

Pesticides and You

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

Volume 30, Number 1
Spring 2010

Checking Our Organic Coordinates

A series of articles on organics

**Maintaining Organic Integrity;
Local and (not Versus) Organic;
Grow Your Own Organic Food**



Also in this issue:

**Managing
Germs
Without
Toxic
Chemicals**

Environmental Disaster Calls for Precautionary Policy

We have all been thinking a lot about the environmental disaster in the Gulf of Mexico. When the crisis subsides or enters its next phase, we should take the opportunity to step back and reassess our approach to managing risks and hazards. As a nation, we do a pretty awful job of preventing risk and incidents like the exploded oil rig leaking an estimated 210,000+ gallons a day into the Gulf and ecologically sensitive coastal areas. Disasters like this remind us quite dramatically of this fact. So this is an important time to raise the national debate on a precautionary approach to hazardous technologies. That is why we are dedicating a good portion of this issue to the importance of elevating organic policies and practices, as a critical means of avoiding the predictable health and environmental disasters associated with our current course.

Changing to precautionary-driven policy

Often it takes a catastrophe like the Gulf oil contamination to put into perspective the urgent need to reduce our reliance on dangerous technologies. At times like this, we understand the cost of prevention and regulation is so much less than the alternative –the cost of not engaging in prevention and maintaining strong precautionary policy. Yes, it looks like we could have and now will have tougher rules in place, perhaps less collusion between government and industry on matters of public safety in the oil industry. But, will we more fully assess our dependency on oil as a nation and world? In fact, the national conversation should shift to alternative energy and practices because the risks of our current dependency are too high under the best-case scenario. We should be asking the hard questions about why we as a nation have not moved faster to embrace alternative fuels, higher efficiency vehicles, and more efficient and extensive forms of public transportation. This crisis should alert us to the fact that many contamination and poisoning events can't be fixed or cleaned up, and a precautionary approach –nowhere to be found in U.S. policy except in the *Organic Foods Production Act* and the proposed *School Environment Protection Act* (H.R. 4159) – is the only legitimate, prevention-oriented public policy to protect our habitat.

In the toxic pesticide arena, there are many parallels, and a very similar insidious destruction of our planet and health caused by our unnecessary dependency on toxic chemicals seeping into our bodies and environment at a rate of 5 billion pounds a year. We were reminded in May by the President's Cancer Panel in a new report that, "The entire U.S. population is exposed on a daily basis to numerous agricultural chemicals. Many of these chemicals are known or suspected of having either carcinogenic or endocrine-disrupting properties."

Shifting the paradigm

While we certainly support efforts to take the most hazardous chemicals off the market, with legislation such as the unfortunately named *Safe Chemicals Act* (S.3209) introduced by Senator Frank Lautenberg (D-NJ) on April 15, 2010, we need a new approach –or

paradigm—to toxic chemical regulation that assesses our dependency on an outmoded and unnecessarily hazardous, synthetic pesticide technology. This is the analogy to oil dependency. And it is no small problem that synthetic pesticides are petroleum-based.

The key to the organic law is that the underlying decision making structure for defining acceptable practices is process-driven –requiring that the methods and inputs used in organic food production are analyzed for their footprint on the environment and in the workplace, not just for residues on the finished food product. The idea is to keep toxics out, not try to determine acceptable exposure levels.

Risk assessment and the resulting risk mitigation measures, even if they become somewhat tougher, do not achieve the needed reorientation because they allow many unnecessary hazardous chemicals that meet the 'acceptable risk' threshold to remain on the market –no matter how uncertain or inadequate that risk determination is because of limitations in our knowledge. We can either create incentives in our laws to adopt precautionary decision making, alternative practices and lower hazard products, or we can continue to struggle with synthetic chemicals that in unexplained ways cause devastation. Colony collapse disorder and the unexplained disappearance of the bees is just such devastation. Nanotechnology, with its nano-sized particles, is the next frontier of a new technology that is fraught with serious questions and unknown effects on health. EPA's website indicates the developing nature of the science and regulation: "[T]he special properties that make nanoscale materials of potentially great benefit also can present new challenges for risk assessment and decision-making. For instance, their small size may allow them to pass through cell membranes or the blood-brain barrier, possibly resulting in unintended effects. EPA is currently examining potential hazard, exposure, policy, regulatory, and international issues that may be associated with pesticides that are a product of nanotechnology or that contain nanoscale materials."

Dramatic problems call for dramatic change

This issue of PAY calls for a greater shift with increased urgency to organic practices. At the same time that we recognize the importance of strong federal law driving organic policy and practices, the need for greater public involvement to ensure organic integrity is real. Most critical, the organic experience, and the policies and hands-on practices discussed in this issue, should inform the policy changes needed to reform our nation's approach to toxics. Now!



Jay Feldman is the executive director of Beyond Pesticides.

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National Headquarters:

701 E Street, SE,
Washington DC 20003
ph: 202-543-5450 fx: 202-543-4791
email: info@beyondpesticides.org
website: www.beyondpesticides.org

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BEYOND PESTICIDES STAFF

Jay Feldman, *Executive Director*
John Kepner, *Project Director*
Kagan Owens, *Senior Project Associate*
Nichelle Harriott, *Research Associate*
Stephanie Davio, *Public Education Associate*
Sharon Fried, *IPM and Health Care Facility Project Director*
Terry Shistar, Ph.D., *Science Consultant*
Adelia Bles, *Intern*

PESTICIDES AND YOU

Jay Feldman, *Publisher, Editor*
Jay Feldman, John Kepner, Stephanie Davio, Nichelle Harriott, Kagan Owens
Contributors
John Kepner, *Layout*

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Wasps on Campus

An administrator at our local pesticide-free college is concerned about wasps on campus and looking for ways to control them before they become a liability if a student gets stung. Are there any products we can use while maintaining the pesticide-free status? Are there any non-toxic solutions that I can suggest?

- Anna, Seattle, WA

Wasps are considered beneficial insects, and as such, help to pollinate flowers and provide great natural pest control. If they do not pose a problem, you should consider just letting them be. After all, they are an important predator of mosquitoes.

If you decide that they must be managed, the good news is that wasps can be controlled in most cases entirely without pesticides, using techniques of prevention such as exclusion and sanitation. If they become a serious problem, however, trapping, vacuuming or other removal of the nest is the best option. Traps can be found at your local hardware store, and we recommend that a professional is hired if they choose to remove a nest.

It's also important to note that unless you properly identify the insect and the location of the nests pesticide products are not going to be very effective. Monitoring is an essential first step in integrative pest management. The most common kinds of wasps are the solitary and paper wasps, yellow jackets, and hornets. Solitary wasps are relatively docile and their nests are often in mud or in holes in the ground. Yellow jackets and hornet's nests are often multi-layered, papery nests found mostly in the ground, although some may be in trees or in structures. Paper wasps, on the other hand have single-layered papery nests that are often shaped like an umbrella. These nests can be attached to fences, eaves, boards and branches.

If, after you've exhausted all other efforts, you find it is still necessary to use a prod-

uct to kill the wasps, consider a spot treatment using a least-toxic pesticide. Silica aerogel is a desiccating dust that can be used to destroy a nest. The dust abrades the outer waxy coating on insects, causing them to dry up and die. However, take care to choose a desiccating dust that it is not combined with a synthetic pyrethroid, and note that it can cause lung irritation, so it should be applied with extreme care while wearing a mask and goggles.

Thorough information on wasp control, including more ideas on how to prevent and avoid wasps can be found at www.beyondpesticides.org/alternatives/factsheets.

In the Weeds

*Help! Do you have any ideas how to deal organically with the pesky weed *Oxalis*? I hope there is something we can do to get rid of it.*

-Sue, Santa Cruz, CA

Oxalis is the largest genus in the wood sorrel family *Oxalidaceae*, and many of the species are known as Wood Sorrel or Woodsorrel. The variety of *Oxalis pes-caprae*, also known as Bermuda buttercup, soursob, sour grass, is a very persistent and invasive weed in North America, particularly in California, where it is reportedly invading native coastal dunes. Control requires constant vigilance, as it can creep in from a neighbor's yard or be brought in by birds and other wildlife. It does not reproduce by seed, but through underground tubers, which is why it comes back when the leaves are pulled. Incidentally, *Oxalis* leaves can be dried to make a lemony tea, or they can be crushed and used to sooth itchy mosquito bites.

When you pull it out, it is important to dig out as many tubers as possible, however, it's best to do this in the fall when



the plant is using leaves to store energy for germination next spring. Once you pull out the weeds, it's important to properly dispose of them so that they don't germinate again in your yard. You can do this a couple of ways: put them in a bin with a sealed lid, a paper yard waste bag, a bucket, or simply lay them out in a sunny windowsill or on your patio in a sunny spot if it's not windy. Let them dry out, then either compost them or call your city to pick up the yard waste.

Newspaper or cardboard makes effective mulch for suppressing *Oxalis*. You can then cover it with topsoil and compost, to plant your garden or sod. If this doesn't work, try the organic herbicide agricultural grade vinegar or acetic acid, which are available at most garden stores.

In the case of larger infestations, you may try encouraging germination in the hottest months during the summer, by tilling the soil, and then pouring boiling hot water over the weeds to essentially "cook" both the above ground portion of the plant and any tubers in the top few inches of the soil. You can follow this up by covering the area with cardboard/newspaper mulch, as described above. Unfortunately this method will also kill any beneficial organisms in that top layer.

For more information on dealing with invasive weeds, please see www.beyondpesticides.org/weeds/index.htm. Good luck!

Take Action

A reader told us about a creative use of our Pesticide-Free Lawn doorknob hangers:

I just received my order of Pesticide-Free Lawn Doorknob hangers and thought you'd like to know how I used them. I staple a small xerox copy of a newspaper article that has the heading of "Honeybee Colonies Dying Out" and it has a large type subheading of "Pesticides suspected in deaths" to the back of each pamphlet. I do this for a couple of reasons:

- *I don't want people to mistake it for a commercial lawn care advertisement.*
- *People like honeybees and associate them with Winnie the Pooh.*
- *It gives them a chance to read about it in more depth and quotes Maryann Frazier's work at Penn State. I live in Pennsylvania, and if Penn State says something, people will listen.*
- *If I have to walk for health reasons, I will walk with purpose.*

*Thanks very much for all you do.
- Armen, Pennsylvania*

Get Printed!

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 <https://twitter.com/bpncamp>! And as always, you can send questions and comments to: 701 E Street SE #200, Washington, DC 20003, or info@beyondpesticides.org

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 original blog post (4/26/10):

Support National Healthy Schools Day, Demand Toxic-Free Learning Environments

With the growing number of viable, cost-effective alternative pest management strategies, it has never been easier for schools to eliminate the unnecessary use of toxic pesticides in school buildings and on school grounds. In celebration of Healthy School Day, an annual event coordinated by the Healthy Schools Network, Beyond Pesticides, one of the event's 25 co-sponsors, asks parents, school staff and administrators, government agencies, community activists, and those in political office to demand that our nation's schools do a better job at providing environmentally safe schools for children.

Vivian says (via Facebook):

As a teacher, I had exposures at two different school districts. Custodians were doing what they pleased and ignoring policy and laws. As a child, a custodian sprayed my arm along with the ants. We know so little and are experimenting on the most vulnerable segment of our society.

Linda Says (via Facebook):

I was a teacher and coach in Kansas before pesticides sprayed at school ended my 20-year career and very nearly ended my life! Students with asthma had a hard time breathing in the school and many staff members developed chronic illnesses (MS, lupus, diabetes, cancer, asthma, neurological disorders, neuropathy, rheumatoid arthritis, etc.) in the years following the heavy pesticide spraying. The pesticide permanently damaged the p450 enzyme system in my liver and I became chemically sensitive to a number of "everyday chemicals," such as fragrances, smoke, new carpet, paint, gasoline, and virtually any petroleum product. I also cannot use cell phones or any wireless technology. I hope you are doing well and pray that the *School Environment Protection Act* (SEPA) passes this time around! We have got to do more to protect our students from exposure to chemicals that can have life-long health consequences!



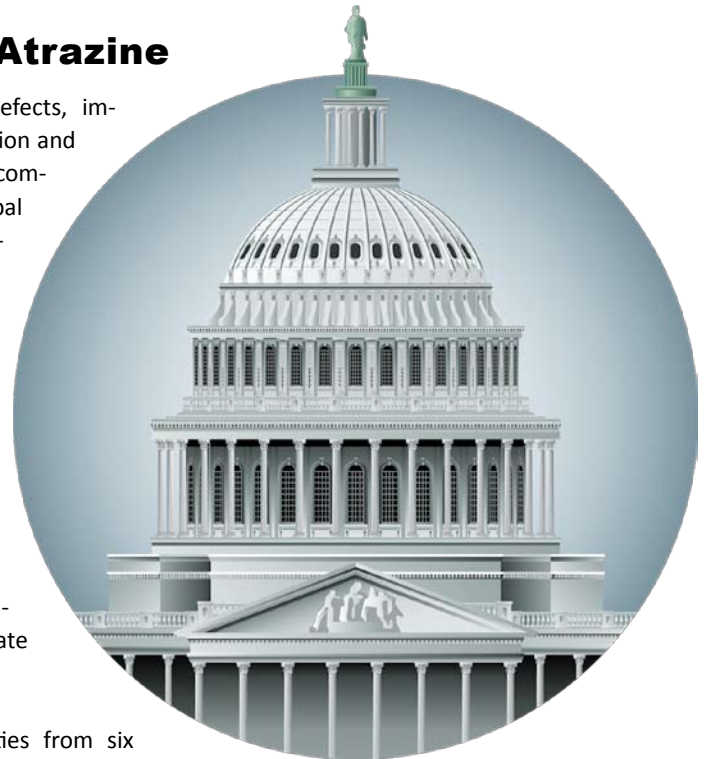
Bill Introduced in U.S. House to Ban Atrazine

On April 22, 2010, Representative Keith Ellison (D-MN) introduced H.R.5124, legislation to prohibit the use, production, sale, importation, or exportation of any pesticide containing atrazine. "On this 40th anniversary of Earth Day, I can think of no better tribute to our planet and our people than protecting it from known harmful chemicals," Rep. Ellison said. "No one should ever have to worry if the water they drink is making them sick or preventing fertility." Rep. Ellison's bill cites widespread environmental contamination, health and environmental effects, as well as bans in other countries, as justification for the legislation. The bill's introduction coincided with an Environmental Protection Agency (EPA) Scientific Advisory Panel (SAP) meeting to reevaluate the human health effects of the popular herbicide. The SAP meeting follows EPA's October 2009 announcement that it would begin a new evaluation of atrazine to determine its effects on humans, following scrutiny and findings that the current EPA regulation of atrazine in water is inadequate.

Atrazine is used to control broad leaf weeds and annual grasses in crops, golf courses and residential lawns. Atrazine has been linked to a myriad of health problems in humans, including endocrine disruption,

low sperm quality, birth defects, impaired immune system function and cancer. The herbicide is a common contaminant of municipal drinking water. The U.S. Geological Survey (USGS) found atrazine in 75 percent of stream waters and 40 percent of all groundwater samples from agricultural areas tested. Studies show fish and amphibians exposed to atrazine can exhibit hermaphroditism, and male frogs exposed to atrazine concentrations within federal standards can mate and lay viable eggs.

In related news, communities from six states filed a lawsuit (10-188 JPG) in the U.S. District Court for the Southern District of Illinois against Syngenta, the maker of atrazine, in March 2010. The 16 municipalities in the states of Kansas, Illinois, Indiana, Ohio, Missouri, and Iowa want Syngenta to pay for the expensive carbon filters needed to remove atrazine from their drinking water supply. The largest private water utility in the U.S., American Water Company, also joined the suit, representing 28 additional communities.



Take Action: Environmentalists point to the reregistration of atrazine as a prime example of the broken system of pesticide regulation in the U.S. and call on consumers to support organic whenever possible. Contact your Member of Congress and let your Representative know what you think about H.R.5124. For more information on atrazine, see the Pesticide Gateway, www.beyondpesticides.org/gateway.

U.S. Supreme Court Lets Stand Pesticide Use Permitting to Protect Waterways

On February 22, 2010, the U.S. Supreme Court declined to review a Circuit Court decision in the case *National Cotton Council (NCC) v. Environmental Protection Agency (EPA)*, upholding EPA's authority to subject pesticide use to a permitting process under the *Clean Water Act (CWA)*. In January of 2009, the 6th Circuit Court of Appeals upheld the ruling that commercial application of certain pesticides must be regulated under CWA. EPA is now working to create a permitting system that complies with the ruling under the National Pollutant Discharge Elimination System (NPDES). The *NCC v. EPA* ruling overturned a 2006 Bush Administration rule, condemned by environmentalists, which exempted certain pesticide applications from CWA regulations. In cases when pesticides are applied directly to water to control pests – such as mosquito larvae or aquatic weeds or in drift-prone scenarios where pesticides are applied to control pests that are present over or near water, applications were held to the more generalized, less stringent standards of the *Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)*. CWA uses a health-based standard known as maximum contaminant levels (MCL) to protect waterways and requires permits when chemicals are directly deposited into rivers, lakes and streams. FIFRA uses a highly discretionary risk assessment with no attention to the safest alternative.

Supreme Court Hears First Genetically Engineered Crop Case

On April 27, 2010, the U.S. Supreme Court heard oral arguments in a case that prohibited Monsanto from selling genetically engineered (GE) alfalfa seed. A decision on the case of *Monsanto Co. v. Geertson Seed Farms* (09-475), the first time the Supreme Court has heard a case involving a GE crop, is expected in late June. The Center for Food Safety filed suit in 2006 on behalf of a coalition of organic farmers and environmental groups including Beyond Pesticides, arguing that the U.S. Department of Agriculture (USDA) violated the *National Environmental Protection Act* (NEPA) when it approved deregulation of GE alfalfa without an environmental impact statement (EIS). This case hinges on the question of whether the organic growers were able to demonstrate a “likelihood of irreparable [environmental] harm.” It is Monsanto’s claim that the growers only demonstrated the likelihood of economic harm.

The GE alfalfa is genetically engineered to resist the herbicide glyphosate, formulated by Monsanto under the trade name Roundup. Alfalfa is a bee pollinated crop used primarily for forage. The potential for cross-pollination between GE and non-GE varieties of alfalfa is much higher than in other crops such as corn, because of the way alfalfa is pollinated. In 2007, U.S. District Judge Charles Breyer ordered a moratorium on GE alfalfa until the USDA completed an EIS. USDA released a draft EIS in December of 2009 again calling for deregulation of the crop. Despite the expected release of a final draft next year, Monsanto has decided to press ahead with the case to allow planting in the interim. Supreme Court Justice Stephen Breyer, brother of U.S. District Judge Charles Breyer, did not take part in case. Justice Clarence Thomas championed the case despite being a former Monsanto employee. *For more information on GE crops, visit Beyond Pesticides’ Genetic Engineering program page, www.beyondpesticides.org/gmos.*

Public Comments Needed: California Proposes to Register Hazardous Fumigant Methyl Iodide

Despite significant cancer and reproductive health risk, especially to farmworkers and people living near agricultural fields, the California Department of Pesticide Regulation (DPR) on April 30, 2010 proposed the use of a new and highly toxic pesticide, methyl iodide, for widespread agricultural use in California. The U.S. Environmental Protection Agency (EPA) registered methyl iodide in 2007 as a replacement for the ozone-depleting pesticide, methyl bromide. Environmental and public health advocates believe that blocking methyl iodide registration in California will prevent its use elsewhere, since the state will account for the vast majority of usage and profitability nationwide. Public comments may be sent to mei_comments@cdpr.ca.gov by June 14, 2010. As evidenced by California’s thriving organic industry, alternatives to fumigants exist and are in use in California.

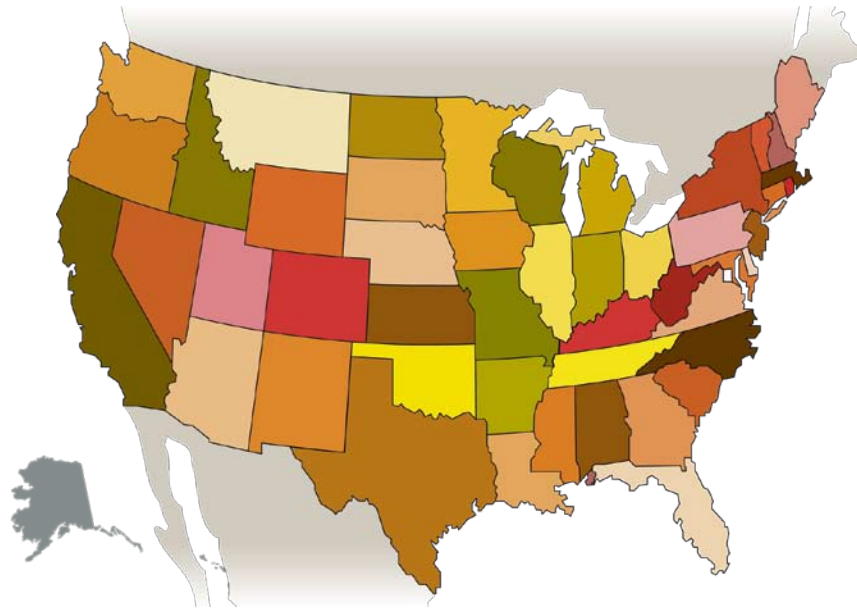
In related news, a coalition of environmental, health and labor organizations, with legal representation by the non-

profit group Earthjustice, filed a petition on March 31 asking EPA to rescind the Bush administration era approval of methyl iodide, in light of troubling new findings uncovered in California studies. Methyl iodide is a water contaminant, nervous system poison, thyroid toxicant and is listed on California’s Proposition 65 list of chemicals known to cause cancer. It can readily become a gas and drift away from its intended target, despite any efforts to contain it. Methyl iodide is primarily used on tomato and strawberry fields. “A chemical used to create cancer cells in laboratories has no place being broadcast into the environment near where people live, work and play,” said Ed Zuroweste, MD, Chief Medical Officer, Migrant Cli-

nicans Network. “Our communities are not lab rats.”

Take Action: *Support organic farming to protect farmers, farmworkers, families and neighbors from toxic chemicals. For information of the benefits of organic food, visit Beyond Pesticides’ Organic Food program page, www.beyondpesticides.org/organicfood. Send comments to DPR using the email address above.*





Report Raises Concerns About Bacterial Resistance to Triclosan

Based on data from its Scientific Committee on Consumer Safety (SCCS), the European Commission released its March 2010 *Preliminary opinion on triclosan (Antimicrobial Resistance)*, which finds, "Low concentrations of triclosan can trigger the expression of resistance and cross-resistance mechanisms in bacteria in vitro.... [which] warrants further investigation." The SCCS report states, "Some reported environmental concentrations in a number of geographically distinct areas are high enough to suggest that such triggering of bacterial resistance could also occur in the environment. This warrants further investigation." It concludes, "Based on the available scientific information, it is not possible to quantify the risk of development of antimicrobial resistance... This should be taken into account when considering the current and future uses of triclosan in all applications so as to ensure that the demonstrable benefits for human health in certain applications are not compromised."

Triclosan products, such as hand sanitizers, soaps, cutting boards, toys and fabrics, leave behind residues which continually expose bacteria to low level concentrations of the pesticide. Studies have shown several mechanisms of resistance to triclosan have been demonstrated at these sublethal concentrations. The implications are grave for public health. As a result, Beyond Pesticides, Food & Water Watch and dozens of groups petitioned FDA and EPA in recent months calling for a ban of triclosan, citing the possibility of bacterial resistance to antibacterial substances and antibiotics, along with other health and environmental concerns, including endocrine disruption and water contamination. *Learn more about triclosan on page 9 of this issue of Pesticides and You.*

Help Ban Pesticides on School Playing Fields in New York...and Nationwide

The New York State Assembly passed legislation on May 6, 2010 that would help protect school children by banning the use of pesticides on school playing fields and playgrounds. The *Child Safe Playing Fields Act*, (S.4983/A.7937) was passed in April by the Senate. Assemblymember Steven Englebright (D-Setauket) called upon the Governor to sign the bill as quickly as possible. "The bill's passage represents a triumph of children's health interests over the corporate interests that continue to promote unnecessary pesticide use," he added. Because of an expected backlash by the chemical industry, Beyond Pesticides encourages residents of New York to contact Governor Paterson to let him know your position on the legislation.

In New York and across the country, schools routinely apply pesticides and "weed and feed" products, which are linked to cancer, endocrine disruption, learning disabilities, asthma and more, even though organic turf management is proven effective and economical. The New York legislation is limited to school playing fields and playgrounds, and excludes other school grounds. It also allows for emergency use to control stinging insects and venomous spiders. Containerized, non-volatile bait stations are also permitted for insect and rodent control.

Take Action: Everyone - Federal legislation, the *School Environment Protection Act (SEPA)*, has been introduced by Rep. Rush Holt and would protect school children from pesticides used both indoors and on all school grounds nationwide. The legislation also bans the use of synthetic fertilizers. To learn more about this legislation and help its passage, see Beyond Pesticides' SEPA webpage, www.beyondpesticides.org/schools/sepa. **New Yorkers** - Email Governor Paterson (www.state.ny.us/governor/contact). Tell him about the *Child Safe Playing Fields Act* (A.7937/ S.4983) and voice your position.

Food Chain, Chipotle Mexican Grill, Stands Up For Organic Food

In response to a shareholder activism campaign organized by the Investor Environmental Health Network, Chipotle Mexican Grill, a national chain of about 1,000 restaurants, is making the commitment to support sustainable agriculture by increasing the percentage of organic ingredients, such as organic black and pinto beans, on its food menu, and eventually transitioning to a completely organic menu. Chipotle says efforts to use ingredients from more sustainable sources, as part of its “Food with Integrity” mission, have led to a direct reduction of chemical pesticide use on its ingredients of nearly 100,000 pounds since 2005. Currently, the restaurant chain serves more naturally raised meat—which it defines as animals that are raised in a

humane way, never given antibiotics or added hormones, and fed a pure vegetarian diet—than any other restaurant. Chipotle also serves dairy products made with milk from cows that are not treated with the synthetic hormone rBGH. These animal products differ from certified organic meat and dairy items that come from animals that were also fed an organic diet, which is important because many toxic chemicals accumulate in the food chain.

Beyond Pesticides applauds Chipotle’s efforts to transition to organic and support sustainable agricul-

tural practices. Organic food contributes to better health through reduced pesticide exposure for all and increased nutritional quality. Organic agriculture also protects the local environment, waterways, air quality, and farmworkers and their families from chemicals that have been linked

to adverse health effects. For information on organic food, please visit Beyond Pesticides’ Organic Food page, www.beyondpesticides.org/organicfood. To learn more about Chipotle’s efforts, read its position paper, www.chipotle.com/Chipotle_Pesticide_Position_Paper.pdf.

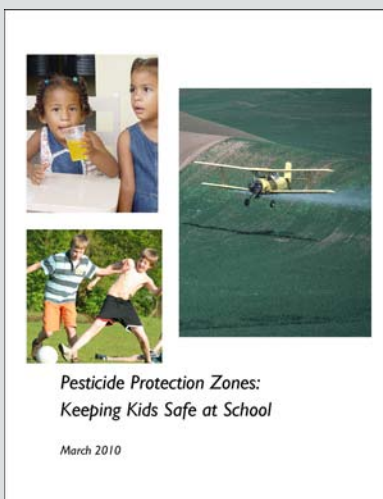


California Report Finds Children Need Protection from Agricultural Pesticide Drift

The new report, *Pesticide Protection Zones: Keeping Kids Safe at School*, analyzing regulations from California’s 25 top agricultural counties, finds that many counties do more to protect crops than children from potentially harmful pesticide drift. The report by Pesticide Watch Education Fund, the Center for Environmental Health and Californians for Pesticide Reform finds that eleven counties have no protection zones around schools at all, while another six only limit spraying when school is in session. By contrast, the report notes that nearly 25% of the counties have larger pesticide buffer zones for crops than for schools. “It seems insane to have stringent rules protecting nuts and peaches while school children remain at risk from chemicals that can cause cancer, birth defects, and other serious health problems,” said Paul Towers, director of Pesticide Watch Education Fund and a co-author of the report. “But that’s exactly what’s happening in counties across California. It is past time for a simple, statewide rule that protects all California children from pesticide

drift at school.” To help address the issue, California Assembly member Sandré Swanson introduced AB 1721, the *Health and Safety School Zones Act*, which establishes a statewide rule prohibiting pesticide spraying within a quarter mile of any California school and prohibiting restricted-use pesticide spraying within a half-mile of a school. Currently, some crops in California receive buffer zone protections of up to four miles.

According to Beyond Pesticides’ report *The Schooling of State Pesticide Laws – 2010 Update*, only nine states (Alabama, Arizona, California, Louisiana, Maine, Massachusetts, New Hampshire and New Jersey) have some sort of a restriction on pesticide applications made near school properties, ranging from 300 feet to two and a half miles, depending on the application method, pesticide type and site to be protected from potential drift. In order to adequately protect against drift, Beyond Pesticides recommends a minimum two-mile radius around the school’s property for ground applications and a minimum three mile radius for aerial applications. For more information on how pesticides impact children’s health and strategies for getting pesticides out of the school environment, see Beyond Pesticides’ *Children and Schools* webpage, www.beyondpesticides.org/schools.



Unprecedented Pesticide Contamination Found in Beehives

Searching for clues to the mysterious disappearance of bees, known as “colony collapse disorder” (CCD), Penn State University researchers have identified widespread pesticide contamination of beehives. The study, “High Levels of Miticides and Agrochemicals in North American Apiaries: Implications for Honey Bee Health,” was published March 19, 2010 in the scientific journal *Public Library of Science* (PLOS). The study finds 121 different types of pesticides within 887 wax, pollen, bee and hive samples from 23 states. The top 10 most frequently detected pesticides are fluvalinate and coumaphos, chlorpyrifos, chlorothalonil, amitraz, pendamethalin, endosulfan, fenpropathrin, esfenvalerate and atrazine. Miticides are the most common contaminant in the wax and bees, and fungicides are the most common contaminant of pollen. The authors state that the 98 pesticides and metabolites detected in mixtures up to 214 parts per million (ppm) in bee pollen alone represent a remarkably high level for toxicants in the brood and adult food of this primary pollinator. While none of the chemicals themselves

were at high enough levels to kill bees, the combination and variety of pesticides is a primary concern to the lead researcher Chris Mullin, PhD. On average, the samples had a combination of eight different pesticides.

First reported in 2006, CCD is unlike other ailments that have affected honeybees in the past because worker bees simply disappear rapidly, never returning to the hive where the queen still lives with a small cluster of bees amidst pollen and honey stores in the presence of immature bees. It has been reported that losses of honeybee colonies across 21 states in the winter of 2007-8 averaged 35%, with a high degree of variability. Beyond Pesticides believes that pesticides are likely to be a part of the CCD equation and a precautionary approach must be taken. Given the importance of pollinators to our food system, converting to organic agriculture should be a national priority, Beyond Pesticides urges.



For more information on pollinators and CCD, read: *Pollinators and Pesticides: Escalating crisis demands action in the Fall 2008 issue of Pesticides and You*, www.beyondpesticides.org/infoservices/pesticide-sandyou. For the full results of the study, including several tables of wax, pollen and bee sample data, download the study from the PLOS website.

Study Links Pesticide Exposure to Skin Cancer

While most of the previous literature on melanoma has focused on host factors and sun exposure, new research links several pesticides to this deadly form of skin cancer. Epidemiologists from University of Iowa, the National Institute of Environmental Health Sciences (NIEHS) and the National Cancer Institute found that agricultural workers who apply certain pesticides to farm fields are twice as likely to contract melanoma, providing support for the hypotheses that agricultural chemicals may be another important source of skin cancer risk. The study, “Pesticide use and cutaneous melanoma in pesticide applicators in the Agricultural Health Study,” was published in the March 2010 issue of *Environmental Health Perspectives*. It examines cancer rates in pesticide applicators in Iowa and North Carolina as part of the federal government’s *Agricultural Health Study*, a large, long-term study of pesticide applicators and their spouses.

The researchers found that workers who are exposed to four pesticides currently registered by EPA (maneb, mancozeb, methylparathion, and carbaryl) and two that have been voluntarily canceled (benomyl and ethyl-parathion) have a higher risk of cutaneous melanoma than workers who handle other pesticides. Though melanoma is infrequent among the workers that were studied—of the 56,285 people studied, 271 developed melanoma, researchers found that it increased in frequency among those with the highest exposure to several of the pesticides. Risks of the disease increases 2.5 times for applicators who are exposed to maneb or mancozeb for more than 63 days in their lifetime. Applicators who are exposed to carbaryl for more than 56 days are 1.7 times more likely, while exposure to either methyl or ethyl parathion for more than 56 days increases their melanoma risks by 2.4 times. Chief of epidemiology at NIEHS, Dale Sandler, PhD, believes that the findings could have implications for the rest of the population. One important issue to consider, Dr. Sandler points out, is that the workers use protective equipment, potentially making relatively lower doses risky for residential users.



Managing Germs Without Toxic Chemicals

Taking on triclosan with growing momentum

By Nichelle Harriott

In the past year, a new momentum has taken hold of the ban triclosan grassroots campaign. Starting in 2004, with the groundbreaking publication of Beyond Pesticides' factsheet, "The Ubiquitous Triclosan," Beyond Pesticides, in joint partnership with Food and Water Watch and dozens of organizations, is leading a campaign to expose the dangers associated with the widespread use of the antibacterial pesticide triclosan. Recent developments have catapulted triclosan and the adverse impacts associated with its use into the national spotlight and has energized this growing grassroots movement. Now with over 80 environmental and public health groups, there is a renewed call for the banning of triclosan from consumer products, calling on manufacturers, retailers, school districts, local businesses and communities to wash their hands of triclosan and protect our nation's waters and public health.

While the science continues to mount against the continued use of triclosan, the federal government has been dragging its feet in addressing the issue. In light of this, Beyond Pesticides, Food and Water Watch and several other environmental and public health groups have petitioned both the U.S. Food and Drug Administration (FDA) and the U.S. Environmental Protection Agency (EPA), which share joint jurisdiction over the regulation of triclosan, to ban the non-medical uses of triclosan in consumer products.

These calls highlight the many human health and environmental threats posed by the antibacterial, including endocrine disruption, increased body burden, and water and soil contamination. Slowly the agencies have agreed to take a closer look at triclosan, with FDA stating that it hopes to finalize its review by 2011, and EPA stating that it will once again reevaluate the chemical in 2013. But with the completion of these reviews years away, it is imperative to take a strong stand and increase the momentum for change and action, working at the grassroots level, to remove this toxic chemical from our communities.

Petitioning the Government

The Environmental Protection Agency

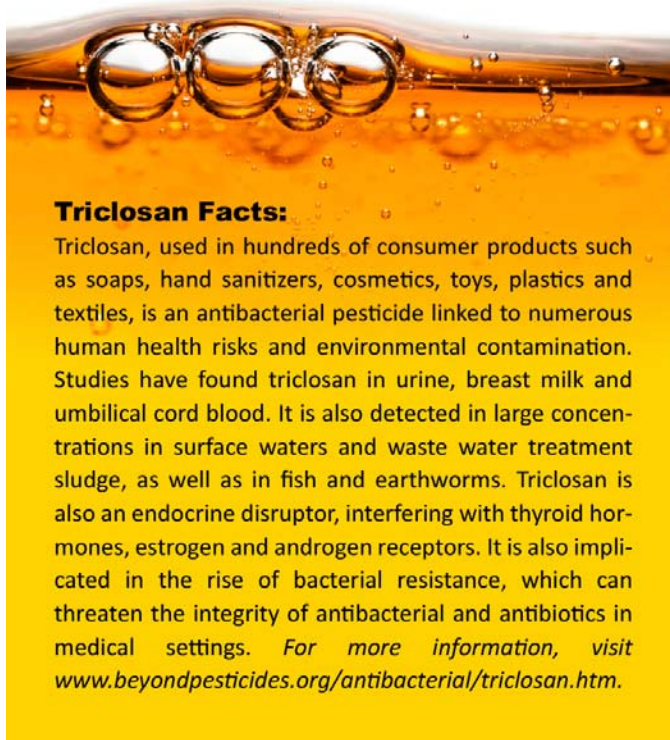
EPA has yet to adequately restrict this dangerous chemical. Having previously submitted comments to EPA during the summer of 2008, urging the agency to revoke the registration of triclosan, Beyond Pesticides continues to press the agency. By December 2008, EPA, after ignoring resounding criticism of its preliminary risk assessment by the environmental and public health community, found triclosan eligible for continued registration in plastics and textiles in its Reregistration Eligibility Decision (RED) document. This, even though EPA acknowledged in its assessment that triclosan can interfere with the thyroid hormone, is implicated in the

onset of bacterial resistance, and has contaminated surface waters across the U.S. EPA conceded, however, that based on the ongoing triclosan research, it would review the chemical again in 2013, ten years earlier than scheduled.

Finding this to be unsatisfactory, Beyond Pesticides and Food and Water Watch submitted a formal petition to the agency in January 2010, citing scientific and legal responsibility of EPA to ban the non-medical uses of triclosan. The petition cites numerous federal statutes, such as the *Clean Water Act*, *Safe Water Drinking Act*, and the *Endangered Species Act* under which the agency must act to stop the proliferation of triclosan. It is cosigned by over 80 environmental and public health groups around the country, including the American Federation of Teachers, Environmental Working Group, Physicians for Social Responsibility and several local Riverkeeper groups. To date, the EPA has not formally responded to this petition.

The Food and Drug Administration

Triclosan in over-the-counter (OTC) antiseptic drug products is regulated by FDA under the *Federal Food, Drug and Cosmetics Act* and its uses endorsed via an incomplete monograph, a regula-



Triclosan Facts:

Triclosan, used in hundreds of consumer products such as soaps, hand sanitizers, cosmetics, toys, plastics and textiles, is an antibacterial pesticide linked to numerous human health risks and environmental contamination. Studies have found triclosan in urine, breast milk and umbilical cord blood. It is also detected in large concentrations in surface waters and waste water treatment sludge, as well as in fish and earthworms. Triclosan is also an endocrine disruptor, interfering with thyroid hormones, estrogen and androgen receptors. It is also implicated in the rise of bacterial resistance, which can threaten the integrity of antibacterial and antibiotics in medical settings. For more information, visit www.beyondpesticides.org/antibacterial/triclosan.htm.

tory decision document similar to an EPA RED document. However, the tentative final monograph, which covers triclosan (and other antibacterial substances) for consumer and medical uses, has not been finalized since it was initiated in the early 1970s, and once amended in 1994. Environmental assessments, as required by the *National Environmental Protection Act* (NEPA), have also not been finalized. In July 2009, Beyond Pesticides and Food and Water Watch petitioned FDA, updating a 2005 petition filed by Beyond Pesticides, to ban the use of the controversial pesticide for non-medical applications. The petition cites violations of the *Federal Food,*

Drug and Cosmetics Act. The agency has not formally responded to the petition, but has stated that the petition is currently under consideration and shares concerns about triclosan's potential health effects and suggestions that it offers any more protection from bacteria than soap and water.

Congressional Scrutiny over Regulation

Following the submission of these petitions, U.S. Representative Edward J. Markey (D-Mass), Chairman of the Energy and Envi-

What You Can Do

Here are some things you can do as part of this campaign:

- Avoid products containing triclosan.
- Tell your friends and family about the health and environmental dangers of triclosan, and that regular soap and water works just as well.
- Encourage your local schools, government agencies, religious institutions and local businesses to use their buying power to go triclosan-free. Urge your municipality, institution or company to adopt the model resolution which commits to not procuring or using products containing triclosan.
- Write a letter (see sample letter on page 12) to your local grocery store, retailer or to the manufacturer of your favorite product asking them to stop using and/or selling triclosan and triclosan products.
- Support companies that do not use triclosan. Some companies that do not use triclosan include: Jason Natural Products, Kiss My Face, Nature's Gate, Method, Seventh Generation, CleanWell Company and Dr. Bronner's Magic Soaps.
- Sign the individual pledge (on next page) to not use products containing triclosan and support campaign efforts to end the consumer use of this hazardous chemical.
- Have your organization join the campaign to ask manufacturers to stop using triclosan in their products.

ronment Subcommittee of the Energy and Commerce Committee, sent letters to FDA and EPA expressing concern about the widespread use of triclosan, and questioning the lack of federal regulatory action to curb its proliferation. FDA responded to Rep. Markey's letter stating, "Existing data raise valid concerns about the [health] effects of repetitive daily human exposure to these antiseptic ingredients," and announced plans to address the use of triclosan in cosmetics or other products. Conversely, EPA responded that it does not currently plan to reevaluate its regulations regarding the use of triclosan until 2013, having completed the reregistration process for triclosan in 2008, when it found that triclosan was eligible for continued use.

Excerpts from FDA Letter Acknowledging Need for Triclosan Review

On Triclosan As An Endocrine Disruptor

Rep. Markey - Has the FDA reviewed the scientific evidence regarding the endocrine disrupting nature of triclosan and triclocarban? If yes, what has the FDA concluded? If not, why not?

FDA Response – *"FDA shares your concern over the potential effects of triclosan and triclocarban as endocrine disruptors that have emerged since we issued the Tentative Final Monograph (TFM) in 1994. It has been reported for example, that triclosan decreases thyroxine levels in a rat model and decreases the levels of androgens, leading to decreased sperm production in treated male rats, which indicated a potential perturbation in the hypo-pituitary-gonadal axis.....Finally there are some in vitro studies, as well as studies in several different animal species (including mammals), that suggest that triclosan may interfere with the thyroid system and have other endocrine-disrupting effects...."*

On Efficacy Of Triclosan

Rep. Markey- Has the FDA evaluated the efficacy of antiseptic washes used by consumers in reducing transmission of infection? Has the FDA determined that use of antiseptic handwashes is superior to washing hands with regular

soap using proper handwashing technique? If so, please describe the manner in which this demonstration was made.

FDA Response – *"..Analysis of many of these studies was presented to the Non-prescription Drugs Advisory Committee at a meeting on the risks and benefits of antiseptics for consumer use in October 2005. At that time, FDA was not aware of any evidence that antibacterial washes were superior to plain soap and water for reducing transmission of, or preventing infection for consumers..."*

The Pledge to Stop Using Triclosan Consumer Products

Triclosan, the toxic antibacterial pesticide, can be found in many consumer products, including, soaps, hand sanitizers, toys, counter tops, cutting boards, toothpaste and many others. It is also found in human breast milk, urine and other fatty tissues. Washing triclosan-containing products down the drain leads to long-term water, soil and wildlife contamination, and human poisoning.

I support the "Wash Your Hands of Triclosan Campaign," led by Beyond Pesticides and Food and Water Watch and supported by over 80 environmental and public health organizations, to protect human health and the environment from the dangers posed by triclosan.

By signing this pledge, I recognize that:

- Triclosan and its degradates are associated with adverse health effects, such as endocrine disruption, cancer and long-term bioaccumulation,
- Triclosan creates more potent strains of bacteria, increasing antibacterial and antibiotic resistance,
- Triclosan is accumulating in waterways and soil, resulting in hazardous residues in fish and crops, and
- The efficacy of triclosan is no greater than regular soap and water.

Therefore, as a consumer concerned about the threat triclosan poses to me, my family, friends, and the community, as well as the environment, I pledge to:

- Remove triclosan-containing products from my home,
- Choose soaps, hand sanitizers and other personal care products that do not contain triclosan,
- Learn more about the dangers of triclosan,
- Tell my friends and family about the dangers of triclosan,
- Support local and national efforts to remove triclosan products from schools, stores and other businesses,
- Support local and national efforts to ban triclosan in consumer products.



To sign the pledge online and learn about triclosan, visit www.beyondpesticides.org/antibacterial/triclosan.htm



Write a letter to your neighborhood retailer or favorite cosmetic company requesting that they take a stand to protect public health by discontinuing the sale of triclosan products at their store, and by signing the triclosan-free pledge (see <http://www.beyondpesticides.org/antibacterial/triclosan-pledge.htm>) to reaffirm their commitment to the well-being of the community they serve.

Many other businesses and communities around the country are going triclosan-free. You too can encourage your local businesses, school districts, municipalities and other local governments to avoid selling and using triclosan. We have a model resolution, sample retail letter and pledge available that can be used and adopted, along with other resources on our website for distribution among your community, family and friends. You can access these materials at www.beyondpesticides.org/antibacterial/action/index.htm. Contact Beyond Pesticides for ways to get involved in your community and for any help that you may need.

On Status Of Triclosan Regulation

Rep. Markey – What is the status of the final monograph ruling? When does FDA plan on promulgating finalized rules regarding over-the-counter (OTC) topical antimicrobial products?

FDA Response – *“FDA is working to issue a proposed rule to amend the 1994 tentative final monograph for OTC health care antiseptic drug products. This will permit us to incorporate the most up to date data and information into the monograph and ensure that the data meet FDA standards for safety and efficacy.”*

Take Action

Many are surprised to know that their favorite body wash or hand sanitizer contains triclosan. Triclosan may also be lurking unidentified in many cosmetics, hair accessories and plastics as a preservative. Of national brand soaps, triclosan or its cousin triclocarban was found in 76 percent of liquid soaps and 29 percent of bar soaps. In light of the potential for endocrine disruption and its accumulation in our bodies and the environment, and given that triclosan is no more effective than plain soap and water, the time is now to demand action. Recently, twenty local businesses and organizations around New Brunswick, NJ announced their commitment to not purchase, use or sell products that contain triclosan. Your community can be the next to go triclosan-free.

Sample Text Asking Retailers to Stop Selling Triclosan

Dear Sir/Madam,

I am writing to <your company> about my family’s concern about the products containing triclosan that are currently sold at your store. Triclosan is an antibacterial pesticide that is associated with many human health problems, as well as environmental contamination. I believe <your company> should stop the sale of these products since:

- Triclosan and its degradates are associated with adverse health effects, such as endocrine disruption, cancer and long-term bioaccumulation,
- Triclosan creates more potent strains of bacteria, increasing antibacterial and antibiotic resistance,
- Triclosan is accumulating in waterways and soil, resulting in hazardous residues in fish and food crops,
- The efficacy of triclosan is no greater than regular soap and water.

As a loyal customer of <your company>, my family, friends and I would appreciate your company taking a stand to protect public health by discontinuing the sale of triclosan-containing products at your store, and by signing the triclosan-free pledge (attached) to reaffirm your commitment to the well-being of the community you serve.

I look forward to hearing back from you and the opportunity to provide you with additional information. In the meantime, you can find additional scientific information at <http://www.beyondpesticides.org/antibacterial/triclosan.htm>.

Thank you for your urgent attention to this matter.

Sincerely,



Commentary and Introduction; A series of articles on organics

Checking Our Organic Coordinates

Where have we been and where we need to go from here

by Jay Feldman

The April 26-29, 2010 meeting of the National Organic Standards Board (NOSB) brought with it both a sense of opportunity and challenge. This was the first NOSB meeting for me as a board member. The hundreds of people dedicated to organic principles in attendance, full day of public testimony, and hundreds of pages of public comments represent a process that is focused on the integrity of organic standards and practices. The organic movement, community and industry have developed with a strong commitment to public involvement and transparency in its process, and the allegiance to this core value is renewed at every board meeting.

Organic is the solution

With all the bad environmental news these days, the importance of organic practices grows daily. We must eliminate our reliance on synthetic chemicals to the greatest extent possible and as fast as possible to avert the collision course we are on with our future health and environment. On cancer alone, a full chapter of the President's Cancer Panel report, *Reducing Environmental Cancer Risk: What We Can Do* (May 2010), is devoted to agricultural chemicals. The chapter begins, "The entire U.S. population is exposed on a daily basis to numerous agricultural chemicals. Many of these chemicals are known or suspected of having either carcinogenic or endocrine-disrupting properties." It continues, "[B]etween three and five million individuals and their families work as migrant or seasonal workers. Due to working and housing

conditions, including lack of child care that forces parents to take their children with them into the fields, these workers and their families often have disproportionate exposures to pesticides and other agricultural chemicals."

Organic is no longer a niche market for the few, but a system that ensures the well-being of all—because the issues defining organic methods intersect with questions of human and environmental health. To sustain the growth necessary to overwhelm toxic dependency in food production and structural management, we cannot be encumbered by approaches and methods that blur the distinction between organic and conventional and accept standards, practices, or deficiencies that lack clarity and risk undermining organic. This is our challenge, one that must be taken up by environmentalists and consumers alike.

Two weeks before the NOSB meeting, Beyond Pesticides held the 28th National Pesticide Forum, *Greening the Community: Green economy, organic environments, healthy people*, in partnership with Case Western Reserve Medical School, where participants heard the underlying scientific reasons why organic must succeed and expand rapidly. Our current chemical-dependent course, according to the scientists in attendance, contributes to developmental disorders in children and transgenerational epigenetic effects, or changes in gene expression not resulting from DNA changes that are passed on to the next generation. The new and complex scientific findings, on top of well-recognized regulatory deficiencies in looking at chemical mixtures, synergism and the

like, are now outpacing EPA's chemical review protocol so as to make the chemical registration program virtually irrelevant to the protection of health and the environment. We heard directly from a beekeeper who is on the frontlines of the chemical assault on the environment as he experiences the dwindling of his hives.

Our efforts at using risk assessment and the resulting risk mitigation measures should be declared a failed human experiment. Tinkering with additional margins of safety that allow unnecessary toxic materials (without an alternatives and essentiality assessment) on the market is playing with uncertainties that we can no longer afford to play with. Organic is the critical and viable alternative.



Farmers from Baton Rouge, Louisiana pack their truck with organic greens. Photo by Curtis, <http://picasaweb.google.com/cssharif>

The organic law

Underlying the vibrant public process that is embodied in the NOSB deliberations is a strong federal statute, the *Organic Foods Production Act of 1990* (OFPA), which is set apart from numerous self-certifying environmental and practice-oriented management and labeling programs that are popping up in increasing numbers. It is the OFPA law that defines the vision of organic, the allowable practices and materials, certification and enforcement, and seeks to avoid the use of synthetic materials, making them the exception rather than the rule. In this context, Section 2105 (7 U.S.C. 6504) National Standards for Organic Production states: "To be sold or labeled as an organically produced agricultural product under this title, an agricultural product shall— (1) have been produced and handled without the use of synthetic chemicals, except as otherwise provided in this title; (2) except as otherwise provided in this title and excluding livestock, not be produced on land to which any prohibited substances, including synthetic chemicals, have been applied during the 3 years immediately preceding the harvest of the agricultural products; and (3) be produced and handled in compliance with an organic plan agreed to by the producer and handler of such product and the certifying agent." The law prohibits the "use of any fertilizers containing synthetic ingredients. . ." (7 U.S.C. 6508), focusing on "soil fertility, primarily through the management of the organic content of the soil through proper tillage, crop rotation and manuring." (7 U.S.C. 6513)

In fashioning the National List of allowable and prohibited substances, OFPA states in Section 2118 (7 U.S.C. 6517), "that the use of such substances – (i) would not be harmful to human health or the environment; (ii) is necessary to the production or handling of the agricultural product because of the unavailability of wholly natural substitute products; and (iii) is consistent with organic farming and handling."

Key issues for public consideration

Input from the public is critical to ensuring that the NOSB fulfills its mission and vision. We are at critical junctures on the following issues (among others): (i) reviewing acceptable and prohibited substances in organic production and processing, (ii) the allowance of "insig-

nificant" levels of synthetic ingredients in allowed materials, (iii) review process for inert ingredients in allowed materials, (iv) nanotechnology in organic practices, (v) allowance of a fertilizer (corn steep liquor) based on whether it is classified as synthetic. [Go to the NOSB webpage on the USDA, Agricultural Marketing Service website. On that page at the bottom is a link to "NOSB Meetings." From there, click on the date of the meeting (April 26-29, 2010) and then find documents of interest (e.g. inerts, nanotechnology) linked throughout the agenda.]

Moving organic ahead

It is time to elevate the public's voice and participation in organic. The series of articles that follow bridge the issues that directly affect the integrity and growth of organic at a time when the public needs greater understanding of the essential role that organic plays in the transition worldwide away from chemical dependency. To accomplish this, continued oversight of the organic program is crucial with ongoing tracking and enforcement of the law, as is the role of consumers in holding accountable those involved in organic production and the local food movement. Finally, we offer suggestions on starting an organic garden as a way of bringing the principles of environmental stewardship even closer to home.

Jay Feldman, executive director of Beyond Pesticides, was appointed to a five-year term on the NOSB by Secretary of Agriculture Tom Vilsack beginning in January 2010.

Maintaining Organic Integrity

2010 USDA Inspector General audit spurs improvements

By John Kepner

Because organic food production excludes the use of most synthetic materials and focuses on building nutrient-rich soil, organic food is better for the environment and the health of farmers, farmworkers and consumers, especially children. By choosing organic food whenever possible, we are helping to solve the serious public health and environmental threat posed by pesticides in our food, air and water. Ensuring that the food we buy is truly organic has rested on the shoulders of private accredited certification organizations (certifying agents), state agencies, and the U.S. Department of Agriculture (USDA) since the 2002 establishment of its National Organic Program (NOP) under of the *Organic Foods Production Act* (OFPA). Prior to this time, organic production was regulated under a patchwork of state and voluntary standards.

The National Organic Program, with rigorous standards and certification procedures unparalleled in chemical-intensive agriculture, has been criticized for straying from its legal requirements during the Bush Administration. Organic advocates criticized USDA's implementation of the federal organic law during this period which led to two USDA Inspector General (IG) investigations.

In March 2010, the IG completed its second audit of the NOP and issued its report, *Oversight of the National Organic Program* (01601-03-Hy). The purpose of the audit was to determine whether products marketed as organic met the requirements of NOP. While most organic labeled produce and processed agricultural products on store shelves probably complied with federal law, the IG found several serious problems with the implementation of the program between October 2003 and July 2009. These issues range from organic inspectors without the proper procedures in place to comply with NOP regulations, to a complete lack of required residue testing and instances where USDA knew companies were selling conventional products as organic without timely action taken.

In total, the IG made seven findings and 14 recommendations to the USDA Agricultural Marketing Service (AMS). In its response to the IG, AMS Administrator Rayne Pegg, appointed by the Obama Administration in 2009, said USDA agrees in principle with the findings and recommendations of the audit. Citing recent budget increases, which nearly double the NOP staff size from 16 to 31, Ms. Pegg said, "NOP anticipates addressing all of the recommendations made by the Inspector General in FY 2010." In general, AMS took a tone of agreement and cooperation in its audit response, and the IG accepted all AMS management decisions (see below).

Background

OFPA was passed in 1990 and establishes national organic standards. It required the Secretary of Agriculture to issue regulations to implement the legislation, in which the Secretary delegated responsibilities to USDA's AMS. In 2002, NOP was created under AMS to administer the organic standards and to require mandatory certification of organic production. OFPA also requires the Secretary to appoint the National Organic Standards Board (NOSB) to assist in the development of standards for substances to be used in organic production, as well as advise the Secretary.

All organic products are required to originate from farms or processors certified by NOP-accredited certifying agents, which may be state-run or private. NOP relies on these agents to ensure that certified organic operations continue to comply with federal organic regulations. Organic operations must maintain an approved farm plan of how it will meet NOP regulations and undergo a successful inspection by the certifier to label its products organic.

OFPA also allows states to apply to USDA to administer its own State Organic Program (SOP). If approved, the SOP is responsible for the enforcement of NOP regulations within the state. Presently, California and Utah are the only two SOPs. Enforcement issues in the other 48 states are handled by USDA. As of 2009, there are 98 accredited certifying agents (54 domestic, 44 foreign) that certify approximately 28,000 certified organic operations.

Findings and Responses

Finding 1: NOP Needs to Improve Its Enforcement of Organic Operations that Violate Regulations. In its audit, the IG identified five instances where AMS recommended that NOP take enforcement action against companies that were marketing conventional products as organic. In one case, NOP never issued enforcement action. In the other four cases, enforcement action took up to 32 months to issue. The IG recommends not only reviewing and issuing appropriate civil penalties against the open case, but more importantly, clarifying the authority of NOP issuing civil penalties and implementing a formal process for determining when fines or other enforcement actions should be imposed. It also recommends establishing procedures for monitoring violating operations' compliance. AMS anticipates the recommendations to be implemented by September 2010.

Finding 2: Processing of Program Complaints Needed More Timely Action. Since 2004, AMS received 41 NOP-related complaints. These complaints can result in enforcement actions against certifiers or organic farms and processors. NOP did not resolve 19 of the complaints in a timely manner (average of three years), and six

complaints remained unresolved. AMS says it was in the process of revising its procedures to address complaints during the audit and believes with its increased staff size and establishment of a complaint database is responsive to the problem.

Finding 3: NOP Did Not Properly Approve and Manage the California State Organic Program. In order for a state to become an approved SOP, it must have noncompliance, mediation, and appeal procedures that meet NOP regulations. However, NOP approved California as an SOP in 2004 without the required compliance and enforcement procedures, because it wanted the state to “operate and develop procedures as they progressed.” In its 2005 NOP audit, the IG documented this problem, but NOP failed to act. AMS says California is beginning to address these issues and has given them to June 2010, at which point it will initiate enforcement actions if California does not fully comply.

Finding 4: AMS Needs to Determine Whether NOP Regulations Should Require Periodic Residue Testing. While OFPA, Section 2107(a)(6), requires “periodic residue testing by certifying agents” for “pesticide and non-organic residue,” NOP did not incorporate this procedure into the regulations because of the cost and position that the NOP regulations are process-based rather than tolerance-based. Under the recommendation of the IG, AMS has requested a written legal opinion from USDA’s Office of General Council, which provides legal advice to the Department. It also plans to implement periodic residue testing by September 2010.

Finding 5: Evaluations of NOP’s Accreditation Process Were Not Performed Annually. NOP regulations require that it assemble a peer review panel pursuant to the *Federal Advisory Committee Act* (FACA) to annually evaluate its adherence to accreditation procedures. Citing budget constraints, NOP has never done so. NOSB has repeatedly expressed concerns with NOP’s accreditation of certifying agents and lack of process review. The IG recommends that NOP establish a peer review panel under FACA or determine if the regulations should be modified to allow a third-party review instead. As a cheaper alternative to a FACA panel, the NOSB advised the NOP to use a National Institute of Standards and Technology (NIST) National Voluntary Conformity Assessment Evaluation Program evaluation. NOP plans to do so by September 2010 and initiate an amendment to OFPA in 2012.

Finding 6: AMS Needs to More Effectively Identify Inconsistent Operating Practices and Clarify Program Requirements. The IG audit reveals that AMS was not ensuring consistent oversight of organic operations by its certifying agents. The IG documented

that all four certifying agents reviewed were enforcing different requirements on their 20 organic operations. Examples of problems include: inadequate procedures to prevent commingling of conventional and organic products on split operations; lack of uniformity on size and duration of outdoor access for livestock; and, inadequate recordkeeping. Aside from revising procedures to focus on problem areas—especially outdoor access for livestock, the IG recommends that NOP staff summarize the problem areas on an annual basis and standardize its method for issuing guidance.

Finding 7: NOP Oversight of Foreign Certifying Agents Needs Significant Improvement. Of the 44 foreign certifying agents, NOP did not complete onsite reviews for five as required by regulations. NOP did not anticipate receiving so many applications for foreign certifiers and did not develop a policy for handling applicants where travel may be hazardous. As a result, there is reduced assurance that these certifying agents followed NOP regulations when certifying approximately 1,500 organic operations. For about half of the foreign agents who did receive an onsite review, that review was not given for more than two years. AMS responded that four of the five outstanding site reviews have now been completed and the last will be completed in the coming months. It also agreed to define timeframes and processes for accreditation.

Conclusion

Organic-based systems and strategies are the solution to the pesticide problem. Therefore, organic integrity must be continuously protected and strengthened. Organic standards, practices, and compliance are built on the strong statutory requirements of OFPA. The law was written to ensure vibrant, dynamic organic standards. The recent IG report illustrates the importance of a vigilant grassroots that continues to refine and advance organic practices and policy, and the importance of transparent oversight.

During the first decade of the 2000’s, while organic farming pioneers and recently converted operations were producing healthy organic food, new players— many from the conventional arena— were entering the organic marketplace. Faced with a small budget and an increasingly powerful organic lobby, the newly formed NOP found itself struggling to implement some of its regulations. In an effort to strengthen the new federal standards for organic integrity, advocates continue to call for improvements and full compliance. The resulting two USDA IG audits, combined with new AMS management and an increased NOP budget, promise ongoing improvements and the adoption of official policies to ensure the highest level of compliance and organic integrity.



Local AND (Not Versus) Organic

By Stephanie Davio

The local food movement and the organic food movement must become one, as we face the challenges of food safety, environmental protection, water quality, worker safety, and a reduced carbon footprint. When it comes to local and organic food, we are not debating rivals vying for a spot in your salad bowl. Rather, we are looking for the best option –both local and organic. We need to encourage smaller, biologically diverse farms that can deliver both.

Reasons to Become Certified

Eating organic food is paramount to reducing and ultimately eliminating toxic pesticide contamination. It is healthier for the farmworkers who grow and harvest the food, and keeps pollutants out of our water, air and food. Organic food can feed us and keep us healthy without producing the toxic effects of chemical agriculture.

The USDA organic label means that the farmer has not used prohibited materials, such as toxic herbicides, insecticides or fertilizers, for at least three years prior to planting and harvest. They must keep meticulous records of how their farm is managed, which keeps things transparent. All of this is verified by a third party to make sure that what the farmer is claiming is true.

Benefits of Eating Locally

Local, organic farms are good for communities, keeping everyone connected to the place where their food is grown and in touch with the seasons. There is a limited amount of good farm land, and organic farms keep this land in production when it might otherwise be developed. This land provides wildlife habitat, food pro-

duction, and preserves agricultural landscapes, all while avoiding toxic contamination that occurs from conventional farms.

Locally grown foods provide some distinct advantages to products that are shipped from afar. For one, they are picked when they are ripe and therefore retain the best flavor and have the highest sugar content, which some nutritionists argue make them healthier. A classic example are tomatoes, which are delicate and don't travel well once ripe. In order to ship them across country, growers must harvest them while they are still green, sometimes treating them with ethylene so they will ripen, or turn red, en route. Ask any self proclaimed foodie: there is no comparison between a fresh, ripe local tomato and an off-season one from the supermarket that was shipped across country.

Another argument for buying local is that it provides direct support for farmers and helps strengthen the local economy. Farmers receive a much larger percentage of the food dollar when they sell at a market as opposed to selling through a grocery store. This also results in local re-circulation of money: one study found that purchasing locally resulted in 14-20% greater re-spending locally than purchasing from non-local stores (Sustainable Seattle, 2008).

Environmental Impact of Organic vs. Local

The fact is, however, not everything you buy can or has to be local. If you can get it locally, then you should buy local organic. However, there's no reason to try to grow certain things in climates that don't support the crop, making it almost necessary to use chemicals.

Reducing carbon-based fuels used for shipping food is often cited as a major advantage of local foods when it comes to environ-



mental impact. Nationwide, food travels an average of 1,500 miles before reaching the final consumer, while most farmers markets and locavores harvest food in a 150-mile radius. While this evidence is clear, when you throw organic into the mix, the data is not so one-sided. An analysis by Tropicana found that the number one contributor to its carbon footprint is the production and application of chemicals to their orange groves, not transportation or manufacturing (Tropicana Products Inc., 2010). According to the Rodale Institute, the gold standard is organic and local, but when in doubt always choose organic. Local conventional food, after all, contaminates your local environment with toxic pesticides, while organic food keeps chemicals out of the land, water and our bodies wherever it is grown.

Talking to Your Farmers!

Other than the taste of fresh fruits and vegetables, one of the most rewarding things about buying locally is having the chance to know the person behind the product. In a world where factory farmed chicken nuggets are staples and ingredient lists are unreadable, farmers markets provide a unique opportunity for the consumer to have a healthy relationship with their food. It is a chance to know your farmer and understand where your food comes from.

Just because a farm is not certified organic does not mean you should automatically avoid purchasing from them. However, without certification, the claim of organic holds very little weight since it has not been verified by a third party. Talk to the farmer about why his/her farm is not certified, and make your own decisions about whether you feel comfortable with their growing practices.

Remember, the farmers at your market are your neighbors, and what they spray on the fields impacts your backyard too. Educate yourself about the dangers of pesticides and the benefits of organic, and don't be afraid to talk to them about it. Be friendly, but communicate to them why you want them to go organic. With your wallet, show them that consumers are willing to pay more for a clean food supply and environment.

Conclusion

In a perfect world, all of our food would come from small, biologically diverse organic farms. The only way to achieve this reality is to use your purchasing power by shopping both locally and organically whenever possible and talking to your farmers to demand organic food. In the end, it's more important to buy organically grown food than local food produced with toxic chemicals.

Organic practices that conform to key standards for land management, as established in the *Organic Foods Production Act*, seek to incorporate the practices that green consumers want to lead healthy lifestyles and contribute to a safe environment for their families and children. Consumers are the driving force in ensuring the growth of organic as a response to polluting chemical-intensive practices that undermine the health of people and the planet. With the melding of organic standards and local production, consumers are able to support the systems that will ensure the sustainability of our ecosystem.

Visit the *Beyond Pesticides Organic Food* website for more information on the health and environmental benefits of eating organically, www.beyondpesticides.org/organicfood.

Reasons Small Farmers Don't Choose the Organic Label

- **Too much paperwork:** Paperwork varies with each business. But, keeping better records can help farmers and producers identify and solve problems more readily, which can lead to better land management, increased yields, and ultimately more profitability.
- **Production is too expensive:** One reason organic is such a fast growing industry is because of consumer willingness to pay premiums for certified organic goods. But even without the premium, studies have shown that the reduced costs of inputs make it cheaper than managing a conventional operation.
- **Certification is too expensive:** Small farms (making less than \$5,000/year on organic products) are exempt from getting certification, and the costs of certification varies by certifying agent, state, size of the farm, etc. Farmers are encouraged to shop around for a certifying agent that will be the most cost-effective for their operation.

Things You Should Ask Your Farmer if They Are Not Organic

- Why do they choose not be certified organic?
- How do they manage pests, diseases and weeds?
- How often do they spray and what pesticides do they use?
- How do they fertilize their farm?



Grow Your Own Organic Food



By Stephanie Davio

What's better than both local and organic? Food that you grow yourself—*organically, of course*. Not only is it economical, but you are in control and know exactly what is in the food you raised. With a plethora of information available on organic gardening for every type of home, there's really no excuse not to give it a go!

Organic gardening seeks to sustain ecological balance to produce healthy plants. Remember: a healthy plant is less likely to fall victim to insects and disease. Gardening is a challenge, but it comes with very fruitful rewards. The following is a simple guide to help you grow and maintain an organic garden:

Deciding on a plot based on space/soil

First and foremost, you need to ask yourself where you want to locate your garden. Fortunately, you don't need to have a huge property to yield big results. From tiny apartments in big, sprawling cities to a suburban backyard, there are many options for every kind of living arrangement:

- **Container Gardening.** This is ideal if you don't have

a lot of space to work with, are just getting started in gardening, or if you are renting your property and are not allowed to change the landscape. If you live in an urban setting or an area that has a high concentration of contaminants in the soil, it might also be a good idea for you to choose this option. One of the benefits of container gardening is that you are not necessarily limited by the seasons to grow food. For instance, you can take pots inside and place them in a sunny window during the colder months. You can also rearrange the plants as needed, and take them if you move. Some places you might think of planting a container garden include windowsills, porches, and balconies, but be as creative as you'd like! Take advantage of vertical space by putting up shelves or a trellis. Just about any sunny spot will work, and you don't have to limit yourself to pots; you can even grow food from a bag, if you'd like.

- **Community Gardens.** A community garden is a small plot of land that is shared by neighbors or a community. Each member can rent or reserve a small plot of land to garden and tend for a season or year. Stipulations vary by garden and community, but in many cases you can grow whatever you want provided that you maintain it for the duration of the time you rent it, and



Container gardens are great in small spaces, when you don't have a yard or in areas of poor soil quality.

some don't allow the use of synthetic fertilizers or pesticides –be sure to ask about this before you decide to participate! This is a great option for people who don't have access to a yard, balcony, porch or windows with sufficient sunlight, like city dwellers living in a huge apartment complex. It's also great for people who want to get serious about harvesting their own food and want to produce more than what they are able to in the space they have, or just for people who want the joy of farming with friends.

For obvious reasons, community gardens are becoming increasingly popular options, and you'd be surprised to find that there may be one or several in close proximity to where you live. How do you find out if one already exists in your area? Finding one can be as easy as taking a stroll through your neighborhood and asking around in your community. You can also ask your city's community center or department of recreation, go to your local nursery, gardening supply store or public garden and ask them for information, check your local listings, or search the web. Don't be discouraged if you can't find a local community garden or if what you do find is already full: you can easily start one yourself! For more information on how to set one up, as well as a listing of registered community gardens around the country, go to the American Gardening Association website: www.communitygarden.org.

Develop Healthy Soil

The foundation of any healthy garden is the soil, and as such, an

organic garden should always begin with an assessment. As the old adage goes, "You are what you eat." So it is for plants: what you feed the soil is ultimately fed to the plant, so healthy soil is paramount to the health of the plant. Therefore, the soil must be nutritionally balanced, loose and not compacted, filled with organic matter, and the correct pH, and not contain any hazardous chemicals like lead, arsenic or residual pesticides. It's easy to tell if the soil is compacted by grabbing a handful and letting it crumble between your fingers, but how do you figure out the nutrient content, pH or whether it's contaminated? Test it! Your local agricultural extension agency may have soil testing services that are affordable and likewise you might even try taking a sample of your soil to your local public garden or nursery for examination. Be sure to call first to ask if such a service is available, and specify that you would like organic recommendations for fertility to improve the soil, and let them know what contaminant test you want.

Tip: if you live in an urban area, it is important that you test for lead contamination if you are growing anything edible. You especially want to know if an orchard previously grew on your land or pressure-treated wood was installed at the site.

Soil nutrient content and pH can be adjusted to a particular crop's needs with the use of compost, animal manures, green manures, rock powders and crop rotations, lime, gypsum or oak leaves. These techniques will also foster earthworms, which aerate the soil, prevent compaction and release nutrients by breaking down

organic matter. Make sure that if you add any of these products to your garden, they are not contaminated! Many municipalities, for example, make grass clippings, mulch and compost available to residents, which is a nice gesture, however many times these can contain pesticide residues that can contaminate your garden. If possible, use your own grass clippings and compost for mulch. If you do decide to purchase these, try to get it from a certified organic producer or find out the product's source and its inputs. Whereas national organic standards regulate prohibited materials used in organic production, fertilizer products at the store cannot be certified organic.

How to Choose Products

How do you choose what products to use if they can't be certified organic? Be careful not to be fooled by products labeled as "safe" when choosing products for your garden. In general, unless you can find these products on the listing of the Organic Materials Review Institute's (OMRI) list of approved substances (often products approved will say "OMRI approved" on their labels), they do not meet the organic standards. Sometimes it is because they contain inert ingredients that are not approved for organic use and may be toxic. This same caution applies to fertilizers and potting soil as well as insecticides and herbicides.

Composting at Home

Compost is not only a great source of fertilizer for your garden, but it's also a great way to know exactly what you're putting in your garden, it helps you to reduce your ecological impact by reducing waste, and it reduces your costs! You can often create all the fertilizer you need yourself through simple composting of kitchen and yard scraps. You can easily build your own compost bin, purchase a pre-made bin, or even start a worm composting bin in your house, which is perfect for those with limited space. For more information, Be-



Composting creates great organic fertilizer and reduces your waste

yond Pesticides has a fact sheet on composting that you can find on our "Alternatives Fact Sheet Page" off of the tab "Info Services" on our mainpage, www.beyondpesticides.org/alternatives/fact-sheets/index.htm. A great book is also Barbara Pleasant's *The Complete Compost Gardening Guide*.

Planting

Once you know where you'll be planting your garden and have nice, healthy soil, it's time to get to the fun part—actually planting! You can either get a head start and plant the garden from scratch—plant seeds in a tray and keep them in a sunny warm spot indoors until the threat of the last frost is over, then transplant them outside or in their respective containers—or you can wait and just plant seeds directly in the ground. Warning: While it is fine to plant seeds directly in the ground for your garden, be cautious of critters, like squirrels and birds, who like to dig up the seeds for a tasty treat. You can repel these by planting visual bird and animal scare devices. These can be found at your local gardening supply store or online: www.bird-x.com

is a company that sells tons of these products. You can also simply purchase seedlings or starter plants and transplant them into your planters or ground. Make sure the plant is fully hydrated when you go to transplant it, and don't remove the plant from its original container until you're ready to place it in its new home so as to minimize the roots exposure to the sun.

When purchasing seeds, seedlings, or plants, try to purchase from organic sources if at all possible. Unlike some of the other inputs described above, these can be certified organic. You can often purchase certified organic seedlings and starter plants at a farmers' market or local farm throughout the season. If you can't find any local sources, however, there are many seed catalogs that specialize in organic seeds and there is an enormous selection of plant varieties.

As always, when you're looking for organic products, make sure it has the USDA certified organic seal! A great resource for finding seeds online is from Seeds of Change: www.seedsofchange.org.

■ **Crop Rotations and Intercropping.** Biodiversity is the key here! Intercropping, or having a variety of plants in each growing area, will discourage pests from spreading; in a monoculture, on the other hand, pests don't have very far to move to get to their next meal. This technique will also encourage beneficial insects, shade out weeds and increase yield by maximizing the use of limited space.

■ **Plant Pest-Repellent Herbs and Flowers.** Flowers planted within the vegetable garden or along the periphery will attract and sustain many beneficial insects that will help control the population of the "bad guys." The scent of many flowers and herbs, such as rosemary, can act as natural insect repellents.

Troubleshooting: Preventive Measures

■ **Harness Beneficial Animals and Insects.** Most of the insects in your garden are beneficial; therefore you should protect them rather than kill them with dangerous pesticides. These are the insects that are the natural enemies to your pests and can help keep their populations low. Some beneficial insects and animals include insect-feeding birds, spiders, lady beetles,

lacewings, wasps and hornets, predatory mites, and many parasitic wasps and flies. Some of these species can be purchased either online or at your local gardening supply store, however, exercise caution when releasing beneficial insects because it can be difficult containing these guys in your garden, and you don't want to cause a pest problem somewhere else.

■ **Identify Pests.** Learning to recognize the inhabitants—both good and bad—of your garden is as fascinating as it is necessary. It is difficult to effectively eliminate a pest problem without toxic chemicals unless you know the identity of the pest. Use picture guides from your local library or the references provided, ask knowledgeable neighbors, or take specimens to your county's agricultural extension office. Find out key aspects for the pest's biology, such as its life cycle and food, water, and breeding requirements.

■ **Monitor Problems.** To keep ahead of pest problems, become a good sleuth! Carefully examine each area for signs of weeds, brown spots, and leaf damage, such as wilting, curling, or holes. If you detect a problem, use a hand lens and examine the affected plant. Expect to see a variety of insects, but if any seem particularly abundant, then collect and identify samples as these may be your culprits. Keep records of your monitoring results so that you will be able to learn how to predict pest outbreaks to prevent damage. With time, you will be able to recognize problems



Beneficial insects provide a natural source of pest control. Photo of ladybug eating aphids by Greyson Orlando.

endemic to your garden.

Troubleshooting: Damage Control

If pest problems start to get out of control, combat the problem using the least-toxic method available for your pest. This requires that you know which pest is causing the problem:

■ **Weeds.** In a personal garden, weeds can often be easily contained by using a hoe or simply hand pulling them. If weeds are getting through, you can apply a thick layer of mulch, which will inhibit weeds and help retain soil moisture. Applying thick layers of mulch between plants and rows after the soil has warmed is ideal. If you are being burdened by a particularly pesky type of weed, horticultural vinegar may be used to spot treat as needed –be sure to check the ingredients, however, to make sure your product appears on the OMRI list.

■ **Disease.** Healthy plants –like healthy immune systems— can fight off disease with their own immune systems. Soil that is biologically active with a healthy population of microorganisms and plenty of organic matter will keep pathogenic organisms in check, but sometimes nutrient deficiencies or infections caused by fungi, bacteria or viruses can occur.

Fungi: Too much moisture on the foliage, poor air circulation and over-fertilization can contribute to fungal infestations. Make sure to water your plants in the mid to late afternoon to insure that leaves will dry. Removing diseased plant parts will help keep it from spreading

Bacteria: Wet soil, high humidity and high temperatures can cause the tiny organisms to spread, making your plant rot or wilt. To keep bacteria at bay, plant resistant varieties, improve drainage, adjust watering practices, and fertilize with slow release nutrients, like compost.

Viruses: These tiny disease organisms can kill plants quickly! Look for leaf mottling, curling or wilting. You can prevent and control this problem with healthy soil, planting resistant varieties, remov-



ing infected plants and controlling insects and animals that carry the infection from plant to plant, like aphids.

■ **Insects.** A healthy garden with a balanced population of beneficial predators and parasites will generally have fewer insect infestations than one without. And, though good cultural practices such as rotation and resistant varieties are your first line of defense, occasionally an outbreak can occur. When or if this happens, there are many strategies that you can take without resorting to toxic pesticides, like biological controls, traps and barriers. You can effectively hand pick large insects –like tomato hornworms. For smaller insects, you can wash the underside of plant leaves

to remove most of the mites or aphids on an infested plant. If the population builds up again, just repeat the process. The important thing is to identify your pest so that you can make an effective decision on how to eliminate or deter it by understanding its life-cycle, feeding preferences, and their natural predators. Work with your knowledge to keep an ecological balance in your garden. Have fun!

Resources

The following factsheets are available on Beyond Pesticides' organic gardening webpage, www.beyondpesticides.org/organic-food/gardening: The Basics; Planning for Planting: How to You're your Organic Garden; Ecological Pest Management; Compost is the Key to Successful Plant Management; Beyond Pesticides' Alternatives Fact Sheets; and more.

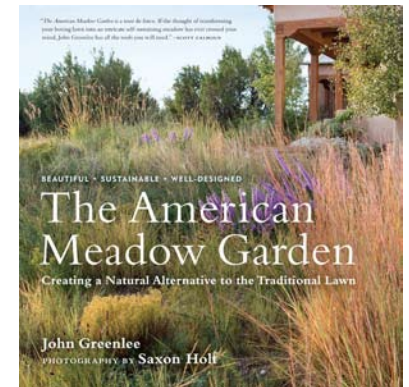
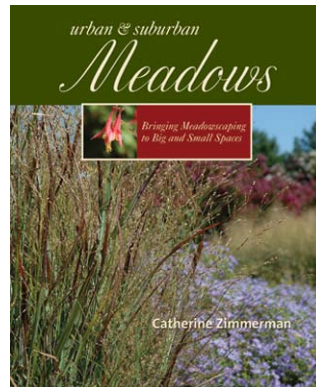
Other useful websites include: American Community Gardening Association: www.communitygarden.org; Cool Foods "Garden Guide" www.coolfoodscampaign.org/your-tools/garden-guide; Organic Gardening: www.organicgardening.com; Truck Farm Film and Food Project: www.truck-farm.com. We also recommend the following books: *Rodale's Ultimate Encyclopedia of Organic Gardening*; *Starter Vegetable Gardens: 24 No-Fail Plans for Small Organic Gardens*; and, *The Complete Compost Gardening Guide*.

From Lawns to Meadows: Two books to help with your conversion

Urban and Suburban Meadows: Bringing meadowscaping to big and small spaces. Catherine Zimmerman, Matrix Media Press, 2010, 272pp. \$29.95. **The American Meadow Garden: Creating a natural alternative to the traditional lawn.** John Greenlee, Timber Press, 2009, 278pp. \$34.95.

Catherine Zimmerman and John Greenlee agree. Conventional lawns are a polluting waste of time and money. While organic lawn care experts have demonstrated that you can have an organically managed, traditional lawn without toxic pesticides and chemical fertilizers, the authors of two new books—*Urban and Suburban Meadows* and *The American Meadow Garden*—take a different approach. These two books explain how to create a vibrant meadow ecosystem, in which native grasses combine with colorful perennials to form a rich tapestry that is friendly to all life—without pesticides and minimal input of water, time, and other scarce resources. While both books will help you get started on your own meadow and are filled with great color photos, *Urban and Suburban Meadows* reads more like a how-to guide, taking you through the fascinating process of converting your yard to a meadow step-by-step, and *The American Meadow Garden* is more of a coffee table book exploring the “lure of the meadow” and filled with photos by award winning photographer Saxon Holt.

Ms. Zimmerman, a horticulturist and landscape designer with a background in environmental film, begins *Urban and Suburban Meadows* by explaining various methods for preparing your site, followed by meadow design and maintaining an existing meadow, once it’s established. For those interested in the economics, the author breaks down the costs, revealing that a meadow can save a homeowner between \$20,000 and \$30,000 over ten years.



The book concludes with over 100 pages of resources including regional plant guides, nursery contacts and pesticide fact sheets. The plant guides alone, which include information on region, soil type, sun requirements, physical description and wildlife benefits, would be worth the cover price to aspiring meadowscapers.

Mr. Greenlee, the owner of Greenlee Nursery, the oldest grass nursery in California, and author of *The Encyclopedia of Ornamental Grasses* (Rodale 1992), became interested in meadows and ultimately wrote his book after being subjected to life in the “natureless” cookie-cutter neighborhoods of Orange County, California. Wanting to break free of the repetitive monoculture of the traditional front yard, he talks about designing gardens with a purpose—whether for beautification, attracting wildlife, solving water problems or creating a space for children and pets to play. *The American Meadow Garden* includes a spectacular portfolio of photos from gardens around the country and concludes with a short guide to creating your own meadow garden.

10 Reasons to Plant a Meadow (adapted from *Urban and Suburban Meadows*)

1. **No chemical pesticides/herbicides or fertilizers.** Eliminating toxic chemicals protects beneficial soil organisms that support the ecosystem, the plants and animals that live there, and the people and pets.
2. **Native ecosystem benefits.** Meadows require minimal disturbance to the native landscape.
3. **Diversity.** Meadows are habitats teeming with life. Meadows are home to many more different native plant, insect and animal species than monocultures.
4. **Fuel and labor conservation.** Only mow or burn once between November and April.
5. **Sustainable.** Meadows thrive using their waste to build soil organic matter that nourishes life.
6. **Year-round habitat.** Meadows provide year-round cover and food for insects and wildlife.
7. **Erosion control.** The complexity and varying heights of meadow plants will soften rainfall and prevent water from rushing over the surface of the soil. In addition, the deep root systems hold and stabilize the soil.
8. **Bioremediation.** Meadows provide a matrix of microorganisms, fungi, green plants or their enzymes that can restore the natural environment altered by contaminants to its original condition. This is particularly important around bodies of water.
9. **Low maintenance.** Once established, meadows require no watering, raking, pesticides or fertilizers and minimal mowing.
10. **Enjoyable.** The ever-changing beauty of a meadow evokes a sense of peace and calm, while the activity of its inhabitants provides endless enjoyment.



A Sense of Wonder

Rachel Carson's love of the natural world and her fight to defend it

Written by and starring Kaiulani Lee, the film version of *A Sense of Wonder* is available on DVD through Beyond Pesticides' online store at www.shopbeyondpesticides.org. Call about hosting a viewing party.

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