Pesticides and You

News from Beyond Pesticides: Protecting Health and the Environment with Science, Policy & Action

Volume 32, Number 1
Spring 2012

Will Your Lawn Be Genetically Engineered?

Scotts-Miracle Gro's Roundup-Ready Kentucky bluegrass is coming soon to a store near you

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Do It Yourself Biodiversity

Groups Take on Crisis in Democracy

Connecticut effort seeks to overturn state preemption of local authority to restrict pesticides

Canada Declares Triclosan Toxic

Beyond Pesticides talks on public radio about new environmental classification

"Persevere. Persevere. Nothing worthwhile is easy."

In this issue, we are reminded again about the importance of integrating policy and personal action in our lives as we seek change. As I sat listening to President Barack Obama speak at Barnard College commencement in early May, words rang true, not only for the graduating class, but for all seeking change. The President told the Class of 2012:

> *So don't accept somebody else's construction of the way things ought to be. It's up to you to right wrongs. It's up to you to point out injustice. It's up to you to hold the system accountable and sometimes upend it entirely. It's up to you to stand up and to be heard, to write and to lobby, to march, to organize, to vote. Don't be content to just sit back and watch.*
>
> *Those who oppose change, those who benefit from an unjust status quo, have always bet on the public's cynicism or the public's complacency. Throughout American history, though, they have lost that bet, and I believe they will this time as well. But ultimately, Class of 2012, that will depend on you. Don't wait for the person next to you to be the first to speak up for what's right. Because maybe, just maybe, they're waiting on you.*

At Beyond Pesticides, we have collectively fought for the right to clean air, water, and food, safe workplaces, schools, and communities. In the process we have advanced organic systems as an approach that integrates concerns about health and the environment with cradle to grave analyses of the impact of practices and products that we use.

Do-it-Yourself Biodiversity

Beyond Pesticides strives to provide the tools for people and communities to adopt solutions to the challenges we face. So, this issue of PAY includes the piece *Do-it-yourself Biodiversity*, which explains that we can all be a part of creating "islands of biodiversity wherever we live." In so doing, we can provide refuges for species, starting with the organisms in the soil. In this effort, people participate in the transformation of society's approach to toxic chemicals. From the grassroots up we can embrace practices that eliminate a reliance on toxic pesticides through the adoption of land and building management systems that respect the power of nature and the value of life. We are talking about organic systems that incorporate management techniques that understand the richness of the local ecology, support and nurture the biodiversity that supports life, and adopt standards that are healthful and life-sustaining. Organic and chemical-intensive land management feature sharply contrasting approaches to interacting with the biodiversity of the ecosystem, defining acceptable risks, and establishing standards. Organic is preventive and precautionary. Chemical-intensive is reactive and crisis-driven. Organic incorporates a standard of essentiality, asking the question of whether an input is needed. Chemical-intensive allows the growth of the toxic market, never asking whether the toxic effect or unknown and untested hazard is necessary to achieve the end result.

Taking back democracy

Recognizing that communities want to create the broadest possible protection within their jurisdictional boundaries, groups in Connecticut have joined together to reverse a state law, common to 41 states, that prevents cities and town from outlawing hazardous pesticides on all lands, public and private. This issue includes excerpts of a session, *Local Action to Protect the Environment*, which we had at the 30th National Pesticide Forum, *Health Communities: Green solutions for safe environments*, where we discussed preemption law and the campaign in the state of Connecticut to overturn it.

Genetically Engineered Grass Seed

Despite the success we are having with organic growth, the chemical industry is pushing hard to increase its market share. As we discuss in *Will Your Lawn Be Genetically Engineered?*, Scotts Miracle-Gro has gotten the green light from USDA to begin selling its RoundUp-Ready Kentucky bluegrass. Despite the failure of RoundUp-Ready and Bt-incorporated (or insecticide-incorporated) crops, like corn, to manage escalating weed resistance, and with the introduction of 2,4-D tolerant corn, the market for genetically engineered crops appears to be growing. Now, industry is counting on the new frontier being the home lawn and parks, and we expect to see all the problems we are seeing in agriculture, which includes increasing chemical use.

Is this industry's last gasp to keep society hooked on chemicals that are not necessary to manage a landscape? The two biggest problems with herbicide tolerant technology, increasing pesticide use and escalating weed resistance, are counterproductive to a successful model because in the end the genetically engineered plant doesn't work. The same is true for insecticide-incorporated plants, which result in insect resistance to the insecticide and crop failure. Despite an unsustainable method, economics allows next quarter's profits to drive an irrational approach into the ground, as government watches.

In conclusion

There is reason for optimism, as I hope this issue conveys, with practical solutions. Another thing the President told the 2012 graduates, which applies to us all:

> *Persevere. Persevere. Nothing worthwhile is easy. No one of achievement has avoided failure — sometimes catastrophic failures. But they keep at it. They learn from mistakes. They don't quit.*

Jay Feldman is executive director of Beyond Pesticides.

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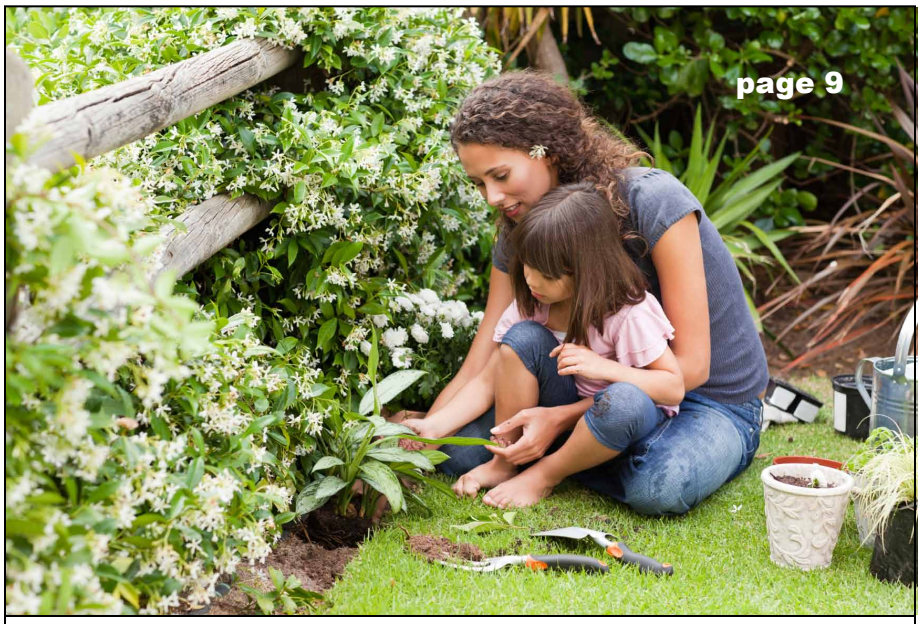

Pesticides and You © 2012 (ISSN 0896-7253) is published 4 times a year by Beyond Pesticides. Beyond Pesticides, founded in 1981 as the National Coalition Against the Misuse of Pesticides (NCAMP), is a voice for health and the environment, promoting protection from pesticides and safe alternatives; donations are tax-deductible.

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Printed on 100% post consumer waste with soy inks.

Non-Chemical Bed Bug Control Works!

I had a bad infestation of bed bugs just last spring caused by a friend who stayed for several weeks, I assume. I used a steam cleaner and organic diatomaceous earth (DE), as well as following laundry and encasement recommendations, and eliminating clutter and potential hiding areas (the DE was great for voids that I could not seal off).

It took well over two months to eradicate the annoying pests, but I used not a single toxic chemical. I even surprised the Orkin guy who controls the roaches at the restaurant where I work. He said, "Diatomaceous earth did all that?!" to which I replied, "The DE kept it from moving around, but the steam is what really worked." Nevertheless, the ancient qualities of DE (no bugs "live" on natural exposed deposits), mixed with the pure water of high-temperature steam, are as non-toxic as you can get, not to mention the fact that DE does not lose its efficacy as residual treatments do. I keep the dust in furnace areas, the bed frame, and cracks to deter future infestations of bed bugs or other pests. As long as it is not physically removed via dusting, water, wind, or vacuuming, the physical qualities of this pest management approach will last for decades, with very little risks to children or pets (the only risk being inhalation of the loose dust, which causes lung and eye irritation).

-- Dennis

Thank you so much for telling us about your successful management of this notoriously difficult pest, which most acknowledge cannot be controlled with conventional chemicals because of insect resistance.

It's important to note that when choosing a desiccating dust, such as diatomaceous earth, look for a product that is not combined with a pyrethrin. Diatomaceous earth must be garden/food grade, as swimming pool grade is associated with lung disease and ineffective at controlling insects. We also recommend always wearing a mask and goggles when applying to avoid breathing in the particles which can cause lung irritation.

For more information on how to safely and effectively prevent and manage bed bugs, see www.beyondpesticides.org/bedbugs.

Tell EPA to Ban Bee-Killing Pesticide

I signed your petition urging EPA and then Congress to ban the neonicotinoid pesticide clothianidin, but I wonder if there is more we can do currently? How can we speak this crisis to ears closed to reason?

-- Kate

Thank you for contacting Beyond Pesticides. It's true that policy makers are not acting quickly enough to protect the threatened honey bees. While we continue to put pressure on EPA and are urging Congress to step up and exercise oversight over EPA, bees are still dying. In the meantime, there are many things that you as an individual can do to be a part of the solution.

One thing you can do is encourage pollinators in your backyard or community park. Plant a garden filled with a variety of flowering plants that will attract bees. If you are more ambitious, you might consider becoming a backyard beekeeper. This provides not only a safe haven for the bees, but also provides you with the

Get Printed!

Beyond Pesticides always welcomes your questions, comments or concerns! Have something you'd like to share or ask us? We'd like to hear about it! If we think something might be particularly useful for others, we will print your comments in this section. Mail will be edited for length and clarity, and unless you specify otherwise, your contact information will remain anonymous.

There are many ways you can contact us. Join other members and activists in discussions on our facebook page facebook.com/beyondpesticides or follow us on twitter twitter.com/bpncamp! And as always, you can send questions and comments to: 701 E Street SE, Washington, DC 20003, or info@beyondpesticides.org.

opportunity to harvest fresh honey! If you are interested in keeping honey bees, the American Beekeeping Federation recommends that you find a local bee club in your area. Most clubs either offer basic beekeeping courses or can direct you to such courses. Just be sure to look for those offering organic beekeeping, to be sure that your bees are not being exposed to any harmful substances.

It's not always easy to talk to others about pesticides, particularly when it comes to the disturbing news about the collapse of honey bee colonies. One way to engage your community is to use your pollinator-friendly garden as an icebreaker. We have signs that allow you to display your pesticide-free zone to your neighbors. You can also pledge your pesticide-free, beneficial garden at www.honeybeehaven.org. Educating neighbors on how to adopt practices that don't use hazardous pesticides will go a long way to protecting honey bees. For organic lawns management, see www.beyondpesticides.org/lawn.

Another important thing you can do is to purchase organic food. Not only is it good for your health, but it also helps protect honey bees and wild pollinators. Organically grown food replaces hazardous agricultural practices that rely on toxic pesticides, with management practices that focus on soil biology, biodiversity, and plant health.

For more information on what can be done to protect honey bees and wild pollinators and help solve the crisis of colony collapse disorder (CCD), see Beyond Pesticides Pollinator Protection program page at www.beyondpesticides.org/pollinators/

From the Web

Beyond Pesticides' Daily News Blog features a post each weekday on the health and environmental hazards of pesticides, pesticide regulation and policy, pesticide alternatives and cutting-edge science, www.beyondpesticides.org/daily news blog. Want to get in on the conversation? Become a "fan" by liking us on Facebook! www.facebook.org/beyondpesticides.

Judge Dismisses Case Against Monsanto, Organic Farmers To Appeal

Excerpt from Beyond Pesticides original blog post (3/2/2012): A U.S. District Court Judge on February 24 dismissed the case of Organic Seed Growers and Trade Association et al v. Monsanto and organic farmers, seed growers, and agricultural organizations vowed to fight on.

From Paul, via Facebook

Corporations like this care only about money. At what price do you sell you and your family's health and life? I am a great fan of organic food and know that organic farming has recently been on the rise. However, I am afraid that if we allow such a small number of companies to build monopoly positions in the food industry, the number of similar unfair rulings will only grow and the organic food phenomena may easily fade away in the years to come. We should take this as a warning to act.

From Rosemarie, via Facebook

Please help support organic farmers! Buy their produce; it's for you and your family's health. Shame on these greedy corporations like Monsanto!

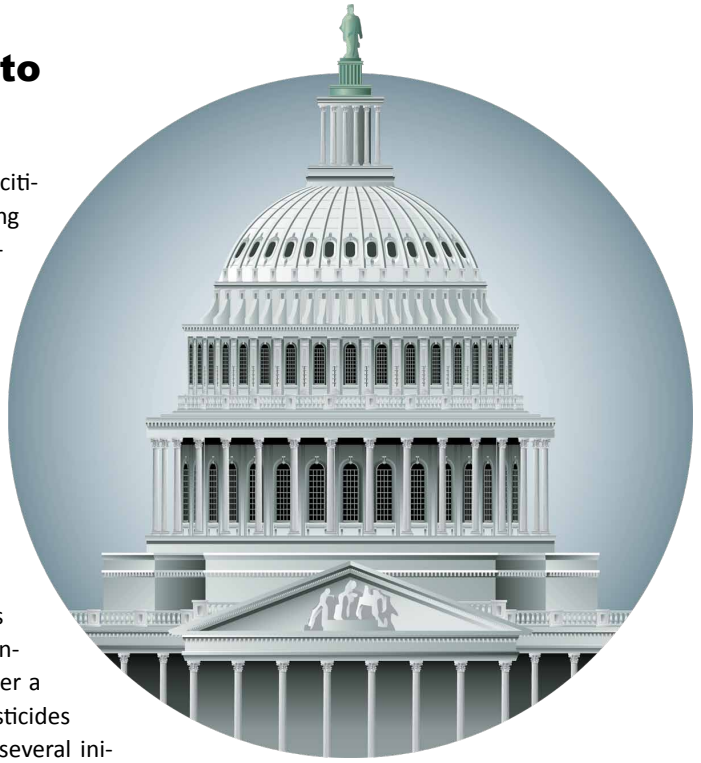
With Industry Objecting, EPA Sets Dioxin Exposure Limits for Acute Effects

Excerpt from Beyond Pesticides original blog post (2/27/2012): For the first time since its initial evaluation almost 30 years ago, the U.S. Environmental Protection Agency (EPA) has revised, despite objections from the chemical industry, its dioxin exposure assessment for acute human health risks –setting an "acceptable" level of 0.7 picograms per kilogram per day.

From Terry Shistar, Beyond Pesticides Board Member

Let's see. EPA has been working on this reassessment of risk since 1991. That's 21 years! And now they have finished part of the job. And data in the new report show "that the average background exposure of the American public to dioxin in food is very close to or above the EPA new reference dose." Did we not know that dioxin was bad? Why spend 21 years to get to this point, instead of eliminating dioxins?

Over One Million Comments Delivered to FDA Call for Labeling GE Foods



In March 2012, the Just Label It Campaign (JLI) delivered a petition signed by 1.1 million Americans to the U.S. Food and Drug Administration (FDA) –the most comments ever submitted to the agency on a food-related subject– to require labeling of genetically engineered (GE) foods. The JLI Campaign, a national coalition of more than 500 partner organizations including Beyond Pesticides, launched the petition in October 2011 to mobilize the overwhelming public support for such labeling. An astonishing 93% of consumers from a national survey in 2010 stated that they favored labeling of GE foods as is currently required in the European Union, Japan, Australia, Brazil, Russia, and China. Gary Hirshberg, chairman of JLI Campaign partner Stonyfield Farm, stated that, "In recent years, Americans have shown a real interest in knowing more about our food and now there is a clear mandate for the labeling of genetically engineered foods. This petition asks the FDA to stand up for the rights of average Americans, and not just a handful of powerful chemical companies. It's time for the FDA to give Americans the same rights held by citizens in forty nations, including all of our major trade partners, to know whether our foods have been genetically modified. The FDA needs to restore confidence in our food and our right to know about the food we eat and feed our families."

FDA can take up to six months to review the merits of the petition, which was drafted by attorneys at the Center for Food Safety, and deliver a public response. Beyond Pesticides is working with partners on several initiatives beyond the labeling petition to reverse the accelerating introduction of GE products into agriculture and the food supply. The best way to avoid GE foods in the marketplace is by purchasing foods that are certified under the USDA organic certification program. USDA standards prohibit the use of genetic modification in the production and handling of organic food. This prohibition is one of several reasons why shopping for organic is the right choice for consumers.

For more information on GE crops or the Just Label It campaign, see Beyond Pesticides Genetic Engineering program page, www.beyondpesticides.org/gmos.

Court Case Compels FDA to Act on Antibiotics in Livestock Feed

Organic and sustainable agriculture advocates achieved a milestone victory in March 2012 when a federal judge ruled that the U.S. Food and Drug Administration (FDA) must act promptly to determine whether to ban sub-therapeutic uses of antibiotics in livestock. The ruling is the latest step in a regulatory process that began in 1977 when FDA determined that feeding livestock certain antibiotics used in human medicine could promote antibiotic-resistant bacteria capable of infecting people. Despite its legal obligation to act, FDA has delayed taking action for over three decades and, in late 2011, even terminated the original rulemaking process in an attempt to close the matter. The judge's decision makes it clear that the voluntary approach FDA proposed last year when terminating the rulemaking process does not satisfy the agency's legal obligations. The legal victory resulted from a lawsuit filed by NGOs in 2011.

Dating to the 1950s, feeding sub-therapeutic doses of antibiotics to livestock has become so common that it accounts for upwards of 80% of those materials' usage in the U.S. The practice is chronic in the industrial-style production systems referred to as confined animal feeding operations, or CAFOs, in which the vast majority of the country's swine, poultry, and cattle are raised. The unsanitary conditions produced by packing excessive numbers of animals into an unnatural environment create the risk of infectious disease outbreaks that would be averted under living conditions appropriate to each species. U.S. Department of Agriculture (USDA) organic certification standards prohibit treating livestock with any amount of antibiotics. The standards also require that producers maintain living conditions that prevent infectious diseases from becoming established and adversely impacting livestock health. *For more information, see Beyond Pesticides Organic Food webpage, www.beyondpesticides.org/organicfood.*

Beekeepers, Allies Petition EPA to Act as Research Implicates Pesticides

In March, Beyond Pesticides partnered with a national network of beekeepers and other advocates for environmentally responsible agriculture to petition the U.S. Environmental Protection Agency (EPA) to suspend further use of the pesticide clothianidin. Clothianidin belongs to the neonicotinoid class of insecticides and a growing body of research implicates these compounds as a key contributing factor to Colony Collapse Disorder (CCD), which has devastated honey bees in the U.S. The petition emphasizes EPA's failure to comply with the legal requirements for registering a pesticide by allowing clothianidin to remain on the market for nine years under a "conditional registration" without a required, scientifically valid field study showing that it could be used without "unreasonable adverse effects" for all pollinators. Filing the petition was the culmination of months of collaboration between Beyond Pesticides, its organizational partners Center for Food Safety and Pesticide Action Network North America and more than two dozen beekeepers and beekeeper organizations that joined the effort.

Most commonly applied as a seed treatment, clothianidin is a systemic pesticide that is transported through the plant's vascular system and ultimately expressed in every cell. While intended to suppress sucking insects such as thrips, clothianidin also impacts the honey bees and wild pollinators that come into contact with its residues through the pollen, nectar, and guttation droplets on which they forage and drink. When initially reviewing clothianidin in 2003, EPA acknowledged this risk as potentially disqualifying its allowance, but still granted a conditional registration pending submission of a scientifically valid field study demonstrating its safety to pollinators. The manufacturer, Bayer, submitted a study that EPA deemed inadequate due to design and methodological deficiencies in 2007.

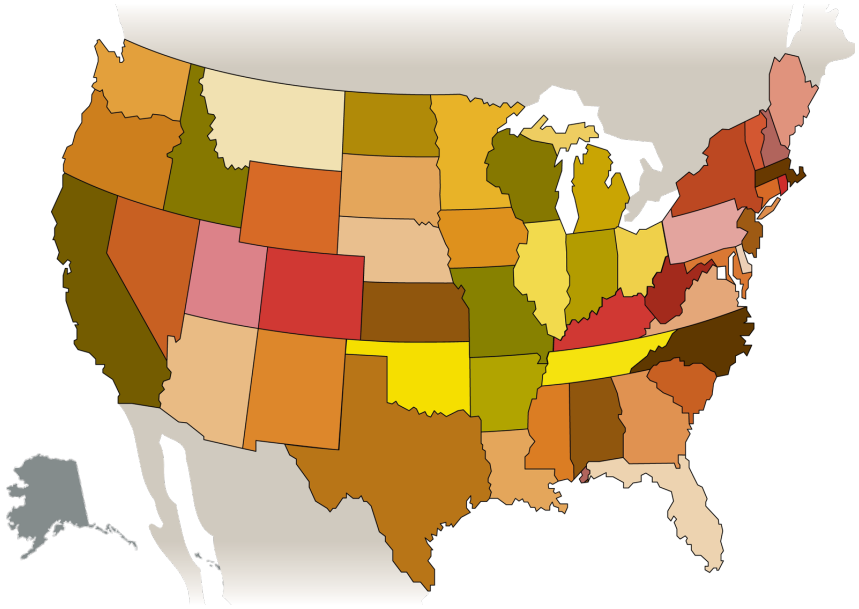
The petition thoroughly documents its core assertion that, despite clothianidin having been applied to millions of acres of crop land in the U.S. over the past nine years, EPA has yet to confirm that the pesticide satisfies the legal conditions for acceptable use that the agency imposed. The petitioners analyze the well-documented chronic and acute adverse effects that clothianidin and other neonicotinoids have been shown to have on pollinators and highlight new studies identifying previously unrecognized routes through which non-target organisms can be exposed. The petition also includes legal arguments supporting the withdrawal of clothianidin from sale based on violations of requirements of the *Endangered Species Act* and EPA's own pesticide labeling regulations. Filing the petition initiates a public process in which EPA is required to consider and respond to the petitioners' arguments to revoke clothianidin's conditional registration.

New Studies Link Pesticides to Colony Collapse Disorder

Shortly after the public interest petition was filed with EPA, three new studies were published documenting low-dose exposures to neonicotinoids decreased survival rates in honey bees and wild bumble bees. In a French study from the journal *Science*, researchers used radio-frequency identification (RFID) to document that when exposed to sub-lethal doses of thiamethoxam at levels present in the environment, honey bees were less likely to return to the hive after foraging than control bees that were not intentionally exposed. Individual survival rates decreased as the homing task became more challenging.

In a British study also published in *Science*, researchers exposed colonies of bumble bees to levels of the neonicotinoid imidacloprid found in the natural environment. Treated colonies showed a significantly reduced growth rate and suffered an 85% reduction in the production of new queens compared to unexposed control colonies. The study is noteworthy because it shows that bumble bees, which are wild pollinators that provide many irreplaceable contributions to ecological balance, are suffering effects from exposure to a neonicotinoid pesticide similar to "managed" honey bees.

A Harvard University study, published in the *Bulletin of Insectology*, tests the hypothesis that the uptick in CCD resulted from the presence of imidacloprid. Honey bees can be exposed in two ways: through nectar from plants or through high-fructose corn syrup beekeepers use to feed their bees. The researchers found that 94% of the hives had died after exposure to imidacloprid at levels believed by the study team to have been present in high fructose corn syrup since the introduction of neonicotinoids into corn seed treatments in 2004-2005.



Canada Declares Triclosan Toxic

The Canadian government has declared that triclosan, the bacteria killer found in many toothpastes, mouthwashes, and anti-bacterial soaps, is toxic to the environment, a move which could curtail the use of the chemical in Canada. It has been linked to human and environmental health effects and has been the subject of petitions led by Beyond Pesticides calling for its ban from consumer products. Health Canada has been probing the effects of triclosan on the body's endocrine system and whether the antibacterial agent contributes to the development of antibiotic resistance, along with the effect of widespread use on the environment. The draft risk assessment released in March 2012 finds triclosan to be toxic to the environment, but has not assembled enough evidence to conclude it is hazardous to human health. A toxic designation under the *Canadian Environmental Protection Act* triggers a process to find ways to curtail a chemical's use, including a possible ban in a range of personal-care products.

Triclosan exploded on to the marketplace in hundreds of consumer products, ranging from antibacterial soaps, deodorants, toothpastes, cosmetics, fabrics, toys, and other household and personal care products. While marketed as agents that protect and safeguard against harmful bacteria, studies conclude that antibacterial soaps show no health benefits over plain soaps. The scientific literature has extensively linked the uses of triclosan to many environmental and health hazards, including endocrine disruption.

Beyond Pesticides in 2004 began voicing concern about the dangers of triclosan and in 2009 and 2010 submitted petitions to the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA), calling for the removal of triclosan from consumer products. Since then, many major companies are quietly removing triclosan from their products. *For more information, see Beyond Pesticides' Antibacterial program page, www.beyondpesticides.org/antibacterial.*

Cape Cod Towns Adopt Organic Land Management

A number of communities on Cape Cod, Massachusetts have begun to adopt or explore organic turf management practices for municipal parks and athletic fields. The towns of Wellfleet, Eastham, Barnstable, Brewster, Orleans, Chatham, and Harwich have all made moves toward adopting policies or practices that seek to limit the application of toxic pesticides on town-owned property and opt instead for organic methods of pest management. Furthest along in the effort is Wellfleet, which officially adopted the Cape's first codified organic turf management policy. The policy bans all pesticides and chemical fertilizers on town parks, playgrounds, and athletic fields, while allowing for some exceptions such as rodent bait traps. Wellfleet's Board of Selectmen, which unanimously adopted the policy in March 2012, were concerned about the possibility of lawn chemicals leading to environmental contamination and presenting serious risks to people and wildlife.

Officials in several of the towns on the Cape have indicated that they are worried about the potential increases in cost associated with organic turf management and stated this may be an impediment to more widespread adoption of organic policies. However, research by the environmental health group Grassroots Environmental Education, comparing the relative costs of maintaining a typical high school football field using a chemical-intensive program and an organic-based program over a five-year period, concludes that the annual cost of maintaining a field using natural products and techniques can be as much as 25% lower than the cost of conventional programs using chemical fertilizers and pesticides. *For more information and resources on organic management of green spaces, see Beyond Pesticides lawns and landscapes webpage, www.beyondpesticides.org/lawn.*

Herbicide Applications Undermining Protection of Biodiversity

Newly published research has documented that widely used herbicides can adversely impact non-target invertebrate organisms and that endangered species face acute risk from such impacts. Researchers have found that adult numbers of the Behr's metalmark butterfly dropped by one-fourth to more than one-third when its larvae were exposed to herbicides applied in the vicinity of the butterfly's preferred food source, the naked stem buckwheat plant. The results are especially disturbing because the Behr's metalmark was being studied as a surrogate for the Lange's metalmark butterfly, which shares the same habitat and feeding preference and whose population has shrunk from 2,300 in 1999 to less than 100 today. As a federally protected endangered species, the Lange's metalmark could not be included in the experiment. Researchers concluded that inert ingredients in the herbicide formulations or indirect effects on food plant quality may be causing the increased butterfly mortality.

Researchers sprayed triclopyr, sethoxydim, and imazapyr at regularly applied rates on Behr's metalmark larvae and its favorite host plant, naked stem buckwheat. The larvae were then raised in the laboratory over several months, after which time between 24-36% fewer adults emerged from pupation in the herbicide-treated trials compared to controls. John Stark, PhD, an eco-toxicologist at Washington State University who co-authored the study, said, "A lot of people believe that herbicides don't have an effect on animal life, but we found that they can have an effect. We found that these three herbicides had a negative effect on these butterflies." In a small population of endangered animals, Dr. Stark said, "Any kind of reduction like that is going to be a problem." The study, "Effects of herbicides on Behr's metalmark butterfly, a surrogate species for the endangered butterfly, Lange's metalmark," published in the journal *Environmental Pollution*, is one of the first to document the effects of herbicides on butterflies.

Methyl Iodide Maker Halts Sales in the U.S.

In a victory for environmentalists and farmworkers, manufacturers of the controversial and highly toxic fumigant pesticide methyl iodide announced on March 20, 2012 that it will cease sales of the chemical in the U.S. market immediately. Representatives from Arysta LifeScience say that the decision was made as a part of an internal review and based on its economic viability in the U.S.; however, the company will still continue to sell methyl iodide products in other countries. Methyl iodide causes late term miscarriages, contaminates groundwater and is so reliably carcinogenic that it is used to create cancer cells in laboratories. The pesticide poses the most direct risks to farmworkers and those in the surrounding communities because of the volume that needs to be applied to fields and its tendency to drift off site through the air.

In 2007, the Environmental Protection Agency (EPA) fast-tracked the registration of methyl iodide for use as a soil fumigant, despite serious concerns raised by a group of over 50 eminent scientists, including six Nobel Laureates in Chemistry. These scientists sent a letter of concern to EPA that concludes, "It is astonishing that the Office of Pesticide Programs is working to legalize broadcast releases of one of the more toxic chemicals used in manufacturing into the environment." In response to this decision, environmental groups, farmworker groups, and individual farmworkers sued California in an attempt to reverse the state's approval of the chemical. The ongoing court case revealed documents showing that the California Department of Pesticide Regulation (CDPR) manipulated data and that department scientists were worried that risk managers minimized health dangers and did not take strong enough steps to mitigate the threats. During a hearing on January 13, a California Superior Court Judge raised concerns about whether CDPR complied with its legal obligation to consider alternative options before approving the use.

Though many in the industry worry that strawberry producers in countries that allow methyl iodide will have an unfair advantage over U.S. strawberry growers, there is much evidence to the contrary. A 2010 study shows that organic farms produced more flavorful and nutritious strawberries, while leaving the soil healthier and more genetically diverse than conventional strawberry farms. *For more information, see Beyond Pesticides Organic Food and Eating with a Conscience webpages, www.beyondpesticides.org/organicfood.*

Study Finds Common Pesticides Linked to Lower Birth Weight

New research published April 2012 in the online edition of *Environmental Health Perspectives* finds that exposure of pregnant women to organophosphate (OP) pesticides may affect both length of pregnancy and birth weight. The authors of the study, "Associations of Prenatal Exposure to Organophosphate Pesticide Metabolites," collected urine from women twice during their pregnancies for organophosphate metabolites, as well as other factors that could influence the fetus' health, including exposure to second hand smoke, race, and poverty. Women with higher levels of organophosphates were found to have pregnancies that are three to four days shorter and babies that are about one-third pound lighter on average than women with lower levels of pesticides. "For an individual child, a decrement of 150-gram reduction in birth weight is of little consequence, but this is just one of many risk factors that a pregnant woman might encounter. If a woman has four or five risk factors, the impact can be substantial," explains the study's senior author, Bruce Lanphear, MD. "The decrement in birth weight that we found for OP pesticide exposure was comparable with the decrement seen for women who smoke cigarettes."

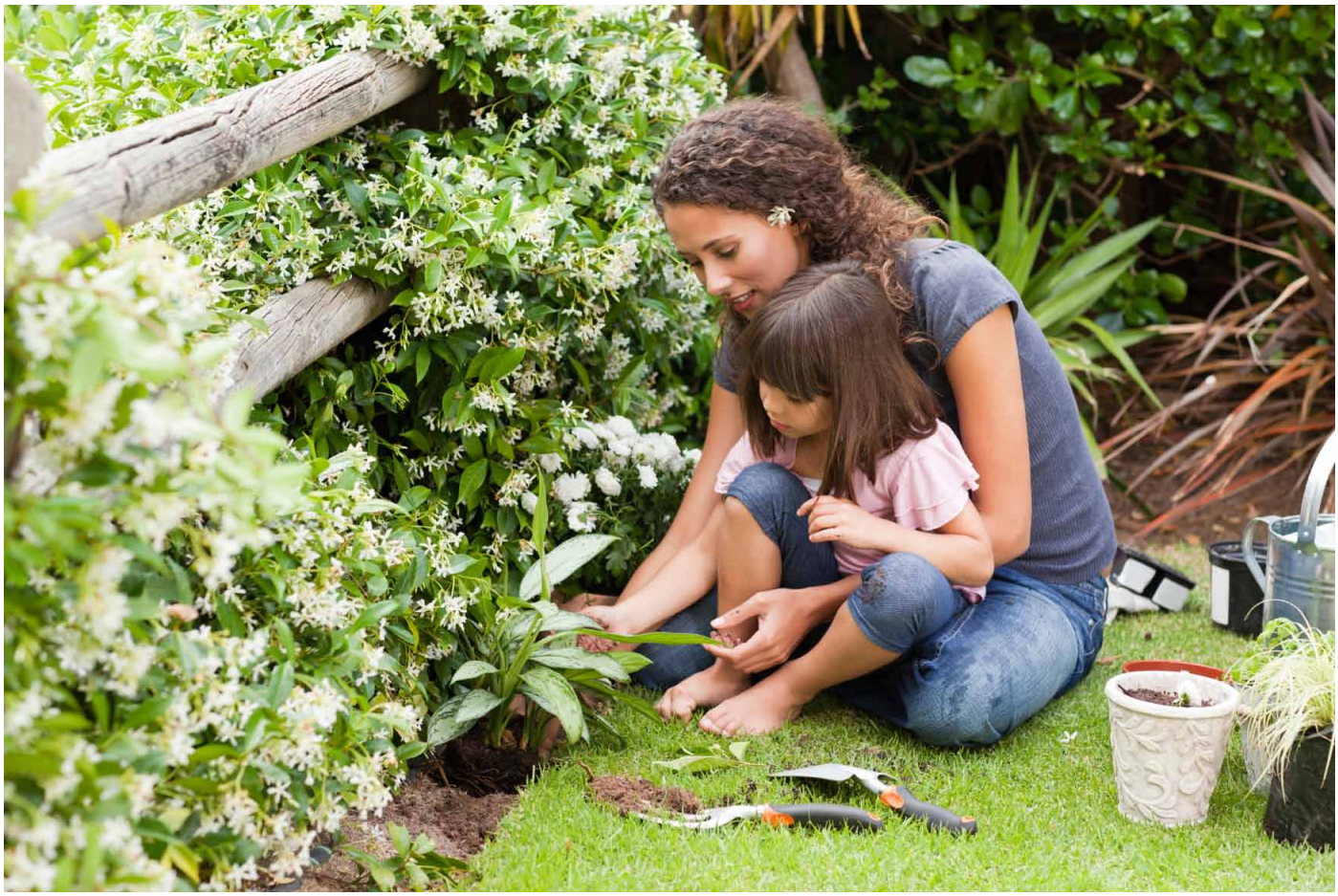
Organophosphates are a common class of chemicals used in pesticides and are considered to be among the most likely pesticides to cause an acute poisoning. Organophosphate pesticides are extremely toxic to the nervous system, as they are cholinesterase inhibitors and bind irreversibly to the active site of an enzyme essential for normal nerve impulse transmission. Despite numerous organophosphate poisonings of farmworkers, homeowners, and children, EPA has allowed the continued registration of these products. In some cases, such as those of chlorpyrifos and diazinon, household uses of the products have been cancelled because of the extreme health risks to children, but agricultural, golf course, and mosquito control uses remain on the market. In order to reduce exposure to these chemicals, Dr. Lanphear recommends that expectant mothers choose organic foods. He also recommends that families stop using pesticides in and around the home and advocates banning cosmetic pesticides in their communities.

Roundup Linked to Animal Shape Changes

The world's most popular weed killer can induce morphological changes in vertebrate animals, according to research published in the March 2012 issue of *Ecological Applications*. University of Pittsburgh researchers have found that the weed killer Roundup, in sublethal and environmentally relevant concentrations, causes two species of amphibians to change their shape by interfering with the hormones of tadpoles and potentially many other animals. The study, "New effects of Roundup on amphibians: Predators reduce herbicide mortality; herbicides induce antipredator morphology," examines three species of amphibians –the leopard frog, American toad, and wood frogs, and has the greatest impact on the two frog species. The presence of predators can cause tadpoles to change shape by altering the tadpoles' stress hormones, causing them to grow bigger tails to better escape. But similar shape changes seen after exposure to Roundup suggest the weed killer may interfere with the hormones of tadpoles and potentially many other animals. "Herbicides are not designed to affect animals, but we are learning that they can have a wide range of surprising effects by altering how hormones work in the bodies of animals," said lead author Rick Relyea, PhD. "This is important because amphibians not only serve as a barometer of the ecosystem's health, but also as an indicator of potential dangers to other species in the food chain, including humans."

Roundup is a systemic, broad-spectrum herbicide produced by Monsanto. Glyphosate, the active ingredient in Roundup, is a general herbicide used for eradication of broadleaf weeds. It has been linked to a number of serious human health effects, including increased cancer risk and neurotoxicity, as well as eye, skin, and respiratory irritation. Glyphosate is used in almost all agricultural and urban areas of the U.S. The inert ingredient POEA, formulated in Roundup products, has also been shown to kill human embryonic cells. It is also of particular concern due to its toxicity to aquatic species, as well as instances of serious human health effects from acute exposure. *For more information on the health and environmental effects of Roundup and its active ingredient, glyphosate, see the Pesticide Gateway, www.beyondpesticides.org/gateway.*

Do-It-Yourself Biodiversity



By Terry Shistar

Counteracting the threats to the biological communities that support life on Earth is a huge task, but there are also many ways in which we as individuals can make real contributions to preserving biodiversity. Conservation biologists have used the theory of island biogeography to develop strategies for preserving biodiversity. Small islands of habitat cannot support large predators, but they can provide refuges for smaller species, and many small islands can be strung together to support larger, mobile species. Almost all of us can help by creating islands of biodiversity wherever we live.

Soil

In land-based ecosystems, biodiversity begins with the soil. Recent science has shown that J.I. Rodale and other organic pioneers were right –the soil is a living organism, and synthetic fertilizers and pesticides do kill the soil. The growth of all the plants we see above ground –from lettuce seedlings to redwood trees– results from a symbiosis between the plants and the fungi, bacteria, insects, and other soil-dwelling organisms. For a greater understanding of the microbial life in the soil, see *Teaming with Microbes: The Organic Gardener's Guide to the Soil Food Web* by Jeff Lowenfels and Wayne Lewis.

Some plants prefer soils dominated by fungi; others prefer soil dominated by bacteria. Soils dominated by bacteria are found in farms, gardens, and prairies, where bacteria keep nitrogen and other nutrients available for plants by storing them in their own bodies. Soils dominated by fungi are found in forests, where leaves and wood are relatively resistant to bacterial degradation, but provide carbon-rich nutrition that is perfect for fungi. Bacteria and fungi are the basis for the soil food web, which also includes arthropods, earthworms, and other larger organisms.

Building Biodiversity in the Soil

The foremost method for building biodiversity in the soil is composting. Composting breaks down organic matter, while growing the organisms necessary for a healthy food web. Compost can be made in different ways, depending on the soil where it will be used. Compost made predominately from wood chips, sawdust, or dry leaves ("browns") and turned infrequently favors fungi. Compost made largely from kitchen scraps, grass cuttings, green plant residues, and/or manures ("greens") and turned frequently

DIY Biodiversity

#1 Compost nurtures populations of soil food web organisms.

#2 Organic Gardens exclude toxic fertilizers, increase biodiversity, protect biological communities, and fight climate change.

#3 Mulch provides food for soil organisms and shelter for predators.

#4 Plant and Save Heirloom Seeds to preserve genetic diversity and promote locally adapted varieties.

#5 Plant a Chestnut Tree for the future.

#6 Grow Saprophytic Mushrooms to increase fungal biodiversity.

#7 Disperse Mycorrhizal Fungi to promote symbiotic relationships that help forest health.

#8 Seed Bombs distribute seeds with soil food web organisms.

#9 Plant for Insect Diversity and encourage "beneficial" insects.

#10 Pledge your yard as a Pesticide Free Zone/ Honey Bee Haven to protect pollinators.

#11 Nesting Places for Insects preserve pollinators and predators.

#12 Nesting Places help conserve bird populations.

#13 Encourage Insectivores and bring balance to the garden.

#14 Water is necessary for life.

#15 Feed animals through lean times.

#16 Brush Piles provide shelter and habitat.

favors bacteria. Composting should be an aerobic process favoring aerobic organisms.

Soil life creates soil structure and nutrients. A diverse soil food web maintains a balance that controls disease and protects mycorrhizal fungi. The soil organisms raised in a compost pile may be introduced to the soil by applying the compost directly to the soil or by making compost tea.

Information about composting can be found in any book about organic gardening and the article "Compost is the Key" on the Beyond Pesticides website, www.beyondpesticides.org. *Teaming with Microbes* describes the value of composting from the viewpoint of inoculating the soil food web.

Plants

Organic gardening uses the soil food web to produce plants for our use. When you garden organically, you can increase biodiversity in several ways:

- The soil food web grows and diversifies.
- You can grow varieties adapted to your tastes and location, thus creating more diversity within each species.
- Successful organic gardens are diverse polycultures, supporting populations of pollinators, predators, and parasites that create a healthy and balanced garden community.
- Organic gardens do not use synthetic fertilizers and pesticides that kill soil organisms and disrupt biological communities.
- Organic soils sequester carbon, thus reducing global climate change and its adverse impacts on biodiversity.

There are many informative and entertaining books available about organic gardening. Also, see the organic gardening section of the Beyond Pesticides website.

Mulching consists of covering the soil with a layer of organic or inorganic material, and is useful to gardeners because it inhibits unwanted plants and conserves soil moisture. Organic mulch also helps build biodiversity. It feeds soil organisms at the soil-mulch interface. Fine, greener mulches promote bacterial growth; coarse, dryer mulches promote fungal growth. Mulch provides shelter for a variety of animals, including the insectivorous toads, spiders, and ground beetles.

Conventional farming methods have resulted in a huge loss of diversity in crop varieties –90% of the fruit and vegetable varieties once grown in the United States are now extinct– and many of the rest are patented by a few seed companies. You can help preserve biodiversity of domesticated plants by choosing open-pollinated types and saving your own seed. Saving seed also enables you to select for local adaptations, which is important in these days of changing climate. *Seed to Seed* by Suzanne Ashworth is an excellent introduction to seed saving.

The American chestnut was the dominant tree in the eastern United States before it was wiped out by blight. An extensive breeding project has produced resistant trees. Anyone with enough space for a couple of trees can be part of the effort to bring back the American chestnut. Seeds and seedlings are available from several sources, including The American Chestnut Foundation and commercial nurseries.

Fungi

Saprophytic fungi break down dead plant material and turn it into soil. Since some of the saprophytes produce edible mushrooms, a delightful way of producing fungal compost to feed soil around trees and shrubs is growing edible mushrooms. *Mycelium Running* by Paul Stamets gives some basic techniques for raising mushrooms. Kits are also available. A simple technique involves propagation of fungi from the stem butts of mushrooms. These cultures can be "released" into appropriate environments, or the spent substrate can be used as an addition to fungi-rich compost.

Mycorrhizal fungi form symbiotic (mutually beneficial) relationships with plants –sometimes involving cooperation among plant species. For example, three distinct tree species (Douglas fir, paper birch, and western red cedar) share sugars through mycorrhizae growing in the soil, with trees in the sun giving up nutrients to those in the shade.

One simple way of dispersing mycorrhizal fungi is practiced by morel mushroom hunters, who often put their finds in a net mesh bag as they continue the hunt, which allows spores to filter into the air and spread to new locations. More deliberate methods include making spore prints –put the mushroom cap spore side down on a piece of paper– to collect spores (which can be released in new habitats), and making seed bombs.

Propagating Mushrooms from Stem Butts

- Clip off the base of the mushroom just above the root-like filaments (rhizomorphs).
- Soak a square of plain corrugated cardboard in water until it is saturated.
- Pull the cardboard apart to expose corrugations.
- Place one stem butt on a 4-inch by 4-inch square and sandwich the layers together.
- Soak the sandwiches in water and cover with a shallow layer of wood chips.
- Keep on the ground in the shade up to 8 months before transplanting to a food source —wood chips in burlap sacks, bales of straw, etc.

Mycelium Running provides a list of species known to regrow from stem butts. Try starting with oyster mushrooms, which may be available at your grocery store. You can experiment with wild mushrooms growing on wood, but be careful what you eat!

Seed Bombs

Masanobu Fukuoka, the author of *The One Straw Revolution*, is credited with the invention of seed balls or "seed bombs." The seed bomb incorporates compost and seeds in a packet held together with clay. The compost provides the germ of the bacterial and fungal components of the soil, while the seeds introduce the plants. The two components are introduced together to facilitate the development of symbiotic relationships. Seed bombs can be tailored to the environment in which they are distributed. I make three main kinds of seed bombs (you can tailor this to your region):

- Seeds of native woodland plants with a fungal compost including mycorrhizal

mushrooms I collected over the previous year,

- Seeds of native prairie species with a bacterial compost that may be enriched with spores of prairie species of mycorrhizal fungi (purchased from a company specializing in prairie seeds) or prairie soil, and
- Seeds of plants that will grow fast, hold the soil, and help build the soil (mostly annuals and legumes) with a bacterial compost.

Seed bombs should be scattered fairly densely –ten per square meter is suggested– on bare ground. When used to enrich existing habitat, density is not important.

Recipe for Seed Bombs

Mix thoroughly:

1 part (by volume) seeds. (I collect most of my seeds, but usually enrich the mixture with others. Fukuoka recommends including 100 kinds of seeds. None of mine have reached that level of diversity.)

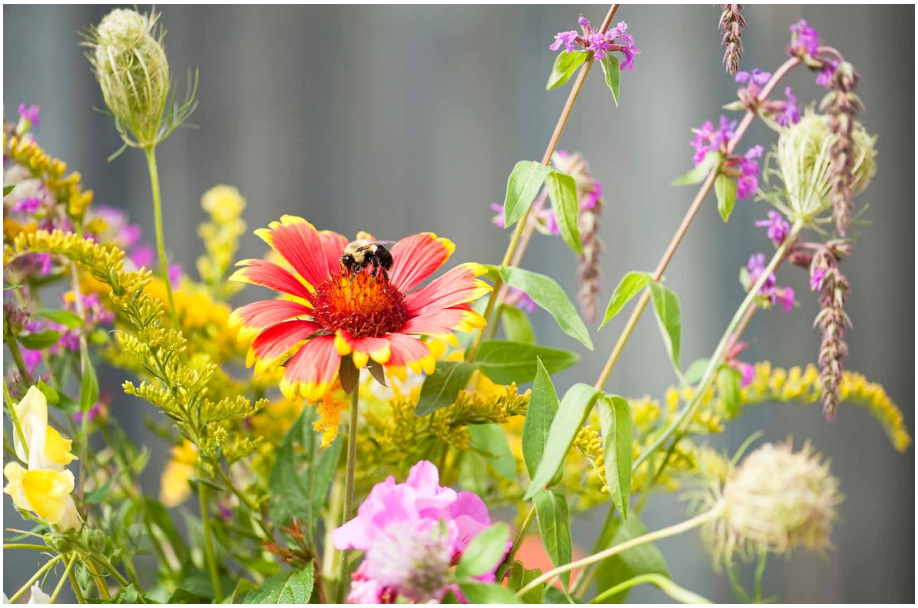
3 parts dry compost, appropriate to the seeds and site where the seed bombs will be scattered.

5 parts dry clay, powdered. (I collect clay that settles out of the high water along a river or creek. When it dries, it curls up. Sand can be brushed off. Terra-cotta clay is appropriate if you are buying it.) Add enough water to make a workable mixture. Break off marble-sized balls of clay and roll them in your hands until you feel the clay "set up." (Unless your mixture is very dry or very wet, you will feel a difference.) Place on a newspaper or tarp to dry. Dry for at least a day before using. Keep cool and dry, not in plastic bags.

Insect Biodiversity

Most people do not think of encouraging bees and wasps around their homes. But the family *Hymenoptera*, which includes ants, bees, and wasps, contains many species considered "beneficial" to the farm or garden. These include the solitary parasitoids that lay eggs in host insects, solitary nesting species, and social species like honey bees and paper wasps. Solitary species are not usually aggressive, and can nest without harm near human activity. Social species are more likely to sting when someone approaches the hive or nest. We can protect *Hymenoptera* by keeping honey bees and providing other nesting opportunities. Paper wasps, which can be hazardous when they nest around a doorway, can be encouraged to nest near the garden –where their consumption of caterpillars will be appreciated– by providing a small sheltered box (with a roof and three sides) a few feet off the ground. Orchard mason bees, leaf-cutter bees, and others will nest in holes in blocks of wood.

Nectar sources are important for pollinators and parasitic wasps. Seed companies offer mixes to attract "beneficial" insects. A small patch of one of these blends can bring a remarkable variety of insects. One day last June, I saw at least seven species of bees, including bumblebees and domesticated honey bees, plus at least three kinds of wasps, and two or three beetles in a couple of minutes on some parsnip flowers. Some plants commonly included in insectary mixes are listed in the box on the next page. Of course, you should pledge your yard as a Pesticide Free Zone/Honey Bee Haven. For more about bees, see "Backyard Beekeeping" and "Pollinators and Pesticides" on the Beyond Pesticides website.



Various Vertebrate Insectivores

Conventional wisdom says that the most effective biological controls are parasitoids, whose population growth quickly tracks the population of the host. Nevertheless, many vertebrate insectivores are important in regulating prey populations. Anyone who has lived around swallows has probably seen mosquito populations build before the swallows arrive in the spring, drop as the swallows raise their young, and then rise again in the fall after the swallows leave. House sparrows and house wrens are other insectivores that like to live in and around homes. I watched one house wren deliver 25 caterpillars in 43 minutes to the nest.

Supplying housing or housing sites helps birds, especially when the habitat lacks their natural nesting sites. Purple martins prefer apartment-style housing with multiple units. A small shelf on the underside of a beam on a porch or in a barn will help support the nest of a barn swallow or phoebe. Ample information is available about the bird houses that attract various birds. Some people are successful

in attracting bats to bat houses. Ground-dwelling insectivores like frogs, toads, small snakes, and lizards welcome a little shelter, too. Toads appreciate a flower pot turned on its side in the garden.

All animals need water, and a small pond or even a pan of water may be essential to the habitat in your yard –for drinking, as well as a place for frogs and toads to lay eggs. By providing moving water or insectivores (fish, toads, or aquatic insects), mosquito breeding can be avoided.

Some animals need an extra food source to bridge the gap between natural food sources, such as the gap between nectar sources for hummingbirds. A number of insectivorous birds depend on seeds and berries over the winter, and winter feeding or planting shrubs with winter berries can ensure that they will be around in the spring.

Brush piles provide cover for all sorts of animals –from birds to snakes to rodents. If you have the rodents, you need the snakes, but if you don't want the rodents, you can make the brush pile less attractive to them by raising it off the ground on cinder blocks. As the pile rots, it feeds fungi and contributes to the fungal portion of the soil. To make a brush pile, pile the small to medium-sized woody trimmings from trees and shrubs into a big heap.

Some Insectary Plants

Umbellifers: carrot, dill, coriander, fennel, parsnip Composites: sunflower, yarrow, coreopsis, cone flower, blanket flower, asters
Legumes: berseem clover, sweet clovers, purple prairie clover, Dutch white clover
Others: alyssum, buckwheat, cleome, mustards

Is it enough?

Our efforts at growing biodiversity in our backyards will not be enough by themselves. We need to protect all species from habitat destruction and poisoning. But our own personal efforts can be significant. The proliferation of bluebird houses was able to reverse a downturn in bluebird populations caused by factors including the lack of suitable nesting cavities, the loss of open field habitats, and pesticide use. Some animals are mobile enough that a number of bits of habitat can add up to enough. By building biodiversity in small places, we increase the resilience of biological communities and decrease their susceptibility to "invasive species," thus reducing the likelihood that someone will decide that poison is needed to solve a problem.

Resources

Beyond Pesticides website: Organic gardening webpage, www.beyondpesticides.org/organicfood/gardening, including "Grow Your Own Organic Food," www.beyondpesticides.org/infoservices/pesticidesandyou/Spring%202010/grow-organic.pdf, and "Compost is the Key," www.beyondpesticides.org/infoservices/pesticidesandyou/Fall%2007/compost.pdf; "Backyard Beekeeping," www.beyondpesticides.org/infoservices/pesticidesandyou/Fall09/backyardbees.pdf; and, "Pollinators and Pesticides," www.beyondpesticides.org/pollinators/protect;

Other online: From Audubon, http://birds.audubon.org/faq/where-can-i-get-plans-build-bird-house-what-are-correct-dimensions-each-species for birdhouse plans; Fungi Perfecti, http://fungi.com for mushroom kits.

Books: *Wildlife in the Garden* by G*ene Logsdon; The Earth Manual* by Malcolm Margolin; *Teaming with Microbes: The Organic Gardener's Guide to the Soil Food Web* by Jeff Lowenfels and Wayne Lewis; *Mycelium Running* by Paul Stamets; *Seed to Seed* by Suzanne Ashworth; *How to Have a Green Thumb without an Aching Back* by Ruth Stout; *The Medicinal Herb Grower* by Richo Cech; *The Resilient Gardener* by Carol Deppe; *Four-Season Harvest* by Eliot Coleman.

Will Your Lawn Be Genetically Engineered?

Scotts-Miracle Gro's Roundup-Ready Kentucky bluegrass is coming soon to a store near you

By Chris Ryan

In July of 2011, the U.S. Department of Agriculture (USDA) cleared the way for widespread planting of a new type of genetically engineered (GE) organism: a variety of Kentucky bluegrass which has been engineered by the Scotts Miracle-Gro company to be resistant to Monsanto Company's Roundup herbicide (glyphosate). The approval has sparked concern among health and environmental advocates for a number of reasons. First, the product will be unique among GE crops in that it will be directly marketed to the general public to plant themselves, as opposed to a specific consumer subset, such as farmers. Because of the expected wide consumer appeal due to a perception of easier lawn maintenance, the GE bluegrass will most likely result in a dramatic increase in acreage planted in GE crops, as well as glyphosate applications, throughout the country –bringing with it the health and environmental consequences of such an increase. Additionally, because of the way in which the product was engineered to evade USDA regulatory channels, companies developing future GE crops are now aware of a significant loophole in biotechnology regulations and will likely design their products to fit easily through this loophole.

[Kentucky bluegrass] is engineered in a way that differs from most GE crops. USDA issued a decision stating that it does not consider the GE turf grass to be subject to federal regulations.

Skirting Regulations

The GE bluegrass was able to avoid any regulatory oversight because it is engineered in a way that differs from most GE crops. Accordingly, USDA issued a decision stating that it does not consider the GE turf grass to be subject to federal regulations. In the decision announced by the USDA's Animal & Plant Health Inspection Service (APHIS), the department stated that it does not have the authority to regulate introduction or transportation of the GE grass seed under the provisions of the *Plant Protection Act* (PPA), the statute that governs the agency's biotechnology regulations. The grass has been engineered to be resistant to the herbicide glyphosate, commonly sold as Monsanto's Roundup. Kentucky bluegrass is a popular choice for yards and fields, as well as pastures and prairies, and the GE seed is expected to be made available for consumers to plant in their home lawns, potentially making it one of the most widely planted GE crops in the country.

USDA's authority to regulate GE products stems from provisions of the PPA that are designed to ensure that GE crops do not present the potential for new "plant pests."[1] As the *New York Times* explains in discussing the announcement, "Since companies have created most genetically modified crops, like herbicide-resistant corn and soybean, using either genes or tools derived from microbes, USDA has long extended its powers to nearly every biotech plant developed in the country."[2] However, the Scotts GE bluegrass was developed using genetic material from other plants, such as corn and rice, but no microbes. Accordingly, APHIS stated in its decision that, "The GE bluegrass variety is not within the Agency's regulatory authority because it does not contain plant pest sequences and no plant pest was used to create the GE Kentucky bluegrass."[3]

This finding is distinct from previous findings regarding a "determination of nonregulated status," as APHIS terms it, for other GE crops, such as GE alfalfa. In those cases, APHIS had used its statutory authority to evaluate any potential plant pest risk posed by the new crop and found that the risk was minimal, meaning that the crop did not need to be regulated (though the agency is currently being challenged in court over the integrity of its evaluation process). For the GE bluegrass, no review was conducted, since APHIS does not believe it has the authority, meaning the product is automatically free to be marketed and made commercially available without governmental review.

As part of its requirements under the *National Environmental Policy Act* (NEPA), APHIS also prepares a formal environmental assessment (EA), or a more rigorous environmental impact statement (EIS), for every GE product that it reviews.[4] NEPA mandates that all federal agencies conduct environmental evaluations for any action that is undertaken that may impact the environment.[5] However, there was no formal review prepared by APHIS of potential impacts that release of the GE bluegrass would have on the environment, because the agency apparently did not believe that it was undertaking an action. It was instead stating that it does not believe it has the authority to act.

The novel method employed in engineering the GE bluegrass was

specifically designed for the purposes of avoiding the APHIS regulatory process through which all other GE products go. In its letter to APHIS concerning the GE grass, the Scotts company specifically states that, "Because Kentucky bluegrass itself is not a plant pest, no plant pest components will be involved in the transformation, and the native plant genomes that will be used are fully classified... Scotts therefore maintains that under current regulations, transgenic Kentucky bluegrass…does not satisfy any of the regulatory criteria that would subject it to [APHIS] oversight."[6] In detailing the specific engineering methods it used, Scotts then asked the agency to concur that the bluegrass would not be subject to review or regulation. In a short letter of response, APHIS did just that, saying, "Because no plant pests, unclassified organisms, or organisms whose classification is unknown were used to genetically engineer this variety of GE Kentucky bluegrass, APHIS has no reason to believe it is a plant pest and therefore does not consider the Kentucky bluegrass… to be regulated under 7 CFR part 340 and is not subject to the plant pest provisions of the PPA."[7]

Responding to questions about whether this decision sets a precedent for future unregulated approval of GE crops, APHIS indicates that the decision does not represent a shift in policy and that it will make decisions on a case-by-case basis. However, the agency added that, "If a GE organism is not a plant pest, is not made using plant pests, and APHIS has no reason to believe that it is a plant pest, then the GE organism would not fall under APHIS regulatory authority."[8] This makes clear a significant loophole in the regulation of biotechnology in the U.S. If companies can find ways to engineer the GE products they develop without the use of microbes or other plant pests, then those products will not be subject to any sort of, even limited, public health or environmental oversight prior to being put on the market for the public to obtain.

Consequences

There is little doubt that, if homeowners around the country start sowing GE bluegrass seed on their properties in large numbers, this will result in a dramatic increase in the amount of Roundup that is sprayed onto the American landscape. Despite claims from biotechnology companies that herbicide resistant crops will reduce overall pesticide applications, studies have consistently shown that applications actually increase, as applicators are more likely to simply douse their crops with the chemicals, since they know it will not harm them and they want to eradicate as many weeds as possible. For example, a 2009 report on the effect of GE crops on pesticide use throughout the country found that, over the first 13 years of the commercial availability of GE crops in the U.S., pesticide use has increased by 383 million pounds.[9] Additionally, according to an analysis of the *2010 Agricultural Chemical Use Report* released by USDA's National Agricultural Statistics Service (NASS),[10] glyphosate use has dramatically increased over the last several years, while the use of other toxic chemicals such as atrazine has not declined. The 2010 report shows that, in the states surveyed, 57 million pounds of glyphosate were applied that year on corn fields. Ten years prior, in 2000, this number was only 4.4 million pounds, and in 2005, it was still less than half of 2010 numbers at 23 million pounds. Intense corn growing regions have experienced an even greater increase in glyphosate applications. Glyphosate use on corn in the state of Nebraska increased by more than five times in just seven years, going from 1.25 million pounds applied in 2003 to more than seven million pounds in 2010. When pesticide use is compared to the increasing adoption of GE crops over the same time period –in 2000, GE corn made up 25% of all corn planted in the U.S. and, by 2010, this number was 86%[11] – the correlation is unmistakable.

Aside from the likely increase in residential herbicide applications as a result of home plantings, allowance of the GE bluegrass presents the potential for increased difficulties for organic farmers and ranchers. Because of the popularity of Kentucky bluegrass for use in yards, pastures, and prairies, its reach is expected to be quite widespread. This will make conversion of new land to organic food production more difficult as, according to APHIS's fact sheet on the decision, "Once established,

GE Kentucky bluegrass may prevent transition to organic status unless eradicated from the acreage to be transitioned."[12]

Additional concerns about large scale planting of the GE bluegrass stem partly from the fact that a separate variety of GE grass developed by Scotts several years ago, which USDA is still considering, escaped from a test plot in Oregon in 2007. The company was fined $500,000 as a result, but has continued to work on the project and may attempt to commercialize the product in the near future.[13] In a letter accompanying the GE bluegrass decision, U.S. Secretary of Agriculture Tom Vilsack urged the Scotts Company to "work closely with a broad range of stakeholders" to "develop appropriate and effective stewardship measures to minimize commingling and gene flow between GE and non-GE Kentucky bluegrass," reflecting the Secretary's continuing belief and insistence on coexistence between GE, non-GE, and organic farmers.[14] However, it is unclear what kind of efforts could be taken by Scotts to make non-GE and organic land managers more comfortable, and some advocates doubt that Scotts will, in fact, make any serious effort to cooperate with this kind of voluntary initiative.

Glyphosate is a general herbicide used for eradication of broadleaf weeds. It has been linked to a number of serious human health effects, including increased cancer risk, neurotoxicity, and birth defects, as well as eye, skin, and respiratory irritation. One of the inert ingredients in product formulations of Roundup, polyoxyethyleneamine (POEA), has been shown to be toxic to human embryonic cells. The chemical is also of particular concern due to its toxicity to aquatic species, as well as instances of serious human health effects from acute exposure.

As health and environmental advocates have long been aware, herbicide applications to control weeds on residential lawns and playing fields are dangerous and unnecessary. A healthy lawn will be free of pests and create a safe area for outdoor recreation.

Beyond Pesticides has numerous resources on how to create a safe, healthy, and chemical-free lawn. Contact us with any questions or visit www.beyondpesticides.org/lawn for more information.

Endnotes

1 Relevant regulations can be found at 7 C.F.R. part 340.
2 Voosen, Paul. "In Major Shift, USDA Clears Way for Modified Bluegrass." New York Times July 6, 2011. www.nytimes.com/gwire/2011/07/06/06greenwire-in-major-shift-usda-clears-way-for-modified-bl-51693.html.
3 USDA APHIS. Questions & Answers: Kentucky Bluegrass. July 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_q&a.pdf.
4 USDA APHIS. "Biotechnology Environmental Documents for Permits and Petitions." www.aphis.usda.gov/regulations/biotech/brs_environmental_assessments.shtml.
5 42 U.S.C. §4332(2)(C).
6 Scotts Miracle-Gro Letter to U.S. Secretary of Agriculture Tom Vilsack Requesting Confirmation of Nonregulated Status for Glyphosate Tolerant Kentucky Bluegrass. September 13, 2010. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg.pdf.
7 USDA Response Letter to Scotts Miracle-Gro on GE Kentucky Bluegrass. July 1, 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_resp.pdf.
8 USDA APHIS. Questions & Answers: Kentucky Bluegrass. July 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_q&a.pdf.
9 Benbrook, Charles. Impacts of Genetically Engineered Crops on Pesticide Use: The First Thirteen Years. The Organic Center, November 2009. www.organic-center.org/science.latest.php?action=view&report_id=159.
10 Report data available here: www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/.
11 USDA Economic Research Service. Adoption of Genetically Engineered Crops in the U.S.: Corn Varieties. www.ers.usda.gov/Data/BiotechCrops/ExtentofAdoptionTable1.htm.
12 USDA APHIS. Questions & Answers: Kentucky Bluegrass. July 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_q&a.pdf.
13 "USDA Concludes Genetically Engineered Creeping Bentgrass Investigation." November, 26, 2007. www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2007/11/0350.xml.
14 Additional Response to Scotts Miracle-Gro Letter from Secretary Vilsack. July, 1, 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_secy_resp.pdf.

Groups Take on Crisis in Democracy

Connecticut effort seeks to overturn state preemption of local authority to restrict pesticides

Would you like to live in a pesticide-free community that does not allow toxic pesticide use on lawns? Unfortunately, if you happen to live in one of the 41 states that have a preemption law, private property pesticide bans are impossible. Preemption laws prevent municipalities from passing pesticide policies that limit pesticide use restrictions to land owned by the local jurisdictions.

Connecticut is one of the preemption states where local and state organizations are trying to change the law and restore a foundational principle of democracy in protecting health and the environment. Earlier this year, the Lawn-care Pesticide Preemption Bill (Bill 5121) was introduced in the Connecticut General Assembly to overturn preemption law. However, in mid-April, the Planning and Development Committee Chairs were able to kill the legislation. Though the bill is now dead, it is a remarkable first attempt at repealing preemption, and an important learning tool for anyone who is interested in getting pesticide bans enacted in their community. Jay Feldman, Executive Director of Beyond Pesticides, State Senator Ed Meyer, Assistant Majority Leader and chair of the Environment Committee in Connecticut, and Nancy Alderman, President of Environment and Human Health, Inc., North Haven, Connecticut, discuss their efforts in fighting for pesticide reform in the state of Connecticut, offering advice on what works, what does not, and most importantly, what you can do.

The following are excerpts from a panel discussion held at Beyond Pesticides' 30th National Pesticide Forum, March 31, 2012, at Yale University's School of Forestry and Environmental Studies:

Background

Jay Feldman, executive director, Beyond Pesticides

This is a very interesting story in American democracy. How did we get to this point in the history of the United States that we have taken away the local police powers of our local jurisdictions to protect the local public health of our people? This challenges a basic tenet that this country is based on –local governance.

Certainly there's a role for federal government here to establish a floor of adequate protection and regulate commerce so as to protect the health and the environment of the people of the U.S. But, when it comes to adding to the levels of protection based on local

conditions, or based on a belief within that local jurisdiction that there is not adequate protection provided by the federal government, we have a long history in this country of allowing local governments to elevate that level of protection.

California Beginnings

In 1979, two years after I got involved with pesticide issues, people in Mendocino County, California adopted restrictions on the spraying of forestry pesticides after the pesticides drifted on a school bus and made children ill. The State Attorney General sued the county and that case ended up in the Supreme Court of California, where it was found that the people of Mendocino had the right to regulate pesticides in a manner that protected their children from exposure. Within days, literally, the California legislature adopted legislation that took away the authority of local jurisdictions in the state to restrict pesticide use on private property. So this issue is very contentious and the chemical industry is on it –they are there, they have been working on this for decades. As time went on, a lot of other communities saw the need to regulate pesticides, including a range of authorities from right-to-know ordinances that require posting of signs to bans on types of spraying that cause environmental exposure in the community.

Mortier Vs. Casey

In the town of Casey, WI in 1985, there was a Christmas tree grower, and every time he sprayed pesticides, the spray drifted into town and everybody was exposed and many got sick. The town adopted an ordinance that limited his ability to spray in a manner that caused drift, which started years of litigation. It's really unfortunate that sometimes environmental issues seem pitted against agricultural interests, but I think what's clear now in the 21st century is that we can work together around organic practices. Nevertheless, in those days when communities were out there trying to regulate in this area, I think the division was in many ways more severe than it is today. In any event, the case of *Mortier v. Casey* went to the U.S. Supreme Court and in 1991 the Court upheld the right of the town of Casey to regulate pesticides. It basically ruled that federal law (the *Federal Insecticide, Fungicide and Rodenticide Act*, or FIFRA) does not preempt local jurisdictions from restricting the use of pesticides more stringently than the federal government. However, the ability of states to take away local authority was left in place.

Industry Backlash

Over the course of the next five to ten years, the chemical industry went to every state legislature across the country, as it had done in California, and today we have 41 states with statutes that preempt local jurisdictions from regulating pesticides. While this is all going on in the court system, the chemical companies are out on Capitol Hill in Washington, DC putting forth legislation to amend our federal pesticide law to preempt local jurisdictions' power to restrict pesticide use in their communities. All pesticide laws in the U.S. are managed under the agriculture committees of Congress, which is an aberration when we're talking about health and the environment. Nonetheless, that's where jurisdiction lies and so we have a lot of agricultural state Democrats and Republicans sitting around squirming in their seats on the states' rights issue, because they were voting on taking away the right of their state to allow their local jurisdictions to do what they do through local power. The industry was never successful in attaching a preemption provision to FIFRA.

When the Supreme Court decision came down, all hell broke loose and the pro-pesticide lobby formed a coalition called the Coalition for Sensible Pesticide Policy. This coalition put a lot of money into local advertisements, but it was very unclear who they were or who they were representing. They convinced a lot of people that it was in their interest to take away their local government's authority to regulate pesticides. Articles like one in *Landscape Management* went out to all the landscapers across the country in 1991: "Local Laws, What Do They Do?... Are anti-pesticide interests in your community out to sabotage your business or department? There is help available." They went on to identify numerous states and jurisdictions across the country that had policies or were working on policies.

Among some of the arguments they used against allowing our local governments to exercise the democratic principles on which our nation was founded include: lack of scientific and technical expertise to make complex regulatory decisions in thousands of

local governing bodies; it will send conflicting signals to international trade partners; and it would send conflicting signals from local governments about their support for uniform federal tolerances in the context of food safety.

A Crisis in Democracy

So this was, and remains, a crisis in democracy! This was a huge crisis in our country at this time and it consumed a lot of congressional hearings on this issue, and in many stories in the *Washington Post* and *New York Times* about conservative legislators voicing their opposition to the rights of states to set policy on this matter.

In the Supreme Court decision, the justices wrote, "[F]ederal law, (FIFRA), does not equate pesticide registration and labeling requirements with a general approval to apply pesticides throughout the nation without regard to regional and local factors like climate, population, geography and water supply." This is the key principle of local authority to regulate toxics. It is nice to see the Supreme Court upholding this concept. I believe legislators at the state level can rely on this same basic foundational principle today.

Immediately after this decision, we strategically as an organization, in collaboration with local groups nationwide, focused on local jurisdictions' authority in all states to adopt policies that affect how they manage their own property. We have seen an increasing number of local policies that establish management practices that eliminate pesticide dependency.

This spurred the industry to try attaching to broadened federal preemption legislation to prohibit on local governments from restricting pesticide use on their own land in a manner that is more stringent than their state's law. That is still out there, and I think we can expect, if Connecticut is successful, that we will see another federal effort to preempt the states from allowing their local jurisdictions to regulate, despite fierce rhetoric in political circles on the importance of democracy and state and local rights.

So this, in my mind, is a crisis in democracy. When you have scientists making statements on the lack of efficacy associated with the introduction of poisons that are poisoning our waterways and our kids, it is high time that we have the ability to remove these pesticides from our communities. However, this is an incredible opportunity at the state level to send an important message to our nation that we do have the need to protect our communities and people from exposure to toxic chemicals that we have found are not necessary and hazardous at the same time.

Case Study: Connecticut

State Senator Ed Meyer, Chair of the Senate Environmental Committee, Hartford, CT

Let me start by telling you how I got involved in the anti-pesticide movement. The year was 2000 and I had a very healthy and active eight-year old Labrador who suddenly got sick and died in a very short period of time. I took her to the veterinarian because I could not understand what was wrong, as she ran with me three or four times a week. The vet asked me where we ran, and I replied that we frequently ran at the golf course near our home. The vet asked about our lawn, and I replied that we use a bagged turf builder, one that is commonly used. The vet told me that our family dog died of stomach cancer from pesticide exposure.

Flash forward. I got elected to the Connecticut State Senate and met Jerry Silbert, M.D., executive director of the Watershed Partnership, Inc., who has a campaign to end hazardous pesticide use in Connecticut. I'm now in the Environment Committee and we have formed a partnership to really restrict pesticides. We started with a bill to ban pesticides in schools, which began at elementary schools and daycare centers to protect young children, and later expanded to include not just elementary schools but K-8 grade. To make sure that bill was implemented successfully, we did a couple of things to try to educate people in Connecticut on how to adopt organic lawn care practices. The

first thing we did was to hold off on enforcing the bill for three years in order to give folks time to learn and transition. Second, we brought in experts to educate groundskeepers in Connecticut.

Improving Protections

We are now taking it a step further in trying to overcome the state's preemption on pesticides, which says that the state of Connecticut is the sole regulator with respect to pesticides. So, the Environment Committee in 2012 introduced legislation, Bill 5121, to overcome that state preemption and allow towns to regulate pesticides, as long as the towns are within state law. We are engaged in a tremendous battle here and I want to try to engage you as constituents in this battle.

By the way, there are two battles here. One is the effort to repeal our ban on pesticides on school grounds (which we're defending against) and the second is the battle to beat our bill to allow our towns to have authority. These two battles have gone forth in a very deliberate and very aggressive way. Who are the combatants? First, we have the protectors, those of us who are trying to further organic and natural care of our properties. Second is the pesticide industry, led in many ways by Scotts Miracle-Gro. Scotts has been in my office, and they are battling this. There are other industry people that are extremely effective lobbyists as well. The third combatants are the groundskeepers who really have not gotten the message and did not use those three years before the ban became effective to transition their grounds to organic. They are very upset now because they did not prepare themselves and their lawns are a mess because they did not do the preparation that was necessary. They are very impatient and are now telling their state legislators to repeal the ban! And so they are very much a combatant in this battle. The fourth is the Department of Energy and Environmental Protection (DEP) — and they are against us. With respect to preemption, they and the industry are all together, and they do not believe in the local ability to restrict pesticides and believe that there should be state preemption. It is very clear, and it is going to make the battle much more difficult in this last month of the 2012 legislative session.

I urge you all to get involved in this battle. There are some ways and things you can do: First of all, you can call or write –I prefer to call, which is more effective– or even visit your state representative and your state senator. Tell them about your commitment to the bills and that you will be watching how they come down on this, and remind them of Election Day on November 6, 2012. Be very direct with them –I'm asking you to encounter your legislators. Second, I think we have to create some public opinion on this subject. Write letters to the editor about your conviction and put it in as many of your local papers as you can!

And lastly, if your time permits, come on up to the state Capital. Those of us who are in Hartford will introduce you to people, to legislators whose votes will be very significant on this. We'll show the department about this energy and strong conviction, and of how to build a healthy environment in Connecticut.

So there is definitely a part that everyone can play, and I want to motivate you all to get involved in this.

Organizing Connecticut

Nancy Alderman, president, Environment and Human Health, Inc., North Haven, CT

Before getting to preemption, I think it's important to take a look at the landmark legislation that Connecticut has passed and how we got them passed in order to give you a general sense of how to get things done on the local or state level.

Landmark Cases

In 1991, Connecticut passed landmark pesticide legislation that did two things: it put the little yellow tags on all properties after they had been sprayed, and also allowed people to get on a regis-

ter so that when their neighbors sprayed they would get a call 24 hours in advance so they can shut windows, bring in their dogs, etc. This was a major piece of legislation, and the first of its kind. This effort was led by the Connecticut Fund for the Environment, a state group with lawyers on staff.

Then in 1999 we had another big event that focused on pesticide use on the inside of schools that was done in a very different way. Initially, we wanted to look at the wells in the town of Woodbridge, CT. We met with people and asked them for permission to test their wells for pesticides. It normally cost about $1,600, but we had a grant and we were going to do it for $75 per well. While we were at this meeting, however, a young woman raised her hand and told us that her child had just been poisoned in the Woodbridge grammar school. They had sprayed pesticides by the first grader's cubbies where they placed their little brown lunch bags and the whole group got sick.

I was hesitant to do anything at first because that was not what we came to the town for, but I was so shocked and appalled when I learned that we had no laws in place for pesticides in Connecticut schools. We had nothing! Anybody who was paid by the school could essentially spray inside a school, and they did not have to keep records. So, instead of doing the well water report right away, we wrote *Pest Control Practices in Connecticut Public Schools* as our first report. It was so astounding that we got a bill within a year –it was incredible. It was clear that the Department of Health would do nothing, and the Department of Environmental Protection did absolutely nothing, so the legislature came forward and passed that bill. So we are now protected inside schools.

Now, let's move on to 2005 and how we managed to get the bill to get pesticides off of school grounds that Senator Meyer was talking about. This, too, was the first bill of its kind (you can see why all of the pesticide industry is inside Connecticut right now). For this, a large group of environmentalists, including Audubon, Watershed Alliance, and many others, all met to discuss how we were going to get a bill that would restrict pesticides on the grounds of schools. We looked at Canada, which has been so successful, and we decided to hire someone to do a survey to find out what people care about with respect to the pesticide problem.

We found that people were concerned about the smallest children, as well as pets. We decided as a group that we were going to focus on the smallest children and initially used the word elementary school –which was a mistake, I would say to anyone who might be looking to do similar legislation. Elementary schools vary from K-4 or K-5, which provided uneven protection. We passed the bill, but then we had to go back and fix it so that today it includes K-8 and everybody has the same protection.

The Preemption Bill

A large group of environmentalists met over the summer to discuss how we wanted to proceed. It was clear to the majority of us that we were not going to move that school bill up into the high schools. [Eds note. The state of New York in 2010 passed the *Child Safe Playing Fields Act*. Similar to Connecticut's law, that extends the ban on toxic pesticides on outdoor school grounds to K-12.] What we learned about, which many of us did not fully understand, including myself, was preemption.

Just to give a lesson of how the laws are written in this country, and perhaps you all know this. The laws are written so that the federal government provides the baseline and the state law can be stricter, but never less strict, and the town can be stricter than the state but never less strict. So how is it that tobacco and pesticide laws are flipped? They preempt the law so that the towns cannot be stricter than the state. In fact, towns could not do anything different –they certainly could not be less strict, but they could not be stricter. That to us seemed totally against what our laws were meant to do.

We decided to only focus on lawn care, which the towns are well-equipped to do. We also have some towns that rely almost entirely on wells, so some towns simply have sensitive areas that they might want to have as pesticide-free. This seemed like the place that we really should go. When we found out that there were 41 other states that were also suffering (and yes, I would use the word 'suffer') under preemption, we decided that this was what we should do.

Strategy

Did we think we would get it in the first year? I don't even know if I should talk about things like that, but I was taught when I started to do legislation that you don't get things right away. You have to love incremental work, which of course I don't love. I was told to love it and Sen. Meyer has explained to me that I am to love it. And he also explained that I am to love all the legislators no matter what they do, so I have become a loving person, and I recommend the same to all of you, because when you're not, they don't like you. And you don't want them not to like you.

Sen. Meyer also told me last year that if it is just a group of environmentalists saying, "We don't want preemption," do not expect the legislators to respond. So, in fact, we did have mayors and first selectmen expressing their support. Now, we were very clear with them that just by signing on, you don't have to do anything. So, if your town were to benefit from a preemption law passing, your town doesn't have to do anything! The town can take a small section and say it wants to protect its water, but it doesn't have to do anything. Repealing state preemption law would just restore what the towns originally had, and what they should have had until tobacco and pesticide lobbyists walked in. I think that's what we all might have to convey to supporters.

So here we are with preemption, and I will say that one of the reasons for tackling this issue was to educate the public about preemption and to simply let them know, because Connecticut had so much trouble with tobacco preemption. It was terrible! New York City was allowed to ban smoking in a restaurant, but Connecticut couldn't do it because we had preemption, and what the state said was you could only have no smoking areas, but no town could tell its restaurants that they could not allow smoking. We have lived through the preemption struggle before. Though it was much more obvious than pesticide preemption, it was the same thing, and it was done for the same reason. It is easier to lobby at the state than to lobby in 169 towns.

No industry should ever be able to put preemption law in place. It is a terrible thing to do and it is not the way our laws were designed. Hopefully, other states will take this on as well. If we do not get it this year, we will continue fighting!

State Preemption Laws

State	Preemption?	State	Preemption?	State	Preemption?
Alabama	Yes	Kentucky	Yes	North Dakota	Yes
Alaska	No	Louisiana	Yes	Ohio	Yes
Arizona	Yes	Maine	No	Oklahoma	Yes
Arkansas	Yes	Maryland	No	Oregon	Yes
California	Yes	Massachusetts	Yes	Pennsylvania	Yes
Colorado	Yes	Michigan	Yes	Rhode Island	Yes
Connecticut	Yes	Minnesota	Yes	South Carolina	Yes
Delaware	Yes	Mississippi	Yes	South Dakota	No
District of Columbia	No	Missouri	Yes	Tennessee	Yes
Florida	Yes	Montana	Yes	Texas	Yes
Georgia	Yes	Nebraska	Yes	Utah	No
Hawaii	No	New Hampshire	Yes	Vermont	No
Idaho	Yes	New Mexico	Yes	Virginia	Yes
Illinois	Yes	New Jersey	Yes[1]	Washington	Yes[2]
Indiana	Yes	New York	Yes	West Virginia	Yes
Iowa	Yes	Nevada	No	Wisconsin	Yes
Kansas	Yes	North Carolina	Yes	Wyoming	No

1. Local ordinances must be submitted for approval to the New Jersey Department of Environment.
2. Local ordinances must go to the Washington Office of the Attorney General for interpretation and approval. Generally, use restricted ordinances are not approved.

Canada Declares Triclosan Toxic

Beyond Pesticides talks on public radio about the new environmenal classification

As reported in "Around the Country" on page 6, Canada completed its assessment of the antibacterial pesticide triclosan and concluded that triclosan is harmful to the environment. Public Radio International's (PRI) Living on Earth recently interviewed Beyond Pesticides' Nichelle Harriott about the toxic antibacterial agent triclosan. Hear the complete interview on Beyond Pesticides' website, www.beyondpesticides.org/antibacterial/triclosan.htm.

GELLERMAN (PRI): The chemical triclosan can be found in thousands of household products - toothpaste, kids' toys and face creams, computer keyboards, yoga mats and soaps - especially soaps. Triclosan is in so many products because it kills germs. Now the Canadian government has just declared the antibacterial agent an environmental toxin, and has proposed regulations that would sharply curtail its use in Canada.

HARRIOTT: Every product that triclosan is in, is essentially washed down the drain and directly goes into the environment. In surface water, it degrades to another chemical, 2,4-DCP, which is known under the *Clean Water Act* as a priority pollutant, which means that EPA is supposed to regulate that chemical...We don't actually know what the effects are because no one is looking at this, yet we put this chemical into the environment.

GELLERMAN: But Canada specifically says that there's not sufficient evidence to conclude that this is harmful to people.

HARRIOTT: That is pretty shocking...We know that triclosan is an endocrine disruptor, it impacts our hormones. So if this chemical is in the environment, this is a concern, because it may accumulate up the food chain, we may be ingesting this chemical unbeknownst to us, so what are we doing to our bodies? Triclosan has been found in urine, it has been found in breast milk, it has been found in umbilical cord blood.

GELLERMAN: There have been concerns about this antibiotic chemical that is that it could create resistance to drugs that we have to fight bacteria, what is the evidence that this is actually happening?

HARRIOTT: Well, there is some preliminary evidence that bacteria exposed to triclosan eventually become resistant to triclosan. And once resistant to triclosan, they may have cross-resistance to other antibiotics, then there is a serious public health concern.

GELLERMAN: As I understand, when triclosan is combined with chlorine, which is in many water supplies, it forms chloroform!

HARRIOTT: Yes, there is one study that indicated that. And of course, that waves a lot of red flags. If you're brushing your teeth, and a lot of toothpaste contains triclosan, are you being exposed to chloroform through the chlorine in the tap water? Chloroform is very toxic, it's not something that you want to be inhaling. Our regulatory system tends to be more reactionary than precautionary, and so we allow chemicals into the environment without sufficient human and environmental health overview.

GELLERMAN: In the U.S., the EPA regulates triclosan as a pesticide; the FDA looks into its uses in foods and drugs. Shelly Burgess is a spokesperson with the FDA.

BURGESS (FDA): Triclosan is currently not known to be hazardous to humans. We are engaged in ongoing scientific and regulatory review of the safety of triclosan. What consumers should know is that we don't have sufficient safety evidence to recommend changing consumer use of products that contain triclosan at this time.

GELLERMAN: Does the FDA have any evidence to suggest that triclosan in antibacterial soaps provides a benefit?

BURGESS: What I can say is that we don't currently limit the concentration of triclosan in over-the-counter consumer products. And this is because FDA's view of the safety and effectiveness of triclosan is ongoing.

GELLERMAN: But I'm reading from a paper that was presented by the FDA to the public two years ago and it says: "At this time the Agency does not have evidence that triclosan in antibacterial soaps and body washes provides any benefits over washing with regular soap in water." That's from your agency! Then why is it being sold?

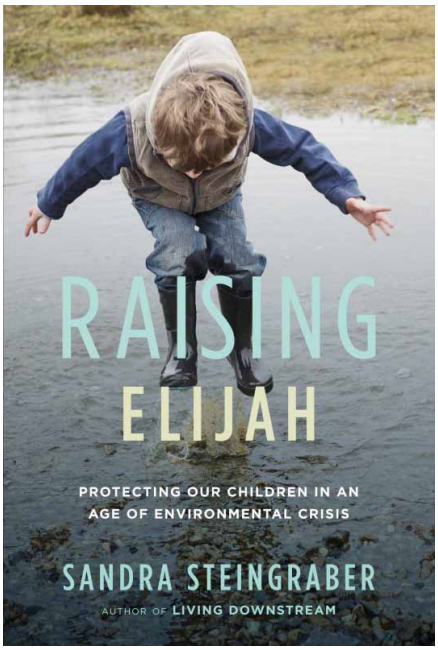
BURGESS: Well, again, we're engaged in ongoing scientific and regulatory review with the safety of triclosan. We're going to publish those findings in winter 2012.

by Jay Feldman

Raising Elijah

Protecting Our Children in an Age of Environmental Crisis

(*By Sandra Steingraber, PhD, 2011. Da Capo Press. 331pp.*) When I was raising young children in the 80's and early 90's, organic food and environmental awareness of real alternatives to toxic chemicals and pesticides was just beginning to emerge more broadly in the public consciousness and marketplace. As those who chose an environmental and organic lifestyle know, it was more challenging than it is today. Despite tremendous progress in accessibility to organic products and services, as documented in *Raising Elijah*, environmental challenges remain today that threaten to overwhelm the achievements, which now prove that our society's dependence on synthetic fossil-fuel based pesticides is wholly unnecessary and unsupportable from a public health, environmental, and economic perspective.

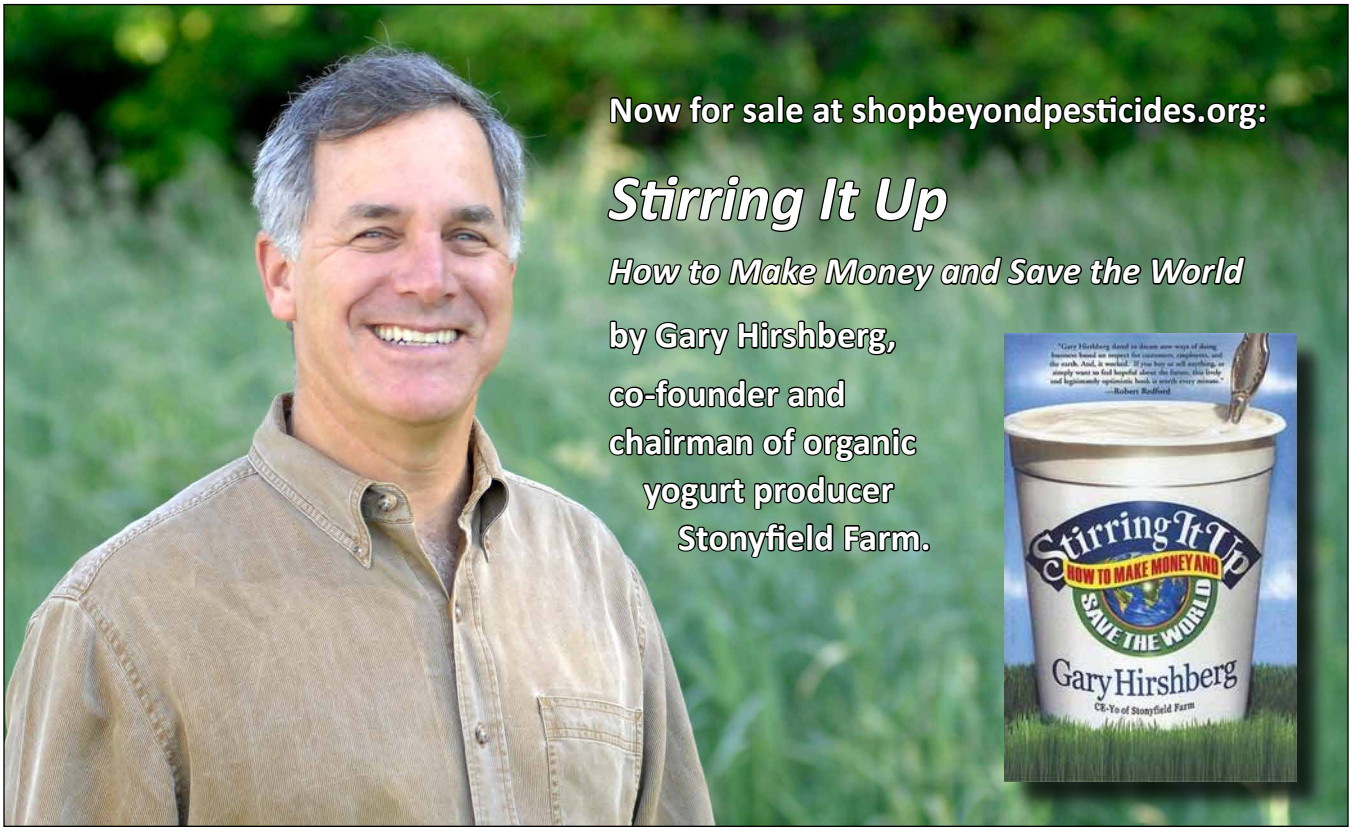


Sandra Steingraber, PhD, in her 2011 book *Raising Elijah*, brings together the personal, environmental and public health, practice, and policy issues in her own family's struggle in a small upstate New York town. Dr. Steingraber, a biologist, poet, and author of *Living Downstream*, gives us an inside view into her efforts to protect her children and family. She writes, "In *Raising Elijah* I call for outspoken, full-throated heroism in the face of the great moral crisis of our own day: the environmental crisis. And, because the main victims of this unfolding calamity are our own children, this book speaks directly to parents." Additionally, the book addresses a general audience that can relate to the vulnerability of the fetus and child to toxic chemical exposure during critical developmental phases of life.

After the news on arsenic contamination broke nationally, I spoke with Dr. Steingraber about her finding that the playground equipment at her child's school was contaminated with the arsenic–based wood preservative, chromated copper arsenate (CCA). Arsenic-based pesticides had been taken out of agriculture use nearly a decade before, but wood treatment (e.g., wood playsets, decks, porches, benches, and other outdoor wood structures) with the chemical continued, causing elevated exposure levels in children who ingested the known human carcinogen through residues on their hands that ended up in their mouths. Through testing, the parents of the school determined that their school playground equipment was releasing arsenic, which ended up on the surface of the wood and in the soil. And, as with other environmental problems that emerge before regulators make long-overdue definitive final determinations, the parents at Dr. Steingraber's school were not quite ready to take remedial action. Some argued that, "We don't want to get too far ahead of the curve." After researching CCA history, Dr. Steingraber writes,"I would say that I was experiencing an episode of intolerable rage. And the problem was not that it led me to inattentive despair but rather –obviously enough, I guess— that the person with whom I needed to have an intolerably enraged chat was not identifiable to me. I think this is the place where a lot of parents find themselves. It's not that we're not paying attention to the environmental threats surrounding our children, it's just that the web of causation and responsibility is so complicated that we don't know how to navigate it or where to focus our actions. Or it becomes navigable only in hindsight after the damage is done." The author and three other families removed their children from the school. Years later, in 2004, EPA negotiated a removal of CCA for use in most residential wood products, except it still fills the utility poles that line our neighborhoods –yet another compromise with the public's health and environmental protection.

Dr. Steingraber has never been one to be behind the curve, so in *Raising Elijah* she connects the dots on scientific studies and government data on issues such as rising asthma and autism rates, which certainly have environmental causes, the devastating hazardous chemicals associated with fracking, and the contributors to global climate change –painting a dramatic picture that does not seem to move enough policy makers. So problems escalate quietly and steadily. The author cites a review in the medical journal *Lancet* (2006), which concludes, "The combined evidence suggests that neurodevelopmental disorders caused by industrial chemicals have created a silent pandemic in modern society."

What makes this book so appealing is the author's sharing of her personal efforts at managing and guiding with her husband her own family. While she stays ahead of the curve with an organic lifestyle, readers will share her sense of urgency that we must escalate the pace of change and stop the unnecessary reliance on toxic materials home-by-home, community-by-community, across our nation.



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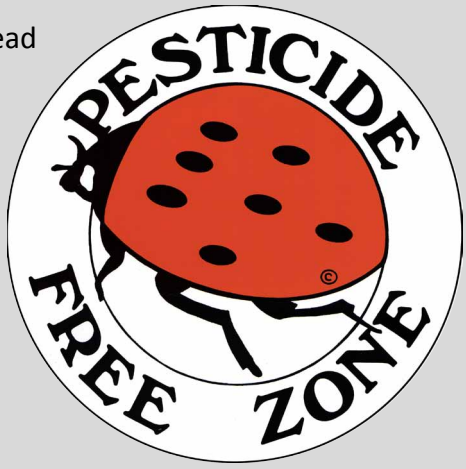

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