Volume 21, Number 4 • Winter 2001

Pesticides and You

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

Schools Give Pesticides a Failing Grade • Good Riddance to Roaches • How Pesticides and Chemicals Can Affect Children and Adults • Economic and Ecological Costs of Weed Control • Alternative Weed Strategies

Letter from Washington

Education Committee Blocks Pesticide Bill

Congressional leaders vow to get it passed

"If [children's] schools make them sick, no measure of education reform will improve their learning."

—Senator Edward Kennedy at a press conference with Beyond Pesticides and congressional supporters of the School Environment Protection Act *(SEPA), November 27, 2001.*

The fight for children and a clean learning and living environment is just beginning. The *School Environment Protection Act* (SEPA) came up for a vote in the joint House-Senate education conference committee on November 30, 2001 and did not make it —by one vote. One vote. Although the committee vote for the most part was along party lines, it is important to note that one Republican Senator, Mike DeWine from Ohio, was willing to break ranks, and another Republican legislator, Representative Marge Roukema from New Jersey, abstained. The vote overall in the committee was actually 20-18 in favor of SEPA (*See story and vote count on page 6.*), but because the Senate and House members vote separately as a block, the Republican majority against the bill on the House side of the committee stopped SEPA. In conference committee, a majority of House members and a majority of Senate members have to support legislation in order to move it back to their respective chambers for a final vote.

We have brought the issue of pesticides, children and schools to the front burner of American politics. And it is simmering. There is no question that there is broad support for this legislation.

We are building a solid base for reform. We have now solidified a base of support in Congress that is strong and growing. Some have been asking me why bother with Congress? While people and the groups we work with have had important success at the local and state level, *all* children deserve protection. Despite the fact that many in pest management adhere to sound Integrated Pest Management (IPM) principles, the practice is still not implemented in schools as widely as it should be. School pest management plans, as required in SEPA, make this happen.

Of the 29 states that have adopted pesticide laws that have one or more of the major provisions in SEPA (posting, notification and integrated pest management), 15 states require written notification, either by universal notice or a registry, and 7 states require schools to use IPM. Then there are other SEPA provisions, such as the one that outlaws the practice of spraying pesticides while children are in the classroom or area being sprayed –a practice that is permitted under EPA-approved pesticide labels, as the U.S. General Accounting Office pointed out in its report, *Pesticides: Use, Effects, and Alternatives to Pesticides in Schools*, November 1999.

Forging coalitions is a big part of our process for reform. We have developed a coalition with many in the pest management industry, led by the National Pest Management Association. They have joined with organizations representing parents, teachers, and health professionals. We will continue this. On the other hand, SEPA's primary sponsor, Senator Robert Torricelli (D-NJ), who originally brokered an agreement with the chemical industry to support the bill through the legislative process, said after the vote that the only way to explain the defeat is "the influence of the chemical industry itself."

The supporters of SEPA have vowed to find another legislative vehicle to get the bill enacted into law. They are working on it as you read this! To all those who have joined the effort on SEPA, **THANKS!** To all those planning to join, **THANKS!** We can and will win!

Beyond SEPA and its possibilities, this issue of *PAY* is testimony to key activities that are going on to reduce pesticide use nationwide. The feature pieces in this issue on weed management show that alternatives to pesticides are taking hold.

Best wishes for a healthy and happy new year.

—Jay Feldman, executive director of Beyond Pesticides

Senator Kennedy Speaks Out for SEPA

Excerpts from Senator Kennedy's statement, made at a November 27, 2001 Press Conference in Washington, DC.

"In recent weeks, the nation has been gripped by the fear of biological and chemical attack. But, every day in schools across the nation, children are exposed to dangerous pesticides that can make them sick.

We know that in too many school districts across the country, untrained people are making critical decisions day in and day out about the use of pesticides in school buildings and on school grounds.

We know that children may be especially sensitive to even low levels of dangerous substances. We need to take special precautions to protect the development of their immune systems and their nervous systems.

We know from sad and harsh experience the dangerous consequences for children from exposure to lead in paint. We shouldn't have to learn these lessons again for the exposure of children to dangerous pesticides.

We cannot allow schools to be chemical death traps for our children for our children. If their schools make them sick, no measure of education reform will improve their learning.

It is long past time for Congress to take this important step to protect schools and classrooms from the dangerous use of pesticides."

For Sen.Kennedy's full statement, contact Beyond Pesticides or see www.beyondpesticides.org.

Contents

page 5

page 13

page 19

Original artwork in this issue by Meghan Taylor, copyright 2001.

ecoprint

Printed with soy-based inks on Ecoprint Offset, and cover on Quest™, both 100% post-consumer waste and processed chlorine free.

Pesticides and You ©2001 (ISSN 0896-7253), published 4 times a year by Beyond Pesticides/National Coalition Against the Misuse of Pesticides (NCAMP), is a voice for pesticide safety and alternatives. Beyond Pesticides/NCAMP is a nonprofit, tax-exempt membership organization; donations are tax-deductible.

National Headquarters:
701 E Street, SE,
Washington DC 20003
ph: 202-543-5450 fx: 202-543-4791
email: info@beyondpesticides.org
website: www.beyondpesticides.org
Printed on recycled paper with soy ink

A Surplus of Spiders

Dear Beyond Pesticides,
My husband and I have just bought a house in Anacortes, Washington. We are currently using it as a vacation house in preparation for moving there as our permanent residence next spring. We have noticed the house has a huge number of spiders of all varieties. We are particularly concerned about the spiders on the lower level, where we regularly find them in the bedrooms and guest bath. Additionally, we have a profusion of spiders all around the exterior of the house and garage. I am solidly middle-aged and have owned a number of houses, but I've never seen anything like this. Do you have any ideas?

Sara Longworth
Anacortes, WA

Dear Ms. Longworth,
There are certain spiders that you should be more concerned about than others. The first thing to do is to identify which kind is occupying your yard and home. If you are bitten and suspect it may be a poisonous spider, seek medical attention. If you have them, bring the remains of the killed spider for identification purposes. Two spiders that are more likely to bite humans are the black widow and the brown recluse. Black widows tend to stay in dark protected corners and crevices. The brown recluse will hide in shoes and clothing. Shake out all clothing, and regularly clean and vacuum debris that accumulates indoors to get rid of these spiders. In order to kill either of these spiders, vacuum them up, or use a tool to squash them. Furthermore, you should take steps as directed for general spider control described below.

Most other spiders, while rather unnerving to look at, actually provide quite a benefit to humans without doing us much harm. Their presence offers us natural insect control, as they feed on flies, fleas, cockroaches and other nuisances around the home. If there is an over-abundance of these beneficial creatures and they become a nuisance, there are several non-toxic alternatives to chemical control that you can employ. First, reduce the spider's food source; meaning you should get rid of other insects within your home. Figure out how these other insects might be getting inside and block their entry points. Repair all screens. Caulk all cracks and openings in the structure and block them with steel wool. Periodically vacuum your carpeting as well as any storage areas. Also reduce the moisture within your house, as spiders prefer damp areas. Repair all roof and window leaks. Adequately ventilate damp areas such as basements and crawl spaces. Properly grade soil around the home to drain water away from the structure.

There are some actions you can take to manage spiders that are outside the home as well. Try to remove or at least subdue outdoor lighting. Light attracts flying insects, which in turn attract spiders. Keep away a spiders meal by keeping the curtains closed and using low wattage light bulbs outside. Move firewood and other clutter away from the foundation of the house. You should also trim all grass, weeds and shrubbery against the house.

Least-toxic control of spiders includes methods used to control the spider's food source. Boric acid is effective against ant and cockroaches. Apply a 99% formulation to cracks and crevices, wall cavities, and dark corners. Use boric acid with care, and keep it away from children and pets. Desiccating dust, such as diatomaceous earth or silica gel can be blown into voids through small holes drilled into the walls. Be sure to choose a dust that is not mixed with a pyrethrin. Use these products with care as well, as they can cause respiratory irritation if breathed in.

Efforts to use chemical control directly against spiders will most likely be futile. Because of their long legs, the body of a spider will usually not even come in contact with an insecticide sprayed on a surface. Spiders are more adept at shutting down their respiratory system than other insects, and thereby are much less susceptible to pesticide vapors and dusts. The most effective means of controlling spiders is to decrease their food supply. For more information regarding least-toxic control of spiders, please contact Beyond Pesticides ($4 ppd).

Pesticides in Groundwater

Dear Beyond Pesticides,
I am contacting you in regards to an important matter in Downeast, Maine. Groundwater tests have been conducted and showed the presence of the chemical Velpar. I was wondering what information you could provide regarding the toxicity and long term effects of Velpar. Is it appropriate and legal to apply this chemical on sandy, well-drained soils? It is well-documented that Velpar leaches directly through sandy soil into ground water. Why does the label not acknowledge this? There is a possibility there will be a public information meeting for community awareness on this topic. Please provide any feedback that you feel would help.

Dwayne Shaw
via email

Dear Mr. Shaw,
The active ingredient in Velpar is hexazinone. This is a broad spectrum, systemic triazine herbicide. EPA rated hexaz-inone to be of moderate acute toxicity, with symptoms including irritation of the skin, eyes, nose and throat. There is little data available concerning the long-term toxicological effects of hexazinone, and its environmental fate. Animal testing does bring up concerns. Lab animals exposed to hexazinone at high doses developed liver abnormalities. Exposed preg-

nant rabbits bore several pups with skeletal abnormalities (extra ribs) and delayed bone development. There is also worry regarding health effects of hexazinone since a chemical cousin, atrazine, is carcinogenic. EPA regards hexazinone as "not classifiable" as a human carcinogen, stating "animal data… is not entirely negative, but not convincingly positive." This uncertainty is a concern because humans can and are exposed to hexazinone.

While it is legal to use, you should still be concerned about its health and environmental effects. As you mentioned, this chemical readily leaches into groundwater, especially in sandy soils. It is extremely water soluble with a relatively long half-life. According to an Alaska Railroad environmental assessment, hexazinone can persist in soil up to a year. It has also been found in goat and cow milk.

EPA requires the label of products containing hexazinone to advise that the use of the product in permeable soils "may result in ground water contamination." Also concerning groundwater, EPA requires that registrants of pesticides containing hexazinone report any detection of this chemical in domestic ground water and take specific follow-up actions. A copy of the tests from the groundwater in your town should be sent to both the manufacturer of Velpar as well as to EPA.

A public informational meeting is an excellent opportunity to educate the community regarding the toxic effects of pesticides used in their neighborhood, as well as to identify alternative practices. Try to find out where Velpar is being applied, and for what purpose. See if the person or group applying this pesticide has explored alternative least-toxic controls for the pest they are trying to manage. Contact Beyond Pesticides for further information regarding hexazinone, or for information about organizing for pesticide reform in your community.

Cancer Occurring on Former Orchard Site

Dear Beyond Pesticides,
My daughter lives in a neighborhood developed on land that was formerly used to grow cotton and peach trees. It is approximately five years old and in the last years five people have come down with tumors or some sort of cancer. How can we investigate whether or not there is residue from the pesticides or something else that is causing this? We live north of Atlanta, Georgia. I would appreciate any information you can give to us. Thank you.

Linda Howard
Alpharetta, Georgia

Dear Ms. Howard,
Unfortunately cotton orchards are some of the highest pesticide-use sites in agriculture. Many of the pesticides that have been used in the past are currently banned, but have left residues in the soil and groundwater. Possible pesticides that may be causing problems in your daughter's neighborhood include arsenic and chlorinated hydrocarbons such as DDT and chlordane. The latter two chemicals are both classified by EPA as probable human carcinogens, and both are persistent in soil.

There are many studies that show the link between cancer and various types of pesticides. One study in particular, published in Cancer Research *in May 1992, looked at farmers in Minnesota and Iowa. Their findings pointed to "an elevated risk for non-Hodgkins lymphoma among farmers," and "strongly suggested a relationship with certain pesticides exposures." Aaron Blair et al. conducted a study entitled "Clues to cancer etiology from studies of farmers" and found that "significant excesses occurred for Hodgkin's disease, multiple myeloma, leukemia, …and cancers of the lip, stomach, and prostate" among farmers. Another study, this one from the University of California Los Angeles, determined that pesticide exposure might increase a child's risk of developing cancer, specifically non-Hodgkin's lymphoma.*

To figure out exactly what residual chemicals are left, have the site tested. Tests should be conducted to detect contamination levels in soil, air as well as water. Residents can go a step further by taking diagnostic medical tests. These can include residues in blood and urine, nerve conduction timing tests, biochemical screens, and routine liver profiles. If there is a cancer cluster, it may be possible for EPA to conduct the testing. I recommend that you contact EPA and the Georgia Department of Health and explain the cluster situation, as well as the history of the land use before the neighborhood development. A toxicologist may also be able to provide you with assistance. For more information, please contact Beyond Pesticides.

Write Us!

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

Beyond Pesticides/NCAMP
701 E Street, SE
Washington, DC 20003
fax: 202-543-4791
email: info@beyondpesticides.org
www.beyondpesticides.org

Washington, DC

Agencies Ordered to Resist Freedom of Information Act Releases

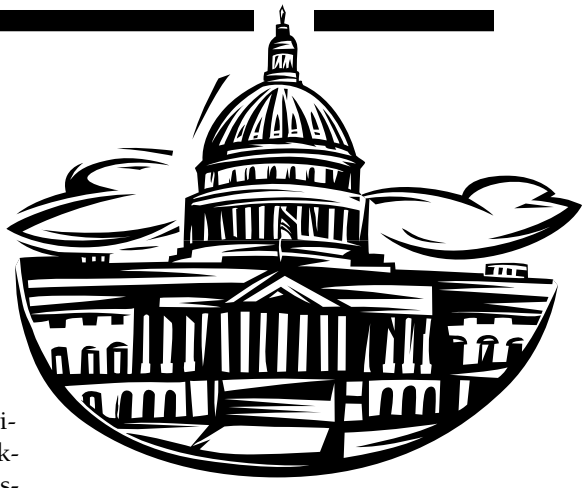
Extraordinary times call for more governmental secrets, at least according to Attorney General John Ashcroft. In a memorandum dated October 12, 2001, Mr. Ashcroft issued a new statement of policy encouraging federal agencies to resist *Freedom of Information Act* (FOIA) requests whenever they have legal grounds to do so. This statement rejects the standard of "foreseeable harm" set by Attorney General Janet Reno in a 1993 memorandum, which promoted disclosure of government information through the FOIA unless it was "reasonably foreseeable that disclosure would be harmful." Mr. Ashcroft, instead, is encouraging government agencies to withhold information whenever there is a "sound legal basis" to do so. The Attorney General advised, "When you carefully consider FOIA requests and decide to withhold the records, in whole or in part, you can be assured that the Department of Justice will defend your decisions unless they lack a sound legal basis..." Among other things, the new Ashcroft FOIA Memorandum cites national security, law enforcement effectiveness, and business confidentiality as reasons for the issuance. *The Attorney General's FOIA policy statement is available atwww.usdoj.gov/oip/foiapost 2001foiapost19.htm. Janet Reno's 1993 FOIA memorandum is available at www.fas.org/sgp/clinton/reno.html. For more information, contact Beyond Pesticides.*

EPA Removes Chemical Data from Website

Citing risks to national security, the Environmental Protection Agency (EPA), along with several other government agencies, including the Federal Bureau of Investigation (FBI) and the Department of Transportation, have removed "sensitive documents" from their websites in response to the September 11th terrorist attacks. Among the dismantled websites is EPA's *Risk Management Program* site, which was used to inform communities of the dangers posed by 15,000 chemical plants and other industrial facilities nationwide. EPA emergency coordinator Jim Makris explained to the press that he personally made the decision to remove information about risk-management plans submitted by industrial facilities, as required by federal law. "This has received so much publicity that we decided to take [the information] down," Mr. Makris told the *Washington Post*. "We're trying to decide whether it was the proper thing to do." Many environmentalists and community activists, who fought hard battles for the public's right-to-know, disagree with the government's decision and have chastised industry for using anti-terrorism as an excuse to avoid discussion of its shortcomings. "We should be pushing for improvements in site security, not figuring out how to hide information," said Fred Millar, toxics consultant and former toxics director of Friends of the Earth. "Keeping the public in the dark is a prescription for anxiety." Beyond Pesticides has said that if the chemicals are a threat, they should be eliminated or restricted, especially when viable alternatives exist.

Arsenic Limits Tightened by EPA

In an attempt to heal an agency black eye, on October 31, 2001, the Bush Administration announced that it would reinstate a Clinton Administration plan to reduce the amount of arsenic allowed in drinking water from 50 parts per billion (ppb) to 10 ppb. EPA Administrator Christie Todd Whitman was sharply criticized for suspending the regulation last March and, under pressure, called for a National Academies of Sciences (NAS) study to review the issue. In particular, Ms. Whitman requested an evaluation of the cancer risk posed by daily consumption of water with specific arsenic levels. The



NAS study found that men and women who daily consume water containing even 10 ppb of arsenic have a greater than 3 in 1,000 increased risk of developing bladder or lung cancer during their lifetime. At 20 ppb, it is close to 7 in 1,000. "I said in April that we would obtain the necessary scientific and cost review to ensure a standard that fully protects the health of Americans," said Ms. Whitman. "We did that, and we are reassured by all of the data that significant reductions are necessary. As required by the *Safe Drinking Water Act*, a standard of 10 ppb protects public health based on the best available science and ensures that the cost of the standard is achievable." The new standard must be met by 2006. Arsenic, a known human carcinogen and endocrine disruptor, is found as an ingredient in pigments and wood preservatives. *The full text of Arsenic in Drinking Water: 2001 Update is available for free on the NAS website at www.nap.edu/catalog 10194.html?onpi_newsdoc91201. Printed copies are available for purchase from the National Academy Press by calling 1-800-624-6242.*

Bush Backs Senate Conservation Farming Plan

On October 17, 2001, the Bush Administration endorsed the *Conservation Security Act*, a plan by Senator Richard Lugar (R-IN), the ranking minority member on the Senate Agriculture Committee, that would double federal spending on conservation farming. Environmentalists believe a shift toward larger

conservation spending will help farmers improve drinking water quality, protect open space and enhance wildlife habitat, while boosting farm income for the majority of family farmers, whose current subsidies pale in comparison to large corporate agriculture. According to an analysis by the Environmental Working Group, the Senate plan will make Fortune 500 corporations like Chevron, Caterpillar, Dupont and International Paper ineligible for federal farm subsidies, and will preferentially support small to medium size farm operations. The proposal also reverses current practices that funnel two-thirds of federal subsidies to 10 percent of the very largest operations producing grains, rice, soybeans and cotton. At the same time, the bill increases investment in conservation programs like the *Conservation Reserve*, *Environmental Quality Incentive Program*, and *Wetlands Reserve*, and gives preference for conservation bonus payments to farmers and ranchers who have been good stewards in the past. Current conventional farming practices cause environmental contamination due to the use of pesticides as well as a devastating loss of precious topsoil. The U.S. House of Representatives earlier rejected a similar measure in the Farm Bill in a close 226 to 200 vote.

Genetically Engineered Bt Corn Approved by EPA

EPA is putting corporate profits before people and the planet. On October 16, 2001, the agency gave the OK to the controversial genetically engineered corn that produces the biological pesticide *Bacillus thuringiensis* (Bt) within its cells, allowing its use for the next seven years. EPA claims the corn is safe, but environmentalists are skeptical. "The use of genetically altered Bt crops raises serious safety concerns for agriculture in at least three key areas: gene flow to wild relatives; risks of insect resistance; and risks to non-target species," Beyond Pesticides said in a public comment to EPA. "Until these questions are answered, EPA is allowing, contrary to law, the release of a technology that may have serious ramifications on agricultural production down the road." Larry Bohlen, Director of Health and Environment Programs for Friends of the Earth said that EPA has had the

ability to design and conduct allergy testing for several years, yet has turned a "blind-eye" on the issue. According to Genetically Engineered Food Alert, a coalition of grassroots environmental groups based in Washington, DC, EPA has not collected or evaluated current health or ecological data on Bt crops, and EPA's own science advisors recently reviewed two studies on Bt crops that suggest that all Bt crops may be allergenic. Organic farmers, who rely on Bt as a means of controlling pests in its traditional spray form, are concerned that the overuse of Bt, which is inevitable when Bt is genetically engineered into every cell of a plant, will lead to insect resistance and leave many farmers without an important tool of organic agriculture. Currently, the companies holding registrations for Bt corn are Monsanto, Syngenta, Pioneer/DuPont and Mycogen/Dow. *For more information on genetic engineering and its link to pesticide use, or for information on organic agriculture, contact Beyond Pesticides.*

Chemical Companies Voluntarily Request Cancellation of Benomyl Fungicide

In a move to thwart future lawsuits, chemical companies holding registrations for benomyl voluntarily canceled all uses registered by EPA of the once popular fungicide, which is used primarily on fruits and vegetables. DuPont, the technical registrant, made the initial request last April after citing the high costs of defending itself in court. Over the past year, DuPont paid more to cover legal fees than it gained in sales; while litigation fees cost $1.3 billion, sales of the chemical only amounted to $96 million. Benomyl has been tied to chronic birth defects and cancer, and it is listed as an endocrine disruptor. Plaintiffs who have sued DuPont include parents whose children were born without eyes or with abnormally small eyes after prenatal exposure to a formulation of benomyl. This chemical is also toxic to fish, although EPA had placed it in a category of low acute toxicity. Additionally, benomyl, the active ingredient in Benlate, has been linked to crop damage in 23 states. The Florida Department of Agriculture found it was conclusively linked to "significant to substantial" crop damage, including stunted, distorted leaf growth and interference with root growth. All registrants, including the American Mushroom Institute, Amvac Chemical Corporation, Pursell Industries, Inc., Scotts Company, Value Garden Supply LLC and Voluntary Purchasing Groups, Inc., have requested cancellation of all registered benomyl products. *For more information on benomyl and its alternatives contact Beyond Pesticides.*

Washington, DC

Restrictions Placed on Phosmet and Azinphos-Methyl

Citing dangers to farmworkers, EPA announced new restrictions on the use of two agricultural organophosphate insecticides, azinphos-methyl and phosmet, yet allows many uses to continue. Although pleased that progress is being made, environmentalists are cautious to applaud any agreement that does not completely ban all uses of a dangerous product and allows for use during a lengthy phase-out period. Similar deals are often struck with pesticide manufacturers, such as EPA's agreement to phase-out the organophosphate pesticides chlorpyrifos (*retail sales are required to stop December 31, 2001*) and diazinon. For azinphos-methyl, 28 crop uses are being canceled, seven crop uses are being phased-out over four years, and eight crop uses will be allowed to continue "time-limited" registration for another four years. For phosmet, three uses are being voluntarily canceled, nine crops are being authorized for use under specific terms for five years, and 33 crops are being approved for continued use.

EPA claims it is enhancing protection of agricultural workers during the phase-out and time-limited registration periods, through a variety of new precautions being implemented to reduce exposure, including longer periods before a worker can enter a treated area, significantly limiting the number of applications, and prohibiting aerial application for almost all uses. ***Take Action:*** *Now that EPA has completed risk assessments for these pesticides, the Interim Reregistration Eligibility Documents (IREDs) for both azinphos-methyl and phosmet are now being issued.*

House Education Conference Committee Blocks SEPA

On November 30, 2001, the people narrowly lost a vote in the Education Conference Committee to include the *School Environment Protection Act* (SEPA) in the Education Bill. Beyond Pesticides would like to thank all those who contributed to moving this bill to within a single vote of passage and would like you to know that we are not giving up the fight on behalf of children and teachers nationwide. Note that we actually won the vote by 20 to 18, but conference votes are taken by Senate and House members separately, allowing one side to veto the other. We won the Senate side vote 14 to 11 and lost the House side vote 7 to 6, with one abstention.

Thanks are due to Senator Torricelli (D-NJ) and Representatives Rush Holt (D-NJ) and Rob Andrews (D-NJ) for their hard work and dedication to SEPA. Senator Kennedy, who chairs the Education and Labor Committee, has also stepped up and become a real champion of SEPA. Mr. Kennedy said over and over on November 30, and at a press conference earlier that week that SEPA will not go away and will be attached to other legislation at every opportunity. Thanks to all of you for your support through the process of developing this legislation and for those of you who worked so hard to generate support of the legislation. We could not have gotten as far as we did without you! If you have more energy, we would love to continue to work with you when SEPA is attached to its next vehicle.

Senators Voting Yes (14):
Kennedy (D-MA), Dodd (D-CT), Harkin (D-IA), Mikulski (D-MD), Jeffords (I-VT), Bingaman (D-NM), Wellstone (D-MN), Murray (D-WA), Reed (D-RI), Edwards (D-NC), Clinton (D-NY), Lieberman (D-CT), Bayh (D-IN), *DeWine (R-OH)*

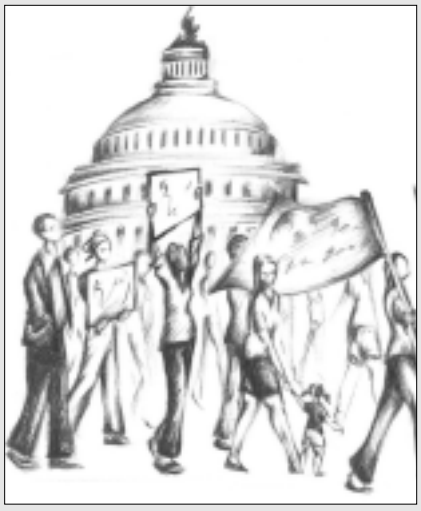
Senators Voting No (11):
Gregg (R-NH), Frist (R-TN), Enzi (R-WY), Hutchinson (R-AR), Warner (R-VA), Bond (R-MO), Roberts (R-KS), Collins (R-ME), Sessions (R-AL), Allard (R-CO), Ensign (R-NV)

Reps Voting Yes (6):
Miller (D-7th CA), Kildee (D-9th MI), Owens (D-11th NY), Mink (D-2nd HI), Andrews (D-1st NJ), Roemer (D-3rd IN)

Reps Voting No (7):
Boehner (R-8th OH), Petri (R-6th WI), McKeon (R-25th CA), Castle (R-At large DE), Graham (R-3rd SC), Hilleary (R-4th TN), Isakson (R-6th GA)

Rep Abstention:
Roukema (R-5th NJ)

Sample "Thank You" and "Disappointment" letters to send members of the conference committee, are available on the Schools alert page at www.beyondpesticides.org, or contact Beyond Pesticides.



Around the Country

by John Kepner

You're Tracking in More Than Dirt

Don't forget to wipe your feet! A new study published in the November issue of *Environmental Health Perspectives* (Vol. 109, No. 11) finds that 2,4-D, one of the most commonly used lawn herbicides in the country, is easily tracked indoors contaminating the air and surfaces inside homes, schools and other buildings. The study finds that children are exposed to the herbicide at ten times the preapplication level. *Distribution of 2,4-D in Air and on Surfaces Inside Residences after Lawn Applications: Comparing Exposure Estimates from Various Media for Young Children* finds that a homeowner applicator and an active dog are the greatest contributing factors to tracking the herbicide into homes. 2,4-D has been linked to elevated rates of cancer in studies of exposed farmers and dogs. 2,4-D is irritating to the eyes, skin and mucous membrane and, since it is easily absorbed dermally or by inhalation, can injure liver, kidney, muscle and brain tissues. Acute symptoms of exposure include chest and abdominal pain, vomiting, dizziness and muscle twitching, tenderness or stiffness. *For more information on 2,4-D or its alternatives, contact Beyond Pesticides.*

Terrorism Scares Temporarily Ground Crop Dusters

In the aftermath of the September 11th terrorist attacks, the federal government grounded crop dusters for a nine-day period on September 16, 2001, and indefinitely stopped all crop dusting near major cities. This action was taken after investigators found that one of the suicide hijackers had previously inquired about purchasing a crop duster, which the government warns could be used in a chemical or biological attack. According to the *Associated Press*, Will Lee, general manager of South Florida Crop Care in Belle Glade, reported that groups of men came by almost every weekend for six or eight weeks before the September 11th terrorist attacks, including the weekend just before the assaults. They asked how many gallons of chemicals and fuel the planes could hold, their speed, and if they are difficult to fly. James Lester, an employee of South Florida Crop Care, identified the group's leader as Mohamed Atta, the same person the FBI believes hijacked and flew one of the planes that hit the World Trade Center. The nation's 4,000 cropdusters, many of which are used to combat mosquitoes, can hold 300 to 800 gallons of chemicals. Mr. Lester, who loads crop dusters for a living, describes the mix of pesticides and fuel as a "bomb ready to explode." Many reports of unlocked, fully loaded crop dusters have raised additional concerns among residents living near these grounded airplanes. Some communities also had a temporary ban on pesticide spray tracks.

Bug Spray and Mosquito Pesticide Make a Deadly Combination

As if they weren't bad enough on their own, a Duke University study, published in the June 22, 2001 *Journal of Toxicology and Environmental Health* (Vol. 63, No. 4), shows that combined exposure to DEET, the active ingredient in most insect repellants, and the synthetic pyrethroid insecticide permethrin, the active ingredient in mosquito sprays and many household pesticide products, cause even more damage when used in combination. According to the study, the combination of DEET and permethrin induced apoptosis, or cell death, in laboratory rats. Environmentalists and members of the medical community are especially concerned because many areas fighting West Nile virus, including the state of Maryland, are using this very combination of chemicals in their mosquito prevention programs. While community governments are fogging their streets with permethrin, they are also advising that citizens wear DEET to protect themselves from mosquito bites. Dr.

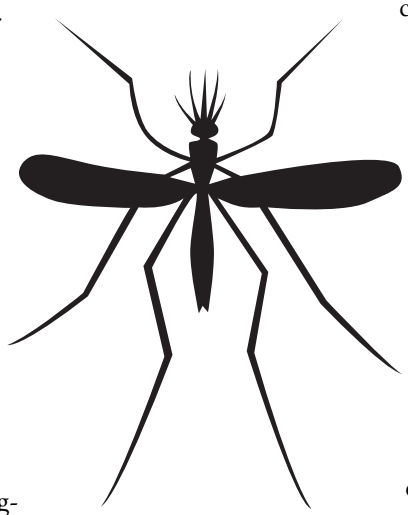
Mohammed Abou-Donia, a Duke University pharmacologist and co-author of the study, warns that DEET should not be mixed with any chemicals, including medications. *Rather than using repellents containing DEET, Beyond Pesticides recommends products containing geraniol (MosquitoSafe), citronella (Natrapel), or a combination of soybean, geranium and coconut oils (Bite Blocker). A new study* (see below) *finds catnip oil to be an effective mosquito repellant. These are safer, effective mosquito repellants, but may need to be reapplied throughout the day.*

Study Finds Catnip Oil More Effective Mosquito Repellent Than DEET

That's right, the same stuff that gets your cat rolling around the living room can also serve as a great mosquito repellant. Researchers from Iowa State University and the U.S. Forest Service announced at the 222nd National Meeting of the American Chemical Society that nepetalactone, the essential oil in catnip, can be used as a very effective mosquito repellent. The authors of the study, which is awaiting publication, discovered that it takes only one tenth as much catnip oil to have the same repellency as DEET, the active ingredient in most over-the-counter insect repellants. "In other words, nepetalactone is about 10 times more effective than DEET," explains Chris Peterson, one of the study's lead researchers. "Most commercial insect repellents contain about 5 to 25 percent DEET. Presumably, much less catnip oil would be needed to achieve the same repellency as a DEET-based repellent." Why catnip repels mosquitoes remains a mystery. The researchers believe it is probably an irritant. DEET, or N,N-diethyl-m-toluamide, has been associated with dermal reactions, weakness, disorientation, loss of coordination, seizures, coma, and in three cases resulted in death.

Citizens Sue for Damages from State-Sponsored Malathion Spraying

In July 2001, a federal class action lawsuit was filed on behalf of Tennessee residents who have been harmed by exposure to the organophosphate pesticide malathion, sprayed as part of the state's boll weevil eradication program. According to the *Jackson Sun*, attorney Houston Gordon, who maintains that the spray program violates the civil and constitutional rights of residents by subjecting them to the pesticide, filed the lawsuit in U.S. District Court in Memphis, Tennessee. The lawsuit names over 40 defendants including state Agriculture Commissioner Dan Wheeler, state administrator Boyd Barker and the Southeastern Boll Weevil Eradication Foundation. According to the lawsuit, as a result of the spraying, plaintiffs experienced irritation and injury to their eyes, ears, head, lungs, blood, skin, swelling of tissues, suppression of immune systems, loss of enjoyment of life, pharmaceutical costs, and aggravation of preexistent medical conditions, as well as pain, suffering, discomfort, fear, anxiety, property damage and displacement. The suit also states that the pesticide label instructions were not followed during application. Under federal law, pesticides may only be applied in a manner consistent with the label. The plaintiffs are asking for compensatory and punitive damages as determined by the jury. ***Take Action:*** *Write to Tennessee State Agriculture Commissioner Dan Wheeler, Ellington Agricultural Center, P.O. Box 40627, Nashville, TN 37204, requesting that pesticide spraying be stopped and alternative practices adopted.*



Herbicides Threaten Recycling Industry

Dow Chemical Company CEO, Michael Parker, is the target of an e-mail campaign demanding that Dow's wholly-owned subsidiary, Dow Agro Sciences, take Confront and other persistent, clopyralid-containing herbicides off the market until DOW can demonstrate their safety to both backyard and centralized compost ing processes. The web-based campaign has been launched by the Athens, GA-based GrassRoots Recycling Network (GRRN). "Confront is totally contradictory to all of our goals for recycling, resource conservation and sustainability," said GRRN president Anne Morse. "Dow's proposal that the solution lies in educating composters and making composters pay for expensive laboratory testing is completely unacceptable. Dow must follow the Precautionary Principle and withdraw Confront immediately until it can be proven safe for organics recycling. And Dow must take full financial responsibility for damage caused by its products." Losses in Washington State, particularly in the Spokane and Pullman area, due to unmarketable compost, are significant, according to state and industry officials. Recently, a class of extremely persistent herbicide products in turf and agricultural applications, of which clopyralid is a member, has been detected in finished compost in Washington State, Pennsylvania and New Zealand. Clopyralid is an eye and skin irritant, and is slightly toxic to mammals, fish and aquatic organisms. *For information on the campaign, contact GRRN at 706-613-7121 or zerowaste@grrn.org.*

Schools Give Pesticides a Failing Grade

By Becky Crouse

Every time you turn your head, another school has adopted an Integrated Pest Management (IPM) and/or right-to-know policy. What's going on? Could it be that schools today are finally recognizing that children are not little adults and have much greater risk from pesticide exposure? Could it be that they finally see the need to cut pesticide use and protect their students, staff and the environment? Holy cow!

Now an ideal school pest management policy would include: 1) restricted spray (buffer) zones to address drift issues, 2) sign posting for indoor and outdoor pesticide applications, 3) prior written notification for pesticide use, 4) guidelines for when and where pesticides can – and can't — be applied, and 5) the requirement that the school adopt an IPM program. But ideals are hard to come by. Most policies don't include every component when they are first adopted, but most do improve with time and as the policy proves itself effective.

Honestly though, is this movement towards less-toxic pest management really that much of a miracle? The fact that these policies are lighter on the pocketbook and more effective than conventional pest management policies is obvious — just look at the number of new policies that have been adopted this school year alone! Here are some examples of recently adopted pest management policies from around the country. None of them are completely comprehensive, but they all contain a right-to-know provision — an invaluable tool for parents, an important first step for the communities involved and a positive step in the growing movement of school IPM.

Hopkins School District 270, Hopkins, MN

- Defines IPM as a pest control approach that emphasizes using a balanced combination of tactics to reduce pests to a tolerable level, while using pesticides and herbicides as a last resort;
- Defines what pesticides may be used and mandates that they can only be applied by certified applicators when the building will be clear of students for at least 48 hours;
- Provides notification of outdoor pesticide use with signs at the application site, and 48-hour pre-notification of indoor pesticide use via signs posted at the site; and,
- Requires that records of pesticides and herbicides used be kept for the purpose of public review.

Larkspur School District, Larkspur, CA

- Defines IPM, calling for the use of chemical controls as a last resort;
- Lists criteria for which pesticides are deemed unacceptable for the approved product list;
- Designates a staff person to coordinate the IPM program and establish an IPM committee, consisting of the Superintendent, the District IPM Coordinator, one parent of enrolled student(s), and one community and/or organization representative (to provide guidance, education and advice regarding IPM policy and procedures);
- Requires annual written notification addressing expected use of pesticide products not on the approved use product list;
- Provides for a registry for any individuals who wish to receive notification of planned pesticide applications at the school site. Notification will occur at least 72 hours before the application, exempting approved use products; and,
- Requires posting of warning signs at the pesticide application site at least 72 hours before the application and until at least 72 hours after the application, exempting approved use products.

Five Town Community School District, Camden, ME

- Uses IPM procedures to determine when to control pests and with what methods, utilizing least-toxic pesticides only as a last resort;
- Requires that all staff and students be notified of upcoming pesticide applications through postings in designated areas at the school and notices sent home to parents;
- Mandates that pesticide use records be maintained on site; and,
- Requires anyone applying pesticides in schools to be licensed as a commercial applicator through the Board of Pesticide Control.

Beyond Pesticides can equip you with the organizing tools necessary to help your school district improve its pest management policy. Contact us for copies of our *Survey of Pest Management Practices at Schools and Daycare Facilities; Expelling Pesticides From Schools*, a comprehensive book of information about school IPM, or a model school pest management policy, or visit our website, *www.beyondpesticides.org*.

Integrated Pest Management

1. Eliminates or mitigates economic and health damage caused by pests;
2. Minimizes the use of pesticides and the associated risks to human health and the environment; and,
3. Uses integrated methods, site or pest inspections, monitoring of pest populations, an evaluation of the need for pest control, one or more non-chemical pest control methods and, if nontoxic options have been exhausted, least-toxic pesticides.

Good Riddance to Roaches

A guide to home cockroach management

By Becky Crouse

Roaches commonly radiate out from areas providing a steady food source, such as kitchens, pantries, restaurants, cafeterias, and garbage collection or disposal areas. They can travel up elevator shafts and drains, through heating and air vents, in tiny cracks and crevices in walls and above false ceilings. In warm weather, they migrate between structures along the outsides of buildings and from dumpsters to nearby living units.

Roaches generally prefer carbohydrates to protein and fat. When hungry, they will eat almost anything containing carbohydrates, such as starch-based paints, wallpaper paste, envelope glue and bar soaps. Infestations often begin when egg cases are introduced in shipped materials, groceries, beverage cases, or used appliances, rugs and furniture.

Habitat

The Australian roach is more vegetarian than other species and common in greenhouses. The American roach enjoys moisture—it is common on ships, and in basements and sewers. The smokybrown roach also can be found in sewers, but primarily lives outdoors. Oriental roaches are moisture lovers, while brownbanded roaches prefer warm, dry environments, such as closet shelves and the upper stories of houses.

German roaches have the widest distribution of all domestic roaches, are often found in dead leaves and garbage piles, readily invade cartons, sacks and containers, and will enter empty or open bottles. They invade the indoors from outdoor habitats in the summer, and are usually found in basements and on first floors, having a preference for the warm area around furnaces and heating ducts. This is the most common roach found in food preparation areas, where the combination of food, moisture and warm temperatures mimic their native East Africa.

German roaches prefer squeezing into small cracks where their backs and undersides make contact with other surfaces. They are often found backed into cracks with their antennae and heads sticking out, picking up chemical signals from the air, which their behavior is more dependent upon than vision or sound. They become active 20 minutes to two hours before dark, and will only be active during daylight when populations are very high.

Prevention

Structural

- Caulk, weather-strip, and repair any holes larger than 1/16" around water pipes, baseboards, electrical fixtures, outlets, switches, doors and windows.
- Screen over windows, vents, floor and sink drains, and ducts.
- Keep trash, leaf piles and woodpiles away from the building.
- Fix leaky faucets and drains.
- Insulate pipes to prevent condensation.

Cultural

- Eliminate newspapers, magazines and paper bags.
- Inspect all food brought into the building.
- Store food in tightly sealed containers or in the refrigerator and put pet food away overnight.
- Clean all spills immediately, wipe all counters and tables after use, and keep the stove grease and food free.
- Rinse food and drink containers before disposal, empty trash and recycling frequently, use trash cans with tight-fitting lids and avoid placing them under sinks.
- Avoid soaking dishes overnight, place sponges and dishrags in an airtight container, and avoid overwatering plants.

Monitor

- Once a month, place two sticky traps per room where roaches tend to travel (where floor meets wall or countertop, inside cupboards, under sink, behind appliances) and leave them for 24 hours.

Control

- Boric acid is the most effective direct control method. Apply boric acid (a 99% formulation) to cracks and crevices where roaches hide – inside and behind cabinets and appliances, wall cavities, under the sink, etc… Roaches are killed in three to ten days.
- Dessicating dust, such as diatomaceous earth or silica gel can be blown into voids through small holes drilled into the walls. Be sure to choose a dust that is not mixed with pyrethrins. Dusts placed in wall voids or cracks and sealed can be effective for many years if they are kept dry.
- **As with any pesticide, keep these products out of reach of children and only use them in locations where it will not come in contact with people or animals. Use these products with care, as they can cause respiratory irritation if inhaled, and always wear a dust mask and goggles and cover any electronic equipment that could suffer dust damage.**

For more information, contact Beyond Pesticides.

A Quick Guide To Identifying and Treating Chemical Sensitivity

By Doris Rapp, M.D.

What can cause a chemical sensitivity?

When I approach a chemical sensitivity problem I ask, is it due to something inside, outside, a food or a chemical. If you see somebody that suddenly does not feel well, they cannot write, they cannot draw, and they cannot behave correctly, you have got to ask what did they eat, touch or smell. If it is something they ate or something in the room, it may take up to an hour for a reaction to become apparent. If it is an odor, it may take seconds before you feel sick, you just walk by it and you can be sick immediately.

You can spot problems by using a peak flow meter. If you are blowing 400 liters per minute (L/min) (4 minutes) before you come into this room and then fifteen minutes to an hour later you blow 300 L/min, there is something in this room affecting your lungs. If your pulse changes, your circulation is off. If your brain has been altered, you would not be able to think clearly. So you keep asking, is it inside your home, school or work area. Is it outside? Is it a food or a chemical in or on a food? Or is it chemical exposure or pollution? What was different just before you had the change. Did you move, did your furnace break down, did you change your diet, did you have someone come to apply pesticides to your house, did you have an infection, or was there stress. There is a reason why you suddenly get sick. You can figure out the reason if you just spend the time thinking about it.

Who has chemical problems?

People who smell chemicals before anyone else frequently are chemically sensitive. Anybody can have a toxic reaction to a chemical. Chemical sensitivity means that a minute amount of something makes you very, very ill. Any area of your body can be affected. Chemical exposure can cause fatigue, dizziness, weakness, irritability, depression, headaches, nasal problems, hoarse voice, muscle aches, burning muscles, burning mouth, burning eyes, one infection after another, moodiness, crying, irregular heartbeat, memory losses, joint pain, spasms, ticks, panic reactions, cystitis, and intestinal problems.

We have to start figuring out what is making people sick. We have to find fast, easy, inexpensive, effective and safe ways of turning it around. Solutions are available, but these are not known and many of them need more scientific evaluation. In our world, if you do not have a double blind study, no one is going to believe you. Well I say that if I can make you sick, produce your symptoms, and then eliminate them in eight minutes, I do not care if I do not have a double blind study. I would feel better if we had one. But, if I have to have one, you might not be able to wait until we get the funding.

Clues to chemical sensitivity

There are several clues to knowing if you have chemical sensitivity. For example, you can smell odors before anyone else, you know the odors are making you ill, you get sleepy or ill in cars, buses or planes or you either crave or detest odors. Usually, the things that you crave or detest are frequently the things that bother you. You can be exposed to chemicals on a daily basis at a low level and develop symptoms gradually. Or you can have a massive exposure and become ill right away and stay ill forever, or gradually get better. One of the worst things about chemical sensitivity is the spreading phenomenon. At first one exposure makes you sick. From then on, any chemical that is in tiny amounts will cause the same illness.

Chemical Odor Problem

- hold breath
- mouth breathe
- leave odor area
- use charcoal mask
- oxygen 4L/min, 10" from face 3-5Xday
- take bicarbonate (baking soda)

This article is from a transcript of Dr. Rapp's presentation to the Nineteenth National Pesticide Forum, Healthy Ecosystems, Healthy Children*, Boulder, Colorado, May 18-20, 2001.*

Typical characteristics of chemical sensitivity include red earlobes, red checks, glassy eyes, wiggly legs, abnormally red nose tip, modeled tongue, rash around mouth, rapid speech, pail faces, tics, and muscle spasms.

Immediate action

If there is a chemical odor problem hold your breath then run out of the area. If you have to breathe, hold your nose and breathe through your mouth, because your nose is a direct line to your brain. Use a charcoal mask. Use a personal air purifier if you are not sensitive to ozone. Take baking soda if you become alkaline.

I have too many families calling me everyday because they do not know where to go, where it is safe, how to get food when they cannot afford organic food, or how to get a water purifier when they cannot afford it.

There are plenty of people who finally find the answers to why they are sick, but cannot afford to change it.

The Big Five

1. Appearance
2. Act/Behave/Feel
3. Pulse up 20 points
4. Breathing down 15%
5. Write or Draw

How bad does it have to get?

You have to watch how you look, act, behave, feel and think. Watch your pulse. If your pulse is up 20 points and becomes irregular, you probably were exposed to a chemical. Your circulation is telling you something. If your breathing goes down 15% on a peak flow meter, it means that something has affected your lungs.

Try to figure out what is causing the problem. Check your writing and drawing before you eat, after you eat, before you go in every room in your house, every room at school, and every room at work. Check the Big Five (*see box*), before and after you go inside versus outside, before and after you eat, and before and after you are exposed to chemicals. You can find the answers. You do not have to be a rocket scientist. You do not have to be a physician, if you start to pay attention. Check the Big Five before you go in each room or before each meal, morning versus evening, outside versus inside. Look at chemical exposures, allergy extract treatments, drugs and immunizations. Go to an environmental medical specialist.

If you want to check a meal, and any of the Big Five change, do not eat any of them for four days. Then check the Big Five as you eat one food at a time every two hours. This helps detect problem foods or beverages.

There is no doubt that children in schools where pesticides have been applied have brain changes. We have to become more active and complain about it. We have to march on Washington and say enough already; you cannot keep polluting our air, our food, our water, our homes, our schools, our workplaces, and our clothing. The human body cannot take it. We cannot tolerate it anymore.

How do we treat chemical sensitivities?

Drink pure water, get a water purifier, do not drink out of plastic bottles, and drink it out of glass. Eat organic foods, wear natural cotton and silk. My book, *Is This Your Child*, talks about what tests to order, where to order them, to find out what chemicals are in your blood so you can document it. My book also tells you how to document it legally so that you can win a case. Then you have to correct your nutrition and detoxify. You have to get those chemicals out of the fat, circulation, gut, perspiration, and urine.

Treatment of Chemical Sensitivity

If Chronic ...

- drink pure water
- eat organic foods
- wear natural everything
- check blood and urine
- identify chemicals – correlate with exposure
- correct nutrition – vitamins, minerals, trace metals, essential fatty acids
- detoxification units – sauna, niacin, water, exercise, vitamins

Doris Rapp, M.D. has a medical degree from New York University, Bellevue Medical College. After graduation she went on to study pediatrics and pediatric allergy and immunology in Buffalo, New York, where she later founded the Practical Allergy Foundation. Dr. Rapp is the author of several books, including Is This Your Child: Discovering and Treating Unrecognized Allergies in Children and Adults *and* Is This Your Child's World: How You Can Fix the Schools and Home that Are Making Your Children Sick*, which can be purchased from the Practical Allergy Foundation at 1421 Colvin Boulevard, Buffalo, NY 14223, (716) 875-0398 phone, (716) 875-5399 fax, http://www.drrapp.com or drrappmd@aol.com.*

Putting Invasive Species Management in Perspective

By David Pimentel, Ph.D.

David Pimentel, Ph.D. is one of the nation's foremost experts on the ecological and economic aspects of pest control, soil and water conservation, and natural resource management. He is a Cornell University professor in the Departments of Entomology and Limnology. He also served as the director of the U.S. Public Health Service Tropical Research Laboratory in Puerto Rico. Nationally, Dr. Pimentel served as the consulting ecologist in the White House and as chairman of the National Academy of Sciences Environmental Studies Board.

There are more than six billion people on earth. We add a quarter of a million people every 24 hours. The World Health Organization reported recently that more than three billion people are malnourished on earth, or more than half of the world's population. But that is not our problem here in the U.S. because we have an abundance of high quality, diverse foods. If there is any problem, it is eating too much. The average American consumes over a ton of food per person per year. Where do we get our food? More than 99.7% of our food in the U.S. and in the world comes from the land. Less than 0.3 of 1% comes from the oceans or other aquatic areas. We demand more and more on our land for food.

Costs of managing invasives

There are good invasive species. For example, 100% of our livestock are introduced species and 99% of our crops, such as corn, are introduced species. We have insect problems, weeds, plant pathogens, and rodents that share our food with us. We use large quantities of pesticides.

In the U.S. we use more than one billion pounds of pesticides per year on our lands. Worldwide we use about five billion pounds. Nearly 80% of the pesticides are actually used in the developed countries, with two billion people, whereas, four billion people are using about 20% of the pesticides applied worldwide. Despite the use of one billion pounds of pesticides, we lose nearly 40% of all potential food production in the U.S. to pests.

From 1945 to date, there has been a ten-fold increase in insecticide use in the U.S. The United States Department of Agriculture (USDA) reports that we were losing 7% of our potential production to insects in 1945 before we started using large quantities of synthetic pesticides. Today USDA reports that we are losing 13% of our crops to insects, with a ten-fold increase insecticide use.[1]

World Health Organization data reports that pesticides poison 26 million people annually. Of these, three million result in hospitalization and 220,000 result in death, many of these in developing countries. In the U.S., about 110,000 pesticide poisonings occur annually and 25 result in death. All these numbers are conservative.[2]

The honeybee is one of the invasive species in the U.S. The use of pesticides and loss of habitat has caused the bee population to decline rapidly. Pollination has a value in the U.S. of $40 billion annually. You have heard the expression "a busy bee." A bee on a bright sunny day will visit 1,000 blossoms. That is an enormous effort that we humans do not appreciate. My calculations show that on a bright sunny day in New York State bees pollinate 12 trillion blossoms a day. If we used all the man and womanpower in New York State to pollinate blossoms, we could not even do one one-hundredth of 1%. I can also tell you it is damn boring, but not to the bees.

Pesticide Use Costs

Public Health = $1 billion
Environmental = $8 billion

We poison our birds, including the common loon, which is a threatened species. We are also poisoning our fish. Due to the contamination in New York State, it is recommended that pregnant women should not eat any fish, and anglers are limited to one fish per month. Roughly, we have estimated that the public health cost of pesticide use is one billion dollars annually and the environmental cost of pesticides is eight million dollars annually. These are very conservative estimates.

The evaluation of invasives

The Japanese beetle was introduced years ago. We have introduced in the U.S. either intentionally or unintentionally 50,000 species of plants, animals, and microbes. The numbers of pests associated with the introduction of these pests are causing $137

The following article is taken from Dr. Pimentel and Seastedt's transcript of Economic and Ecological Costs of Weed Control *presentations to the Nineteenth National Pesticide Forum,* Healthy Ecosystems, Healthy Children, *Boulder, Colorado, May 18-20, 2001. For a videotape please send $12 to Beyond Pesticides, 701 E Street, S.E., Washington DC 20003.*

billion in damages annually. That is a conservative estimate because we cannot put an amount on extinction.

In Florida alone, they have introduced 25,000 plant species. Their native plants number only 2,500 plant species. Of course, these new introductions have negative impacts on the environment in many cases.

In the U.S., for example, the purple loosestrife that was introduced as a plant in vegetable gardens causes $45 million in damages annually. Aquatic weeds cause $110 million in damages annually. The melalecuca tree that was intentionally introduced as an ornamental cost six million dollars in damages annually. 73% of the weeds in our crops are introduced species causing approximately $33 billion in damages and control costs, mostly damages despite the use of all the herbicides we are using. (I am not counting the negative impact of the herbicides but only the application of herbicides.) In crop disease, for example, 65% of plant pathogens are exotic and are costing approximately $23 billion annually. Weeds, plant pathogens and insects, native and introduced, cost $100 billion in the U.S. despite the application of one billion pounds of pesticides. This is a serious problem.

Only 40% of insect pests are exotic species. Most of the insect pests are actually native insects that moved from feeding on native vegetation to feeding on introduced crops. An example is the Colorado potato beetle, a native insect. It was feeding on a weed called the wild sand bur, before the potato's introduction in the U.S. After the potato was introduced, the beetle found it more tasteful than the sand bur so it moved on to the potato. The Colorado potato beetle is now the number one pest of the potato.

We examined the number of introduced crops in the U.S. and then determined how many crops we intentionally introduced that actually became pests. It turned out that 128 weed species were intentionally introduced as crops which finally became listed as pests. Johnson grass is the number one weed in the southern U.S., and it was introduced as a forage crop. Even though you have an organism, in this case a plant, you do not know what it is going to do when you release it in the environment.

Pigeons and starlings, primarily starlings, are causing $2 billion of damage annually in the U.S.

We have introduced 4,500 species of primarily insects, some intentionally, some by chance. Someone who was interested in developing a better silk worm unintentionally introduced the gypsy moth. A windstorm knocked over one of the cages and the moth escaped. The investigator realized how serious this was and told the politicians that they should try to get rid of those that escaped, but they put it off and now the gypsy moth is the number one pest. We have introduced 40 natural enemies to attempt to control this pest, but none are doing an effective job.

50% Reduction in Pesticides
Sweden Denmark, Netherlands Ontario, Canada, and Indonesia

Secondary impacts of chemical controls

When you use herbicides to control weeds, in some cases, you can end up with an insect or plant pathogen problem. I chaired a study for the U.S. EPA on the environmental impact of herbicides. I suggested that 2,4-D and its use on corn might be having an impact on insect and plant pathogen problems. My herbicide colleagues who were on the committee said absolutely not. So, I went back to Cornell and ran tests using the corn leaf aphid, the corn borer, the southern corn leaf blight and the corn smut disease. All four organisms increased on the corn when exposed to 2,4-D, in contrast to the untreated corn. With the aphids alone, we had three times as many on the treated corn in contrast to the untreated corn. These findings were published in *Science*.[3] We were hoping to encourage other entomologists, plant pathologists and weed specialists to look at the non-target effect when you use these chemicals. I must admit it has not happened.

Aphids on Corn	
Untreated	618
2,4-D	1,679

Now one serious problem we have with all these invasive species is that they are competing with and preying on our native species. The best data we have indicate that these invasive species are the reason why we have endangered species. This is a serious issue since 42% of all endangered species are due to invasive plants, animals and microbes.

Pesticide reduction pays

The first case of biological control in the world is working. The cotton crushing scale introduced in California was devastating citrus trees. They introduced beetles that feed on the scale. It cost $5,000 and is now saving us about $170 million annually.

We should reduce the use of pesticides in the U.S. Several countries have reduced the use of pesticides by at least 50% or more. It was one of my former students that became in chargeof all pest control in Indonesia. He was able to reduce pesticide use on rice by 65%, while increasing rice yields 12%. You do not need a big economist to tell you that you are doing the right thing. We could reduce pesticide use in the U.S. by 50% without any reduction in yields and without any change in cosmetic standards. The question is why aren't we doing it.

For more information, contact Dr. David Pimentel, Department of Entomology, Cornell University, Ithaca, NY 14853, 607-255-2212 or Beyond Pesticides.

[1] Pimentel, David and Hugh Lehman (1993). *The Pesticide Question: Environment, Economics and Ethics,* Excerpt: Environmental and Economic Impact of Reducing United States Agricultural Pesticide Use.

[2] World Health Organization (1992). *Our Planet, Our Health: Report of the WHO Commission on Health and the Environment*.

[3] Oka, I. N. and David Pimentel (1976). *Herbicides (2,4-D) Increase Insect and Pathogen Pests on Corn*. Science, Vol. 193, 239-240.

Dead Weeds or Healthy Ecosystems

Setting and achieving goals the ecological way

By Tim Seastedt, Ph.D.

Tim Seastedt, Ph.D. is a professor in the Department of Environmental, Population and Organismic Biology at the University of Colorado, Boulder.

The problems with ecological and environmental costs of invasive species or weed control have been summarized very well. Here we have to address one environmental problem without contributing to the problems of excessive pesticides in the environment. There does exist a body of knowledge that can be used to address the problem if we could just get folks to realize it is out there and get them to use it.

For the last 20 years, a number of ecologists from across the country and I have had the delightful job of finding out how ecosystems work. Our job has been to explain why invasive species are out there and how they respond to environmental change and human insults. This group has been among those who have noticed a change in the landscape.

Certainly, most of the threats to our native species have to do with simple habitat destruction. Second, invasive species are out there. This group of ecologists has begun to consider the why and wherefore of this transformation in the landscape. Turns out there is no one simple generalization you can give. But there is a tendency for many if not most of these invasive species to be associated with changes related to human impact, even though those changes may be indirect to some changes on our natural landscape. Indeed, in the West, during the last 150 years since the Europeans have taken over the area, the European flora was lonely at home and wanted to come to join us. It is dealing with this reality and the causes that is essential in addressing these problems.

Four concerns for ecological weed management

I got involved directly in trying to manage invasive species, the actual on the ground management, in 1997. I contacted folks around the country, other ecologists, saying, what should I expect and what should I know. This bit of advice showed up that I want to emphasize.

1. **Managers, for the most part, are trained to kill weeds**, and this, they are quite convinced, is management. A local example is a quote from the *Camera*, a local Boulder newspaper, from a weed manager saying, "Without the herbicide component we would have to multiply our staff force by more than 15 times." I think the implicit analysis is that this individual sees their main job as weed kill. Ironically, in this particular case, there may have been some data to suggest that weed kill was not necessary.

2. **Weed management has evolved from agronomy not from ecology**. Agronomists say it was a simple job: you killed your weed and grew your plant. There were no concerns about the non-target organism out there. There essentially were not any non-target organisms except what you were going to put out on the landscape. That rule simply does not apply in natural ecosystems. And to be honest, we do not know what these herbicides do to our native species in terms of the complete list of what is sensitive to them and what the mutagenic effects of these chemicals are.

The message must be:

- **Dead weeds do not define success**
- **A successful program is one that produces healthy ecosystems**
- **Few argue about what's healthy, everybody argues about how to get there**

3. **You are either for killing weeds or you are un-American.** That really is the aura that exists in this.

   To use another quote from the local paper, a county commissioner said, "Certainly we cannot stand by while our native grass lands are destroyed by foreign weeds."

4. **I think what may be the most unsettling of the advice I received is that science has not been brought and applied to this issue** the way it potentially should have been. It is more your tenancy than your technique if you want to deal with these issues, implying that if indeed you opt for non-chemical methods than you stick with it. Such methods are very feasible.

Criteria for success: killing versus preserving

I honestly believe weed managers are very dedicated people and they do what they do to be successful. But the question is where are they getting their criteria for success. This is where we need to intervene. The message that the ecosystem scientists, ecologists, and the stakeholders certainly need to exude is that we are not looking to kill something, we are looking to preserve something. The idea is that restoration ecology emphasizes enhancement of the desirable components. Certainly, weed management has in its body of knowledge techniques to do the same.

As I mentioned, weed management certainly evolved through agronomy. Coming from the field of biology and ecology is the concept of ecosystem management, and ecosystem management subsumes integrated pest management. Under the context of ecosystem management, the program we developed has three components: (i) minimize the risk to human health; (ii) minimize the risk to native species; and, (iii) realistic implementation.

Weed Management Within Context of Eco-system Management

A program that:

- **Minimizes human health risks,**
- **Minimizes risks to other species, and**
- **Has realistic and acceptable economic costs.**

Identifying goals

A booklet by Reed Noss, *A Citizens Guide to Ecosystem Management* (1999. Biodiversity Legal Foundation. Boulder, CO), is an excellent manual, if followed, for invasive species management. Because of the techniques and requirements of the program, it simply defaults to a minimal chemical use approach. Essentially, the scientists are employed to assist in getting from point 'a' to point 'b.' The stakeholders need to weigh in to select the goals.

It is very important to realize that our world is changing outside of the changes we have been talking about here. We are going to use management techniques that are not necessarily traditional or that did not necessarily work 20 years ago. This seems fairly simplistic, but if this minimum requisite is used in developing control procedures for invasive species or weed management, good things happen. You recognize that the world is site specific. Noxious lethal species in Montana are not necessarily the lethal species in Colorado. It may need control in some areas; it may not need control in others. By putting things in writing and putting things up front, you can actually see where you can monitor and see if you are actually getting there. If these three goals are followed, I sincerely believe that pesticide use would be significantly reduced in the weed management arena.

Minimum Requirements for Management

1. **Site specific goals identified & agreed upon by stakeholders**
2. **Written management plan to obtain goals**
3. **Monitor results to evaluate management activities**

The message is simple. What we want is not necessarily dead weeds, we want healthy ecosystems. Healthy ecosystems provide those essential ecological services, maintain and enhance biological diversity and the quality of human life.

Local case in point, I believe this procedure was followed by the City of Boulder, Colorado recently with some weed control issues, but was not followed by another component of local government. The City chose to not use chemicals and the other component did use chemicals. So, the battle out there does continue.

The message is simple. What we want is not necessarily dead weeds, we want healthy ecosystems. Healthy ecosystems provide those essential ecological services, maintain and enhance biological diversity and the quality of human life. The management activities must be consistent and compatible with these goals. We need to get the public to buy in on these procedures.

For more information, contact Dr. Tim Seastedt, Professor of EPO Biology, INSTAAR, CB 450, University of Colorado, Boulder, CO 80309-0450, (303) 492-3302 phone, (303) 492-6388 fax, timothy.seastedt@colorado.edu.

Biological Control of Noxious Weeds

Using insects to manage invasive weeds

By Tim Seastedt, Ph.D.

Tim Seastedt, Ph.D. is a professor in the Department of Environmental, Population and Organismic Biology at the University of Colorado, Boulder.

There are two types of biological controls out there. There are the fuzzy loveable kinds and then there is the kind I use.

Diffuse knapweed covers 3.2 million acres in the west. It is the target of extensive chemical use by public and private land managing agencies. In 1997, I went to the local county commissioners and said, in response to an aerial spray program, "Yes, you can kill this weed, but all the literature says it just comes back; so it is pretty much just treating the symptoms." They responded by challenging me to coordinate a test plot and show there is a way to control diffuse knapweed without chemicals, essentially telling me to prove that alternative activities work. As a field scientist, I said okay. We got 160 acres for our test plot and attempted a variety of non-chemical techniques. The one I want to briefly discuss is the addition of biological control insects.

Diffuse knapweed covers 3.2 million acres in the west. It is the target of extensive chemical use by public and private land managing agencies.

The gall fly, *Urophora quadrifasciata* and its sibling species, *U. affinis,* are probably responsible for 70% of seed mortality in diffuse knapweed. That is a lot but not enough to stop the weed. It was introduced by the Colorado Department of Agriculture in about 1988 in the Front Range and was essentially already out there when we started our study.

We introduced a beautiful little bronze beetle, *Sphenoptera jugoslavica*. It is a root feeder and attacks the rosettes of the knapweed plant. The combination of *Sphenoptera* and the gall flies elsewhere occasionally slows the growth of this plant; however, once you have a developed knapweed population, these two alone do not seem to reduce the populations of knapweed.

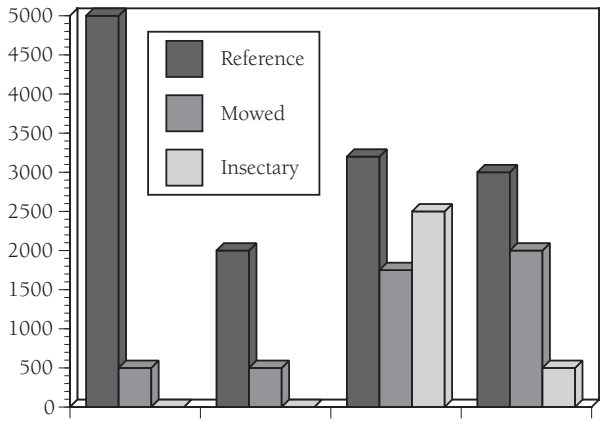
Therefore, we added *Cyphocleonus achates*. This insect is death to the plant and probably death to itself, as it eats it way out of food and home. *Cyphocleonus* has been established in low numbers. At these levels, we are still uncertain exactly how useful it is in stopping knapweed.

The last bug we added was the seed head feeder, *Larinus minutus*. This weevil makes its living by attacking and totally consuming the seed head. We added 200 of these in 1997. We estimate that there were about 20 million of these seed head feeders last year.

So how are we doing? The white bars (*see figure 1*) represent the insectary. We do have a reference or a control, but unfortunately, we were not quite smart enough to put our reference far enough from the insectary. Now our reference is being attacked by the insects as well. Nonetheless, if you use the reference data in the year 2000 we had fewer than 25% of the weed population that we had in 1997.

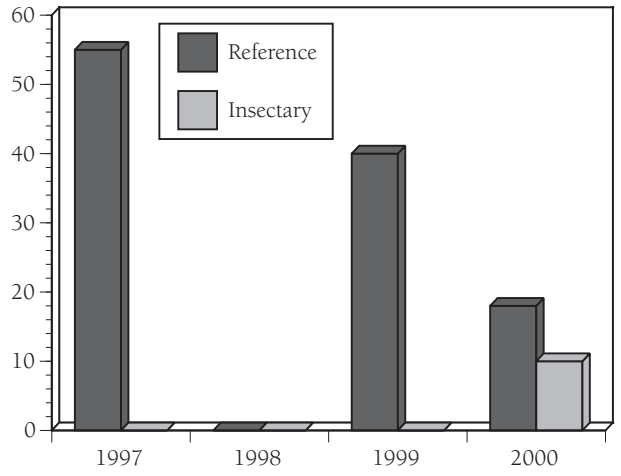
The insects are doing quite well. Rosette densities, which are an index of the future abundance of the plant, also showed remarkable reduction (*see figure 2*). Things are looking quite good.

Figure 1. Diffuse Knapweed



This and the following article is from Dr. Seastedt and Mrs. Lamming's transcript of the Alternative Weed Strategies *presentations at the Nineteenth National Pesticide Forum,* Healthy Ecosystems, Healthy Children, *Boulder, Colorado, May 18-20, 2001. For a videotape please send $12 to Beyond Pesticides, 701 E Street, S.E., Washington DC 20003.*

Figure 2. Rosette Densities



Here is what I predict in June of 2002. Our 20 million *Larinus minutus* are going to find only one million knapweed plants. The adults feed on the flowering knapweed before they begin laying eggs within the seed heads. These seed heads will then produce new weevils rather than knapweed seed. I have high hopes we will demonstrate control of this weed as of this year. There is an anecdotal account that says this is what is going to happen, but we are waiting to prove it.

This provides you with an example of how to develop a specific insect biological control program. The approach is particularly relevant to weeds that now occupy large areas and cannot be effectively controlled by other methods. We add a biological control food web, in this case a group of non-natives, and we want that group to stay and attack the invasive plant species, diminishing that population, allowing competition of the natives to become enhanced and slowly returning the system to some semblance of balance. You probably want to eradicate that species but in terms of threats to native biological diversity and loss of ecosystem values, if we can knock it back down we would succeed.

This summer we have two students to check the dash line (*see figure 3)* between the biological control food web and native plant species, to assess the extent to which the biological control might attack the native plant species. Because of the unique chemistry of diffuse knapweed, we doubt this will happen. Elsewhere, these insects have been around for an average of 20 years and have not been reported to harm other plant species. One student will check to see if these insects use other plants. The second student will study how native insect predators such as spiders feed on the introduced insects.

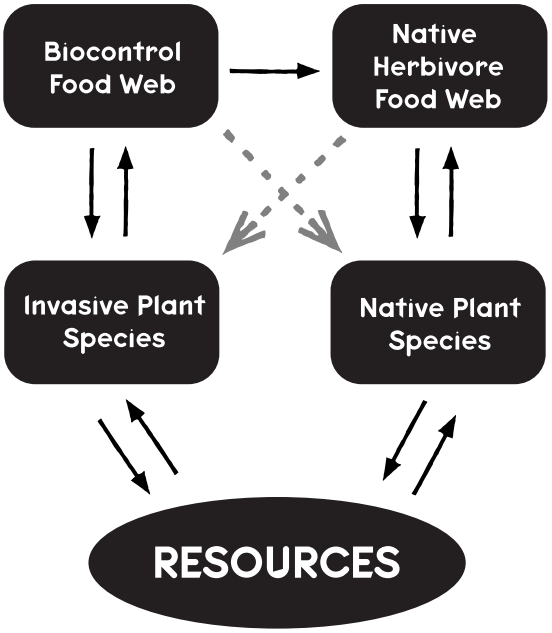
Summary

To briefly summarize this technique, biocontrol of invasive plant species is the only practical, feasible and sustainable solution that seems to be out there. "To claim that no risks are involved would be irresponsible, but these risks are small and must be weighed against those of alternative control methods, in a context in which ecosystems and livelihoods are being destroyed." (R.E. Cruttwell McFadyen, 1998)

Epilogue: *Dr. Seastedt and his students evaluated the plots this summer and found that the knapweed had totally disappeared from portions of the area. Overall, knapweed now constitutes less than 5% of plant cover. Knapweed seed production in 2001 was 2% of 1997 values. None of the introduced insects have shown interest in feeding on native plants. All five of the insects are doing well and are moving into adjacent pastures that were previously treated with herbicides that failed to control the knapweed.*

biocontrol of invasive plant species is the only practical, feasible and sustainable solution that seems to be out there.

Figure 3: Biological Control Program



For more information, contact Dr. Tim Seastedt, Professor of EPO Biology, INSTAAR, CB 450, University of Colorado, Boulder, CO 80309-0450, (303) 492-3302 phone, (303) 492-6388 fax, timothy.seastedt@colorado.edu.

Successfully Controlling Noxious Weeds with Goats

The natural choice that manages weeds and builds soil health

By Lani Lamming

Lani Lamming is the owner of the goat grazing business, Ecological Services based in Alpine, Wyoming, and is a Beyond Pesticides board member. Ms. Lamming has a M.S. in weed science from Colorado State University in Ft. Collins, Colorado.

I am a displaced cattle rancher. I bought a hundred head of cashmere goats to eat weeds in 1997 because I could not find a job that I wanted or that suited me. I now have 2,000 head of goats and have 12 people working for me. The goats are used as a tool in intensive grazing and short duration schemes under holistic resource management principles.

The goal of the land is to build the soil so it can produce the kinds of plants that we want to grow there. What we need to be looking at is the water cycle, mineral cycle, energy flow and succession. Weeds are symptomatic of a problem. The problem is sometimes poor soil having no organic matter that cannot support good growth. We want to make the grass the best competitor and stress the weed at every turn. Goats help with this problem because everything they eat is then recycled as fertilizer and laid back down on the grasses. As the goats graze, they trample in the fertilizer.

We worked last year in seven states. I keep working and moving from job to job, migrating north to south, and up and down in elevation; working all the time. I have federal contracts with the U.S. Fish and Wildlife Service, Bureau of Reclamation, Bureau of Land Management, and the U.S. Forest Service. I have state, county, and city contracts in several states. But, most of my business is on private land. The smallest area I have grazed was a 12-foot by 60-foot backyard. I grazed 30 baby goats there for three days. The biggest job I have done was 20,000 acres in Montana.

We take a lot of data while we are herding goats. We use a video camera with a GPS unit hooked into it. I am able to create a noxious weed layer that can go into any government database for their noxious weed inventory.

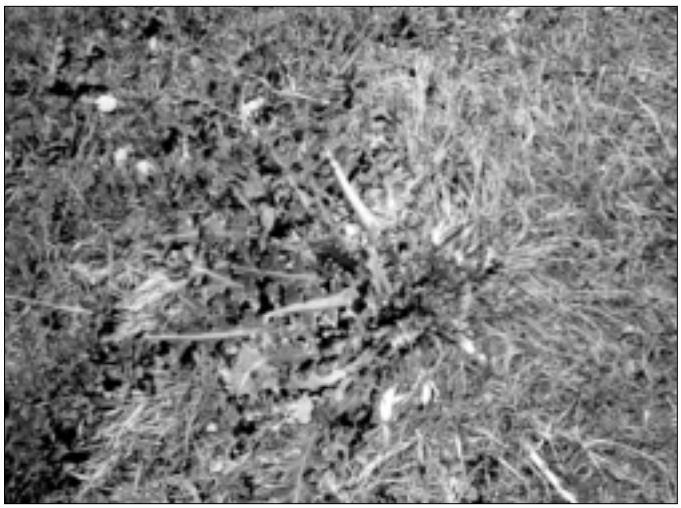
Problems with pesticides

To a cattle producer there is no production on land that is covered with noxious weeds. Therefore, he/she has to rent property to feed his cattle. Because the law requires him to clean it up, he will probably spray Tordon (picloram and 2,4-D) on it, costing him about $100 an acre. I have seen patches of land sprayed with this pesticide, killing everything but the diffuse knapweed it was meant to kill. Now the cattle producer has got two-fold costs and no production.

When you introduce humans after weed problems, you tend to have lots of trouble with human error. First, they have to recognize the weeds, which they probably will not be able to do unless it is in full flower. Then, they have to get the right eradication method on the right day and at the right time to get it done.

One problem with using chemicals to control weeds is that they are trying to kill the symptom. Pesticides never take care of the problem. The problem is that there is a stress or a niche open on the land that needs to be filled with something good, something productive that you want.

Goats prefer weeds to grasses. One of their favorites is leafy spurge.



The electric fence used to manage the goats divided this patch of musk thistle and dandelion, the right side shows how effective goats are at grazing weeds.

A lot of things happen when you spray pesticides. For one, the weeds can mutate and become deformed. I have seen this happen to common mullein. The spray boom along the highway got the plant and half of it deformed while the other half kept on growing. I have seen deformed prickly lettuce that was very thick stemmed and curvy. The Roundup (glyphosate) that was sprayed on it did not kill it. Instead, it came back and made full seed. Another example is of Dalmatian toadflax, which is normally tall and whisky. It was sprayed with a chemical called Curtail (clopyralid, 2,4-D) and it mutated to a ribbon. It was three inches wide and almost six feet tall and still had full flower. I wonder what the genetics are on these plants.

On my master's research plots in Wyoming there are dead trees as a result of Tordon being sprayed ten years ago. The spraying also made a pure monoculture of Russian knapweed across the valley. The plot was then sprayed with a chemical to kill the Russian knapweed and reseeded with grasses. Every time a chemical was used to kill the Russian knapweed, white top, another noxious weed, began to grow there.

For some noxious weeds, chemical sprays are ineffective. One example is oxide daisy, which has no leaf surface for the chemical to be absorbed. But, goats love it.

Goats – the natural choice

My goat grazing service benefits are three-fold: environmental, economical and social. Of course, environmental, because you can reduce chemicals or get rid of them completely. Economical, because we have put a lot of people to work, young kids, college students, high school kids, elementary students, and transients. And social, because there is nothing like a 1,000 head of goats to draw people in to the land to learn about weeds.

Goats prefer weeds, like the knapweeds and yellow star thistle. They do not like grasses; it is their last choice. A goat has a very narrow triangular mouth and they pick, nibble and chew very fast. The shape of their mouth and how they chew crushes most

Examples of weeds goats like:

- Canada thistle
- Cheat grass
- Common candy
- Common mullein
- Dalmatian toad flax
- Dandelions
- Downy brome
- Indian tobacco
- Knapweeds
- Larkspur
- Leafy spurge
- Loco weed
- Musk thistle
- Oxide daisy
- Plumeless thistle
- Poison hemlock
- Purple loostrife
- Scotch thistle
- Snapweed
- Sweet clover
- Yellow star thistle
- Yucca

For some noxious weeds, chemical sprays are ineffective. One example is oxide daisy, which has no leaf surface for the chemical to be absorbed. But, goats love it.

Teasel and poison hemlock grow so high, left, that the goats in the background are hidden. The goats eat the teasel and poison hemlock's flowers and leaves, allowing sunlight to reach the ground, right.

Once the goats graze the weed, it cannot go to seed because it has no flower and it cannot photosynthesize to build a root system because it has no leaves.

everything they eat as far as weed seeds go. In the case of leafy spurge, a journal article says, when a goat eats 100% viable leafy spurge seed, 99.9% is destroyed.[1] Most is crushed by the teeth and chewing action, the rest through the digestive system.

Goats eat all poisonous plants, which does not seem to bother them. They have an interesting array of enzymes in their gut that other animals do not. In the case of poison hemlock, goats have an enzyme in the saliva that detoxifies the toxin before they swallow.

The first thing goats do when they walk through the pasture is snap off all the flower heads. Then they pick the leaves off one at a time, very quickly, leaving a bare stock. Once the goats graze the weed, it cannot go to seed because it has no flower and it cannot photosynthesize to build a root system because it has no leaves. The plant's stalk and the ground is left undisturbed. The canopy has been removed allowing sunshine to hit the ground. The goats are fertilizing the ground, and the grasses remain untouched by the goats. Our working goats know when they are done and ready for the next job.

It is well-documented in research that if you cut the stems off of most weeds with a sharp blade the plant will quickly respond by making just as many seeds if not more, actually making the plant denser. But because of the way a goat eats, the plant is stopped. It cannot make any seeds or photosynthesize. I think the plant is fooled that everything is okay, so it does nothing.

The grazing selectivity is the goats diet preference. One thing we have learned is that goats have great diet specificity by age and gender. The older males preference for what they eat first differs from the baby goats, the nannies, and yearlings. If available, the older males prefer Russian thistle and Russian olive and elm trees, while the babies' first choice is field vine weeds. At one of our jobs in Jackson Hole, Wyoming, we had two noxious weed problems, Musk thistle and Lupin. The older male goats started grazing the Musk thistle and the younger goats started grazing the Lupin, a poisonous plant.

Timing must be right

Timing of when to graze a weed is important to making the biggest impact. If wildflowers are your goal for the land, yet you have to control your noxious weeds by law, I would graze to stress the weed when the wildflowers were not yet in bloom. For

The white latex from leafy spurge oozes from where the goats have snapped off the tops of the plant. An enzyme in the goats saliva detoxifies the latex before they swallow it.

Goats grazing scotch thistle at the University of Colorado, Boulder campus grounds in late November 2000, left, stress the weed so much that grasses can successfully grow on the site the following May, right.

diffuse knapweed, the optimum time to graze is the first of June.

For Canada thistle, the perfect time to graze would be right when it is in full bud before it flowers. At this time, the plant has put all of its energy into getting ready to make a seed, so it has spent a lot of its root reserves. Over time, the thistle cannot compete with the grasses. Every time I stress the plant by grazing the goats, it will spend more energy trying to grow back. If you do this for a deep rooted perennial for three times a season or over three years in a row, that plant has spent everything it has and will die.

Handling goats

When you are managing a 1,000 head of goats, you have to be able to handle them. We manage the goats by herding them within electric fences. Once the goats accept the fence as its boundary, it is magical stuff. On occasion, we do not turn them on.

Another way we handle the goats is by walking them. For one job, we walked 1,000 head of goats 35 miles down the right-of-way of Highway 287 on our way to a ranch in Enis, Montana. Every landowner along the way came out, saw what we were doing and hired us. So we stopped one day here, two days there, three weeks there. On our way, we grazed the goats on three islands in a river that was filled with spotted knapweed.

Goats do not like water. It is a natural fence. The only time they will step into it is if a predator is in hot pursuit. Therefore, we had to figure out how to get the goats to the islands to graze. We found some picnic tables and placed them end-to-end across the river. Sure enough, that 1,000 head of goats used the picnic tables to get to each island and back to the mainland.

Leafy spurge – goats first love

Noxious weeds are extremely aggressive and invasive and are very difficult to control. Leafy spurge is a deep-rooted perennial and has an extensive root system. The seed capsules dry and shoot the seeds eight feet in all directions.

Another way we handle the goats is by walking them. For one job, we walked 1,000 head of goats 35 miles down the right-of-way of Highway 287 on our way to a ranch in Enis, Montana. Every landowner along the way came out, saw what we were doing and hired us.

Goats graze a site covered with spotted knapweed.

Goats can be used all year round to control noxious weeds. Here they dig out leafy spurge from under a snowdrift.

Goats will eat leafy spurge anywhere, even when it is growing out of the trunk of a cottonwood tree.

The extensive underground root system is also a spreading threat at the same time. Leafy spurge is capable of making an identical new plant far away from the mother plant. The root system goes down about 30 feet. It can grow in a crack in a rock, side of a cotton wood tree in the bark, or top of a cottonwood tree about 20 feet off the ground. What is the solution to leafy spurge in the cotton wood tree? Goats! Of course, leafy spurge is almost the goat's favorite food and they do climb trees.

The goats seek out leafy spurge and eat it because they like it. When you look at a leafy spurge plant after the goats have grazed it, you can see where they have bitten the flower off, releasing a white latex substance. This white latex is supposed to make people go blind, cause rashes on hands, and cause blister on horses' feat. A little girl was sent to the hospital with third degree burns from the white latex getting on her legs. This substance is the reason why cattle and horses will not eat it. Cattle will not even walk into the patches of leafy spurge. For some reason, it is the reason why goats eat it, and love it.

A great way for communities to recycle Christmas trees is to have people pay $2 to have goats recycle them. Any money generated could then be used for weed control in that community the following summer.

Christmas tree recycling

A great way for communities to recycle Christmas trees is to have people pay $2 to have goats recycle them. Any money generated could then be used for weed control in that community the following summer.

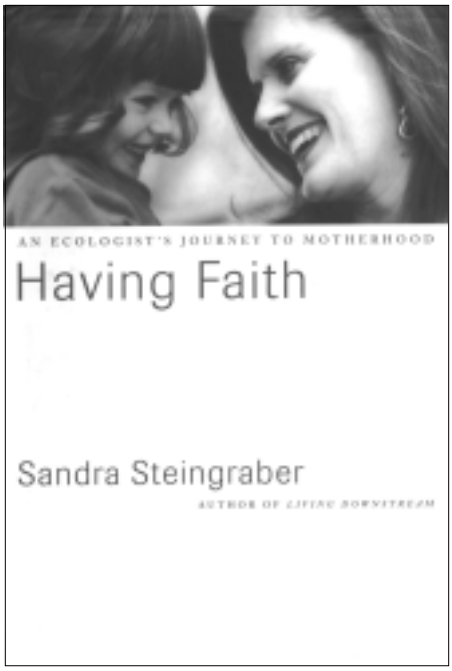
The goats love Christmas trees, they clean it up, strip all the bark off. The remaining tree trunk could be sold to a youth group, to be cut, packaged and sold as firewood. So the recycling keeps going on and on through all levels of insects, birds, people and different groups of people.

Goats graze a site covered with spotted knapweed.

For more information, contact Lani Lamming, Ecological Services at PO Box 3253, Alpine, WY 83128, 307-654-7866 or ewe4icbenz @aol.com.

[1] Sedivec, K. et al. 1995. Controlling Leafy Spurge Using Goats and Sheep. North Dakota State University Extension Service, Fargo, North Dakota.

by Toni Nunes



Having Faith: An Ecologist's Journey to Motherhood

Sandra Steingraber (Perseus Publishing, Cambridge, MA, 2001). Through poetic and clear prose, Steingraber shares startling insights about the impacts of toxins on unborn and breastfed infants, and comically relates her personal experiences throughout each pregnancy phase. She writes a well-researched scientific discussion about the dangers of toxic chemicals and advocates what must be done to protect fetuses and infants from these hazards.

In an early chapter entitled Sap Moon, Steingraber offers four major insights that are later expanded upon: 1) Nature is an alchemist—nature can change seemingly nontoxic chemicals into potent fetal toxicants; 2) Unintended consequences are not always unpredictable consequences—if persistent pollutants are released into the water, they can contaminate fish eaten by pregnant women; 3) Of all members of a human population, fetuses are most vulnerable to toxic harm—the placenta can magnify levels of toxic chemicals and developing organs are more sensitive to damage than adult ones; and 4) Threshold levels of toxic chemicals may not exist for fetuses.

While pregnant women are told to avoid coffee, alcohol, sushi, and even cat feces, she argues they are not well advised about the dangers of pesticides or other toxic chemicals. Steingraber is concerned that popular pregnancy books and magazines do not adequately discuss environmental issues. "It is time for mothers around the world to join the campaign for precaution, which is fundamental to our daily lives as parents or expectant parents and about which we are all experts." She uses the quote of Voltaire several times throughout her book: "In ignorance, abstain."

Steingraber raises an important concern about the narrow focus of prenatal testing: "[There is a] single-minded search for rare genetic defects and the concomitant disregard of environmental threats to pregnancy." She argues that pregnancy is not an isolated event, but part of water cycles and food chains. For example, chemicals like DDT that are being discovered in human amniotic fluid are also found in the tissues of migrating and resident birds.

"Whatever is inside hummingbird eggs is also inside my womb. Whatever is in the world's water is here in my hands."

Birth defects is the number one cause of infant death. The majority of birth defects have unknown origins and only 20 percent have identifiable causes. Yet, Steingraber found that there is no national system to track birth defects and report on trends. Consequently, it is difficult to determine the role that environmental contaminants have on birth defects. Steingraber also sounds the pregnant mother's alarm when stating that over 75 percent of the high-production-volume chemicals have not been screened for possible developmental effects on fetuses and children. She cites a Johns Hopkins report that concludes, "[S]ome pesticides currently being used may be developmental toxicants." What is worse, she points out, is that pesticides are not governed by right-to-know laws in most states, meaning that public records are not kept on their release into the environment. Furthermore, she found no studies that directly measure pesticide exposure.

"[Breast milk has] become the most chemically contaminated human food on the planet."

In the final section of the book, Steingraber discusses the dilemma of breastfeeding her newborn with milk that is highly contaminated with pesticides and other chemicals. Although it is the perfect human food that provides superior nutrition and important immunities, Steingraber states, "Breastfed babies also experience greater dietary exposures to certain toxic chemicals than their formula-fed counterparts." She advocates protecting the environment outside our bodies in order to protect the habitat within.

While pregnant women are told to avoid coffee, alcohol, sushi, and even cat feces, she argues they are not well advised about the dangers of pesticides or other toxic chemicals.

Steingraber also authored Living Downstream: An Ecologist Looks at Cancer and the Environment *and has been selected as the 2001 recipient of the Rachel Carson Leadership Award. She holds a doctorate in biological sciences and is on the faculty at Cornell University.*

For a copy, contact Lissa Warren, Director of Publicity, Perseus Publishing at (617) 252-5212, fax (617) 252-5265 or e-mail her at lissa.warren @perseus books.com. This book is also available through the Beyond Pesticides website (www.beyond pesticides.org) where, for no additional cost, your purchase triggers a donation to our organization.

BEYOND PESTICIDES/NCAMP MEMBERSHIP & SUBSCRIPTIONS

❑ **YES, make me a member of Beyond Pesticides/NCAMP (includes subscription to *Pesticides & You*).**

❑ $25 Individual ❑ $30 Family ❑ $50 Public Interest Organizations ❑ $15 Limited Income

❑ **YES, I'd like to subscribe to *Pesticides & You*.**

❑ $25 Individual ❑ $50 Public Interest Organizations ❑ $50 Government ❑ $100 Corporate

❑ **YES, I'd like to receive Beyond Pesticides/NCAMP's monthly *Technical Report*. $20 with membership or subscription.**

If outside the United States, please add $10.00 each for memberships and subscriptions.

R E S O U R C E S

T-Shirts

❑ Beyond Pesticides' Dragonfly T-shirt. Printed on sage green, 100% organic cotton with soy ink. Sizes S-XL. $15 each; 2 for $25.

❑ "Pollution Prevention Is the Cure." full color graphic on 100% natural organic cotton Beneficial-T's by Patagonia™ T-shirt. Sizes S-XL. $10 each; 2 for $15.

❑ "Speak to the Earth, and It Shall Teach Thee." In green and blue on 100% natural organic cotton. $10 each; 2 for $15.

❑ "Freedom from Pesticides is Every Body's Right." Black letters with teal, purple and yellow accents, 100% natural organic cotton. Size S only. $10, 2 for $15.

Books

❑ *A Failure to Protect.* Landmark study of federal government pesticide use and pest management practices. $23.00. *Summary and Overview* $5.00.

❑ *Unnecessary Risks: The Benefit Side of the Risk-Benefit Equation.* Explains how the EPA's Risk-Benefit Analyses falsely assume the need for high-risk pesticides, how "benefits" are inflated, how alternatives might be assessed, and the public's right to ask more from its regulators. $10.00.

❑ *Safety at Home: A Guide to the Hazards of Lawn and Garden Pesticides and Safer Ways to Manage Pests.* Learn more about: the toxicity of common pesticides; non-toxic lawn care and why current laws offer inadequate protection. $11.00

❑ *Voices for Pesticide Reform: The Case for Safe Practices and Sound Policy.* A study documenting stories of tragic pesticide poisoning and contamination, and successfully used alternatives that avoid toxic chemicals. $20.00 *Summary: Voices for Pesticide Reform $5.00*

❑ *Poison Poles: Their Toxic Trail and the Safer Alternatives.* A study on the largest group of pesticides – wood preservatives, the contamination associated with treated wood utility poles and the available alternatives. $20.00

❑ *Pole Pollution.* Deals specifically with the wood preservative pentachlorophenol, and the EPA's shocking findings about its toxicity. $7.00.

Back Issues

❑ Back issues of *Pesticides and You* $2.00 each

❑ Back issues of *Technical Reports* $1.00 each

Brochures ($2.00 each; bulk discounts available)

❑ Pest Control Without Toxic Chemicals

❑ Least Toxic Control of Lawn Pests

❑ Agriculture: Soil Erosion, Pesticides, Sustainability

❑ Estrogenic Pesticides

❑ Pesticides and Your Fruits and Vegetables

❑ Pesticides: Are you being poisoned without your knowledge?

❑ Pesticides – Warning: These Products May Be Hazardous to Your Health

❑ Pesticides in Our Homes and Schools

Testimony

❑ Lawn Care Chemicals, 3/28/90 or 5/9/91, $4.00

❑ Federal Insecticide, Fungicide, Rodenticide Act (FIFRA), 4/23/91 or 6/8/93, $4.00

❑ FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act, 6/8/93 $4.00

❑ Food Safety, 10/19/89, 8/2/93, or 6/7/95, $4.00

❑ School Environmental Protection Act (SEPA) 7/18/01, $4.00

❑ School IPM, 6/20/91, 3/19/97, or 3/30/99, $5.00

❑ New York City's Response to the Encephalitis Outbreak, 10/12/99 $4.00

❑ Parents: Right-to-Know-Schools, 3/19/97 $3.00

Publications

❑ Expelling Pesticides from Schools: Adopting School IPM $20.00

❑ Beyond Pesticides' West Nile Virus Organizing Manual $15.00

❑ Beyond Pesticides'ChemWatch Factsheets: individual: $2.00, compilation: $20.00

❑ Getting Pesticides Out of Food and Food Production $5.00

❑ Least-Toxic Control of Pests $6.00

❑ Community Organizing Toolkit $12.00

❑ Model Pesticide Ordinance, Model School Pest Management Policy, Model State School Pesticide Law $5.00 each

❑ *Schooling of State Pesticide Laws* (with 2000 update) $5.00

❑ *Building of State Indoor Pesticide Policies* $4.00

❑ *The Right Way to Vegetation Management* $4.00

Method of Payment: ❑ Check or money order ❑ VISA/Mastercard # _____ Expiration Date: _____

Name Phone Fax Email

Title (if any) Organization (if any)

Street City State Zip

Quantity	Item Description (for T-shirts, please note size S,M,L,XL)	Unit Price	Total
	MEMBERSHIP		

Mail to: Beyond Pesticides/NCAMP, 701 E Street SE, Washington, DC 20003

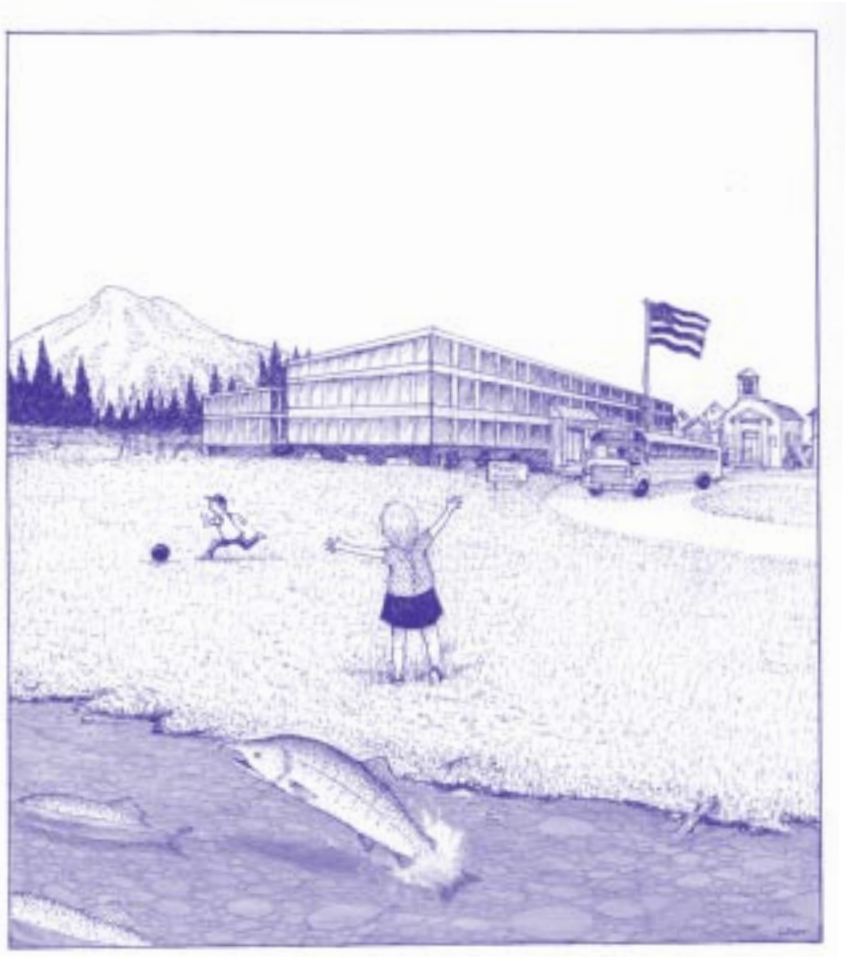
Tax-Deductible Donation: _____

Total Enclosed: _____

20th National Pesticide Forum

Streams to Schools: Finding Alernatives to Pesticides

Bastyr University
Seattle, WA
April 26-28, 2002



Mark Your Calendars! Beyond Pesticides is teaming up with the Northwest Coalition for Alternatives to Pesticides (NCAP) and the Washington Toxics Coalition for the 20th National Pesticide Forum.

Topics to be covered include: Impacts of pesticides on endangered salmon, Pesticides and children, Organic gardening, Least-toxic weed control, Genetic engineering, Wood preservatives, and much more.

The latest information, including a list of speakers and an online registration form, is posted on the National Pesticide Forum page at **www.beyondpesticides.org**. Watch your mailbox for preliminary brochures early this winter.

Pesticides and You
Beyond Pesticides/
National Coalition Against the Misuse of Pesticides
701 E Street SE, Suite 200
Washington, DC 20003
202-543-5450

COMPLIMENTARY COPY
Please Subscribe!

Non-Profit Org.
U.S. Postage
PAID
Silver Spring, MD
Permit No. 1400

Printed with soy-based inks on Ecoprint Offset, and cover on Quest™, both 100% post-consumer waste and processed chlorine free.

a member of Earth Share SM