Pesticides and You

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

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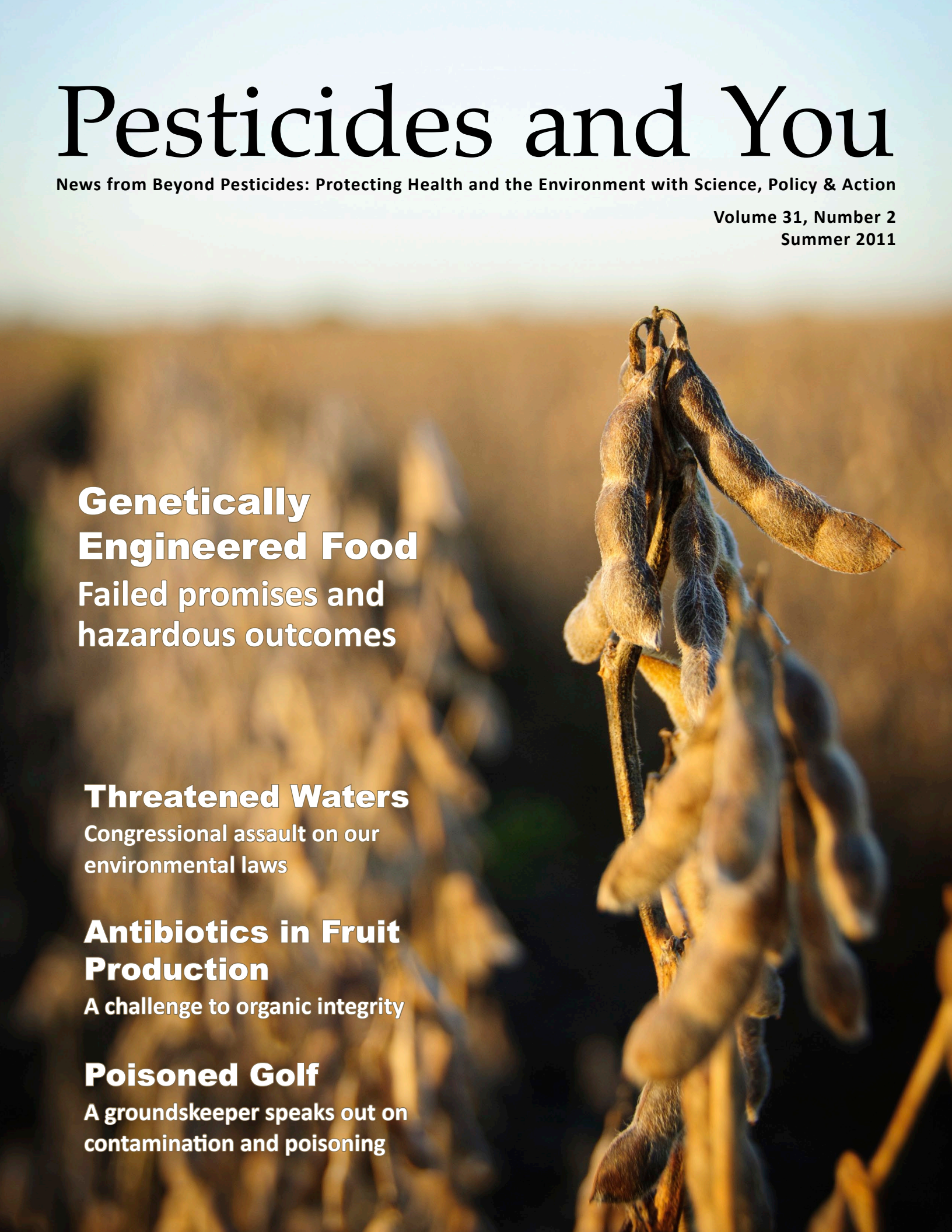

Genetically Engineered Food
Failed promises and hazardous outcomes

Threatened Waters
Congressional assault on our environmental laws

Antibiotics in Fruit Production
A challenge to organic integrity

Poisoned Golf
A groundskeeper speaks out on contamination and poisoning

Support for Organic High as the Critics Keep Coming

Another article, this time a blog post in *Scientific American* online, shows again that as organic grows, so do the critics questioning organic integrity. But first, the good news. A Thomson Reuters-NPR Health Poll released in July finds that 58% of Americans say they choose organic food when they have the opportunity, with the highest percentage (63%) in the under 35 age group.

Addressing the Critics

Now, the claim that organic isn't what it is believed to be and can't feed the world. Here are the arguments: (i) organic uses pesticides, (ii) organic isn't healthier, (iii) organic is not better for the environment because it doesn't allow genetically modified organisms (GMOs) that reduce pesticide use, and (iv) organic and conventional can coexist, so there's no reason to choose sides. Certainly, the pages of this newsletter and Beyond Pesticides' website and *Daily News* have cataloged the (i) small number of inputs allowed in organic production (some select approved pesticides) compared with the thousands of hazardous synthetic inputs used in conventional food production, (ii) health benefits of reducing pesticide residues in organic food production, (iii) documented problems of increased pesticide use and insect resistance with GMOs (*see p19 in this issue*), and (iv) importance of transitioning all of agriculture to sustainable organic practices (which can feed the world) (*see p8, Prince Charles, in this issue*), if we are serious about managing global climate change and protecting the resources we need to survive –air, water, and soil.

Critics are often not familiar with actual organic practices and policy, the organic system plan, farm inspections, the National List of allowed and prohibited substances, the standards of the *Organic Foods Production Act* (OFPA), the public process for evaluating and regulating practices and inputs, the focus on evaluating cradle-to-grave impacts of inputs on health, the environment, and biodiversity, and the restriction on allowing any synthetic material unless its essentiality is determined. Nor do they seem to appreciate how breathtakingly different the organic core values, principles, and legal standards are from the chemical-intensive side, with the regulatory assumption of chemical benefits, and narrow assessment of potential adverse impacts on health and the environment. Missed by critics is a developed discussion of soil health, microbiology, and biomass –the foundation of sustainable organic soil management that rejects the use of synthetic fertilizers with their adverse effects on beneficial soil organisms.

Protecting Organic Integrity

From my vantage point, the National Organic Standards Board (NOSB) deliberations, which always come back to organic principles, can feel pretty wonky –should the substance (used or proposed for use as an input in organic production) be considered synthetic, given the production method? Was the chemical change caused by a natural process or did it result from the introduction of a synthetic chemical? If a synthetic chemical was used in the production of the substance but does not cause chemical change, is the residue of that synthetic significant? How do we define significant? While these questions may seem complex, far removed from the farmers' and consumers' expectation of organic, they are actually at the heart of the matter.

The NOSB, as usual, delved into these organic integrity issues at its Spring 2011 meeting. The Board rejected a 'natural' classification for a liquid fertilizer, known as corn steep liquor, which is a byproduct of the corn wet milling production process that introduces sulfur dioxide into the mix to break the chemical bonds of corn. Beyond finding that this is not a natural process, USDA researchers have been concerned about the burning of sulfur, which contributes to acid rain, at many of the corn processing plants. Similarly, the Board rejected a proposal to allow synthetic residues in organic inputs without National List review and up to the tolerance or allowable limits set by FDA or EPA. In so doing, the NOSB is affirming that the standards of OFPA are more protective than other laws.

Antibiotics in Organic Apple and Pear Production

It will come as a surprise to many organic consumers that the antibiotics streptomycin and tetracycline (*see p12 in this issue*) are permitted to be used in organic apple and pear production to control the bacterial disease fire blight. There has been controversy over the allowance of these chemicals in organic fruit production since they were first approved by a split vote in 1995, and now the Board has voted to a phase out in 2014. Concerns include: (i) potential for promoting resistance to the antibiotics in human pathogens, (ii) Inconsistency with the ban on antibiotic use in animals, and (iii) Incompatibility with organic and sustainable agriculture. The market has shifted to varieties that are particularly susceptible to fire blight, including the apple varieties Gala, Fuji, and Pink Lady, and common pear varieties. In addition, some cultural practices, such as spacing of trees and pruning techniques, appear to be a factor. Since organic is about choices that affect public health and the environment, the Board must question the planting of varieties that are reliant on hazardous production practices. Numerous varieties of apples and pears are resistant to fire blight. Our challenge now is to engage the public in the NOSB process, with multiple opportunities for organic voices to be heard through written and oral comments.

More in This Issue

In this issue: (i) in his own words, a former groundskeeper for the Yale University Golf Course describes a story of poisoning and contamination, a cover up, and lack of enforcement, (ii) the Congressional attack on the *Clean Water Act*, and (iii) the fight to stop GMOs. We'll be in touch.

Jay Feldman is executive director of Beyond Pesticides.

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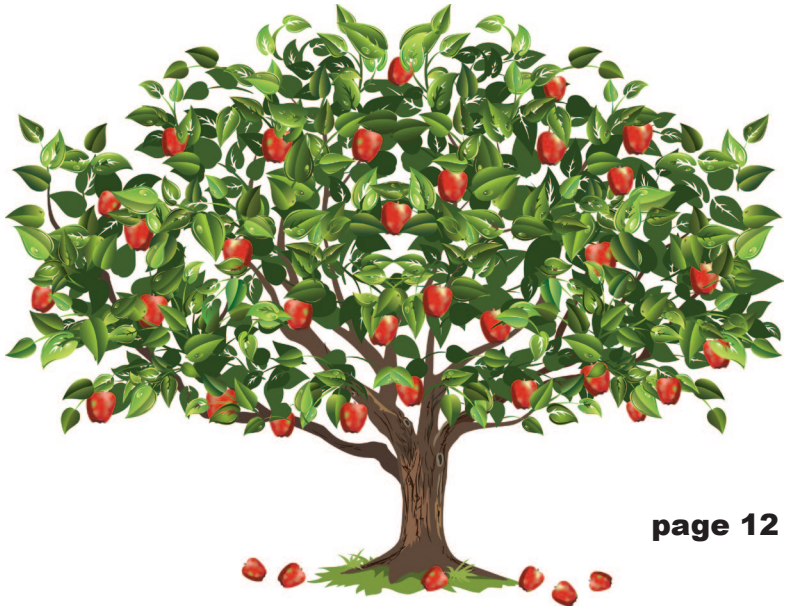

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Terrible Ticks

What problems would likely be caused by wearing gloves and dipping our field clothing in a solution of permethrin, rather than spraying it on clothing before letting it completely dry before using it? I would do this out on our porch, then dry the clothing completely before wearing it to protect from ticks as we walk through tick infested areas or where there is high grass to check fences on our farm. We've had some good rains recently, so the grass is very high this year and the deer have lived here far longer than the 35 years we have taken care of this land. Thank you for your advice.
–Phyllis

Dear Phyllis,

Thank you for contacting Beyond Pesticides. Permethrin is a synthetic pyrethroid pesticide which kills insects by strongly exciting their nervous system. It is a neurotoxin, an endocrine disruptor, a possible carcinogen, and has been linked to reproductive problems, kidney and liver damage, and is highly toxic to aquatic organisms and bees. Permethrin-impregnated clothing poses serious risks because, as studies have shown, some of the chemical will inevitably be absorbed into the body. Rainy weather, sweat and other factors may also increase the rate at which permethrin is absorbed by the body.

In the case of non-farm areas, one of the best ways to reduce tick populations is to remove their habitat (tall grasses) and to discourage tick hosts (like deer and mice) from entering your yard area. However, if it is not possible to alter the landscape on your farm, there are a few steps you can take to prevent tick bites and ultimately lyme disease without toxic pesticides. For starters, you should wear light-colored clothing that covers the body (especially your legs), because it makes it easier to spot ticks so they can be removed before they bite. You should use only unscented deodorant, soap and shampoo. An exception is Packers Tar Soap, which has a natural pine scent and seems to discourage ticks from biting once they have been picked up. Similarly to this, you can try using least-toxic herbal repellents such as oil of lemon eucalyptus and essential oils. The scented oil of lemon eucalyptus masks both carbon dioxide and lactic acid exhalations that alert the tick to your presence, essentially hiding humans from detection. After you have walked through a high grass and tick infested area, check the entire body for ticks and shower to wash off any ticks that have not yet become embedded.

If you do find an embedded tick, remove it carefully. Protect your hands with gloves or a tissue. Use blunt, curved tweezers, not your bare fingers, and exert pressure on the head of the tick and gently pulling the tick straight out very slowly. Do not twist and do not crush the tick. The body fluids can cause infection if exposed to even unbroken skin. Do not kill the tick while still embedded. Coating with petroleum jelly will block its breathing apparatus and force it to withdraw, usually within 30 minutes. Kill the tick in soapy water or alcohol, clean the wound with antiseptic, and monitor carefully for any signs of infection.

For more information, see our guide to tick management, available on our Alternative Factsheets page under the Info Services tab on the Beyond Pesticides website, www.beyondpesticides.org.

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. Comments will be edited for length and clarity and, unless you specify otherwise, your information will remain anonymous.

There are many ways you can contact us. Join other members and activists in discussions on our Facebook page, www.facebook.com/beyondpesticides, or follow us on twitter, www.twitter.com/bpncamp! And as always, you can send questions and comments to: Beyond Pesticides, 701 E Street SE, #200, Washington, DC 20003, or info@beyondpesticides.org.

Poison Ivy or Poisonous Pesticides?

I realize that there are problems with herbicides that you describe (triclopyr and glyphosphate). However, what are the alternatives? How else can you eliminate weed brush and poison ivy infestations? I'm sincerely asking the question because I don't like using herbicides, but having poison ivy that your kids can get into isn't a viable option either. –Nils

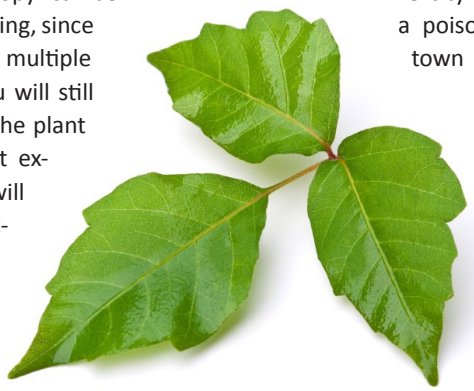
Dear Nils,

Thank you for contacting Beyond Pesticides. The answer really depends on the size of the infestation and how much property you have (or where the infestation is located if it's not your property). If you have a small yard and the poison ivy

is still relatively young, you can get rid of it through consistent mowing and cutting down the young shoots until the plant dies and by digging up the roots. You can also try a horticultural vinegar spray to kill the plants. If it is growing as a vine on a tree or fence, you can cut it at the base and pull it out from there. Of course, special precautions should be taken, such as wearing protective gloves and clothing, and washing them immediately after.

The easiest way to pull out ivy, as with any plant, is to either wait until after a heavy rain or water the area yourself, because the moisture loosens the soil, making it easier to pull out roots. If the plant breaks and some of the root is still in the soil and you are unable to get it out, use the horticultural vinegar spray or a horticultural soap. However, be careful not to touch anything else after you have come in contact with the plant —it's very helpful to have another person around who can assist you.

This may seem like a lot of work, however it is important to note that the use of glyphosate and triclopyr can be just as time consuming, since it often requires multiple treatments and you will still need to cut down the plant in order to prevent exposure. Since you will have to wear protective clothing anyway, you might as well just pull out the roots instead of risking exposure to both the pesticide and the plant's toxicant.



Finally, for a particularly large infestation, or for publicly owned land, you might consider the use of goats. Cities all across the country are hiring goats for weed control, including the city of Carrboro, NC. The city successfully controlled a poison ivy infestation in a town dog park through the use of a targeted goat grazing service. In addition to eating weeds like poison ivy, goats add fertilizer and aerate the soil with their hooves, all at the same time.

Beyond Pesticides Daily News Blog

Beyond Pesticides' Daily News Blog features a post each day on the health and environmental hazards of pesticides, pesticide regulation and policy, pesticide alternatives, and cutting-edge science, www.beyondpesticides.org/dailynewsblog.

Excerpt from Beyond Pesticides post on Facebook (06/02/11):

Denver Mom Says No to Toxic Chemicals on Public School Lawns

Have a child in Denver schools? Sign this petition! Don't live near Denver? Read this concerned mother's story for inspiration to make a difference in your community: http://bit.ly/denvermom.

Larry says:

As a semi-retired biology teacher, I often complained about the excessive chemicals that were used on school grounds and in buildings. There was even a day when one of the custodians at the school where I was teaching in the late 70's was using a can of insect spray to try to spray some honey bees in flight. The bees had gotten into the school cafeteria and the guy was shooting spay at them as they flew over the students that were eating! In many of the cases when I complained I was told that my job did not include complaining about how the school was maintained. GOOD LUCK!

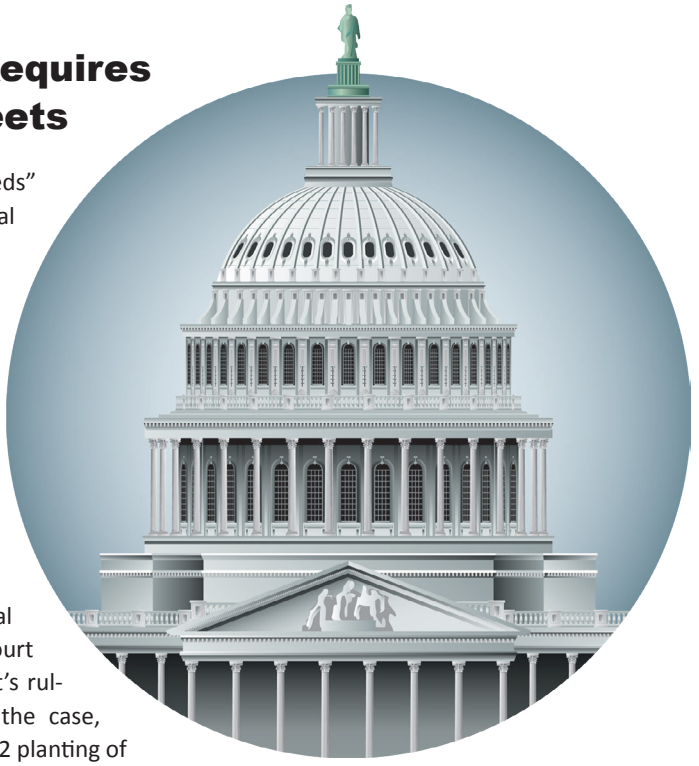
Debbie says:

Sadly, like most other institutions, public education is a bit resilient to change. Providing a healthful environment conducive to learning is something they'd rather repudiate than do.

Peter says:

I wouldn't be so quick with the discouraging comments. Myself and a mom saved a Lakewood elementary school from having Roundup applied to the school garden two summers ago. YOU can easily make a difference by simply arming yourself with the facts and by not allowing yourself to get so heated up. Save that for step 6 or 7, if it comes to that.

Court Dismisses Monsanto's Appeal, Requires Environmental Review for GE Sugar Beets



The U.S. Court of Appeals for the Ninth Circuit issued a summary order upholding a landmark legal decision requiring the U.S. Department of Agriculture (USDA) to conduct an Environmental Impact Statement (EIS) before approving the planting of genetically engineered (GE) crops. The May 2011 decision upholds previous court rulings in favor of farmers and conservation advocates in a case on the future commercial uses of GE sugar beets, engineered to be resistant to Monsanto's Roundup herbicide. "Because of this case, there will be public disclosure and debate on the harmful impacts of these pesticide-promoting crops, as well as legal protections for farmers threatened by contamination," said Center for Food Safety (CFS) attorney George Kimbrell. USDA said it expects to finish the EIS and have a new decision on commercialization in 2012.

The plaintiffs, represented by CFS and Earthjustice, challenged the USDA approval in 2008. They argue that GE sugar beets would contaminate organic and non-GE related crops, increase pesticide impacts on the environment, and worsen the Roundup-resistant "superweeds" epidemic. In 2009, the federal District Court in San Francisco agreed and ordered USDA to prepare an EIS. In 2010, after a year of litigation over a remedy for USDA's unlawful approval, the court again agreed with plaintiffs, threw out USDA's approval, and halted planting. Monsanto and other biotech industry intervenors appealed on procedural grounds, but the Appeals Court order affirms the lower court's rulings. During the appeal of the case, USDA approved the 2011-2012 planting of GE sugar beets under the terms of a novel permitting and "partial deregulation" scheme while it conducts the EIS. That decision is the subject of ongoing litigation.

In a related case, attorneys for CFS Earthjustice, Beyond Pesticides, and others filed a lawsuit against USDA in March 2011, arguing that the agency's unrestricted approval of GE "Roundup Ready" alfalfa violates the *Endangered Species Act.* USDA announced plans to fully deregulate GE alfalfa in January, despite contamination risks it poses to both organic and conventional farmers. *For more information, visit www.beyondpesticides.org/gmos and watch Mr. Kimbrell's talk at the 29th National Pesticide Forum at www.youtube.com/bpncamp.*

EPA Takes Actions to Reduce Risk from Rat and Mouse Poisons

On June 7, 2011, the Environmental Protection Agency (EPA) announced that it is moving to ban the sale of most toxic rat and mouse poisons (brodifacoum, bromadiolone, difethialone and difenacoum), as well as most loose bait and pellet products, to residential consumers. Though these rules will better protect children, pets and wildlife, the changes do not go far enough because their use will be allowed by pesticide applicators and in agricultural settings. Children are particularly at risk for exposure to rodent poisons because the products are typically placed on floors. The American Association of Poison Control Centers annually receives between 12,000 and 15,000 reports of children under the age of six being exposed to these types of products. Beyond Pesticides urges consumers not to use poisons for rodent control indoors, but rather advocates for the use of traps and nonchemical exclusion techniques that eliminate food and water sources and entryways indoors, and traps and bait products in locked specialized containers outdoors.

EPA began this phase-out process in 2008 when it released its final risk mitigation decision for ten rodenticides. EPA gave producers of rat and mouse poison until June 4, 2011 to research, develop, and register new products that would be safer for children, pets, and wildlife. A handful of companies do not plan to adopt the new safety measures, which include child-proof bait stations and replacing the most hazardous ingredients, so EPA intends to initiate cancellation proceedings against D-Con, Fleeject, Mimas, Victor, Hot Shot, Generation, Maki, and Rozol. *For more information on the least-toxic control of rodents, visit www.beyondpesticides.org/alternatives.*

Groups Sue FDA to Restrict Antibiotics in Livestock Feed

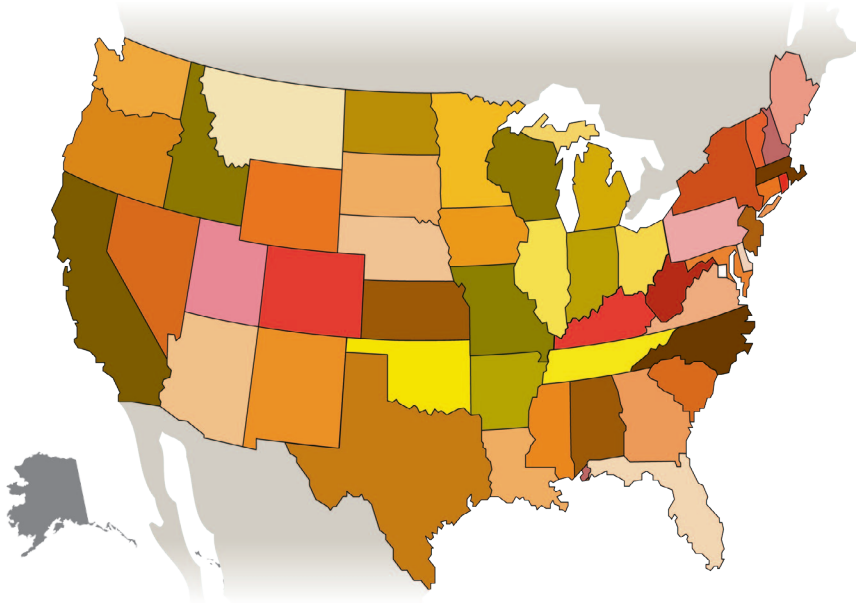
A coalition of environmental and public health groups filed a lawsuit against the federal Food and Drug Administration (FDA) to require the agency to enforce strict standards regarding the routine use of antibiotics in livestock feed. The lawsuit, filed May 26, 2011 by the Natural Resources Defense Council (NRDC) and others, calls on FDA to implement regulations based on its own findings that the routine use of low doses of antibiotics in animal feed presents increased risk for the development of resistant bacteria. The non-therapeutic use of antibiotic drugs in animal feed presents a serious risk to public health. The rise of drug-resistant infections in humans has been linked to the overuse of antibiotics in animal feed since the early 1970s, but FDA has failed to meet its legal responsibility to address the issue, according to the groups' suit. The coalition's suit would also force the agency to respond to citizen petitions filed by several of the plaintiffs in 1999 and 2005 requesting that FDA take action to limit the use of antibiotics important to human medicine, such as those that doctors rely on to treat pneumonia, strep throat, and childhood ear infections, as well as more serious conditions. The lawsuit would not affect the use of antibiotics to treat sick animals.

The best way to ensure that the meat, dairy and eggs you consume are produced without non-therapeutic antibiotics is to buy organic. Under the U.S. Department of Agriculture's (USDA) organic standards, organic livestock producers cannot use antibiotics. Their use is required to treat sick animals, although all products from the treated animal would be considered non-organic. One of the reasons that conventional livestock producers use antibiotics is that the crowded and unsanitary conditions in which the animals are housed in their operations present the perfect breeding ground for disease. Organic producers do not house their animals this way, so the prophylactic use of antibiotics is largely unnecessary. Currently, organic fruit producers growing apples and pears are allowed to use the antibiotics streptomycin and tetracycline to control a fruit tree disease called fire blight. However, the USDA National Organic Standards Board recently voted to completely ban antibiotics from organic production within the next three years. *To learn more, read "Antibiotics in Fruit Production—A Challenge to Organic Integrity" on page 12 in this issue of Pesticides and You.*

USDA Survey Shows Continued Winter Honey Bee Losses

A report released jointly by the U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS) and the Apiary Inspectors of America (AIA) shows that losses of honey bee populations over the 2010/2011 winter remained abnormally high, reflecting continuing damages attributed to colony collapse disorder (CCD). CCD, linked to a range of factors including systemic pesticides, has devastated the beekeeping industry in recent years. According to the survey, over 30% of managed honey bee colonies across the country were lost over the winter. Over the past five years, since the discovery of CCD, annual winter colony losses have hovered near the 30% mark. According to ARS entomologist Jeffrey Pettis, PhD, who contributed to the survey, beekeepers averaged 10% winter losses before parasitic mites, 20% winter loss when varroa and tracheal mites arrived in the 1980's, and 30% after CCD. This latest survey had a total of 5,572 respondents, collectively managing an estimated 15% of the country's 2.68 million honey bee colonies. 31% of the respondents notes colony losses with the bodies of the dead bees missing from the hives – a key indicator of CCD. Beekeepers who note an absence of dead bees also have significantly higher rates of colony loss, at 61%.

Colony collapse disorder and the mysterious decline of honey bee populations around the world was first identified in 2006. While CCD appears to have multiple interacting causes, including pathogens, a range of evidence points to sublethal pesticide exposures as important contributing factors. Neonicotinoids, including clothianidin and imidicloprid, are a particularly suspect class of insecticides, especially in combination with the dozens of other pesticides found in honey bee hives. *For more information on the impacts of pesticides on pollinators and CCD, visit www.beyondpesticides.org/pollinators and watch the pollinator panel from the 29th National Pesticide Forum at www.youtube.com/bpncamp.*



Pesticide Exposure Near Workplace Linked to Parkinson's Disease Risk

A study finds that people whose workplaces are close to fields sprayed with pesticides, not just those who live nearby, are at a threefold higher risk of developing Parkinson's disease (PD). The pesticides in question include two fungicides, maneb and ziram, and the herbicide paraquat. The study, "Parkinson's disease risk from ambient exposure to pesticides," is published in the E*uropean Journal of Epidemiology.* Additionally, the study shows an 80% PD increase from combined exposure to ziram and paraquat alone. The researchers estimate the chemical exposures to 703 study participants between 1974 and 1999 while living and working in California's agriculturally rich Central Valley. Of these, 362 participants already had been diagnosed with PD, and the remainder had no sign of the disease.

In the past year, several studies have been published that link PD to a combination of risk factors such as pesticide exposure and genetic susceptibility. According to a University of California, Berkeley study, residential exposure to an agricultural application of maneb and paraquat significantly increases the risk of PD. A University of Texas study finds a strong correlation between PD patients and the use of the pesticide rotenone. In addition, Duke University and University of Miami researchers studying related individuals who share environmental and genetic backgrounds find a significant association between PD and use of pesticides. Farmworkers who report pesticide exposure have nearly double the risk for the disease.

For more information on the link between pesticides and PD, and other diseases, see Beyond Pesticides' Pesticide-Induced Diseases Database, www.beyondpesticides.org/health.

Studies Show Health and Financial Benefits of Organic Poultry Farming

Two recent studies performed independently of each other confirm that organically produced food is safer and can actually save money in the long term. A University of Florida (UF) report, *Ranking the Risks* (April 2011), finds that *salmonella* is the leading disease-causing pathogen found in food, leading to more than $3 billion every year in public health costs. *Salmonella* is a microbe that is often found in poultry and egg products. An unrelated study, published November 2010 in the journal *Foodborne Pathogens and Disease*, finds that there is a significantly lower rate of *salmonella* contamination in organic compared to conventional chickens. Taken together, these studies reveal the potential for organic poultry to significantly reduce the risk to human health from food pathogens, as well as the cost of treating and eliminating those pathogens.

The UF report evaluates the burden to society caused by specific disease-causing microbes found in food. A compilation of data on the cost of doctor visits, hospitalizations, prescriptions, lost wages, and estimated economic cost of a premature death, reveals that *salmonella* contamination places the greatest burden on society. The second study, conducted by University of Georgia researchers, documents the comparative rates of *salmonella* contamination at organic and conventional broiler poultry farms, evaluating three organic and four conventional farms owned by the same company. 38.8% of samples from conventional farms contain *salmonella*, compared with only 5.6% of organic farms. The *salmonella* that contaminates organic operations is less likely to be resistant to anitbiotics. *Learn more about the benefits of organic agriculture on Beyond Pesticide's organic program page, www.beyondpesticides.org/organicfood.*

Despite Industry Claims, Herbicide Use Fails to Decline with GE Crops

According to the *2010 Agricultural Chemical Use Report* released June 2011 by the U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS), use of the herbicide glyphosate in conjunction with "Roundup Ready" genetically engineered (GE) crops has dramatically increased over the last several years. At the same time, the use of other toxic pesticides, such as atrazine, has not declined. Contrary to common claims from chemical manufacturers and proponents of GE technology that the proliferation of herbicide tolerant GE crops would result in lower pesticide use rates, the data show that overall use of pesticides has remained relatively steady, while glyphosate use has skyrocketed to more than double the amount used just five years ago. The report shows that, in the states surveyed, 57 million pounds of glyphosate were applied last 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 current level at 23 million pounds. Glyphosate products are linked to a number of serious human health effects, including cancer, birth defects, organ damage, and neurotoxicity, as well as eye, skin, and respiratory irritation.

GE proponents have often said that, even if farmers are increasingly reaching for glyphosate, this simply means that they are using less of more toxic weed killers like atrazine. However, in 2000, 54 million pounds of atrazine were applied across surveyed states. With glyphosate use increasing by more than five times between 2000 and 2005, it was expected that atrazine use would have significantly declined over this period. However, the total pounds applied actually increased to 57.4 million pounds in 2005. By 2010, atrazine use declined slightly, with 51 million pounds still being applied. Such widespread use of atrazine is a concern due to the chemical's links with serious human health effects, including birth defects and disruption of the endocrine and reproductive systems. Additionally, it is a major threat to wildlife as it can harm the immune, hormone, and reproductive systems of aquatic species. *For more information on GE crops, see www.beyondpesticides.org/gmos. For information on pesticides on food, visit www.EatingWithAConscience.org.*

NAFTA Deal Confirms Canada's Right to Ban Lawn Pesticide Use

Municipalities in Canada can continue to restrict "cosmetic" uses of pesticides on their lawns in spite of the settlement of a closely watched trade case. The province of Quebec and Dow AgroSciences settled a $2 million (U.S.) lawsuit stemming from Quebec's 2006 pesticide ban, which includes the herbicide 2,4-D. Quebec began banning pesticides in 2003 and prohibits the use and sale of 20 ingredients in lawn pesticides that had been used in the province. Environmentalists suspect Dow brought the suit to dissuade other provinces from following Quebec's lead. Dow dropped the claim without the compensation or changes to the ban. Federal International Trade Minister Ed Fast said the agreement "confirms the right of governments to regulate the use of pesticides." In recent years, over 150 municipalities and several provinces –Quebec, Ontario, Nova Scotia, Prince Edward Island, and New Brunswick– have banned lawn pesticides because of health and environmental concerns. States and communities in the U.S. have passed limited restrictions as well.

Dow based its claim in part on a Health Canada ruling in 2008 that 2,4-D can be used safely when label directions are followed. It said the Quebec ban violated Chapter 11 of NAFTA and launched a challenge against the federal government. Chapter 11 allows investors of one NAFTA country to sue the government of another NAFTA country for actions they think are hurting them or their investments. For its part, Quebec agreed to a statement that "products containing 2,4-D do not pose an unacceptable risk to human health or the environment, provided that the instructions on their label are followed." There is a large body of scientific literature that outlines numerous risks of 2,4-D. It has been linked to cancer, reproductive effects, endocrine disruption, kidney and liver damage, and is neurotoxic and toxic to bees, earthworms, birds, and fish. Studies have confirmed significantly higher rates of non-Hodgkin's lymphoma for farmers who use 2,4-D than those who do not; dogs whose owners use 2,4-D on their lawns are more likely to develop canine malignant lymphoma than those whose owners do not. *For more information on pesticide-free lawn care, see www.beyondpesticides.org/lawns.*

NIOSH Study Confirms Agricultural Pesticide Drift Hazard

A study by the Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH) and state agency partners has found that, in recent years, pesticide drift from conventional chemical-intensive farming poisons thousands of farmworkers and rural residents. According to the authors, agricultural workers and residents in agricultural regions were found to have the highest rate of pesticide poisoning from drift exposure. The study identifies 2,945 cases of pesticide poisoning associated with agricultural pesticide drift in 11 states. Since the study focuses on top agriculture producing states, it provides only a snapshot of the poisoning of farmworkers and other rural residents nationally and around the world. The state of California previously estimated that only one percent of the state's occupational pesticide illness or injury is reported to its pesticide incident reporting system.

Of the cases attributed to pesticide drift examined in this study, 47% had exposures at work and 14% were children (less than 15 years old). Most experienced "low severity" illness. The overall incidence (in million person-years) is 114.3 for agricultural workers, 0.79 for other workers, 1.56 for non-occupational cases, and 42.2 for residents in five agriculture-intensive counties in California. Soil applications with fumigants are responsible for the largest proportion, or 45%, of cases. Aerial applications account for 24% of cases. The study, "Acute Pesticide Illnesses Associated with Off-Target Pesticide Drift from Agricultural Applications — 11 States, 1998–2006," was published June 6, 2011 in the online edition of the journal *Environmental Health Perspectives.*

While this study focuses only on acute poisoning due to pesticide drift, an increasing number of studies are linking low level agricultural pesticide exposure to chronic health impacts. Beyond Pesticides' *Pesticide-Induced Diseases Database*, www.beyondpesticides.org/health, features over 300 study entries linking pesticide exposure to common diseases, from asthma, learning disabilities, and autism to Alzheimer's, Parkinson's disease, and cancer. Beyond Pesticides has long advocated that people support a healthy work environment for farmworkers by choosing organic food. *For more information on going organic for farmworkers and rural residents, as well as for your family's health and the environment, see www.EatingWithAConscience.org.*

Prince Charles Encourages Transition to Organic Agriculture

Prince Charles wants the world to go organic. As the keynote speaker at the *Future of Food* conference organized by the *Washington Post* on May 4, 2011 at Georgetown University in Washington, DC, the Prince of Wales discussed many of the problems currently facing food production and advocated for a swift, direct move toward sustainable systems. Pointing out the damage caused by industrial farming that depletes natural resources and impairs biodiversity, he argued that we cannot afford to continue operating under the current system for very much longer. In order to foster the necessary change, he said that agricultural policy in the U.S. and around the developed world must be drastically overhauled. The current system actually penalizes farmers and food utilizing sustainable methods, while paying huge sums of money to farmers who plant monocultures of corn and soybeans on every available strip of bare land, he said. The Prince also pointed to research that was done by the International Assessment of Agricultural Knowledge, Science, and Technology for Development (IAASTD), convened by the United Nations and the World Bank, which demonstrates that small-scale organic farms are fully capable of producing enough food for the developing world, while helping to preserve and replenish natural resources.

Later in the conference, U.S. Agriculture Secretary Tom Vilsack took questions from the audience after a short speech about current projects at USDA. Several of the questions relayed a sense of frustration from the public stemming from recent regulatory decisions. One question in particular cut to the heart of the matter when filmmaker Deborah Koons Garcia asked how Mr. Vilsack could approve deregulation of Monsanto's GE alfalfa. Sec. Vilsack's reiterated his belief in the potential for "coexistence" between organic and GE agriculture and said that he cannot favor one over the other because it would be like choosing which one of his sons is his favorite. Ms. Garcia, referring to the agribusiness lobby, asked Secretary Vilsack, "What if one of your sons is a bully?," which brought cheers from the audience. *Watch selected videos from the conference presentations, http://washingtonpostlive.com/conferences/food/archive.*

Threatened Waters

Congressional assault on our environmental laws

By Nichelle Harriott and Jay Feldman

Industry special interest groups have been hard at work on Capitol Hill these past few months lobbying lawmakers to negate a court order decree that provides protections for U.S. waterways from pesticide discharges. The court finding upholds a requirement for pesticide use permits under the *Clean Water Act* (CWA) when pesticides are used over or near waterways. These special interests groups and those they represent argue that any restrictions on using pesticides near waterways are burdensome to farmers and fall under the jurisdiction of the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA), which establishes the pesticide registration system and resulting pesticide product label restrictions. Industry argues that farmers must not be made to fill out relevant paperwork that would document and monitor the types and amounts of pesticides they use on their farms. Environmental and sustainability advocates maintain that having such information, not collected under FIFRA, is important to evaluating local conditions and preventing adverse effects to waterways, aquatic organisms, and the health of surrounding communities. In fact, the permit is designed for only a narrow range of uses including mosquito spraying, aquatic weed and algal control, situations resulting in pesticide deposition into waterways, and is not applicable to terrestrial agricultural spraying, which accounts for the vast majority of pesticide use.

So far, pro-pesticide industry groups like the American Farm Bureau Federation have successfully pushed the Republican-controlled U.S. House of Representatives to pass the *Reducing Regulatory Burdens Act* (HR 872), by a vote of 292-130, which effectively blocks the U.S. Environmental Protection Agency (EPA) from requiring permits for pesticide discharges in waterways under CWA. Following the passage of HR 872, industry turned its focus to U.S. Senate. More than 30 pesticide and agriculture lobbying groups descended on Capitol Hill in May 2011 to get pesticide safeguards revoked. In June 2011, under the leadership of Senator Stabenow (D-MI), HR 872 was reported out of the Senate Agriculture Committee with only two Senators opposing, Senators Leahy (D-VT) and Gillibrand (D-NY). Should the industry be successful in the full Senate, it may trigger a 'race to the bottom' by industry and states to dismantle other environmental laws. In July, the HR 872 language was attached to the appropriations bill for the Department of the Interior by the House of Representatives.

Pesticides in Our Waters

Concentrations of pesticides and other toxic chemicals make their way into our waterways, and even into our drinking water supply year round as a result of agricultural use, mosquito spraying, aquatic weed management, residential use, and other uses.

- There are over 40,000 impaired waterways in the U.S. that are contaminated by a variety of agents including pathogens, pesticides, heavy metals, PCBs, dioxins, and other types of organic and inorganic pollutants.
- The most frequently detected herbicides that are used mainly in agriculture –atrazine, metolachlor, cyanazine, alachlor, and acetochlor– are generally detected most often and at the highest concentrations in water samples from streams in agricultural areas with their greatest use, particularly in the Corn Belt.
- Atrazine shows consistent patterns of increased levels in U.S. waterways, especially in the Northeast, South, and Midwest regions of the U.S.
- Streams located in the Corn Belt (Illinois, Indiana, Iowa, Nebraska, Ohio, and parts of adjoining States) and the Mississippi River Valley account for most pesticide concentrations that exceed aquatic benchmarks.
- Urban streams have concentrations that exceed one or more benchmarks at 83 percent of sampled sites –mostly by the insecticides diazinon, chlorpyrifos, and malathion.
- Banned chemicals, such as DDT and chlordane, can still be detected in waterways, due to their persistent and bioaccumulative nature.

In a further attempt to weaken CWA, the House of Representatives passed the *Clean Water Cooperative Federalism Act* (H.R. 2018) in July 2011, which transfers powers of enforcement and clean water standard setting from EPA to the states. President Obama has indicated that he opposes this bill and would likely veto it if passed by the Senate.

Congress to Overturn Federal Court Rule

In January 2009, the Sixth Circuit Court of Appeals ruled in *National Cotton Council v. U.S. Environmental Protection Agency* that pesticide applications are required to be 'permitted' under the CWA's National Pollutant Discharge Elimination System (NPDES). The provision is intended to supplement the less protective label requirements under FIFRA, which does not evaluate the unique characteristics, local conditions, and specific sensitivities associated with pesticide discharges into surface waters. CWA's "zero discharge" standard requires a permit for any discharge, no matter how small.

After the court order, EPA drafted proposed rules in 2010 outlining the applicability of the permits for pesticide usage. The permit rules were scheduled to go into effect in Spring 2011, however on March 28, 2011, the agency was granted its request for an extension, pushing the effective date to October 31, 2011. For its part, EPA, even though it is moving forward with the drafting of pesticide permit regulations, maintains that FIFRA not CWA should be utilized to safeguard waterways. The agency takes this position despite a history of criticism for its lax oversight and enforcement of FIFRA regulations.

Permits Are a Small Price to Pay for Clean Water - A Valuable Resource

Pesticides and other chemicals are ubiquitous in U.S. waterways and drinking water. According to data by the U.S. Geological Survey (USGS), pesticide compounds, including many of the most heavily used herbicides and insecticides, and one or more pesticides or their degradates, are detected in water more than 90 percent of the time during the year in agricultural streams, urban streams, and mixed-land-use streams. Low concentrations of pesticides (0.1-15 parts per billion), like those that could result from

Number of Polluted Waterways by State

U.S. EPA. *National Summary of Impaired Waters and TMDL Information*. Office of Water, Washington DC.

State	# of impaired streams	# impaired by pesticides	State	# of impaired streams	# impaired by pesticides
AL	200	7	MT	665	2
AK	32	-	NE	260	24
AZ	84	12	NV	181	-
AR	224	-	NH	1089	4
CA	691	164	NJ	745	137
CO	198	-	NM	187	2
CT	408	2	NY	528	55
DE	101	8	NC	902	1
DC	27	-	ND	214	na
FL	828	-	OH	267	5
GA	215	2	OK	243	8
HI	311	4	OR	1397	19
ID	1057	3	PA	6957	66
IL	1058	94	RI	141	na
IN	1836	1	SC	1060	na
IA	434	-	SD	168	na
KS	1387	175	TN	900	13
KY	1089	-	TX	651	na
LA	250	-	UT	118	na
ME	206	6	VT	131	na
MD	501	-	VA	2534	17
MA	837	24	WA	2419	103
MI	2352	53	WV	981	na
MN	1144	5	WI	593	na
MS	197	-	WY	106	na
MO	204	2			

small applications, impact aquatic communities and are routinely detected in streams. Water quality standards and guidelines have been established for only about half of the pesticides measured in the USGS' National Water-Quality Assessment Program (NAWQA) water samples. Currently, EPA has set water quality criteria for the protection of aquatic life and human health in surface water for approximately 150 pollutants, of which a limited number (less than 20) are pesticides, out of thousands on chemicals currently used in the U.S. Further, as NAWQA states, current standards and guidelines do not completely eliminate risks posed by pesticides in waterways because: (i) values are not established for many pesticides; (ii) mixtures and breakdown products are not considered; (iii) the effects of seasonal exposure to high concentrations have not been evaluated; and, (iv) some types of potential effects, such as endocrine disruption and unique responses of sensitive individuals, have not yet been assessed.

Studies link increased seasonal concentration of pesticides in surface water with birth defects in infants conceived during the spring and summer months, when pesticide use increases and high concentrations of pesticides are found in surface waters. Low birth weights, breast cancer, and low sperm counts have all been linked to pesticide-contaminated water. Prenatal exposure to the herbicide atrazine is linked to small head circumference and fetal growth restriction. Atrazine has been found to act as an endocrine disruptor that can cause complete sex reversal in male frogs below levels allowed in the environment by EPA.

We Must Take Action Now!

Without a hearing, the Senate Agriculture Committee voted on June 21, 2011 to strip states and EPA of their fundamental responsibility to protect our nation's waters from toxic pesticides. HR 872 amends the *Clean Water Act* (CWA) and federal pesticide law to prohibit authorities from requiring a permit for the discharge of pesticides in waterways. Having already passed in the House of Representatives, the fate of our nation's waters rests in the hands of the Senate.

Tell your Senators what you think of HR 872, the pesticide industry's latest move in their assault on environmental laws. Call your Senators (look up your Senators' phone numbers at http://www.senate.gov) and use Beyond Pesticides' online action form to automatically send emails. For more information and to take action, visit http://bit.ly/CWA-Pesticides.

Sample letter

Please consider modifying this sample text for greater impact.

It is with grave concern that I am writing to your office. As HR 872 is being considered, we urge you to take a second look at this piece of legislation. This legislation will limit badly needed protection of our nation's waterways from pesticide contamination that I rely on to keep my family and my community safe from pesticide pollution.

Contrary to representations made by proponents of HR 872, the NPDES general permit will have no significant effect on agricultural practices. Regulating pesticide discharges to water under the NPDES permitting scheme is surely necessary. Despite current regulation by Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides are and will continue to impair our waterways in significant quantities, and have caused real harm to public health and ecosystems.

For decades, our nation's waterways have been polluted with hazardous pesticides and their degradates, which impact aquatic populations of animals and plants, and decrease drinking water quality. Many of these pesticides accumulate in fish and other organisms, making their way up the food chain to eventually be consumed by my family and the American public at large.

It is important for me, my family and the American public to have confidence in its laws and stewards of the law. In this political climate, it is also important that Americans believe that their best interests are being served by Congress and not being eroded by industry interests. I hope, following good counsel, that you oppose HR 872.

Antibiotics in Fruit Production

A challenge to organic integrity

By Terry Shistar, PhD

Editor's Note: *The vast majority of antibiotics used in food production are given to non-organic livestock. According to Physicians for Social Responsibility, the non-therapeutic use of antibiotics in livestock production accounts for nearly 80% of all antibiotics used in the United States. Typically, low levels of antibiotics are administered to animals through feed and water to prevent disease and promote growth. This is generally done to compensate for overcrowded and unsanitary living conditions, as is common in concentrated animal feeding operations (CAFOs), and to fatten livestock to get them to market sooner. Non-therapeutic antibiotic use is prohibited in the production of all organic animal products, however, as an exception it is allowed for use in organic apple and pear production –a situation the current National Organic Standards Board has sought to correct with its vote in April 2011 to phase out this use by 2014.*

People think of organic agriculture in many ways. Some define it by the things that are lacking –organic production should involve no pesticides, synthetic chemicals, or processing technologies you wouldn't have in your kitchen. Others think about it in terms of food value –organic food should be nutritious and safe to eat without washing. And some think of it as ecologically-based agriculture. Still others think of the economic opportunity provided by a market for a premium product.

For the originators of the organic method, it was all about the soil. They believed that the soil must be regarded as a living organism. Organic gardening and farming literally grew out of the study of composting. As J.I. Rodale and the Rodale staff wrote in *The Complete Book of Composting*:

At the very foundation of good nutrition is the soil –soil that is fertile and alive, that is kept in shape to grow plants as nature meant them to be grown. The life and balance in this soil is maintained by returning to it those materials which hold and extend life in a natural cycle, and aid in replenishing the nutrients needed to produce healthy, life-supporting crops. Soils that lack vital plant nutrients cannot give these food values to what is grown in them.

Hence the saying, "Feed the soil to feed the plant."

The *Organic Foods Production Act* (OFPA) was written with the intention of ensuring that organic food meets *all* of these expectations. And it offers opportunities for all of us to engage in protecting our vision of organic food. Protecting the integrity of the organic label depends on our views of what "organic" means to us being repeatedly voiced in response to proposals that might weaken the legal meaning.

The National Organic Standards Board (NOSB) was established by OFPA to "assist in the development of standards for substances to be used in organic production and to advise the Secretary" on implementation of the act. One issue that arose recently before the NOSB –the use of antibiotics in apple and pear production for fire blight, a bacterial disease– illustrates the problems encountered in maintaining organic integrity as organic production expands to meet an increasing demand.

The antibiotics streptomycin and tetracycline have been allowed to be used in organic apple and pear production since their approval by a split vote in 1995. The controversy over their use has involved many issues, the most important of which are:

(i) The potential for promoting resistance to the antibiotics in human pathogens by spraying them in the orchard environment;

(ii) Inconsistency with the position on antibiotic use in animals; and,

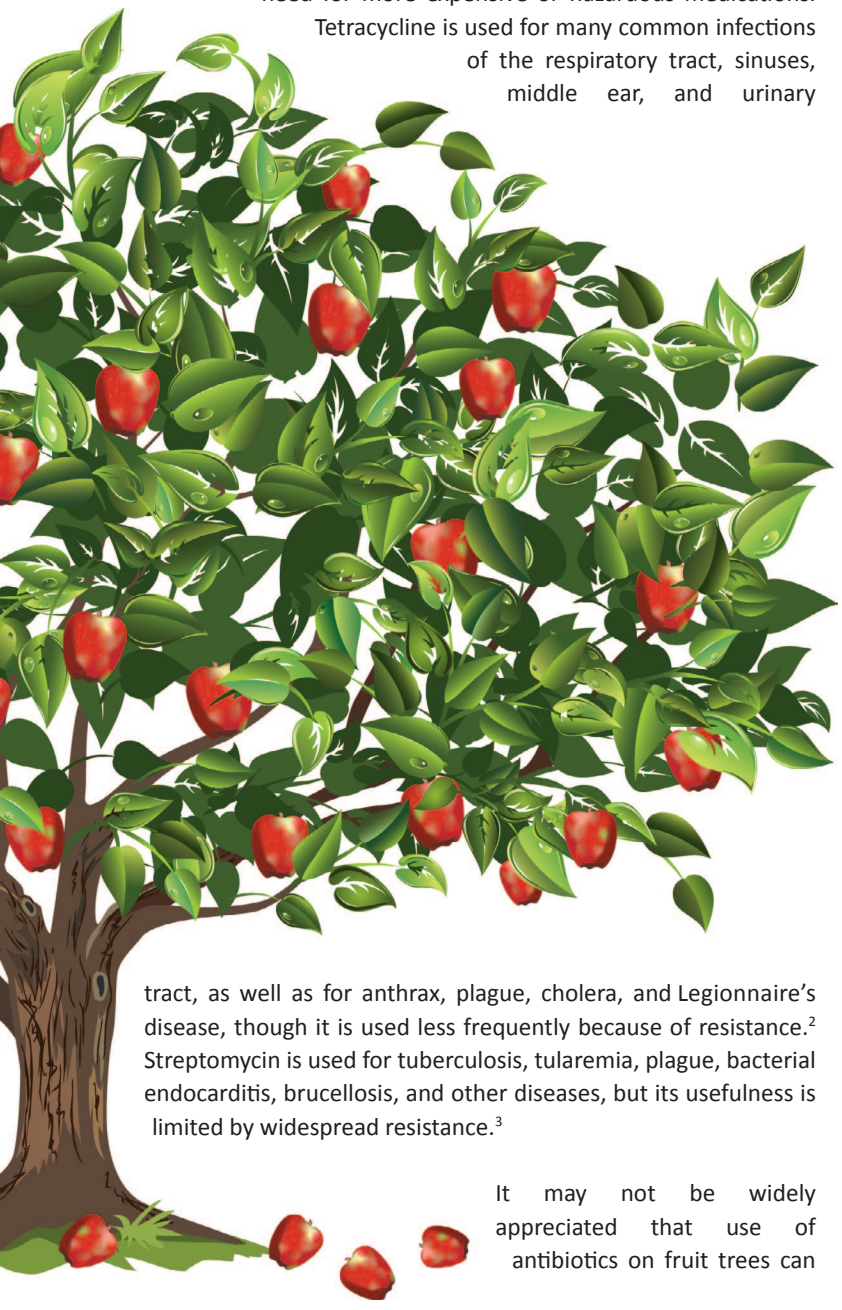
(iii) Incompatibility with organic and sustainable agriculture.

Definition of Organic Production

A production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. (7 CFR 205.2)

1. Resistance

We all recognize that resistance to antibiotics among human pathogens is a huge problem. The Centers for Disease Control (CDC) call it "one of the world's most pressing public health problems."[1] Many bacterial infections are becoming resistant to the most commonly prescribed antibiotics, resulting in longer-lasting infections, higher medical expenses, and the need for more expensive or hazardous medications. Tetracycline is used for many common infections of the respiratory tract, sinuses, middle ear, and urinary tract, as well as for anthrax, plague, cholera, and Legionnaire's disease, though it is used less frequently because of resistance.[2] Streptomycin is used for tuberculosis, tularemia, plague, bacterial endocarditis, brucellosis, and other diseases, but its usefulness is limited by widespread resistance.[3]



It may not be widely appreciated that use of antibiotics on fruit trees can contribute to resistance to the antibiotic in human pathogens. The human pathogenic organisms themselves do not need to be sprayed by the antibiotic because movement of genes in bacteria is not solely "vertical" –that is from parent to progeny– but can be "horizontal" –from one bacterial species to another. So, a pool of resistant soil bacteria can provide the genetic material for resistance in human pathogens.

The basic mechanism is as follows. If bacteria on the plants and in the soil are sprayed with an antibiotic, those with genes for resistance to the chemical increase compared to those susceptible to the antibiotic. We know that resistance genes exist for both streptomycin and tetracycline, and spraying with these chemicals increases the frequency of resistant genotypes by killing those susceptible to the antibiotic and leaving the others. Those genes may be taken up by other bacteria by a number of mechanisms, collectively known as "horizontal gene transfer." They include transformation, in which bacteria pick up DNA that is free in the environment –for example, from dead and degraded bacteria, conjugation– from direct cell-to-cell contact, which may involve unrelated bacteria and is mediated by plasmids or transposons, and transduction –the transfer of DNA via phage.

"Horizontal gene transfer –the movement of genetic material from one organism to another– is the primary mechanism by which bacteria acquire antibiotic resistance."[4] Once resistance genes are present in any bacteria, they increase the pool of resistance genes and the likelihood that human pathogens will acquire that resistance.[5]

The contribution of antibiotic use in fruit trees to resistance may not be nearly as important as the use of non-therapeutic antibiotics in livestock, but it does have an impact on the pool of antibiotic-resistant bacteria, and organic agriculture should not be contributing to the problem. Furthermore, residues of antibiotics in the soil may be taken up by treated or untreated plants and affect bacteria.[6]

2. Inconsistency with Prohibition of Antibiotics in Organic Animal Husbandry

The organic rule (205.238(c)(1) is clear that organic livestock producers may not "[s]ell, label, or represent as organic any animal or edible product derived from any animal treated with antibiotics." This has contributed to reduced rates of antibiotic resistance in bacteria in animals on those farms.[7] The intention has been to prevent antibiotic resistance by using good preventive

health care that can eliminate most need for antibiotics. Even in an emergency, if animals may be treated with antibiotics, they may not be sold as organic. In the case of fruit production, antibiotic use has been allowed, and as shown below, it has resulted in practices that create more need for the chemicals. The program should be consistent in prohibiting the use of antibiotics.

3. Incompatibility with Organic and Sustainable Agriculture

The use of antibiotics in organic fruit production is incompatible with a system of organic and sustainable agriculture for a number of reasons.

First of all, it does not encourage and enhance preventive techniques, including cultural and biological controls. Almost every publication on fire blight stresses that the first line of defense is the choice of disease-resistant varieties and rootstocks. Table 1, from a Purdue Extension publication, lists resistant and susceptible varieties of apples, pears, Asian pears, and their rootstocks.[8]

Table 1. Fire Blight Resistance in Apple and Pear Varieties[8]

Organic apple and pear trees may be treated with the antibiotics streptomycin and tetracycline to control fire blight. This can increase the likelihood that bacteria causing human diseases will be resistant to those antibiotics as well. (Apples and pears produced by chemical-intensive agriculture may be treated with these antibiotics as well as other poisons.) You can reduce your exposure to resistant bacteria and give growers an incentive to eliminate antibiotic use by demanding resistant varieties. Take this chart shopping with you, and try some new apples and pears. If you shop at a farmers' market or another place where you can talk with the grower, ask about antibiotic use and the varieties they grow.

Apples	
Highly Resistant	Jonafree, Melrose, Northwestern Greening, Nova EasyGro, Prima, Priscilla, Quinte, RedFree, Sir Prize, Winesap
Resistant	Cameo, Dutchess, Empire, Red Delicious, Goldrush, Haralson, Honeycrisp, Jonagold, Jonamac, Liberty, McIntosh, Northern Spy, Novamac, Spartan
Susceptible	Beacon, Braeburn, Cortland, Fuji, Gala, Gingergold, Golden Delicious, Granny Smith, Honeygold, Idared, Jonathan, Lodi, Monroe, Mutsu (Crispin), Paulared, Pink Lady, Rome Beauty, Wayne, Wealthy, Yellow Transparent, Zesta!
Apple Rootstocks	
Resistant	B.9,* Geneva 11, Geneva 30, Geneva 65, M.7, M.27,* Novole, Robusta
Susceptible	Alnarp 2, Bemali, Bud. 9,* Bud. 118, Bud. 140, C.6 (interstem) M.9, M.9 (interstem), M.26, M.27,* MM.106, MM.111, Mark, Ottawa 3, P.2, P.16, P.22
Asian Pears	
Resistant	Chojuro Kosui, Olympic (Korean Giant), Seuri, Shinko, Shinsui, Singo, Tse Li, Ya Li*
Susceptible	Hosui, Kikusui, Okusankichi, Seigyoku, 20th Century(Nijisseki), New Century (Shinseiki) Ya Li*
Pears	
Highly Resistant	Honeysweet, Kieffer, LaConte, Magness, Moonglow, Old Home
Resistant	Seckel, Maxine
Susceptible	D'Anjou, Aurora, Bartlett, Bosc, Comice, Clapp's Favorite, Dutchess
Pear Rootstocks	
Resistant	Old Home (OH), Old Home x Farmingdale (except OHxF 51), *P. calleryana*, *P.betulifolaefolia* seedlings
Susceptible	Bartlett Seedling, Quince seedling

* There are studies that provide contradicting data, suggesting that this cultivar, rootstock, or species is susceptible.

History of NOSB Actions on Antibiotics in Apples and Pears

1995. In a split vote, streptomycin and tetracycline added to National List for fire blight in apples and pears.

1998. The proposed regulations would have allowed "antibiotics as pesticides." In spite of the public's concentration on the "big three" (genetic engineering, sewage sludge, and irradiation), there was public opposition to the use of antibiotics as pesticides.

2000. The next draft rule removed the NOSB recommendations allowing streptomycin and tetracycline in order to be consistent with the prohibition of antibiotics in livestock. Later, in December 2000, the two antibiotics were reinstated in the final rule in response to public comment from growers.

2006. After expressing concern and the wish that someone might petition to remove them sooner than the next sunset review (every five years), the two antibiotics were renewed with a vote of 7 yes, 4 no, 1 abstention, and 2 absent.

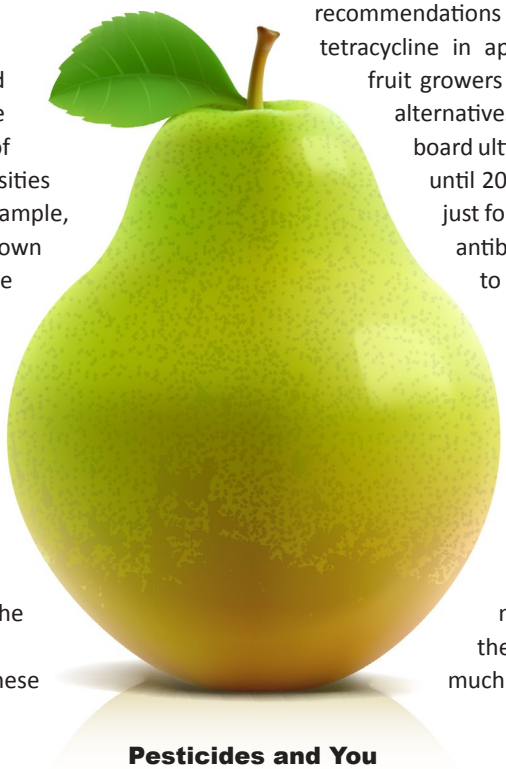
2008. A petition to add another form of tetracycline –oxytetracycline hydrochloride– would have reset the clock on tetracycline sunset. NOSB members were not happy with extending the sunset because they wanted it off the list. The Board voted against the proposal with a vote of 1 yes, 13 no, and 1 absent. Later, the Board reconsidered the motion, allowing the hydrochloride to be added ("to level the playing field"), but adding an annotation that turned the sunset date into an expiration date--October 21, 2012.

2011. In response to a petition on streptomycin and sunset of tetracycline, the Crops Committee voted to de-list the antibiotics, and the Board set for both an expiration date of October 21, 2014.

Compatibility with sustainable and organic principles requires growers to first choose varieties that are not susceptible to important diseases in their region. Other preventive techniques should be used, including site selection, careful fertilization, adequate spacing of trees, and proper pruning practices. Certifiers should already be requiring that these other measures be used before any synthetic input is used.[9] There are now additional products available for use against fire blight. Serenade Max, Bloomtime Biological FD, BlightBan C9-1 and Blightban A506 are relatively new biological controls. Surround is a kaolin clay product that has had some success in controlling fire blight. Even so, the use of resistant varieties virtually eliminates the threat of tree loss to fire blight.[10]

We have seen over the past years a trend toward greater dependence on the antibiotics and a greater concentration of susceptible varieties grown in high densities on susceptible rootstocks.[11] See, for example, the trends in apple and pear varieties grown by organic growers in Washington in the Granatstein presentation (endnote #11, pages 11 and 14), and compare to the list on page 14 of resistant and susceptible varieties.

The use of antibiotics is not sustainable, since it inevitably leads to resistance, as has been seen with streptomycin in the Pacific northwest. And in the long run, it leads to health problems for everyone on the farm –from the plants to the humans. Finally, organic consumers understand these things. They understand the importance of the threat of antibiotic resistance. An important reason that consumers buy organic meat is the absence of antibiotics. Organic consumers do not want antibiotics to be used on their fruit. Organic apple and pear growers have missed an opportunity to differentiate themselves from conventional growers. Instead of growing susceptible varieties, they should be educating consumers to know that Gala, Fuji, and Granny Smith apples are most likely to be treated with antibiotics, and that certain other varieties are not.



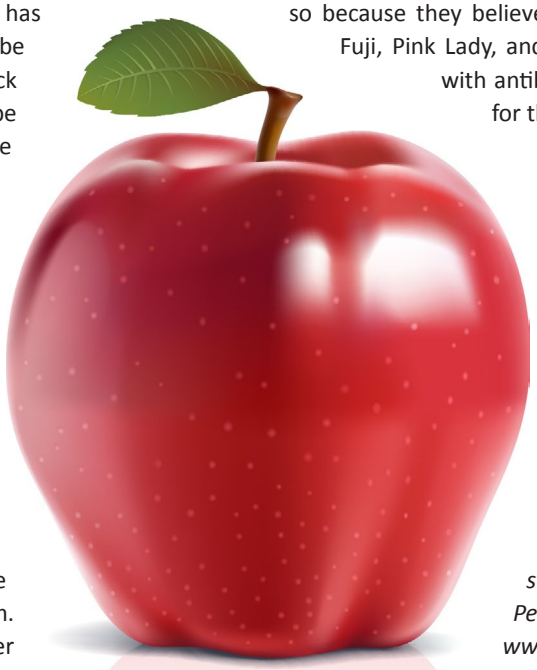
Most Recent NOSB Action

At their April 2011 meeting, the NOSB considered committee recommendations to eliminate the use of streptomycin and tetracycline in apples and pears by October 2012. Some fruit growers argued for more time, saying that certain alternatives are not sufficiently available, and the board ultimately extended the use of both antibiotics until 2014. We need to examine these claims –not just for the sake of eliminating unnecessary use of antibiotics, but also because they reflect threats to the integrity of organic production that arise in other situations as well.

First, these growers argue that the alternative (biological) sprays for fire blight are not always efficacious. Their preferred product is still in development, and it is not known when it will be commercially available. While these products, which are mostly benign microorganisms that compete for space on the flower with the fire blight bacteria, are much less hazardous than antibiotic sprays, their

use is only one small part of an organic system –a system that should be promoting healthy trees through site selection, choice of cultivars and rootstocks, soil fertility management, sanitation, and encouraging biodiversity.

Second, it was argued that the dwarfing rootstocks that are resistant to fire blight are not sufficiently available. While there is one particular rootstock that is equivalent to a susceptible rootstock favored by many growers for its dwarfing characteristics that is currently not available in the quantities growers would like, this argument has some hidden assumptions that should be examined. Why is this particular rootstock considered so essential? It appears to be because of the movement towards dense plantings of small trees. While dense plantings of small trees offer a great deal in terms of convenience and concentration of many trees in a smaller acreage, they also offer greater potential for disease to take hold and spread. This is particularly true because such orchards are essentially monocultures.



Third, some fruit growers argue that consumers drive the market, and that they grow varieties susceptible to fire blight because consumers demand them. Some go so far as to claim that other varieties are "inedible." On the other hand, it should be argued that organic growers who make that claim seem to be content to follow the lead of chemical-intensive growers, rather than establishing themselves as growers of antibiotic-free fruit.

What You Can Do

Fire blight management does present a challenge to organic fruit producers. So far, however, they seem to have lacked the incentives to take the first step towards eliminating dependence on antibiotics –planting resistant varieties. They have failed to do so because they believe that organic consumers demand Gala, Fuji, Pink Lady, and Granny Smith, regardless of treatment with antibiotics. We can all help create a demand for the resistant varieties.

Take the lists in the table on page 14 with you when you shop, and ask for the resistant apples and pears. If you belong to a coop, ask to put up a sign listing fire blight-resistant and susceptible varieties and stating that the susceptible varieties are more likely to be treated with antibiotics. Share this information with others.

For more information on organic food and what you can do to protect and strengthen organic integrity, visit Beyond Pesticides' Organic Food program page, www.beyondpesticides.org/organicfood.

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[9] See, for example, Midwest Organic and Sustainable Education Service, "Organic Tree Fruit Certification" at http://www.mosesorganic.org/attachments/productioninfo/fstreefruitcertification.html: "The organic regulation mandates that a specific pest control hierarchy be used. To manage pests and diseases, you must start with cultural controls (i.e planting resistant stock), mechanical controls (i.e screening or netting) or biological controls (i.e. the use of beneficial insects and pheromone disruption). If these methods don't work, document the fact and then natural products can be used. If natural inputs are not effective, then approved synthetics can be used."
[10] Glenn, D. M., van der Zwet, T., Puterka, G., Gundrum, P., Brown. E. 2001. Efficacy of kaolin-based particle films to control apple diseases. Online. Plant Health Progress doi:10.1094/PHP-2001-0823-01-RS. http://ddr.nal.usda.gov/bitstream/10113/12139/1/IND43805958.pdf.
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Poisoned Golf

A groundskeeper speaks out on contamination and poisoning

By Steve Herzog

Editor's Note: *This is a story about a poisoning on a golf course, a victim who says the years of the course's contamination to local waterways was covered up, and unresponsive environmental enforcers. Unfortunately, this is not an isolated story. At Beyond Pesticides, we talk to large numbers of people who have been poisoned by pesticides. Usually they call us years after the poisoning incident(s), as is the case with this story, to tell us about its long-term impact on their health and the community. With these stories, we are inspired daily to advance policies and practices that prevent future harm.*

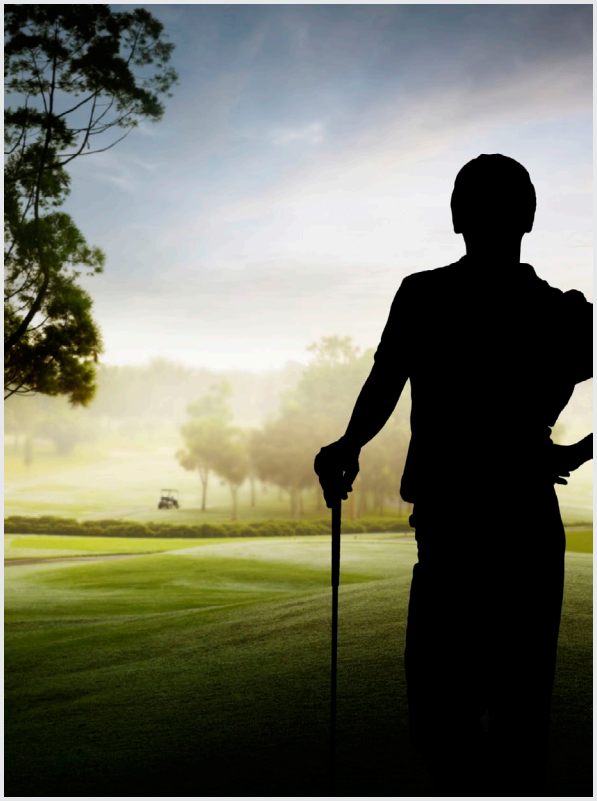
What is most troubling about the damage that is caused by pesticides is the lack of legitimate justification for their widespread use –given the availability of non-toxic methods and products for managing target insects, rodents, and plants (weeds). The voices of those who have fallen victim to the chemicals and the poor regulatory system are critical to our strategic efforts to stop toxic pesticide use and replace it with non-toxic management practices and products. No matter how long ago the poisoning or contamination occurred, they tell us of a system that failed then and continues to fail today. The chemicals may be different, but the process of pesticide registration and enforcement has not yet changed enough to prevent the victimization on a daily basis. The pesticide lobby still influences (or controls) the process. The agriculture committees of Congress maintain their jurisdiction over pesticide law. And "the fox is [still] guarding the hen house," as GAO found in its 1981 report, Stronger Enforcement Needed Against the Misuse of Pesticides, when it concluded that the states' departments of agriculture are lax on enforcement of pesticide laws because they are the entities advising the use of the poisons. The voices of victims are critical to the dramatic shift to organic practices now taking place, even in the face of all the regulatory risk assessments that proclaim the acceptability of the harm, and yet unknown and unstudied effects, caused by daily and unnecessary use of toxic chemicals. –Jay Feldman

I am Steve Herzog and write this personal account of my experience as a cancer survivor, whistleblower, and a groundskeeper who stopped the Yale University Golf Course (YGC) from using its contaminated drinking well water. For 13 years, from 1983 to 1996, I worked at YGC as a groundskeeper. During my employment there, numerous insecticides, herbicides, and fertilizers were used with no consideration given to the fact that YGC used well water for its drinking water and is adjacent to Maltby Lakes, a recreational area. I became concerned in August of 1989 when a routine water quality test of the cold water from a faucet in the maintenance barn by Yale University's Office of Environmental Health and Safety found coliform bacteria at 3 per 100ml. At that point, I tried to get YGC to test the well water for specific pesticides and fertilizers, but I was told it was too expensive. Of course, this made me suspicious because obviously YGC had the money to do whatever tests were necessary to ensure the safe water quality of the well water. I also was concerned because a co-worker had "the shakes" (his head and upper body would shake all the time and his skin was yellow). He eventually passed on and I learned much later that excessive coliform exposure causes "the shakes" and yellowing of the skin.

I served on the Safety Committee for YGC and tried with little success over my 13 years of work to get the people in charge to restrict the use of certain pesticides and fertilizers. The one exception was after many years of meetings and research in which I was involved, I was able to get the people in charge at YGC to ban the use of Milorganite, a sewage sludge fertilizer known to contain contaminants including arsenic, mercury and other heavy metals. [*Metals Concentrations of Commercial Fertilizers*, Washington State, 2005] However, the year before I was able to get it banned the superintendent had me apply it to all the greens, tees, and approaches with a walk behind fertilizer spreader. This apparently was my punishment for my efforts at the time.

I subsequently suffered from nose bleeds for weeks as I was given no protection and told that it was "organic and safe." You may ask

Is Golf Becoming Greener?



Golf courses have always been big pesticide users. In a study in the 1990s, it was found that golf course superintendents have a higher mortality from certain cancers, including lung, brain, non-Hodgkin's lymphoma, large intestine, and prostate. A study by the New York State Attorney General, *Toxic Fairways* (1991, 1995), identifying a particular concern with the potential for groundwater contamination, found that the golf courses studied apply four to seven times the average amount of pesticides used in agriculture, on a pound per acre basis. Environmental and health concerns about pesticide use on golf courses led to the adoption of *Environmental Principles for Golf Courses in the United States* (1996), a collaborative effort by environmental and health groups, including Beyond Pesticides, player organizations, and the Golf Course Superintendents Association. All recognized that golf course management had to step up to address the impact that is was having on the health of players, golf course workers, and the environment. The golf industry also knew that polls were showing that golfers cared about the environment, and developers were experiencing more resistance to golf courses in communities because of the pesticide use, pesticide drift off of the course, and runoff into waterways.

Golf Digest, which recognizes the environmental concerns among its readership, launched a program in 2009, Green Star Awards, in which it annually acknowledges the courses that adopt environmental practices. The applicants show strong awareness of the role that they play in protecting or harming the environment, addressing issues from energy conservation, recycling, green cleaning, serving organic food, and turf management. However, efforts to eliminate a reliance on pesticides still lag behind other environmental action. Most of the awardees are practicing a form of Integrated Pest Management (IPM) that seeks to reduce pesticide use but not move away from pesticide dependency, a growing trend in the industry. This may be because they are not typically defining IPM, but rather suggesting that with better monitoring and the establishment of thresholds they are able to "spot treat" – a fine-tuning of chemical dependent strategies with pesticide reduction efforts. At the same time, many are introducing elements of an organic system, such as beneficial insects, choice of grass varieties (e.g. fescue grasses, native grasses) that do not require pesticides and synthetic fertilizers, and biological approaches (e.g., beneficial insects, bats, carp) that replace some chemical-intensive management approaches. However, more attention is needed to the basic turf management issues related to soil microorganisms and building soil biomass as a tool for enhancing plant health and resistance to diseases.

The course that attracts national attention for its organic practices is The Vineyard Golf Club in Edgartown, MA, which has been free of pesticides and synthetic fertilizers since 2002. Jeff Carlson, the superintendent, uses a mixture of different techniques such as proper grass varieties, introducing beneficial bacteria and nematodes, as well as pheromone traps in the management of the greens and fairways. Key to the success of the program is the level of involvement among the club members, who are concerned about protecting the environment and the local drinking water aquifer that the course sites on. *For more information, see www.beyondpesticides.org/golf. –Editor*

why I did not refuse to do it. In the back of my mind, I would say to myself, this is Yale University, one of the top universities in the world. It must be safe to apply it.

Around October 1995, during a meeting of the Safety Committee, which was held at the YGC clubhouse, I remember getting very angry and loud during a discussion regarding the use of Calo-Chlor, a mercury-based fungicide (since phased out), to control snow mold on the greens in the winter time. YGC had recently hired a new Superintendent who had promised during his interview for the job to be safety conscious regarding the use of chemicals and would welcome any concerns of workers. During this meeting, he said, "I am the superintendent and I will use whatever I want to," I expressed by concerns, loudly!

A few weeks after this meeting, I felt extremely tired and discovered a lump on my neck. It turned out to be cancer. I originally was

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Genetically Engineered Food

Failed promises and hazardous outcomes

By George Kimbrell

The following are excerpts from a talk by George Kimbrell at Beyond Pesticides' 29th National Pesticide Forum, Sustainable Community, April 8, 2011 at the Colorado School of Public Health in Denver, CO. Mr. Kimbrell is a senior attorney at the Center for Food Safety in San Francisco, CA.

Thank you all for being here. I am honored to be with you. I am an attorney, but please don't hold that against me. I'm one of the good ones. I was going to call this talk "Pesticide Promoting Crops" because actually genetically engineered (GE) crops should be called pesticide promoting crops. And if you only take one thing from my talk tonight, I hope it's that you understand that those two terms are essentially synonymous.

Pesticide Promoting Crops

If you go to Monsanto's website, they will teach you that GE foods are going to help us feed the world, have lower impacts on the environment, and increase our yields. The most recent myth is that they are going to help us solve global warming. The most basic myth is that GE is the same as conventional breeding. None of these claims are true. First of all, GE its very different than conventional breeding. Basically it's gene splicing using recombinant DNA technology. It's inserting a gene from a species that would never breed in nature into another species. So you have a flounder gene that goes into a tomato.

The most prevalent form of GE crops are Roundup Ready. They use a soil bacterium gene, which Monsanto found in the wasteland of its backyard, that was the only thing alive that could survive all the polluted chemicals and Roundup that was coming out of its factory. They took the genes from it and inserted it using a virus into plants. Low and behold, the plants became resistant to Roundup as well.

Eighty percent of GE crops are pesticide promoting. They are engineered to do one thing and one thing alone, not to increase yields, but rather to sell more pesticides. They are resistant to these pesticide companies' flagship products, primarily Roundup. Because of GE crops, Roundup has become the most common pesticide ever. After 15 years of promises, this is what we have: herbicide tolerant corn, cotton, soy, and canola.

There have been a number of studies that have shown that overall the adoption of these crops have led to widespread impacts on our environment. The work of Charles Benbrook, PhD of the Organic Center shows an increase of 386 million pounds of pesticide use between 1998 and 2008, following the introduction of GE crops. The Union of Concerned Scientist study, *Failure to Yield*, demonstrates that GE does not increase yields. Additionally, as one of the earlier panelists have noted, another major environmental impact of GE crops is that they create superweeds, a problem similar to antibiotic resistance. When farmers douse the crops in Roundup or another pesticide repeatedly, they mutate and become resistant, forcing the farmer to douse the crop in more and more toxic pesticides. We call it the pesticide treadmill. And it is the biotech industry's solution to this problem. What we have seen in these last two years are petitions for commercialization of "stacked" GE crops. Stacked crops include Roundup resistance, as well as a 2,4-D or dicamba resistance.

The American Experiment

In 2009, the *Wall Street Journal* reported 158.1 million acres of GE crops planted in the U.S., along with 52.9 million in Brazil and 52.6 million in Argentina –very little elsewhere. Herbicide-tolerant corn, cotton and soybeans have increased dramatically, now making up 60-90% of acres planted over the last 15 years.

There are a number of reasons farmers have adopted them. A graphic representation by Phil Howard, PhD [see https://www.msu.edu/~howardp/seedindustry.html] shows the market consolidation of germplasam. Five companies, Monsanto, Syngenta, Bayer, Dupont, and Dow, own over 50 percent of the world's germplasam. In the last 15 years or so, they have bought up most of the public seed companies. That market consolidation, coupled with a five to four Supreme Court decision in 1980, in which the Court said we can patent life, have allowed these companies to patent, privatize, and engineer seed, then sell it to farmers and not allow public varieties to have a place at the table.

The other way this is happening is through contamination of public varieties. Biological contamination used to be called "advantageous presence" by the U.S. Department of Agriculture (USDA). I think biological contamination is a much better term for it. Contamination is essentially the mixing of DNA where it is unknown and unwanted, in wild varieties or conventional varieties of these crops. This can happen in a number of ways – through bee pollination, weather events, seed mixing, or by other means. The most famous two contamination episodes were the StarLink episode in 2001 and, more recently in 2006, the Bayer rice contamination in which rice farmers in the Southwest were contaminated by an unapproved rice variety. We ship a lot of our rice to Japan. Opposed to GE crops, Japan closed its doors once they tested it and found it to be contaminated. That export market was lost and there has been tort litigation to the tune of one billion dollars since then. All of the early court decisions have come in favor of the farmers, which is good news.

Aside from genetic contamination, there is also contamination by herbicides. These are pesticide promoting cropping systems. It is very important that when we discuss this, we don't just talk about the engineering itself. No one buys Roundup Ready corn if they are not going to douse it with Roundup. That's why they pay the extra amount to get the engineered seed.

The socioeconomic harm that goes along with the environmental harm has to do with farmers' fundamental loss of their right to sow the crop of their choice. If they want to grow a non-GE variety or an organic variety, they lose that ability if their neighbor is growing Roundup Ready varieties. The risk of contamination is too high for them to be able to do that. They lose either their organic or non-GE market. There is a burden, even if contamination doesn't happen, on farmers in the cost of testing and protection measures –buffer zones and so forth– that stems from the risk of contamination.

The Great Unknowns

Many of the harms from GE crops are unknowns, particularly on the health side. There really have been no long-term studies. This is an ongoing experiment on all of us, our families, and the environment. The reason for that is again the patents. These companies, because they own the patent on a variety, don't have to allow academic researchers to do any research on it. If you are an academic and you want to do research on Roundup Ready alfalfa, canola, or corn, you have to get the proprietary entity's permission –the company's permission– to do that research. Once you have done the research on, say, monarch butterflies or another species, if they do not like the results, they can prohibit you from publishing it. They can redact whatever you publish. A number of academics have written to the federal agencies to this extent on a number of occasions saying, we really can't comment on the release of this particular crop because we have no way to do unbiased research. Of course, many universities are funded by these chemical companies to boot.

There are a number of health risks: novel allergens, toxicity, antibiotic ineffectiveness, altered nutrition, immuno-suppression, general lack of long-term testing, and uncertainties. Additionally, the basic scientific principle upon which GE crops is based –one gene equals one trait– has been shown to be a fallacy. We now know through epigenetics and other means that the parts of DNA that we used to call junk DNA play a much more important role. The way genes work is very much like an ecosystem –in a very holistic fashion. Yet, we still are moving forward approving and commercializing these crops based on that theory.

Rise of the Superweeds

The USDA's record is horrific in preventing contamination from happening, although we do not have much data on post-commercialization because the Department denied that it has any post-commercialization authority. The evidence that we do have on just the field trials is that contamination happens again and again. USDA has said to us, "Don't worry, it's not going to get out." But it's hubris. Nature finds a way, in many ways, and we have seen that time and time again. The most recent event was just last summer. Scientists drove around the Dakotas sampling canola in the wild, which, you know, grows like alfalfa. It's ubiquitous in the American west. You'll find it in roadside ditches, fallow fields, and so forth. They tested every canola plant they found. The majority of it was Roundup Ready. So the canola had gotten out of the fields and contaminated the wild, essentially.

I think that superweeds will be one of the biggest issues in the future with regard to GE crops because of this pesticide treadmill

effect that I mentioned. This is an epidemic. Agronomic scientists have referred to the superweeds epidemic as the worst thing to happen to U.S. agriculture since the boll weevil.

Lack of Regulation

How do we regulate these crops? Well, the short answer is we don't. Or, we don't do it very well. We have what is called the *Coordinated Framework for the Regulation of Biotechnology*, which was set up in 1986. More properly I think it would have been termed the "Uncoordinated Framework," because it has a lot of loopholes in it. Oversight is separated between several sister agencies. USDA is entrusted with oversight of the plants, the Environmental Protection Agency (EPA) with the pesticides, and the Food and Drug Administration (FDA) with the food. Of course, there are overlying statutes, like the *National Environmental Policy Act,* that some of our cases have been brought under. There were no new laws passed to address the novel harms and new risks that genetic engineering creates. We have been squeezing blood from statutory stones, so to speak, with oversight for a long time now. In general, we don't have new environmental laws we need in many areas, but the emergence of new technologies, like genetic engineering, synthetic biology, and nanotechnology, exacerbate and highlight the need for new laws and regulatory mechanisms.

With regard to human health and safety testing, the assumption is that they are the same as conventional crops. In fact, Monsanto and other companies, before they market a genetically engineered variety, don't have to even meet with the regulatory agency. FDA does no independent testing whatsoever. They have voluntary consultations. That's it. Those voluntary consultations are done behind closed doors. Whatever data Monsanto or another company gives to them, it is protected as confidential business information. We do not get to see it. FDA does no testing. They take what they've been given, ask no further questions, and approve the crop or the food.

We also do not require labeling, unlike two-thirds of the rest of the world. We are the outlier. We do not give our public the right-to-choose. At the Center for Food Safety, we think this is a vital touchstone and that running away from your product is not a very good business plan. Why not allow people to choose? I don't know. I think they recognize that they add no benefit to consumers from these crops, or to farmers for that matter, so I think they know that labeling would be the death knell for them. We did litigate that and lost 11 years ago, but I think the labeling issue is one that is out there still to be won.

USDA uses a statute called the *Plant Protection Act* that is not even taught in law schools that focus on environmental law, like Lewis and Clark, Vermont, or here at University of Colorado-Boulder. It is a law that we use for regulating invasive species from abroad when we import products. The company will petition USDA for "deregulation," which is just another word for commercialization. And then USDA, if it finds it not to be a plant pest, will allow deregulation.

Of course, the *Organic Foods Production Act* (OFPA) prohibits GE as one of its excluded methods, one of the "Big Three" that we as a community successfully kept out of organic –sewage sludge, irradiation, and genetic engineering. I'm sure many of you remember the first draft of the organic rule did not prohibit GE and then 275,000 people wrote to USDA demanding, among other things, that genetic engineering be prohibited from organic. And the final rule did prohibit the Big Three.

GE Alfalfa Litigation

USDA first approved GE alfalfa in 2005 for commercial production. It is the first genetically engineered perennial crop. In other words, it's not an annual, it's grown three to six years. It is a hardy perennial. It grows feral like canola in the wild. Currently, only 7% of all alfalfa farmers use any pesticide at all. They use cultural practices to keep out weeds. This is not a pesticide-dependent crop. Alfalfa is the fourth most widely grown crop in our country –20 million acres. It's grown in every state in the country. So this would be a dramatic increase, switching from a non-pesticide dependent system to one that would be a pesticide-dependent and pesticide promoting system.

We brought the case on behalf of a coalition of nonprofits, including Beyond Pesticides and Sierra Club, as well as organic farmers and conventional farmers, challenging USDA approval. Monsanto, the owner of the patent on Roundup, intervened in the case, as well as Forage Genetics, a subsidiary of Land O' Lakes and Monsanto's sole licensee for Roundup Ready alfalfa. We won in the District Court. The judge said that an action the

government takes that would eliminate a farmer's choice to grow a non-GE crop or a consumer's choice to eat a non-GE food was an undesirable consequence –meaning, as a legal term of art, that it mattered, it was cognizable, and that the agency had to go back and take a look at the potential environmental impacts of this crop. Under the *National Environmental Policy Act*, the court ordered that the agency undertake the most rigorous review that they can take, which is called an environmental impact statement (EIS). Remarkably, in 15 years of approving these crops, USDA had never once done an EIS on any genetically engineered crop.

In fact, their view under the Bush administration was that contamination didn't matter, and so we didn't have standing to be in court. They believed that Roundup Ready alfalfa was the same, if not better, as regular alfalfa, conventional or organic. We are in the District Court and the judge questions the government counsel and says, "And so what happens if the bees move the pollen and all the organic alfalfa goes away and all the alfalfa becomes Roundup Ready variety?" The attorney for the government said, "Well, your honor, that would be fine because it's just the same as a conventional variety except it's resistant to this herbicide, so it's better." And the judge responds, "So you mean like it's a super alfalfa?" And the attorney goes, "Well, yeah, I guess so." And then he goes, "So you mean it's like an uber alfalfa?" And then I thought, "Oh, we got him now. He gets it." And he did. We won. So he ordered them to go back and take this long review, as I said, called an EIS. In the meantime, he halted the planting and the sale of this crop. Monsanto, of course, was not exactly happy about this, and so they appealed the decision to the U.S. Court of Appeals, the Ninth Circuit, that twice affirmed, once in 2008 and once in 2009.

On to the Supreme Court

The second time that the Ninth Circuit affirmed we were pretty pleased. We figured that was the end of the case because the U.S. Supreme Court was the only thing left then and they only took 80 or so cases a year. They take requests, which are called petitions for *certiorari*. They get about 8,000 of those a year, so there's less than a 1% chance that they would take the case, even if Monsanto asked them to take it. I was feeling pretty happy about this. Again, we'd won twice, and a reporter called and asked, "What do you think the chances are that the Supreme Court will take the case?" And I said, "Slim to none and slim just left town." So after the Supreme Court took the case, my boss said, "Okay George, that phrase is retired. You can't say that anymore."

Anyway, lo and behold, the Supreme Court did take the case. It was the first they ever heard on genetically engineered crops. That happened in January 2010. So from around December of that year previous until about June, I just basically lived, breathed, slept, and ate this case for that six months. It was an intense experience. It didn't look good for us. Our best justice, Stephen Breyer, recused himself, because the lower court judge, Charles Breyer, happened to be his brother and that was his normal process. Clarence Thomas, who worked for Monsanto for a while, didn't recuse himself. So we were down our best judge and they had one already. It wasn't looking good. Of course, the current Supreme Court already is a very business friendly court. And they don't take cases if they're going to affirm. They take cases when they're going to reverse.

It looked bad. Monsanto said that we didn't have standing, farmers couldn't challenge these crops, contamination didn't matter, organic didn't matter, and whatever the government said had to go. They had an argument with regard to a full blown trial hearing, called an evidentiary hearing, with cross examination – anything they could think of. We successfully dodged those bullets. They didn't rule on any of them. Instead, they issued a rather strange decision that technically reversed the lower court and left the ban on the planting of Roundup Ready alfalfa in place. This was essentially because the lower court had given us two remedies –a belt and a pair of suspenders– one called an injunction, and one called a vacatur. The Supreme Court said, "Well you don't need the injunction if you've got the vacatur," so they took away the belt and they left the suspenders. The bottom line is after their review Monsanto couldn't sell its product, no one could plant it, and our environment was safe from it as well as our plaintiffs. It was a strange decision in that they got a lot of press that day saying in the mainstream media that they had won a great victory. But, at the end of the day on the legal issues, we won the case not just in dodging a 'parade of horribles,' but in actually getting a fantastic outcome because Roundup Ready alfalfa continued to remain banned.

In addition, USDA continued to have to do this study that the court had ordered. The

court also said that we had standing and that our plaintiffs, the farmers in question, could challenge these approvals, which was just a monumental holding. It means that in the future we can bring these cases (unless they take another case and reverse themselves, which is highly unlikely) and challenge these crops as we will continue to do. It also means that this type of harm was not solely an economic harm, which was another of Monsanto's arguments. Monsanto said, "Why do you need to stop planting if it's just market damages? If It's just about money, it's not an environmental harm." The Supreme Court said, "No, what the lower court said was that it was an environmental harm and an economic harm, that this was the fundamental altering of the DNA of this crop and that the economic harms stem from that." I think that awareness through the law was a broader cultural shift in that these cases are environmental cases. So they won the day in the media, but we won the day on the law. I'll take that outcome any day.

A genetically engineered AquaBounty (back) and a conventional salmon (front) of the same age.

Roundup Ready, Round Two

I wish I could say that was the end of the story, but like Paul Harvey used to say, "That's just the rest of the story." We have another case now; "Roundup Ready Alfalfa Round 2," we call it. What happens now is USDA has done their EIS: 245,000 people wrote in opposition to the commercialization, but they again approved it despite the public outcry and the acknowledged risks. On March 18, 2011, we filed a new case challenging that new approval under the same laws: NEPA, *Endangered Species Act* and the *Plant Protection Act*. It's the same plaintiff group with a few additional ones from the last case.

Another of our cases is about Roundup Ready Sugar Beets. Essentially it's a sister case to the alfalfa case with very similar harms –increased pesticide use, weed resistance and contamination of organic chard and table beets, which can cross-pollinate with sugar beets. Again, we won that case and USDA is now undertaking an EIS (the second one it has ever done) on Roundup Ready sugar beets. I wish I could say that's the end of that story, but there have been two follow up cases to that which we refer to as "Sugar Beets 2 and 3: The Return of the Beet." Essentially, before the ink was dry on our Sugar Beets 1 victory, Monsanto and USDA tried to circumvent it and that's what these two ongoing cases are about.

Frankenfish and Beyond

We filed a number of other cases, and won a number of cases on genetically engineered crops –on genetically engineered grasses, the approval on wildlife refuges, and the newest one on genetically engineered trees for biofuels across the South. We have a new form of environmental pollution here, a new form of biological pollution which is a growing area of environmental law.

You might have heard about the first transgenic animal that's coming to market soon –the AquaBounty salmon. If approved by FDA, it would be the first genetically engineered animal for human consumption. It's engineered to grow four times as fast as conventional salmon. It has the gene of an ocean pout, a kind of eel, so it grows all throughout the year. If it gets out into nature, essentially it could cross breed with native endangered populations of salmon and could drive them to extinction.

Conclusion

Some continuing legal questions we have here are:

- Where is the liability for GE crops? One of the things we're working toward at the end of the day is to have a situation where the liability should be with the patent-holder. That would be in line with our basic common law, property law, and nuisance and trespass law. If I'm a farmer and you're a farmer and your cattle breaks out of your barn and causes a ruckus in my barn, you are liable for that. It should be the same with these crops.
- Does the public have a right-to-know? We believe that the public should have a right-to-know and a right-to-choose.
- What is the scope of the USDA's authority? Do they have the authority to regulate them?

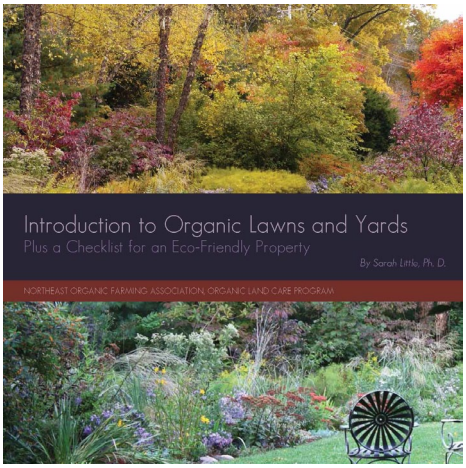
I want to close by saying that all of the things we've talked about tonight, all of our cases, are about stopping the bleeding. I think that at the end of the day, what all of us need to be doing is shifting the consciousness. And that has to be done on the cultural level. They're both vital, and they're both important. I'm a lawyer, I litigate. They say if you're a hammer everything looks like a nail, but, you know, there are other ways to do this. I think that a paradigm shift toward a sustainable future –not a pesticide-dominant future– is the way we want to go. People may say that's naïve, and I would say that it's not nearly as naïve as believing that the current paradigm is sustainable and that we're not going to run out of time here on this planet before we destroy it. Thank you all for your good work. I am honored to be here with you.

"Problems cannot be solved at the same level of awareness that created them." –Albert Einstein

Introduction to Organic Lawns and Yards

Plus a checklist for an eco-friendly property

by Sarah Little, PhD, Northeast Organic Farming Association Organic Land Care Program, Stevenson CT. 2011. 53pp. $5 print copy, free PDF online: www.organiclandcare.net.



Maybe you've been meaning to take care of your dandelion covered yard, but you don't know where to start; or you're a first time homeowner and you're presented with the daunting task of maintaining a yard for the first time; or your want to convince your golf course to go organic. You're in luck: Northeast Organic Farming Association Organic Land Care Program (NOFA OLC) has created a handy quick-start guide to help get you on your way. The colorful, easy-to-read booklet introduces the reader to the concepts of ecological, sustainable and organic, landscaping.

It is intended for people new to organic landscaping, but anyone who is looking to implement more ecological practices into their yard will also find this booklet useful. Each chapter includes a checklist enabling homeowners to grasp and implement some organic practices right away. There are plenty of links to free resources in each section for those who want to go into more depth or have specific problems not covered.

Though the guide is geared toward the climate and soil conditions in the Northeast U.S., it also applies to the mid-Atlantic, Great Lakes region, the Pacific Northwest and most other areas of the U.S., with the exception of the South. The information it contains has been collected from peer-reviewed scientific studies, state agricultural extension services, and organic landscaping professionals.

The guide's goal is to teach basic techniques in organic landscaping; however, NOFA hopes that readers will see how each individual property fits into the bigger ecological picture. Our choice for landscaping has real effects on our local, regional and global environments. The guide also reminds us that, "Nature's beautiful spots are all organic. There is no reason why yours can't be also."

NOFA OLC is a mulit-state program of the Connecticut chapter of the NOFA, in partnerships with NOFA state chapters.

Poisoned Golf

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diagnosed by Yale Pathology with anaplastic carcinoma (January 1996), but after new stains were ordered on the original biopsy by my occupational doctor it was determined that I had non-Hodgkins lymphoma (October 1997). This same occupational doctor concluded with a reasonable degree of medical certainty that I got my lymphoma from exposures to multiple pesticides at YGC, including through the well water exposure.

Because my occupational doctor concluded that the well water was contaminated from arsenic-containing pressure treated wooden steps that were in the ground and also chemicals that drained into the well system after being used to wash mowers. I contacted the U.S. Environmental Protection Agency (EPA), which eventually conducted a criminal investigation. The Connecticut Department of Public Health, Water Quality Division found the well water contaminated with p-dichlorobenzene (3.0 ug/l) and nitrates (12.4 mg/l), both health hazards.

It should be noted that, because EPA's Criminal Investigation Division investigation took so long, I wrote an anonymous letter to Connecticut's then Attorney General Richard Blumenthal – who sped up the process tremendously. Because of the EPA investigation, YGC connected to the City of New Haven municipal water supply as of the end of January 2001. I have recently learned that Maltby Lakes do not meet quality standards and has not been used for drinking water since the early 1980's. However, during my years at YGC, I was always told Maltby Lakes were used as a back-up reservoir for New Haven County.

I hope and pray that my story prevents poisoning and contamination at other golf courses! I am a 15 year cancer survivor and the Yale University Golf course is no longer using its contaminated drinking well water!

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