible eliminate unnecessary use of pesticides through the adoption of safe alternatives.

NCAMP receives thousands of calls a year from people seeking advice about pest problems. In many cases, they cannot locate a pest management or lawn care operator willing to offer them a least or non-toxic method of control or prevention. NCAMP would like to link this large number of people with companies and services that can provide these alternatives, and for this reason we are compiling a national directory entitled *Beyond Pesticides: Getting the Alternatives You Need*. This directory will help companies advertise their alternatives to the people who are concerned about pesticide use and exposure and its impact on public health and the environment.

It is in the public's interest to see the growth of businesses committed to environmentally sound practices and information. Help us spread the word and promote alternatives in communities across the country.

If you have any questions please call NCAMP at (202) 543-5450. We look forward to hearing from you soon!

Beyond Pesticides: Getting the Alternatives You Need

(Please attach additional sheets with responses. Thank you.)

Name _____ Title _____

Company Name _____ Office/Department _____

Address _____ City/State/Zip _____

Phone Number _____ Email/Website _____

I. Services/Product/IPM Description

How would you describe the full range of your company's products and/or services?

Please describe your business in 200 words or less, to be printed in the directory listing.

Please indicate whether you provide services/products in the following categories:

residential; school; commercial; landscape; structural; golf course; other (please list)

What is your definition of Integrated Pest Management (IPM)?

Is pest management performed on a specific schedule? If so, what specifically is done on a schedule, how often, and for what pest problems?

How are pest problems identified? Are pest populations monitored before and after implementing controls? If yes, how are they monitored?

II. Tools and Practices/Materials that You Use/Sell.

What practices do you use to prevent and/or control pests? _____

Do you use biological controls? If yes, what kinds? _____

Do you use borates? If yes, in what capacity? _____

Do you use synthetic chemicals? If yes, please list them. _____

What are the top ten pesticides that your company uses/sells/recommends? _____

If pesticides are used, how much is used per year of each, and how are they applied? _____

Do you do habitat modification? If so, please provide an example. _____

Do you use any physical or mechanical controls? If so, please provide an example. _____

III. Approach to Specific Pest Problems

What does your company usually use/sell/recommend for addressing:

- | | | |
|---|---|---|
| <input type="checkbox"/> Subterranean and/or drywood termites _____ | <input type="checkbox"/> Ants (indoors) _____ | <input type="checkbox"/> Crabgrass _____ |
| <input type="checkbox"/> Cockroaches _____ | <input type="checkbox"/> Carpenter Ants _____ | <input type="checkbox"/> Dandelions _____ |
| <input type="checkbox"/> Fleas _____ | <input type="checkbox"/> Fire Ants _____ | <input type="checkbox"/> Other _____ |

IV. Lawn Care only

Please list the type of fertilizers your company uses/sells/recommends. _____

V. Evaluation

How do you evaluate the effectiveness of your pest management systems? _____

VI. References

Please provide at least two references for your company from your customer list. _____

Please return this form to the National Coalition Against the Misuse of Pesticides,
701 E Street, SE, Washington DC 20003 as soon as possible. Thank you for your participation.

The War on Weeds

Battle brewing across the country on controlling invasive weeds with pesticides

At the National Weed Symposium sponsored by the Bureau of Land Management in April, Interior Secretary Bruce Babbitt called for a national strategy to control noxious weeds, invasive and non-native weeds that are defined as highly destructive to agriculture, rangeland and natural habitat. The Secretary points to a list of 350 noxious weeds in all areas of the country. According to the Secretary, farmers and ranchers lose up to \$7 billion a year because of the problem. He compares the problem in some states, such as Oregon and North Dakota, to economic devastation that rivals the impact of the Dust Bowl of the 1930's. The truth is, land managers have been addressing the issue for quite some time. Management practices have caused controversy for years as attempts have been made to solve the problem in the same way - with herbicides. And now, with this national priority, Vice President Gore has also weighed in. It is feared that the development of a national strategy will only lead to a massive herbicide spraying in the West and across the country, despite the availability of alternative biological methods.

Scientists say the use of herbicides does not provide solutions to the underlying causes. If anything, the use of herbicides in the attempt to eradicate noxious weeds, making them stronger and more tenacious.

A Proponent of Herbicide Use

Cindy Owsley, Boulder County Parks and Open Space Weed Management Coordinator
(Excerpt from *Why I Sprayed Herbicides on Earth Day, images, BCPOS, 1998*)

"Because most private and public land managers utilize herbicides within their noxious weed management program it is helpful for everyone to understand the issues that surround this use." Owsley states that, "[A]ll pesticides which are registered by the EPA are evaluated for their effects on animals in many different toxicology studies" and, "The herbicides applied to noxious weeds are extremely low in toxicity to humans and animals." Owsley proceeds to remark that, "A prerequisite for any pesticide is that it must be able to degrade under microbial activity and/or sunlight within an expected time frame. When applicators use the products according to the labeled instructions, there is little possibility of the herbicide reaching non-target plants or water resources." She also states, "[W]e must realize that it takes a unified effort that integrates all appropriate tools, including the use of mowing, pulling, biological control, grazing and yes, herbicides."



Weed managers have typically over-utilized the chemical strategy for weed control, dismissing the hazards known about herbicides and the lack of full information on herbicide inert ingredients, ecological effects and impact on human health and wildlife habitat. As Professor Seastedt states, "The solution, of course, is to fix the ecosystem, not just focus on killing weeds. Unfortunately, that's not what weed managers are paid to do, and their bosses are not trained to see the bigger picture. Chemical or nonchemical means of weed removal only fight symptoms. The solutions involve an important management decision: 1) we invest the time, energy and resources to restore native species or 2) we opt to create a more desirable non-indigenous plant community that is capable of keeping the weeds under control."

An Ecologists Viewpoint on Non-chemical Control

Tim Seastedt, Professor of Biology at the University of Colorado, Boulder

Professor Seastedt states, "Noxious weeds are just the tip of the iceberg of current changes in natural areas. The 'noxious weeds problem' is simply an economically visible component of much larger shifts in plant species in abundance due to human impacts. The extent to which new species are invading natural areas is the result of a) climate change, b) changes in atmospheric chemical composition, including but not limited to enhanced carbon dioxide concentrations and increased inorganic nitrogen deposition, c) drastic changes in the natural disturbance cycles (e.g. fire return intervals, grazing intensities and frequencies, flooding, etc.), and d) the presence and abundance of seeds of non-indigenous species capable of exploiting these changes." He continues, "Chemical control of invasive species in natural areas is seldom a viable option due to the presence of native species that are also sensitive to the chemicals. Effective nonchemical control procedures remain underutilized.

Enhanced use of biocontrols remains promising and appears sufficient for controls of weeds in some cases, however, under current management regimes, biocontrols alone may be insufficient."

Why Alternatives To Herbicides Should Be Used, On Earth Day and Everyday

A Response to a Weed Manager

Jay Feldman

It is often the case that those who use pesticides use them with the belief that they are safe because they are registered by the U.S. Environmental Protection Agency and the state in which these toxic chemicals are used. However, when public officials who coordinate weed management programs profess this safety myth about pesticides they strike a blow to public trust and understanding of the real risks, known and unknown, of chemicals that happen to be in wide use and result in widespread human and environmental exposure.

The Boulder County, Colorado Weed Manager committed this violation of public trust when she wrote in the summer issue of the Boulder County Parks and Open Space publication *Images*, "Why I Sprayed Herbicides on Earth Day. . ." (see excerpts on page 29 of this issue) and seriously misled the public on critical questions of public and environmental safety. Here Cindy Owsley, in defense of pesticide use, is misinformed, and, as a result misinforms.

Adverse Effects of Pesticides

In fact, investigation after investigation, which should be known to a public official of Ms. Owsley stature, say quite the opposite. Of the 18 most commonly used herbicides (herbicides are weed killers, a large and growing part of the family of pesticides), seven are cancer causing, six cause birth defects, six cause reproductive effects, eight are neurotoxic, nine damaging to the kidney and liver, and 14 are irritants, according to EPA and National Institutes for Health data. And that's just health effects. When considering environmental effects, such as ability to contaminate groundwater and toxicity to fish, bees and birds, the majority are culprits.

Comprehensive Testing is Deficient

Even worse, we do not know what we should about the pesticides. The U.S. General Accounting Office (GAO) found in its 1990 report, *Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue*, that the public is misled on questions of pesticide safety. While eight years have passed since this finding, not much has changed. The major-

ity of weed killers today have not been fully tested in accordance with modern safety standards. Moreover, the EPA has stated clearly that numerous tests are not even been performed as part of the pesticide registration that should be —tests for endocrine disrupting effects (impacts of these chemicals on fetal development, sexual traits and cancer later in life) and impacts on children generally. In addition, pesticides are not currently tested in mixtures with other chemicals for their additive, cumulative or synergistic effects.

Toxic inert ingredients Are Not Disclosed

The majority of pesticide formulations are comprised of so-called "inert" ingredients that are often more toxic than the parent compound and not disclosed on the product label. They have been protected as trade secret information.

Neither Ms. Owsley nor the public generally can fully identify what solvents, mixing agents, or adjuvants are contained in the products used.

False Safety Claims Abound

In its report, GAO said, "The lawn care pesticides industry [which uses the chemicals we are talking about here] is making claims that its products are safe or nontoxic. GAO's review found nine instances of safety claims, such as "completely safe for humans," made by manufacturers, distributors, and professional applicators. EPA, using its standards for pesticide labels, considers that these claims, when made by manufacturers and distributors, are false and misleading." New York State last year reached a settlement with Monsanto requiring the company to cease its misleading advertising campaign. In that case, New York Attorney General Dennis Vacco called Monsanto's ad campaign "particularly troubling," and forced the company to remove certain "health and environmental claims, similar to Ms. Owsley. Monsanto claimed that Roundup™, which contains the active ingredient glyphosate, is "safer than table salt," that it "can be used where kids and pets play, and breaks down into natural material," despite the warning label which clearly states environmental hazards. Sound familiar?

Having an Informed Community Debate is Critical

Let 's get the truth out and have an informed community debate about the health of families, children and the environment, rather than belittle the meaning, importance and legacy of Earth Day. Maybe then, as a community and as pest managers, we would decide to adopt the nonchemical option that has worked successfully time and time again.



Pressure Building to Stop Implementation of the *Food Quality Protection Act*

Additional Margin of Safety for Children and Consideration of Multiple Chemical Exposure Attacked

Jay Feldman and Beth Fiteni

With industry breathing down the Administration's neck and pressure from the leadership on Capitol Hill, Vice President Gore sent a directive to Environmental Protection Agency (EPA) Administrator, Carol Browner, and Agriculture Secretary Dan Glickman, on April 8, 1998 signaling possible delays in the implementation of the *Food Quality Protection Act* (FQPA). In response, the agencies established a 45-member Tolerance Reassessment Advisory Committee (TRAC) which is predominantly industry and industry-supported groups, thus raising serious concerns about the further politicizing of EPA science. At issue is implementation of key FQPA provisions: the 10-fold extra margin of safety for children (in cases where EPA does not have complete health data), the so-called "common mechanism of effect" clause (which requires that EPA calculate the multiple effects of pesticides with similar toxic properties), and the definition of "reliable" science. These issues were raised in a letter from industry to EPA in March, which voiced concern about imminent agency action to remove numerous pesticides (priority is organophosphates) from the market by revoking their food tolerances. To ensure a "transparent" process, Gore called for the creation of the advisory committee which would meet four times over the summer.

"Sound Science," "Safety" Factors, and Risk Assessment

The recurring problem is that EPA must make decisions about protecting human health without the benefit of extensive data.

The law requires EPA to use "reliable" and "available" data, but often these do not exist. Industry stresses the need for "sound science," but setting an "acceptable" level of harm or risk is a *policy* not a *science* question.

This is where risk assessment comes in. Risk assessments are mathematical calculations, based on certain exposure assumptions, used to calculate human risk from toxic materials. A

10x factor (10-fold additional margin of "safety") is required when existing data are insufficient to determine risk levels for children. However, in a



failure to properly implement *FQPA*, only nine out of 91 tolerances set since the passage of the *Act* have included this ten-fold safety factor. Industry says that this 10x factor is unnecessary because exposure estimates are conservative enough to protect both children and adults.

EPA Preliminary Assessments Show Organophosphates Exceed Acceptable Levels

The four TRAC meetings in June and July were productive but frustrating. In the second meeting, EPA released summary preliminary assessments on 40 organophosphate pesticides, showing that at least 20 exceed EPA's current threshold for either acute or chronic effects from dietary exposure. At that time, EPA failed to release the names of the chemicals associated with the preliminary assessment, though the information is discloseable through the *Freedom*

of Information Act. Industry representatives say broad disclosure will blacklist their products before EPA reaches its final determinations. The industry is pushing hard to force more "refined" risk assessments, dramatically reducing risks on paper by getting EPA to use lower public exposure assumptions, e.g. a smaller percentage of crops treated. The third TRAC meeting focused on when to release information during the risk assessment process. Should agencies allow the chemical registrants prior access to agency decisions before the public is allowed to comment? After much discussion and debate, the agency proposed a compromise in which the registrants would have first review and be allowed to make only technical corrections before public disclosure, subjecting questions of reformulating underlying assumptions in evaluating human risk to a public comment period.

EVER PLAYED MONTE CARLO?

EPA plays gambling games with our lives every day. Monte Carlo is a statistical tool used by EPA in performing its risk assessments on pesticide chemicals when setting acceptable pesticide residues on food ("tolerances"). It is an attempt to methodically deal with lack of scientific data. Basically, the agency will create a plot of points on a graph, which shows percent of population on the Y axis and likelihood of exposure on the X axis. Most likely, estimates about food residues, for example, would show a curve sloping downward to the right, showing many people with low exposure and a minority of people with high exposure. For example, EPA may make the assumption that the average American eats 5-15 avocados per year, while a few people may eat 50 or more per year. The basic equation for calculating risk from residue exposure is HAZARD x EXPOSURE = RISK. The hazard of a chemical may be known or estimated, and is represented as a numerical figure. The agency must attempt to achieve a numerically quantifiable exposure level and plug it into the equation to calculate risk. This is where many assumptions come into play. A computer chooses 1000 points off the original graph (it will often choose the more common points, thus eliminating the extreme cases), plug these numbers into the risk equation, and run it 1000 times. Then the results are plotted on a second

graph. From this graph, the agency attempts to regulate the chemical in a way that will protect the 99.9th percentile, or 99.9 percent of the people at risk. For a nation of roughly 270 million people, the small percentage left out is still 270,000 people. The policy reasons for using this percentile, rather than the 95th or 90th percentile are now being subjected to intense lobbying by those in industry seeking to allow an even greater degree of harm/risk.

Sound good? Convinced that you're safe?

Monte Carlo is basically a method of being more precise and objective about imprecision and possibly false or inaccurate assumptions. It is a fancy way of expressing the uncertainty that is unavoidable until more chemical evaluations and exposure assessments are completed. The underlying problem is that risk assessment policy accepts that certain people will be at risk, though risk may be defined as low. It also does not account for multiple, additive, and synergistic exposure. It allows chemicals on the market assuming innocence until proof of guilt. It rejects the notion of prevention and the precautionary public health principle. Unfortunately, human suffering is the price to pay for this policy.

Congress Prepares To Step In

On June 25, 1998, the Department Operations, Nutrition, and Foreign Agriculture Subcommittee of the U.S. House of Representatives Agriculture Committee held a hearing to challenge the agencies on the implementation of the *FQPA*. The hearing opened with Deputy EPA Administrator Fred Hansen and Deputy Secretary of Agriculture Richard Rominger fielding often hostile questions from members of Congress concerned about *FQPA*'s impact on chemical intensive agriculture, then continued on to a full day of testimony from pro-chemical constituents. The House Agriculture Subcommittee did not allow any representatives of the public interest community the opportunity to speak, though requests to do so had been submitted. It is believed that the Senate Agriculture Committee will also hold a hearing soon. Hearing speakers raised concern about other countries having economic advantages over the U.S. because they may continue to use pesticides banned in the U.S.

Chemical Industry Coalition Releases "Road Map" for Implementing Law

Industry hearing testimony was a re-vocalization of the concerns listed in its recently released "Road Map" or *Science-Based, Workable Framework for Implementing the Food Quality Protection Act*. This document was produced by the Implementation Working Group (IWG), made up of pesticide industry and agribusiness representatives, in early June 1998.

IWG urges EPA to:

- reduce delay in the registration of new "safer" pesticides;
- allow adequate transition time to adjust to new practices, and;
- ensure availability of realistic alternatives to phased-out chemicals.

The "Road Map" cites concern that sudden loss of pesticides will cause devastating crop loss, and is critical of what is perceived as a lack of comment opportunities afforded the industry during the decision making process. IWG does not believe that all organophosphates should be treated as a group although they all inhibit cholinesterase in nerve function, because there is no established methodology by which EPA determines how a group of chemicals displays a "common mechanism of toxicity" (language in the law).

TRAC Meets in September, Public Comment Sought on Preliminary Risk Assessments

There are many more issues that need to be addressed by the TRAC. For this reason TRAC members added a fifth meeting, scheduled for September 15-16, 1998 at the Ramada Inn, New Carrollton, MD. Until then, work will continue with two "working groups" formed to address some of the technical issues; one group focuses on risk assessment and the other on risk management. There are nine separate science-policy issues being addressed by the risk assessment group. They are: the ten-fold safety factor, dietary exposure assessment, interpreting "no residue detected," dietary exposure estimates, drinking water exposure, assessing residential exposure, aggregating exposure from non-occupational sources, cumulative risk assessment for common method of toxicity, and selection of toxicity endpoints (or critical effects). These nine separate issues will be compiled into a single paper with a target completion date of February 1999. The risk management group faces the task of creating a realistic phaseout process for the high-risk chemicals. Public comments can be submitted on the work group issues.

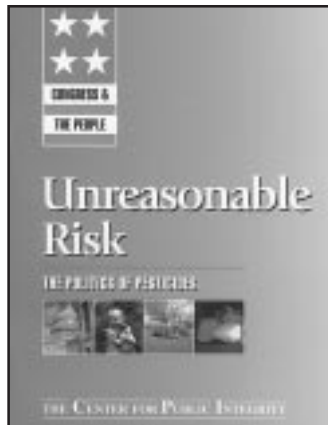
NCAMP points out the need for attention to issues regarding drift, frequency of chemical toxicity misclassification, training of applicators, impact of inert ingredients, reliance on information extrapolated from animal tests to humans, and other real world use problems that impact on risk assessments. Though EPA was supposed to have disclosed by name in early July the forty priority organophosphates for which preliminary risk assessments are being done, it finally released the names of the first nine in the August 12, 1998 *Federal Register* (63FR43175). Public comment is being solicited on each until October 13, 1998. A report on the final outcome of the TRAC meetings will be printed in the next issue of PAY.

Submit comments on risk assessments to Information Resources and Services Division (7502C), Office of Pesticide Programs, EPA, 401 M Street SW, WDC 20460. For more details and background on TRAC meetings, including the preliminary risk assessments (available in September), go to the EPA website at www.epa.pesticides/trac.htm. General TRAC questions should be directed to Marjorie Fehrenbach, EPA, fehrehbach.margie@epamail.epa.gov, 703-308-4775, fax 703-308-4776. Organophosphate questions should be directed to Karen Angulo, EPA, angulo.karen@epamail.epa.gov, 703-305-5805. For a copy of the industry "Road Map" (133pp), send \$16.00ppd to NCAMP.

Industry stresses the need for "sound science," but setting an "acceptable" level of harm or risk is a policy not a science question.

Unreasonable Risk: The Politics of Pesticides

Charles Lewis et al.
(Center for Public Integrity 1998)



“Congress has, time and time again, put the economic interests of the pesticide industry ahead of the safety of the American public,” reports the Center for Public Integrity, a nonpartisan group with no agenda in the area of pesticides. After investigating data from the Federal Election Commission, EPA, and House and Senate financial records, CPI discovered that pesticide industries have a large impact on Members of Congress through campaign contributions. Tables disclose (by name) industry contributions to political campaigns, their lobbyists, and the congressional recipients of industry money. CPI cites NCAMP’s research and quotes executive director, Jay Feldman, saying, “Risk mitigation at EPA is completely theoretical.” For a copy, send \$10 to CPI, 1634 I Street, NW, Washington, DC 20006, 202- 783-3900.

Same As it Ever Was

Richard Wiles, et al. (Environmental Working Group, 1998).

This publication is full of frightening data that show how the Clinton-Gore Administration has failed to fulfill its 1993 promise to create a new national policy to curb pesticide use and emphasize protection of children from toxic chemicals.

Same As It Ever Was reports that since 1993, agriculture has increased pesticide use and children’s risk of exposure has not been reduced. During this period only one chemical has been removed from the market while a record 81 new pesticides have been added. In 1996, more than half of the apples, carrots, grapes, peaches, and spinach eaten in the US were contaminated with 2-12 pesticides, according to the report. For a copy, send \$24.38 to EWG, 1718 Connecticut Ave. NW, Ste 600, Washington, DC 20009 or see www.ewg.org.



Environmental Health Perspectives

(National Institute for Environmental Health Sciences Vol. 106, No. 1. Jan 1998). This issue of *Environmental Health Perspectives* discusses the problem of the chemical chlopyrifos (Dursban™), and the need for reevaluation of its ability to accumulate on toys and residential surfaces. The report finds that chlopyrifos, a nervous system poison, can remain on surfaces for up to two weeks after indoor application, resulting in exposure for both children and adults through inhalation, ingestion and adsorption. Children are especially at risk of exposure through toys and sorbent surfaces like pillows. Also included in this issue is “Childhood Cancer: a Growing Problem,” by Charles Schmidt.

This article ranks cancer as the leading cause of disease-related childhood deaths. For a copy, send \$4(ppd) to NCAMP; articles are also available at <http://ehpnet1.niehs.nih.gov/docs>.

Indifference to Safety

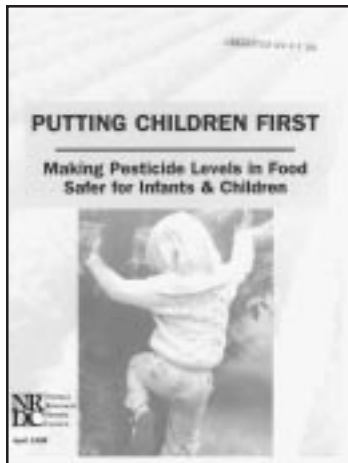
Shelley Davis (Farmworker Justice Fund) and Rebecca Scheleifer (Migrant Farmworker Justice Project) 1998.

This investigation finds systematic neglect of Florida farmworkers by the Florida Department of Agriculture & Consumer Services (FDACS) and gives many examples of FDACS failure to provide adequate attention to pesticide exposure problems. For example, one man suffered a full body rash after working in a field sprayed with three separate chemicals. He was allowed back to work in violation of one of the chemicals Restricted Entry Interval and was misdiagnosed because of lack of consideration of two chemicals that cause skin irritation. Even a farmworkers death was not fully investigated by the FDACS, nor was a penalty issued. The report states, “Every aspect of [the states] enforcement effort was marred by serious shortcomings.” For a copy, send \$15ppd to Farmworker Justice Fund, 1111 19th Street, NW, Suite 100, Washington, DC 20036, 202- 776-1757.

Putting Children First: Making Pesticide Levels in Food Safe for Children

David Wallinga, MD (NRDC 1998).

This publication serves as a guide to children’s issues addressed in the *Food Quality Protection Act* (FQPA). The study investigates the adequacy of current efforts to protect children. The National Resources Defense Council (NRDC) recommends immediate implementation of the law’s additional ten-fold safety factor in cases where full risk information is not available on children. The report shows that children require additional



safety because they are exposed to so many chemicals in different ways. NRDC recommends that EPA gather a panel of pediatric experts to determine how “reliable” information must be before overruling the ten-fold factor. *For a copy, send \$13.50 to NRDC Publications, Dept 40, 40 West 20th Street, New York, NY 10011.*

Now or Never: Serious Plans to Save Natural Pest Control

Jane Rissler, ed., et al. *Union of Concerned Scientists (USC Publications, 1998).*

Transgenic crops that incorporate various Bt genes are of serious concern. Bt is a useful natural toxin derived from bacterium that the report says faces serious insect resistance problems when genetically engineered into plants. Three crops have been approved for use in the U.S.:



cotton, corn and potatoes. Nearly 9 million acres of these crops were planted in 1997. Six university scientists brought together by Union of Concerned Scientists recommend crop rotation, resistance monitoring, and strategies to preserve Bt's efficacy. Authors urge that EPA not approve any more crops until field-validation resistance strategies have been proven. “EPA's actions have put Bt on a high trapeze before the nets have been installed” according to the report. *For the report, send \$14.95 plus 20% shipping/handling to UCS Publications Dept. N, 2 Brattle Square, Cambridge, MS 02238-9105, 617- 547-5552.*

Our Children at Risk: The Five Worst Environmental Threats to Their Health

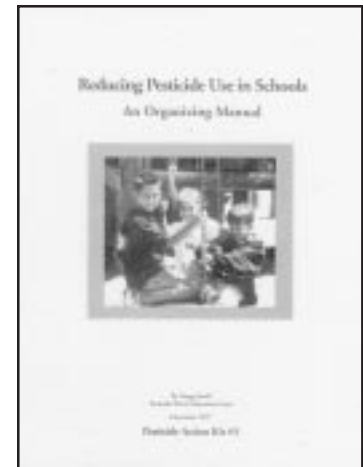
Lawrie Mott (NRDC, November 1997).

This informative report lists pesticides as one of the five worst environmental threats to children's health along with tobacco smoke, air pollution, water contamination, and lead. An entire chapter is dedicated to children's unique susceptibility to pesticides. Some pesticide related health effects include leukemia, brain tumors, sarcoma, lymphoma, and nervous and immune system damage. An alarming list of exposure sources include schools, parental occupational exposure, food, water, pets, surfaces in homes and treated wood used in playgrounds. Recommendations of how to limit a child's exposure involve eliminating home pesticide use, eating organic food and working to implement IPM in schools. *For a copy, send \$17.50 to NRDC Publications Dept. 40, 40 West 20th St., New York, NY 10011.*

Reducing Pesticide Use in Schools: An Organizing Manual

Gregg Small (Pesticide Watch, December 1997).

This manual is a functional tool for people



who want to take action against pesticide use in schools. The manual describes the overall problem with pesticide use in schools, children's high susceptibility, a definition of IPM (Integrated Pest Management) and its economic benefits. The appendix contains a model IPM program and other resources that might be of help. The manual presents a ten step agenda to reducing pesticide use in schools and describes successful case studies. In order to prepare for predictable questions that may be asked, one section addresses common concerns expressed by school officials. *For a copy, send \$5 to Pesticide Watch, 450 Geary Street, Suite 500, San Francisco, CA 94102, 415- 292-1486.*

Overexposed: Organophosphate Insecticides in Children's Food

Richard Wiles, et al. (Environmental Working Group, January 1998).

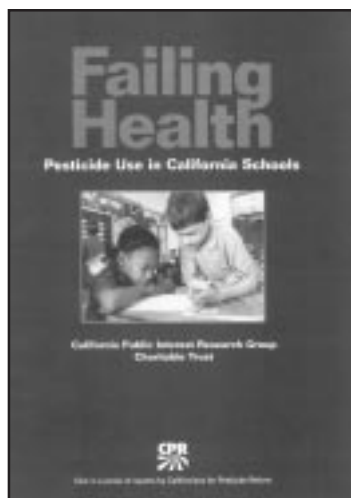
The authors conclude that 3.6 million children under the age of five are now being exposed to illegal pesticide residue levels. They point to a provision in the *Food Quality Protection Act (FQPA)* which requires EPA to use an additional ten-fold safety factor for children - but only in cases where there is not reliable data. This report finds that apples and apple products account for over half of the unsafe organophosphate (OP) expo-



sure for children under six and almost all bread and pasta have low levels of contamination. Recommendations to EPA include banning the five worst OPs and prohibiting all OPs in commercial baby food. For a copy, send \$20ppd to EWG, 1718 Connecticut Ave., NW, Suite 200, Washington, DC 20009, or see www.ewg.org.

Failing Health: Pesticide Use in California Schools

Jonathon Kaplan et al. (California Public Interest Group Charitable Trust & Californians for Pesticide Reform, January 1998).



This report lists which pesticides are used in California schools, the health effects of exposure to them and children's

unique vulnerability. "Of the 46 school districts responding to our request for information, 87% are using one or more of 27 particularly hazardous pesticides that can cause cancer, affect the reproductive system, mimic the hormone (endocrine) system, or act as nerve toxins," states the report. Like many other states, the state of California does not require schools to notify parents before spraying. The report discusses alternative pest management strategies and how all parties involved can improve the situation. Survey responses are listed by each school district that replied. Contact: CALPIRG, 450 Geary St., Suite 500, San Francisco, CA 94102, (415) 292-1487 or CPR, 116 New Montgomery, Suite 800, San Francisco, CA 94105, 888-CPR-4880.

Grow Smart, Grow Safe: A Consumer Guide to Lawn and Garden Pesticides

Philip Dickey (Washington Toxics Coalition, June 1998).



This handy guidebook rates common insecticides, herbicides, and slug/snail controls by their shelf product name. The ratings are based on six criteria: their short term and long term human health hazards, toxicity to fish, toxicity to birds and bees, persistence in soil, and water pollution hazard. It lists the percentage of inert ingredient in products, where available, and if the product may have

endocrine disrupting effects. The information is displayed in an easy to use chart format. The booklet suggests least toxic methods of controlling pests, and information about fertilizers and various name brand weeding tools. Resources about lawn care information for the Seattle area are listed. For a copy, send \$7.70 to Washington Toxics Coalition, Suite 540-E, Department nm, 4649 Sunnyside Avenue N, Seattle, WA, 98103, (206) 632-1545.

Chemical Scorecard Website

(Environmental Defense Fund, 1998)



For those who have access to the internet, there is now a website that lists the top industries that are polluting your area, and what chemicals are being released into your local environment. The site is based on information from the federal government's 1995 Toxic Release Inventory. Type in the zip code of the area you are interested in (within the U.S.), and then click on various options to find out more information. The site ranks chemicals by human health effect, and displays maps to see exactly where the polluters are located. It is somewhat tricky to navigate, but once you get the hang of it, this informative (and sometimes shocking) site exemplifies Freedom of Information at work for the public good. Site allows user to fax concerns directly to polluters and offers contact information for local environmental organizations. Go to <http://www.scorecard.org>.

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- NEW – "Speak to the Earth, and It Shall Teach Thee." In green, blue and peach on 100% natural organic cotton. \$18 each; two for \$30.
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Bumper Sticker

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

Books

- A Failure to Protect*. Landmark study of federal government pesticide use and pest management practices. \$23.00. *Summary and Overview* \$5.00.
- The Chemical-Free Lawn: The newest varieties and techniques to grow lush, hardy grass with no pesticides no herbicides, no chemical fertilizers*. By Warren Schultz. Published by Rodale Press. \$17.95 (14.95 + \$3.00 shipping).
- Unnecessary Risks: The Benefit Side of the Risk-Benefit Equation*. Understand how the EPA's Risk-Benefit Analyses falsely assume the need for high-risk pesticides. Explains how "benefits" are inflated, how alternatives might be assessed, and the public's right to ask more from its regulators. \$10.00.
- Safety at Home: A Guide to the Hazards of Lawn and Garden Pesticides and Safer Ways to Manage Pests*. Learn more about: the toxicity of common pesticides; non-toxic lawn care; why current laws offer inadequate protection. \$11.00
- Voices for Pesticide Reform: The Case for Safe Practices and Sound Policy*. New study documenting stories of tragic pesticide poisoning and contamination, and successfully used alternatives that avoid toxic chemicals. \$20.00
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- Organic Gardening: Sowing the Seeds of Safety
- Estrogenic Pesticides
- Pesticides and Your Fruits and Vegetables
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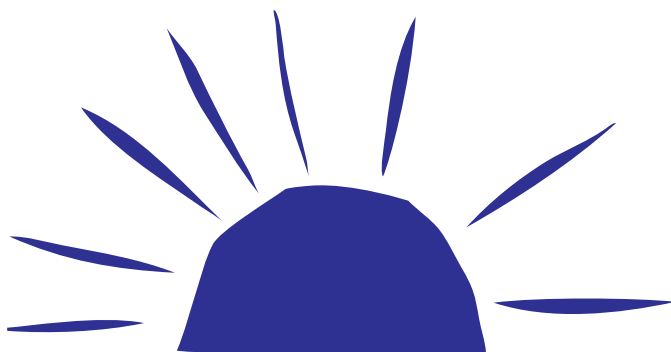
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Beyond Pesticides: Getting the Alternatives You Need

A national directory to provide a comprehensive listing of least and non-toxic services covering home and garden, structural pest control, agriculture, extension services (that are working with alternatives) and product suppliers.

Help us move beyond pesticides.

Attached you will find a survey form that can be used to ensure that the directory contains accurate and complete information. Please either fill out the form or pass it directly to the company being listed. We have set the end of 1998 as the publication date for the first edition, so please return the form as soon as possible. See pages 26-28 in this issue of *Pesticides and You*.



If you have any questions, please contact NCAMP at 202-543-5450 or ncamp@ncamp.org.

Pesticides and You

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