

Pesticides and You



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

Volume 36, Number 3

Fall 2016

Safety Assessment of Mosquito Insecticides Flawed

CDC and EPA proclamations of pesticide safety not supported

Also in this issue:

- **Farmers Rally to Stop USDA from Certifying Organic Hydroponics**
- **FDA Bans Triclosan in Soaps, Leaves in Toothpaste**
- **Engaging Organic Standard Setting**
- **It's All About the Birds and the Bees**
- **New Tool: Mapping the Movement to Sustainable Communities**

Consumers Drive Marketplace Change, Regulators Follow Triclosan removed from soaps long before FDA ban

When we found out on a Friday afternoon in early September that the Food and Drug Administration (FDA) was banning triclosan and 18 other antimicrobial products in liquid soaps, my reaction was –it’s about time. In 2004, with our publication of *The Ubiquitous Triclosan*, we had started working on the issue of a harmful pesticide in consumer products that offered virtually no benefit, but caused cross resistance with antibiotics and contaminated water and soil, and is now found in 75% of the U.S. population. Back then, the chemical was just exploding on to the market. I first saw it in a grocery store in a dishwashing sponge and thought, “This can’t be.” The craze for an antiseptic environment fueled the market for the chemical. We now see it in toothpaste, and various textiles, including underwear and socks, in hairbrushes, cutting boards, computer keyboards, and children’s plastic toys. For me, it symbolizes everything that is wrong with the allowance of pesticides in the market –known hazards and unnecessary (no efficacy), but driven by market forces and a regulatory agency that does not challenge the continuous introduction of toxic chemicals that we don’t need and are hurting us and the environment.

Need, Voice, Action

As we advance organic as the solution to pollution, triclosan serves as a model for how we confront the pesticide problem on many levels. First, it exemplifies the fact that we don’t need hazardous synthetic pesticides. The experience can be applied more broadly to chemical-intensive agriculture. Organic systems eliminate the need for synthetic fertilizers by establishing practices that partner with nature, cycle nutrients naturally, and create resilient plants. Second, it shows that our voice will be heard if we persist in elevating it. The media may not hear the message for years, however, we continue to show that organic systems are extraordinarily productive and even more profitable than conventional. Land managers of parks and playing fields that may have said that we can’t manage land with organic principles are learning that we can. City and town councils, once deferential to state and federal inaction, are adopting policies that require a transition away from toxic chemical inputs. Operating under the radar, we excluded genetically modified organisms from organic standards, knowing that the systems were antithetical to sound ecological practices and would result in increased pesticide use resulting from weed and insect resistance. That was in 2000 when our voices were ignored and now in 2016 a front page article in *The New York Times* proclaims “Genetically Modified Crops Have Failed to Lift Yields and Ease Pesticide Use.” Third, it teaches us that expedited change requires extraordinary public pressure, that waiting for federal regulators and policy makers to catch up is not the single solution. They are behind the curve, too slow to effect change in a timely way, and typically responsive to the urgency of looming environmental threats. A dozen years after we petitioned FDA to act to ban triclosan from soap, it did.

Taking it to the market

Triclosan teaches us to elevate public awareness and a marketplace of alternatives. Since we are not sitting around waiting for regulators

and policy makers to act, our campaign in the marketplace, along with others, had already removed most of the triclosan from liquid soaps. The major manufacturers, one by one, removed the chemical as the public became aware of its dangers. And, we still have more work to do on this. Yes, it’s out of soap, but it is in some toothpaste and many non-cosmetic products that are regulated by EPA. Again, we have to use the marketplace to express our dislike for the chemical and the contamination that it causes, forcing it off the market. The book *10% Human: How your body’s microbes hold the key to health and happiness*, reviewed in this issue, helps to give perspective to triclosan and the importance of those organisms in our bodies, just as *The Soil Will Save Us*, reviewed previously, explains the importance of microbes in the soil.

Engaging organic

Our article on engaging USDA on organic is a critical piece that explains the importance of the level at which we need to get involved with organic standard setting, lest industrial agriculture and big food manufacturers ultimately control organic. We still have a law in the OFPA that we need to protect, use, and apply to growing the organic sector with our core values and principles.

The season of mosquitoes and Zika

This has been the season of mosquitoes with the fear of the Zika virus driving communities to spray their residents with none other than organophosphate pesticides. Those are the chemicals that we were told were too dangerous to use around our children at our homes and schools, but are now being sprayed over children, elderly and the infirm to protect us from Zika. In this issue, we seek transparency on hazards, uncertainties, and alternatives to support informed local decisions.

Another community moves to organic on public and private land

South Portland, Maine is the latest community to ban the cosmetic use of pesticides on private and public property in its city. The community engaged in the thoughtful review of the situation, began to understand the hazards, the uncertainties, the limitations of the regulatory process, and the efficacy of organic land management practices. Then, the elected officials took the right step. Now we are *Mapping the Movement to Sustainable Communities*. So check out the map in this issue and get your community listed. Let us know how we can help organize a hearing before your city or town council, bring in the experts, share the experiences from other communities, and adopt a policy that transitions your town to organic land management practices.



Jay Feldman is executive director of Beyond Pesticides.



Pesticides and You © 2016 (ISSN 0896-7253) is published four times a year by Beyond Pesticides. Beyond Pesticides, founded in 1981, is a voice for health and the environment, promoting protection from pesticides and safe alternatives; donations are tax-deductible.

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Pressing for State Preemption Reform

Beyond Pesticides,

I and my local advocacy group, Go Green Oak Park, am working to regain local control over the regulation of pesticides in Illinois. We are submitting a resolution to our Village Board and want other cities and towns in the state to follow our lead. You can read a copy of our resolution here: <http://bit.ly/OakParkPreemption>. Thanks in advance for any publicity or assistance you can provide for our efforts.

–Peggy M. Oak Park, IL

Hi Peggy,

The work that you are doing to overturn state preemption law is critically important to public health and environmental protection. Currently, 43 states restrict local governments' authority to regulate pesticide use more stringently than state law. This means that, in those states, localities can only address pesticide use on public property, and cannot restrict toxic pesticides on private property. Seven states provide localities with the right to restrict pesticides on all land in their jurisdictions. Localities in two states have exercised local authority to restrict the unnecessary use of hazardous pesticides. Takoma Park and Montgomery County (population one million) in Maryland passed ordinances banning the use of pesticides for cosmetic purposes on all property, in favor of organic practices. Nearly 20 communities in Maine have restricted pesticide use on public and private property in some way, including comprehensive cosmetic pesticide restrictions passed in Ogunquit and South Portland. With pushback from the chemical lobby, restoring the local democratic process to restrict pesticides is one of our most challenging, but most important, battles in pesticide reform. We encourage other grassroots advocates to join your efforts in Illinois as well as their own state. *If you're interested in advocating for local authority over pesticide use in your state, contact Beyond Pesticides by email at info@beyondpesticides.org or 202-543-5450.*

Addressing Aphids

Dear Beyond Pesticides,

Aphids have infested my garden, and I'm afraid I won't get a good harvest. I've used some insecticides in the past, but would prefer to address the issue without using chemicals. Do you have any suggestions?

–Becky P., Sacramento, CA

Dear Becky,

Thanks very much for coming to us before reaching for toxic pesticides.

Share With Us!

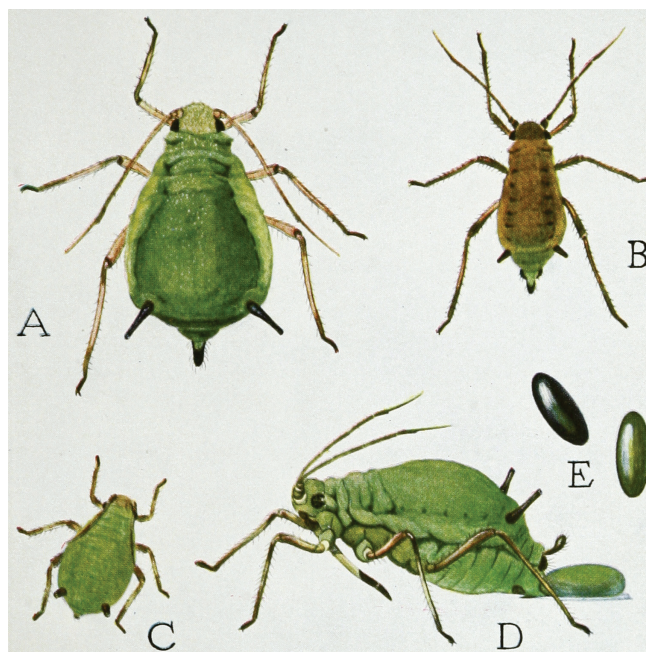
Beyond Pesticides welcomes your questions, comments or concerns. Have something you'd like to share or ask us? We'd like to know! If we think something might be particularly useful for others, we will print your comments in this section. Mail will be edited for length and clarity, and we will not publish your contact information. There are many ways you can contact us: Send us an email at info@beyondpesticides.org, give us a call at 202-543-5450, or simply send questions and comments to: 701 E Street SE, Washington, DC 20003.

Aphids are small-bodied insects that use their slender mouthparts to pierce the stems, leaves, and tender parts of plants, sucking the sap out for sustenance. Aphids come in a variety of shapes, colors and sizes depending on the species; they can be green, pink, yellow, black, brown or gray. However, they tend to have pear-shaped bodies, with long legs, antennae, and tube-like structures, called cornicles, that protrude from the back of their torso. These cornicles distinguish aphids from other insects. Many species can develop wings when overcrowded, allowing them to spread to other plants.

Aphids are common garden pests that reproduce quickly and can require quick action to keep under control. As most growers will tell you, small populations of aphids aren't usually a problem. In low numbers they actually provide an important food source to attract beneficial predators and parasitoids. However, it is important

to prevent widespread infestation as significant plant damage can occur when populations get out of control.

Practice aphid prevention by encouraging and protecting natural predators, such as ladybugs, brown and green lacewings, and hoverflies, by providing a wide diversity of native plant species. You can find a range of plants that attract beneficial insects online, but some suggestions to fill-in your garden include dill, coriander, fennel, parsley, lemon balm, and marigolds. Aphids are also partial to plants



*The green apple aphid ("Aphis pomi") *A, adult sexual female *B, adult male *C, young female *D, female laying an egg *E, eggs, which turn from green to black after they are laid. Image courtesy USDA.*

fertilized with too much nitrogen, so it may be helpful to get a soil test to evaluate your soil composition. If necessary, modify nutrient applications in favor of slow release organic fertilizers with a moderate portion of nitrogen, such as organic compost, worm castings, fish emulsions, or liquid seaweed.

Also note that certain ant species will protect aphids from natural predators so that they can eat the honeydew aphids excrete after they feed on plants. In this mutualistic relationship where both animals benefit from the other's actions, some ants actually "milk" aphids to coax out honeydew, and will even store aphid eggs in their nest over winter, essentially farming the pest. If you do see ants around your aphids, consider using sticky bands like Tanglefoot (available at garden centers) or other barriers to prevent them from guarding aphids.

Aphid problems generally peak in the spring and fall, when nitrogen levels are raised during initial plant growth and at the end of its life or before leaf drop. But it's good practice to regularly check the undersides of leaves for the presence of aphids,

honeydew, or other damage. If you notice a small population, take note of how long it is before natural predators move in, and determine, based on damage, whether to take action. Low levels of aphid populations will not necessarily damage gardens or trees. However, once plants exhibit wilting, stunting, yellowing or loss of leaves, it may be time to consider least-toxic controls.

To manage aphids, prune, pinch, wipe-off or squash them on plant sections or leaves that are infested, or wash off and hose down plants. Use water sprays in the early morning to allow plants to dry off and prevent fungal and mildew infections. In addition to providing habitat for pest predators, you can consider purchasing lacewing larvae, which are prolific aphid eaters and in the larval stage not prone to traveling far away from your garden. As a last line of defense, there are a number of least-toxic insecticidal soaps, such as Safer brand, that are organic compatible and registered to control aphid infestations. Even when using organic insecticides, be sure to apply in a very limited way to prevent harm to predator species, your main line of aphid defense. Hope this information helps your garden thrive!

From the Web

Beyond Pesticides' Daily News Blog features a post each weekday on the health and environmental hazards of pesticides, pesticide regulation and policy, pesticide alternatives and cutting-edge science, www.beyondpesticides.org/dailynewsblog. Want to get in on the conversation? "Like" us on Facebook, www.facebook.com/beyondpesticides, or send us a "tweet" on Twitter, @bpncamp!

Public Comment Needed to End Atrazine Use after EPA Confirms Threat to Wildlife

Excerpt from Beyond Pesticides original blog post (6/8/2016): With years of data documenting the harmful impacts of the herbicide atrazine on aquatic organisms and other wildlife, a recent U.S. Environmental Protection Agency (EPA) assessment now concludes that this widely used chemical poses risks to fish, amphibians, aquatic invertebrates, and even birds, reptiles, and mammals.

Erik T. comments:

"We have enough evidence on the harmful consequences of atrazine application to move forward and ban its use. Atrazine contamination of watersheds has been studied since I was a child. I'm surprised that there is any debate on this issue. Please move forward, not backward, and make changes that will protect our environment from such toxic substances!"

Lora M. comments:

"The fact that atrazine is so deadly to everything from plants, insects, fish, amphibians, etc. (not to mention human beings), should be enough reason to ban this chemical indefinitely. In fact, I don't understand why it hasn't been banned before now. We are already in the age where we are seeing the vast devastation caused inadvertently and criminally by humans in so many ways. We must stand up and stop further damage while we still can, including banning harmful chemicals like atrazine."

Megan G. comments:

"Widespread use of toxic chemicals is affecting our human environment, which includes all other living organisms, our water quality, air quality, and quality of the food we eat. The use of atrazine is harmful to not only wildlife, but to plants and people. We are all connected. Please stop the use of atrazine and other toxic chemicals which are a detrimental threat to our global health."

Congress Reforms TSCA, But Limits More Protective State Laws

The U.S. Congress passed a bill in early June to reform the *Toxic Substances Control Act* (TSCA) of 1976, the national law that regulates industrial chemicals, but in the process took away the right of state governments to adopt more stringent standards than the federal government. President Obama signed the legislation into law on June 22.

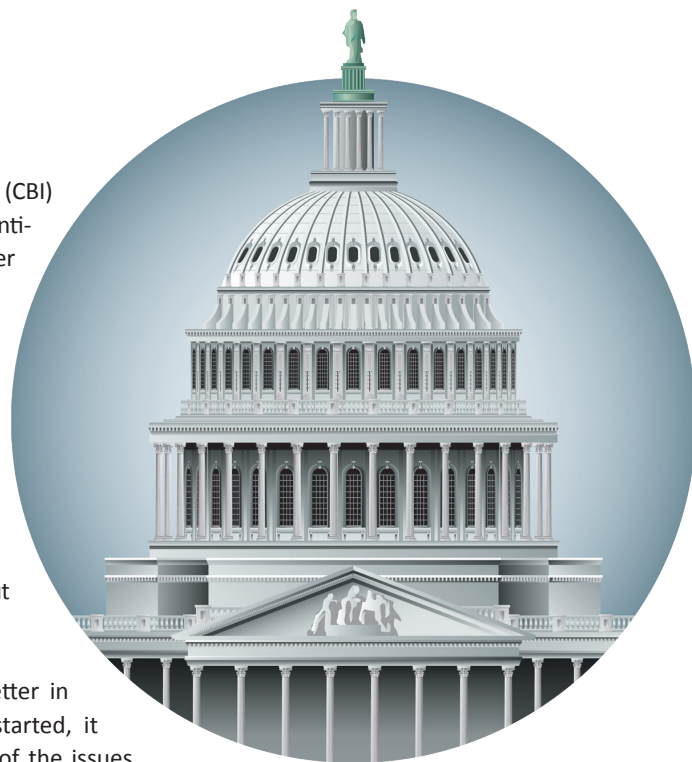
The reform improved TSCA in a number of ways, such as:

- establishes a health-based safety standard;
- requires EPA to assess the risk of existing chemicals under “judicially enforceable deadlines,” without consideration of cost;
- mandates that EPA make “an affirmative safety finding” before allowing a new substance on the market, under a 90-day review period (which may be extended to 180 days);
- increases EPA’s authority to order testing, with a requirement to “reduce and replace animal testing where scientifically reliable alternatives exist;” and
- triggers an EPA review of all past confi-

dential business information (CBI) claims, and require re-substantiation of approved claims after ten years.

However, the law limits state authority to restrict substances that are undergoing EPA review, have been found by the agency not to pose unreasonable risk, or are subject to federal risk management, unless they seek out a waiver.

While the final bill looks better in some ways than where it started, it does not look good on one of the issues that matters most –state preemption. It is a concern that the legislation embraces a risk assessment approach to regulating toxic chemicals, similar to the regulation of pesticides under the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA), which has proven to allow the unnecessary use of toxic chemicals under a



“health-based safety standard” for which there are safer less-toxic practices and products. Critical to the regulation of all toxic chemicals is an alternatives assessment, like that required in the *Organic Foods Production Act*, which evaluates essentiality of synthetic substances.

Bayer Loses Appeal of EPA’s Ban of Insecticide Flubendiamide that Kills Wildlife, Distributors Allowed to Sell Off Inventory

In late July, the Environmental Protection Agency’s (EPA) Environmental Appeals Board (EAB) upheld an earlier ruling by EPA’s chief administrative law judge, Susan Biro, to cancel sales of the conditionally registered insecticide flubendiamide. Produced by Bayer Crop-Science, it was conclusively found to be highly toxic to freshwater wildlife after EPA allowed its use on 200 crops. The situation has left many questioning why the agency did not wait to register the product until it had complete data.

However, EAB disagreed with the Office of Pesticide Programs and Judge Biro’s decision regarding existing stocks of the insecticide product, and ruled that farmers and other users, retailers, and distributors (not the manufacturers) will be allowed to use and sell existing supplies of the chemical. This controversy points to what health and environmental advocates cite as a fundamental flaw in EPA’s pesticide registration review —the agency’s conditional pesticide registration process, which allows toxic pesticides on the market without a complete and comprehensive assessment of their potential harm, in this case to wildlife and the vital ecosystem services they provide.

The saga that has unfolded between EPA and Bayer reveals an agency that struck a deal that it could not immediately enforce. Rather than reject the pesticide for its adverse impacts, or require the additional data before it is used across the country on 200 crops, EPA allowed a pesticide known to harm aquatic organisms to go to market with only a promise that it would be withdrawn if warranted by additional data. EPA has historically opted to work with pesticide manufacturers to have them voluntarily cancel harmful products, rather than go through a process of cancellation proceedings, which requires agency resources. Bayer’s actions show the danger of making deals with a multinational corporation that puts profit motives above environmental health.

Federal Court Finds USDA Process for Allowing Pesticide-Contaminated Compost Improper and Stops Use

On June 20, in a ruling that organic advocates say is critical to the integrity of the U.S. Department of Agriculture (USDA) organic label, a U.S. District Court judge found that USDA violated public process when it decreed that pesticide-contaminated compost is allowed in organic production. Center for Environmental Health, Center for Food Safety, and Beyond Pesticides sued USDA for ruling that green waste compost, which comes from lawn clippings and plants, may contain levels of the insecticide bifenthrin and other pesticides that have not been approved for use in organic systems through proper public hearing and comment procedures. The case focused principally on whether USDA, in failing to conduct a formal public review, was operating “at its whim.” The court found that is exactly what USDA did and ordered the agency to stop allowing the use of contaminated compost by August 22, 2016.

U.S. District Judge Jacqueline Scott Corley of the Northern District of California found that USDA’s National Organic Program operated without the required notice and comment. She explained, “The reach of the Agency’s new rule stretches beyond bifenthrin and instead allows green waste or green waste compost used in organic production to contain any synthetic pesticide of which bifenthrin is just one example.”

“The court decision upholds an organic industry that has been built on a foundation of consumer and farmer investment in ecologically sound practices, principles, and values to protect health and the environment,” said Jay Feldman, executive director of Beyond Pesticides. “USDA has violated a basic requirement of public accountability in the standard setting process, which is fundamental to public trust in the organic label and continued growth of the organic sector,” he added.

USDA said it will not appeal. In light of the new ruling, should USDA try to change the law again, it will have to do so with public participation, ensuring that the public can continue to watchdog the integrity of organic.



President Signs Weak Product Labeling Law on Genetically Engineered Ingredients, Preempts States

On July 29, President Obama signed into law an amendment to S. 764, the *National Bio-engineered Food Disclosure Law*, which establishes a national genetically-engineered (GE or GMO) food labeling requirement that food safety advocates say may be deceptive, preempts states from adopting stronger label language and standards, and excludes a large portion of the population without special cell phone technology.

Pushed by Senators Debbie Stabenow (D-MI) and Pat Roberts (R-KS), the law is being characterized by its supporters as a compromise, stronger than the original legislation, the *Biotechnology Food Labeling and Uniformity Act* (S.2621), which was dubbed the *Deny Americans the Right to Know* (DARK)

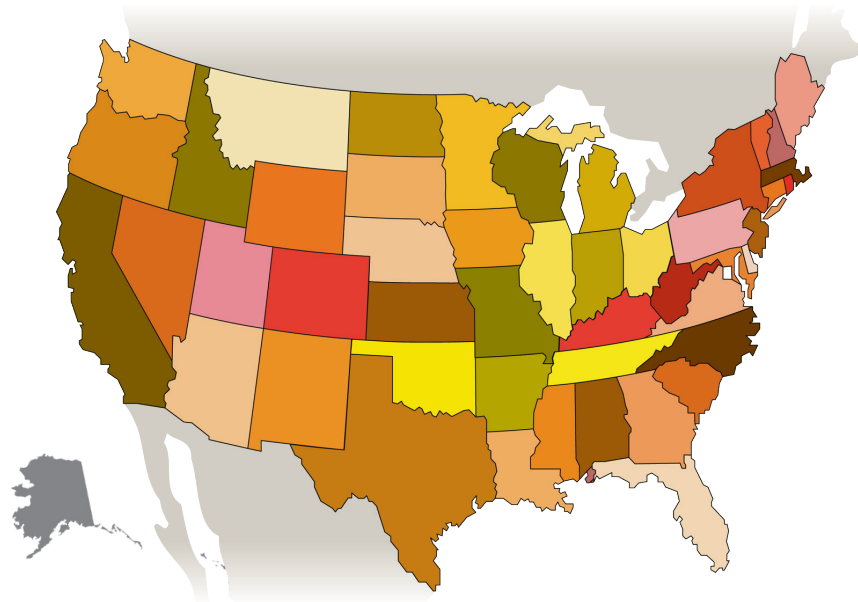
Act. That bill failed to reach closure in the Senate in March.

The law has split consumer groups from major organic manufacturers who, through their trade association, the Organic Trade Association (OTA), supported passage of the Stabenow-Roberts language. According to Natural News, “Groups and companies that lobbied on behalf of the bill and convinced Senators that the organics industry would accept it, include the OTA, Whole Foods Market and UNFI (the country’s largest organic and natural foods wholesalers).

The OTA effort was led by Board Chair Melissa Hughes of Organic Valley. Other OTA brands leading the effort include Smuckers

and White Wave.” The law does very little to ensure that consumers will actually be able to identify genetically engineered ingredients because it allows for a range of labeling options that will not warn consumers—quick response (QR) codes, 800 numbers, websites and on-package labeling.

This approach leaves poorer Americans at a disadvantage in accessing this information, as QR code labels require the use of a smartphone to read. Already seen on product labels are big food manufacturer links to websites that extol the safety of GE foods. Allowing food companies to decide how to explain GE ingredients in their products enables them to misinform or mislead the public about their products.



South Portland Joins Communities in Banning Toxic Lawn Chemicals on Public and Private Property

Howard County Bans Neonicotinoids on Parklands

On September 7, City Council members of South Portland, Maine passed an ordinance that bans the use of toxic lawn pesticides on private and public land. The ban, which passed 6-1, is an important public health measure to protect 25,000 residents, the largest jurisdiction in the state to-date to adopt such a measure. In 2014, the Town of Ogunquit, Maine was the first jurisdiction to ban toxic lawn pesticides on both private and public land.

Under the legislation, the provisions will be phased in, starting with city property on May 1, 2017, private property beginning May 1, 2018, and golf courses on May 1, 2019.

The law allows time for transition, training, and the development of a public education program. The measure does not establish fines for violations, opting for a community education approach as the city gauges compliance before considering instituting penalties in the future.

Public records will be maintained, detailing how complaints and compliance are handled, allowing officials the opportunity to review the effectiveness of the law. Recognizing the potential limitations of an education program alone, however, some members of the council indicated the possibility of revisiting the ordinance to add other enforcement measures after more data is known about local pesticide use, a tool that could prove very beneficial to bringing South Portland into full compliance with the new ordinance.

There is movement across the country to adopt ordinances that stop pesticide use on public property and, where allowed, private property. In Maryland, Howard County, taking one step further than a recently passed statewide bill restricting consumer sales of neonicotinoid products, has restricted the use of neonicotinoids on parklands. This includes approximately 10,000 acres of parkland within Howard County. The hope is that the new policy will encourage the entire community to use alternative means to control pests.

Malibu, CA City Council Unanimously Votes to Ban Pesticides on Public Property

In late June, Malibu City Councilmembers, in a unanimous decision (5-0), voted to make Malibu, California's public spaces poison-free, which means an immediate ban on all pesticides, rodenticides, and herbicides. During a marathon meeting that ran into the early hours past midnight, more than 24 Malibu residents and stakeholders gave public comments on pesticide use on public parks and city property. Many of the residents were with Poison Free Malibu, which is a community group that advocates for the elimination of toxic pesticide use in the area.

Council members had met with Poison Free Malibu prior to the meeting, receiving additional information about the issues. All five members of the council showed support in their comments and provided potential additions on top of the suggested actions. "The City of Portland has a 60-page document of all the things they've looked at and tried. We ought to be doing that," said Council Member John Sibert. He also cited the Environmental Sustainability Committee that was created in Malibu a year ago to specifically look at environmental sustainability policy.

Because of the state's regressive pesticide preemption law, the city is barred from passing legislation that halts the use of pesticides on private property. However, Malibu joins nearby Irvine, which adopted an organic management policy for city property in February, and dozens of communities across the country that have not let the issue of state preemption get in the way of passing policies that are still protective of human health and the environment—even if they are unable to restrict pesticide use on privately owned land. Concern over unnecessary cosmetic pesticide use has been echoed across the nation by grassroots coalitions of health and environmental advocates.

Terminix To Pay Delaware Family \$87 Million Settlement for Poisoning with Methyl Bromide in U.S. Virgin Islands

Home pest control giant Terminix reached a tentative settlement agreement of \$87 million with the Esmond family for the severe poisoning of the mother, father, and two teenage children with the highly neurotoxic pesticide fumigant methyl bromide. The company treated a neighboring unit to their vacation residence last spring at a condo resort complex in St. John, U.S. Virgin Islands. According to authorities, certified applicators working for the Tennessee-based company illegally applied pesticides containing methyl bromide to residences in St. John, St. Croix, and St. Thomas in the U.S. Virgin Islands.

The initial investigation found that a certi-

fied applicator had applied methyl bromide in the complex where the family was staying while targeting an indoor beetle that consumes wood. The pesticide gas drifted from a rental unit that was being fumigated below the unit where the family was staying. The Esmonds were taken to a hospital two days later with neurological symptoms, including weakness, severe muscle twitching, “altered sensorium, and word-finding difficulty,” according to U.S. Securities and Exchange Commission records.

Methyl bromide is a restricted use pesticide and is not registered for residential use, according to the U.S. Environmental Protection Agency’s (EPA) 2013 Methyl Bromide

Preliminary Workplan. It was taken off the market for residential use in 1984. Although mostly banned in the U.S., it can still be used in certain agricultural and food storage sites under a controversial “critical use exemption” loophole in federal (and international) law. In addition to being highly neurotoxic, methyl bromide is an ozone depleter and was slated to be removed from the market under the Clean Air Act and international treaty, the Montreal Protocol.

In addition to the settlement to the family, Terminix agreed to pay a \$10 million criminal fine under a plea agreement after being charged by the U.S. Department of Justice (DOJ) and EPA in March 2016.

General Mills Sued for False and Misleading Use of ‘Natural’

On August 25, three non-profit organizations filed a lawsuit against General Mills for misleading the public by labeling their Nature Valley brand granola bars “Made with 100% NATURAL whole grain OATS.” It was recently discovered that the herbicide glyphosate, an ingredient in Roundup and hundreds of other glyphosate-based herbicides, is present in the Nature Valley granola bars, which consumers expect to be natural and free of toxic chemicals. Moms Across America, Beyond Pesticides and Organic Consumers Association with The Richman Law Group filed jointly on behalf of the non-profit members in Washington DC under the District of Columbia’s *Consumer Protection Procedures Act*.

The case specifically cites the use and presence of glyphosate in General Mills’ Nature Valley Granola products. The hazardous chemical is used during the production of oats, the major ingredient in these products, which are marketed as “natural” and labeled “Made with 100% Natural Whole Grain Oats.” As a result, glyphosate is present in the natural-labeled products. The lawsuit alleges that, when marketing Nature Valley products, General Mills misleads and fails to disclose to consumers the use and presence of glyphosate and its harmful effects. Plaintiffs are asking a jury to find that General Mills’ “natural” labeling is deceptive and misleading and therefore a violation of law, and require its removal from the market.

“Glyphosate cannot be considered ‘natural’ because it is a toxic, synthetic herbicide,” said Jay Feldman, executive director of Beyond Pesticides. “Identified by the World Health Organization (WHO) as a carcinogen, it should not be allowed for use in food production, and certainly not in food with a label that suggests to consumers that the major ingredient –oats– is 100% natural, when it is produced with and contains the highly hazardous glyphosate,” he said. Beyond Pesticides is concerned that a misleading ‘natural’ label undermines the more protective organic market.



Deceptive Safety Claims about Bee-Toxic Pesticides Quashed in MA

With the Massachusetts Attorney General forcing Bayer CropScience to end its statewide advertising containing deceptive safety claims about bee-toxic pesticides, Beyond Pesticides asked the other 49 states to do the same. In a letter to State Attorneys General, Beyond Pesticides said, "With neonicotinoid (neonic) insecticides linked to the increase in pollinator decline, we are writing to urge you, on behalf of our members in your state, to stop misleading and fraudulent advertising of these pesticide products."

Beyond Pesticides continues, "We make this request following the settlement reached by Massachusetts Attorney General Maura Healy with Bayer CropScience, announced today [10/26/16], that ends the company's deceptive advertising practices on their neonicotinoid-containing lawn and garden products."

Bayer agreed to change its advertising practices, so that the neonic-containing lawn and garden products are no longer misrepresented by false safety claims. This landmark settlement, filed under the state's *Consumer Protection Act*, is the first time any major pesticide company has agreed to a court order to address alleged false advertising regarding risks posed by neonic products to honey and native bees, and other pollinator species. The lawn and garden products subject to the settlement, which include Bayer Advanced® All-in-One Rose and Flower Care, Bayer Advanced® 12 Month Tree & Shrub Protect and Feed II, and Bayer Advanced® Season Long Grub Control Plus Turf Revitalizer, contain the active ingredients imidacloprid and/or clothianidin, both neonics.

Given the shortcomings in federal oversight of misleading labeling claims and the use of neonicotinoids, Beyond Pesticides asked that state Attorneys General offices take action to address these concerns. With growing concerns surrounding the detrimental role that neonics have on pollinator health, Beyond Pesticides applauds the actions taken by the Massachusetts Attorney General and urges other states to assess the pesticide labeling practices and take the same action.



California to List Atrazine and Other Triazine Weedkillers to Prop 65 as Reproductive Toxicants

California's Office of Environmental Health Hazard Assessment (OEHHA) announced that the herbicides atrazine, propazine, simazine, and the breakdown triazine compounds des-ethyl atrazine (DEA), des-isopropyl atrazine (DIA) and 2,4-diamino-6-chloro-s-triazine (DACT) are being added to Proposition 65, a list of chemicals known to the state to cause reproductive toxicity. The formal listing was delayed, and did not go into effect until July 15, 2016 due to litigation from the manufacturer, Syngenta, which opposed the listing.

California's Proposition 65, officially known as the *Safe Drinking Water and Toxic Enforcement Act of 1986*, was enacted

as a ballot initiative in November 1986. The proposition protects the state's drinking water sources from being contaminated with chemicals known to cause cancer, birth defects or other reproductive harm, and requires businesses to inform Californians about exposures to such chemicals. Proposition 65 is the only law in the nation to prohibit businesses from knowingly and intentionally exposing consumers to a chemical known to the state to cause cancer or reproductive harm without first providing a warning. Violations are subject to potential penalties of up to \$2,500 per day for each violation, and each sale can constitute a violation. Prevailing plaintiffs can also recover their attorneys' fees.

According to OEHHA, the determination to list atrazine and the other triazines is based on the findings of several previous U.S. Environmental Protection Agency (EPA) documents which conclude that they cause developmental and reproductive effects through a common mechanism of toxic action. In addition to atrazine and its cousins' impact on human health, their impact on environmental health is also well documented. EPA's triazine ecological risk assessment found that these chemicals pose risks to fish, amphibians, aquatic invertebrates, and even birds, reptiles and mammals. Levels of concerns were exceeded by as much as 200-fold for some organisms!

FDA Bans Triclosan in Soaps, Leaves in Toothpaste

EPA allows its use in textiles, common household products and toys

After a decade of consumer and environmental advocacy and with many manufacturers taking the hazardous, antibacterial ingredient triclosan out of their soap and cosmetic products, the U.S. Food and Drug Administration (FDA) announced on September 2, 2016 that it will no longer allow 19 specific active ingredients, including triclosan and triclocarban, to be used in soap products, citing potential health risks and bacterial resistance. For years, groups have called on FDA and its counterpart, the U.S. Environmental Protection Agency (EPA) (which regulates non-cosmetic products with triclosan) to ban triclosan from consumer products, and FDA's action comes after Beyond Pesticides and Food and Water Watch petitioned both agencies to ban triclosan and triclocarban from consumer products. FDA has given product manufacturers one year after publication of the final order to remove triclosan from its products. After that, products containing these ingredients will be misbranded unless they are authorized under a new drug application.

"FDA's decision to remove the antibacterial triclosan, found in liquid soaps (toothpaste use will remain), is a long time coming," Jay Feldman, Executive Director of Beyond Pesticides, said. He continued: "The agency's failure to regulate triclosan for nearly two decades, as the law requires, put millions of people and the environment at unnecessary risk to toxic effects and elevated risk to other bacterial diseases. Now, FDA should remove it from toothpaste and EPA should immediately ban it in common household products, from plastics to textiles." Many companies had decided under consumer pressure to remove triclosan from its liquid soap products years ahead of the FDA decision.

FDA's announcement indicates that soaps containing the antibacterial ingredient triclosan do not have substantiated germ-killing health benefits. Beyond Pesticides raised concerns about the health effects of triclosan in 2004 in its piece *The Ubiquitous Triclosan*, and petitioned the agency to ban the chemical in 2005. In 2015, triclosan was banned in the European Union. For nearly two decades, scientific studies have disputed the need for the chemical and linked its widespread use to health and environmental effects and the development of stronger bacteria

that are increasingly difficult to control. The chemical offers no more health protection than soap and water, according to studies. In fact, triclosan contributes to antibiotic resistance, which has become an international public health threat.

Meanwhile, EPA, which has jurisdiction over household products containing triclosan (microban), continues to allow the use of this hazardous chemical in numerous plastic and textile products, from toys, cutting boards, hair brushes, sponges, computer keyboards to socks and undergarments. In 2015, EPA issued a long-awaited response to a Citizen Petition filed by Beyond Pesticides and Food and Water Watch in 2010, denying the organizations' request to cancel registered products that contain the antibacterial pesticide. The agency did, however, grant one request, and will evaluate and conduct a biological assessment of the potential for effects on listed species under the *Endangered Species Act* (ESA) in the ongoing triclosan registration review.

Triclosan has been linked to hormone disrupting effects, bacterial and antibiotic resistance, and impacts on aquatic organisms. The Centers for Disease Control and Prevention has found that 75% of the U.S. population contain triclosan in their bodies. Triclosan enters the food chain through use of contaminated water or fertilizer on agricultural crops.

For more background, including a timeline of events leading up to the decision, see Beyond Pesticides' triclosan page, www.beyondpesticides.org/triclosan.



Safety Assessment of Mosquito Insecticides Flawed

CDC and EPA proclamations of pesticide safety not supported

by Jay Feldman

With the frenzy to douse communities with mosquito insecticides, in response to the perceived threat of Zika in the United States, public officials took to the airwaves this summer and fall with proclamations of pesticide safety. There is no question that public officials and residents face challenges in defining the problem or potential problem associated with the transmission of Zika and its threat to the public's health, especially newborns, the appropriate insect management response and the efficacy associated with it, and a fair assessment of the health implications associated with exposure to pesticide spraying, one common control strategy.

A perceived public health threat emerges

As the threat of Zika emerged in Brazil and spread throughout South and Latin America and Puerto Rico, the link to microcephaly (small head size leading to developmental disorders) in newborn children created justifiable fear, especially among pregnant women whose babies in the womb were understood to be at highest risk for adverse effects associated with the virus. Data on the cause and extent of the threat has since confounded the experts, raising critical issues of the most reasonable and health-protective ways of combatting insect-borne viruses as they emerge, such as West Nile Virus and now Zika.

While the programs advanced by the Centers for Disease Control and Prevention (CDC) and the U.S. Environmental Protection Agency (EPA), including prevention techniques, such as removing standing water that serves as breeding areas, use of repellents and screens on windows, massive spray programs became a centerpiece of the attack against the spread of Zika. In fact, spray programs escalated in cases where Zika was not detected in mosquitoes, but was identified in humans—begging the question of mode of virus transmission. Without extensive monitoring for infected mosquitoes, the distinction between nuisance and disease carrying mosquitoes is blurred. Meanwhile, the decision to

expose large populations, young, old, and infirm, to spray programs with neurotoxic chemicals that breakdown to chemicals that are also as or more hazardous, in itself raises a serious public health threat.

Government agencies proclaim pesticides safe

The issue of transparency of information on pesticide hazards, when decision makers advance widespread chemical use and exposure, is paramount, according to public health advocates. Gina McCarthy, administrator of EPA, urged the widespread spraying, saying, "It can be done safely and effectively and is perhaps the most important tool we can use right now to change the trajectory." Based on this advice, local officials, who make the decision on mosquito management practices, for the most part embraced spraying as the sensible approach. Naled became the pesticide of choice because of mosquito resistance to the popular synthetic pyrethroid insecticides. The Governor of Puerto Rico and the Mayor of San Juan rejected the idea of spraying Naled over people and their homes. CDC proclaims on its website, "EPA-registered insecticides are used for aerial spraying. EPA-registered insecticides have been studied for their effectiveness and safety when used according to label instructions." During the height of the aerial spraying of the organophosphate insecticide Naled, Tom Frieden, M.D., director of the CDC, told NBC News, "Aerial spraying is an effective addition to mosquito control on the ground. In fact, it's been the most effective tool."

The extent of the virus threat

We know now that the development of microcephaly resulting from fetal exposure to Zika alone is not clearly correlated. Citing World Health Organization (WHO) figures, in October, the *Washington Post* reported that, of the 2,175 cases of microcephaly reported, 75% are from a specific region of Brazil, suggesting that there are a combination of factors leading to the disease. Importantly, from a public health perspective, the number of cases of microcephaly associated with the virus is also not as high as feared. According to WHO's October 20, 2016 *Situation Report on Zika, Microcephaly and Guillain-barré Syndrome*, while Brazil documented 310,061 cases of Zika and 2,033 cases of congenital illness, including microcephaly, Columbia identified 104,691 cases of Zika and 46 instances of the illness. So, in retrospect, there is still a lot to learn and the calculation on widespread chemical exposure in the context of less hazardous mosquito management techniques becomes even more complex.



Photo: aerial spraying of mosquitoes
June 15, 2013, over Joint Base
Charleston Weapons Station, S.C.
U.S. Air Force photo by Senior
Airman Dennis Sloan.

Nevertheless, with the virus spreading relatively quickly, communities geared up for spray programs as a preventive measure nationwide. An area of Miami was identified as an area of local transmission of the virus after several infected mosquitoes were found. Up until then, the infections were understood to have occurred as a result of travelers with the virus returning to the U.S. It was also determined that the virus could be transmitted through sexual activity. Still, the vast majority of cases of Zika virus in humans in the U.S. were identified by the CDC as “travel-related.”

Accurate information needed to inform decisions

As the confluence of events raised public concerns about mosquitoes and pesticides, Beyond Pesticides wrote a letter and sent out a press release urging EPA to immediately alert local and state mosquito control officials, elected officials, and the public throughout the U.S. to the fact that EPA’s key data reviews on the safety of widely used mosquito control pesticides, including Naled and synthetic pyrethroids, are outdated and incomplete, while the scientific literature raises safety concerns. In a September letter to EPA, Beyond Pesticides said, “As local and state officials implement mosquito abatement programs to address the Zika virus, it is critical that they have complete transparent safety information that they are not currently getting from the Environmental Protection Agency (EPA).”

Beyond Pesticides continues, “This information, specific to residential exposure to the insecticides Naled and its main degradation product dichlorvos (DDVP), as well as synthetic pyrethroids, is necessary for officials on the ground to make fully informed decisions and for public right to know.”

Deficiencies in EPA safety assessment

According to EPA documents, the agency did not meet a planned 2015 deadline for a final review decision evaluating residential exposure to Naled, a neurotoxic organophosphate insecticide that is currently being used in community mosquito spraying, and its highly toxic breakdown product DDVP. In addition to the toxic properties of Naled, EPA has stated in review documents that it “has determined that the adverse effects caused by dichlorvos [DDVP] that are of primary concern to human health are neurological effects related to inhibition of cholinesterase activity.” There is also “suggestive” evidence of DDVP’s carcinogenicity, as well as concerns associated with its neurotoxicity, mutagenicity, and reproductive impacts.

Similarly, EPA has recognized in its documents that synthetic pyrethroids, including permethrin and phenothrin (sumithrin), must also have their assessments updated and completed, calling into question safety statements from EPA and CDC. Several pyrethroids are associated with cancer, hormone disruption, and reproductive effects, and thus have hazard and exposure concerns regarding widespread application for mosquito control. Phenothrin, for instance, “lacks acute, chronic, and developmental neurotoxicity studies that are required to fully evaluate risks to infants and children,” and for permethrin there are outstanding concerns regarding its developmental neurotoxicity.

According to EPA’s final work plan, published in 2009, the agency

planned to begin public comment on a registration review decision for Naled in 2014, with a final decision in 2015. “Given the widespread use of Naled in South Florida. . . and other states and territories over fears of the spread of the Zika virus, it is imperative that an updated risk assessment be presented for public review and comment, especially since there are important outstanding data and concerns regarding Naled/DDVP exposures to residential bystanders,” Beyond Pesticides told EPA.

The use of Naled in a South Carolina community in August resulted in the death of two million bees. In 2012, the European Union banned Naled, citing “potential and unacceptable risk” to human health and the environment.

Efficacy of spraying questioned

In light of the identified hazards and unknown effects of exposure to both Naled/DDVP and synthetic pyrethroids, Beyond Pesticides urges local and state officials to consider more closely the lack of efficacy associated with massive spray programs. Researchers question the efficacy of spray programs for adult mosquitoes, especially given the biology of the targeted mosquito, *Aedes aegypti*. This mosquito stays close to its breeding sites in residential areas and inside homes, suggesting that community spray programs are the least effective control measure.

Beyond Pesticides encourages an integrated approach to mosquito management that focuses on prevention through public education encouraging frequent removal of standing water, larviciding, and use of repellents. If prevention measures are enforced, the need to spray should be extremely limited, and balanced against the potential public health impacts of hazardous pesticides.

Moving forward

This will not be the last time that local officials, encouraged by state and federal agencies, will consider massive spray programs to combat an insect-borne illness. In fact, with global climate change, the expectation is that the U.S. will see more of it. The community goal needs to be more rigorous attention to the management of breeding areas or source reduction, and biological controls. Source reduction is not an easy problem to resolve, but it takes a community commitment to work with residents on identifying areas around homes that are breeding areas, such as gutters, piles of leaves, flower pots, tires, and other areas that collect water. Working with community residents to install screens on windows and doors will go a long way in preventing mosquito bites. Encouraging habitat for insects and birds becomes increasingly important as a way of attracting predatory organisms that feed on mosquitoes or their larvae, including fish, frogs and tadpoles, dragonflies, spiders, birds, and bats. Protecting and enhancing the ecosystem is a theme that is critical to eliminating an increasing reliance on toxic chemicals in communities nationwide.

Download a copy of the letter that Beyond Pesticides sent to EPA and the agency’s response here: <http://bit.ly/2cFHThg>. For more information on mosquito management, see www.beyondpesticides.org/mosquito.



ChemicalWatch Factsheet

NALED

General Use and Registration Status

Naled is a registered organophosphate insecticide with the U.S. Environmental Protection Agency (EPA), first introduced by Chevron Chemical Company in 1956 and registered for use by EPA in 1959. It is used primarily for controlling mosquitoes, blackflies, and aphids, but is also used on food and feed crops, and in greenhouses. After EPA conducted an updated cumulative risk assessment for organophosphates in 2006, as required under the *Food Quality Protection Act*, Naled was found to be eligible for reregistration by the agency, despite its neurotoxic risk to human health. In Naled's 2006 Reregistration Eligibility Decision (RED), EPA stated that it may no longer be used in and around the home by residents or professional applicators, but may still be used in mosquito control operations. Approximately 1-2 million pounds of Naled are applied annually, making it the fourth most widely used organophosphate insecticide in the U.S., with 70% used in mosquito control and 30% in agriculture.

Naled and the Organophosphates

Organophosphates (OP), derived from World War II nerve poisons, are a common class of chemicals used as pesticides. This class of pesticides affect neurodevelopment, weaken the immune system, and impair respiratory function, among other severe health risks. Many OP insecticides, including Naled, are already banned in the European Union because their risk to human health and the environment was deemed unacceptable by the reviewing Council. Despite numerous OP poisonings of farmworkers, homeowners, and children, EPA has allowed the continued registration of many of these products instead of phasing them out entirely, due to its reliance on risk mitigation for individual OPs.

Following the banning of many organochlorine insecticides, such as DDT and dieldrin, in the 1970s, pesticide companies turned to OPs to replace these toxic chemicals. OPs have been one of the leading insecticide chemical families since

1970 and their peak usage occurred around 1975 with 142 million pounds of active ingredient. As of 2007, 33 million pounds of OP active ingredients were used in the U.S., representing 35% of all insecticide usage. Certain OPs, including malathion and Naled, have been used for mosquito control around the U.S. with controversy surrounding these programs. According to EPA, Naled is currently being applied by aerial spraying to approximately 16 million acres as part of routine mosquito control.

A meta-analysis conducted by researchers at University College London found that long-term low-level exposure to organophosphate pesticides produces lasting damage to neurological and cognitive functions, such as information processing and working memory. This research pulled data from 14 studies with data assimilated from more than 1,600 participants, in order to provide a quantitative analysis of the current literature on the chronic effects of OP exposure. Unfortunately, there is little independent data on Naled's toxicity outside of industry generated data.

Mode of Action

Naled, like all other organophosphate insecticides, works to kill insects by inhibiting important enzymes of the nervous system, specifically acetylcholinesterase (AChE). This inhibition causes a buildup of acetylcholine, resulting in restlessness, convulsions, and paralysis. The breakdown product of Naled in soil and water is dichlorvos, another organophosphate insecticide with similar acute and chronic effects.

Acute Toxicity

EPA considers Naled to be highly toxic and severely irritating for dermal and eye irritation and moderately toxic and irritating by oral, dermal, and inhalation exposure routes. Symptoms following exposure to Naled formulations include: headaches, muscle twitching, diarrhea, nausea, difficulty breathing, seizures, and at very high exposures, respiratory paralysis and loss of consciousness.

Chronic Toxicity

EPA has stated that chronic dietary exposure for food and drinking water do not exceed the agency's level of concern, but that certain occupational scenarios currently exceed its level of concern and have outlined mitigation measures and application restrictions. There is also the potential for chronic exposure from repeated mosquito control applications in residential areas. This is especially pronounced in areas that are hard hit by mosquitoes

like southern Florida, where mosquito-borne viruses, like the Zika virus, was detected in 2016.

Naled has long-term health implications affecting the nervous, circulatory, reproductive, and immune systems. Rat studies conducted by Naled manufacturers found that oral exposure of 10 mg/kg per day for four weeks and skin exposures of 20 mg/kg per day for four weeks resulted in inhibition of AChE, which

ChemicalWatch Stats

CAS Registry Number: 300-76-5

Trade Names: Dibrom, Trumpet, Fly Killer-D

Use: Organophosphate insecticide used for control of mosquitoes, blackflies, aphids, and mites in residential areas and food and non-food field crop sites.

Toxicity rating: Toxic

Signal words: Danger

Health Effects: Eye and skin irritation, associated with neurological and neuromuscular effects.

Environmental Effects: Toxic to birds, fish, aquatic organisms, and bees.

also occurred in a year-long study in dogs. In this same long-term feeding study of dogs by the manufacturer, Naled caused anemia at all but the lowest dose level, reduced the number of red blood cells and the amount of hemoglobin in the dogs' blood. A separate study implicated Naled with immune system function, in finding that Naled and its breakdown product, dichlorvos, inhibited an enzyme in white blood cells that are crucial in removing virus-infected cells from the body.

EPA has classified Naled as a Group E carcinogen –evidence of non-carcinogenicity for humans– based on the lack of convincing evidence of carcinogenicity in adequate studies. But dichlorvos, the main breakdown product of Naled, has been classified as a Group C “possible human carcinogen.” Exposure to dichlorvos during pregnancy or during childhood has been linked to increased incidence of brain tumors and leukemia.

Occupational Exposures

Naled is more potent through inhalation and dermal exposures compared to exposures that occur through eating or drinking contaminated products. A study by toxicologists at the University of California (1978) found that inhalation of Naled was 20 times more toxic to rats than oral dosing, which was further verified by tests submitted to the EPA by Naled's manufacture. EPA states that for mosquito control and agricultural uses of Naled, workers who mix, load, or apply these products may exceed the agency's level of concern. Instead of removing these uses of concern, the agency has resorted to mitigating risks to an “acceptable level with label restrictions.”

The Naled RED also prohibits hand-held foggers, backpack sprayers, and human flaggers due to unacceptable risks, and creates post-application reentry times to address occupational exposure routes. The agency states that agricultural scenarios are assumed to be representative of mosquito/blackfly uses for occupational handlers. There is uncertainty in using agricultural use scenarios as a surrogate for mosquito applicator uses, and the agency even notes that it “has insufficient data to determine if exposures to pilots from agricultural aerial applications are similar to the exposures to pilots applying mosquito control agents.” Further, EPA's identification of the need for restricted-entry intervals following any Naled application for agricultural crops or insect control poses a concern for both applicators and residential bystanders.

Residential Exposures

One area of concern that EPA did not adequately address in its 2006 review of Naled was post-application residential inhalation exposure. While the occupational assessment addresses dermal and inhalation exposures, despite several uncertainties in extrapolating from agricultural data, the agency does not identify a separate residential inhalation assessment, even though this is the primary route of human exposure resulting from mosquito applications. In contrast, EPA did assess the potential risk from the inhalation route of exposure for both the aerial ultra low volume (ULV) and ground-based applications of malathion in its RED. EPA believes that its Naled assessment is protective of residential bystanders through its occupational exposure assessment in the

Naled RED, even though there are no data or calculations for bystander exposure. Without this information, it appears to be misleading for EPA to state that there are no risks to bystanders.

Environmental Fate

Screening models created by EPA determined that under aquatic, terrestrial, and forestry field conditions Naled dissipated rapidly with half-lives of less than two days in all cases. Naled generally has a half-life of less than eight hours in soils and less than 25 hours in aqueous solutions. Naled and its degradates also have low bioaccumulation potential. However, there is significant potential for surface water contamination through spray drift and direct application for mosquito control. According to entomologists from the University of Florida, “No-spray buffer zones greater than 750 meters in width must be placed around ecologically sensitive areas” to protect non-target species from Naled drift.

Studies on environmental fate of Naled are limited, but one study on the deposition and air concentrations of Naled used for adult mosquito control points to the insufficiencies of the models employed by EPA in their assessments. This study found lower concentrations of Naled following truck-mounted ULV application compared to the levels modeled in previous assessments. Despite this discovery, the authors state that the use of AGDISP or AgDrift to “estimate environmental concentrations of insecticides after ULV applications could result in an underestimation of exposures and, thus, risks.” Another study done to monitor the distribution and persistence of Naled in the Florida Keys National Marine Sanctuary (FKNMS) detected tidal transport of sublethal levels of Naled and dichlorvos in the waters adjacent to FKNMS.

Effects on Non-Target Animals

Naled, used for mosquito control and in agricultural settings, affects a variety of non-target animals, including fish, insects, aquatic invertebrates, and honey bees. On an acute basis, EPA registration documents note that Naled is moderately toxic to mammals, moderately to very highly toxic to freshwater fish and birds, highly toxic to honey bees, and very highly toxic to freshwater aquatic invertebrates and estuarine fish and invertebrates.

Elevated mortality rates among honey bees have been documented after nighttime aerial ULV applications of Naled. Additionally, average yield of honey per hive is significantly lower in exposed hives. Naled is highly toxic to honey bees (LD50 0.48 micrograms/bee) and some have observed that Naled killed bees at 30 and 60 meters from the path of ground ULV applications. Consequently, ground application and the subsequent deposition on surfaces show a positive correlation with bee mortality. Adult bees are more sensitive to Naled than younger bees, though studies show a significant decrease in residual toxicity from 3 to 24 hours post-treatment. Salvato (2001), who examined the toxicity of Naled, malathion, and permethrin to five species of butterflies, including larval and adult stages, found that Naled and permethrin were the most toxic to all life stages.

In late August 2016, aerial spraying of Naled for mosquito control in Dorchester County, South Carolina resulted in acute

pesticide poisoning and the death of over two million honey bees, triggering public outcry over the safety of Naled in the environment.

Naled and Mosquito Control

Community mosquito-spraying varies by state and locality. Many states allow spraying by mosquito abatement districts, which operate based on perceived need, and during periods when there are public health concerns and mosquito-transmitted diseases are high. However, with elevated concerns surrounding mosquito-borne viruses like Zika and others, many communities are quick to resort to spraying potentially harmful pesticides. The efficacy of adulticidal pesticide applications has been called into question over the years. A large part of this has to do with the inability, especially in an urban environment, to hit target insects with typical ground spraying from trucks or by aerial application. Given the potential health risks and environmental impacts of adulticiding, monitoring and prevention techniques must be heavily emphasized.

Common mosquito pesticides, like Naled, are highly toxic to bees, other insect pollinators, as well as birds and aquatic organisms. Widespread spraying of Naled and other designated mosquito-control insecticides is not a long-term solution for controlling mosquito populations. Adulticiding fails to sufficiently control mosquito populations, promote pesticide resistance, and kill other species that act as natural predators to mosquitoes. The long-term implications of deploying Naled to control for mosquito-borne

illness, such as the Zika virus, must be fully assessed before being used.

Alternatives to Naled

The Centers for Disease Control and Prevention (CDC) has stated that spraying pesticides intended to kill adult mosquitoes is usually the least efficient mosquito control technique. Preventive approaches, such as removing mosquito breeding areas and using larvicides to kill mosquito larvae, are much more efficient in eliminating mosquito threats. Monitoring is an essential part of an effective mosquito management program, and should be done regularly throughout the season. Tracking larval and adult population numbers, species types, and breeding locations provides critical information used to determine when, where, and what control measures might be needed. Spraying should only be done after carefully evaluating the likelihood of pesticide-related illnesses and the contributing factors to a human epidemic of mosquito-borne diseases. Less-toxic alternatives that contain pyrethrins, a botanical insecticide for adult mosquito control, can be used once the decision to spray has been made. These products have similar toxicity to synthetic pyrethroids, but less residual action and often do not contain the toxic synergist piperonyl butoxide (PBO), which is an improvement over many of the synthetic pyrethroids.

A fully cited version of this article is online at <http://bit.ly/2ggSLQL>.

Growing Mosquito Resistance

Naled has been used for aerial spraying in several communities in Florida since the detection of the Zika virus in the area in the summer of 2016 as well as being used extensively across Florida in 2004 following an extreme hurricane season. One of the primary reasons that Naled has been used is due to documented resistance among mosquito populations to synthetic pyrethroids that would otherwise be used, as well as already documented resistance to malathion, another OP used in mosquito control. In Sri Lanka, where antimalarial activities depend largely on the use of malathion, a high level of resistance was detected among the *A. culicifacies* population. As with any other widely used insecticide, mosquito resistance to Naled is inevitable.

Pyrethroid pesticides, like permethrin, phenothrin, pyrethrin, and allethrin, are routinely used for mosquito control across the county. However, resistance to pyrethroids has been increasing at a dramatic rate, which further reduces the efficacy of insecticide-treatments to control mosquito-borne diseases. In particular, resistance to permethrin has been occurring in *Aedes aegypti* mosquitoes through knockdown resistance, or the reduction in effectiveness of insecticides due to mutations in genetic makeup of the insect. In the Caribbean, wild populations of *Ae. aegypti* showed high levels of resistance to deltamethrin and Naled. And in Puerto Rico, which has been battling Zika cases since early 2016, permethrin insecticides have been ineffective in mosquito control, leading to the CDC's endorsement of aerial spraying with Naled on July 6, 2016. However, despite the acknowledgment that Naled failed to stop a dengue fever outbreak in Puerto Rico in the late 1980s, CDC continues to advocate for Naled use.



A. aegypti feeding on a human. Photo by CDC/James Gathany.



Engaging with Organic Standard Setting

Protecting organic integrity to grow a sustainable future

Introduction

by Jay Feldman

As a part of Beyond Pesticides' program to ensure continuous improvement in organic standards, the organization plays an active role in commenting on synthetic materials allowed in organic production. This is a process that goes directly to issues of organic integrity –USDA's compliance with the Organic Foods Production Act (OFPA) and the full functioning of the National Organic Standards Board (NOSB) to ensure fairness in the review of allowed materials in organic production with full consideration of the latest science, all stakeholder views, and practices that can eliminate synthetic materials, to the extent possible. We seek strict adherence to the three basic criteria for review of materials in organic by (i) not allowing synthetic substances, based on a cradle-to-grave analysis, that have adverse effects on health and the environment, (ii) ensuring compatibility with the legally defined organic system, and (iii) requiring proven essentiality in the organic system, meaning the system is not inherently reliant on outside inputs. To the extent that these materials review are conducted in the spirit of the law, compliance establishes limitations on the scale of production, so that we are not trading core values of environmental and health protection for industrial systems that eliminate the very standards on which organic is built. Additionally, if the process works as intended, with greater public involvement, the review and standard setting process creates economic incentives for more natural materials to become available for use in organic production and processing at the commercial scale. The integrity of this process ultimately determines public trust in the organic label. And, trust in the label drives growth in the market. As organic grows and we take pesticides out of agricultural production, and synthetics out of food processing, while supporting agricultural practices that protect and enhance soil fertility by building organic matter and naturally cycling nutrients, we protect our air, land, and water and sequester atmospheric carbon. If we are successful in transitioning all our land management to organic systems nationwide and globally (not an unreasonable goal, given the state of environmental health) we will ensure a sustainable future.

Materials Review

by Terry Shistar, Ph.D.

Petitioning to allow soy wax –Continuous improvement and prohibiting GMO ingredients

Beyond Pesticides' petition to add soy wax to the National List of Allowed and Prohibited Substances, a part of our continuous improvement effort, became a major issue at the Spring 2016 NOSB meeting. Beyond Pesticides petitioned the NOSB to list non-genetically engineered (GE or GMO) soy wax on the National List, as an alternative to currently allowed petroleum-based wax, for use in growing mushrooms on logs. Organic mushroom growers who grow shiitakes and other saprophytic mushrooms on logs may use a petroleum-based wax to seal the plugs and log ends. The wax helps to prevent other fungi from colonizing the exposed surfaces. The petroleum-based wax does not readily biodegrade, and at least one inspector reported seeing piles of wax fragments long after the logs had decomposed. It is our hope that approval of soy wax for this use, an opportunity for continuous improvement by incentivizing soy as an alternative to

petroleum, will allow at least some mushroom growers to replace the petroleum-based wax with a natural biodegradable material. If enough soy wax meeting the criteria of OFPA is available, we plan to petition for the removal of the petroleum-based wax.

Upon investigation, we found that there is some ambiguity about "non-GMO" soy wax. The product we found was demonstrated to be "non-GMO" based on certification that it does not contain GMO soy protein. However, soy wax is hydrogenated soy oil (which is also found in margarine), and does not contain any protein. The decision tree used by the Organic Materials Research Institute (OMRI) to determine whether a substance is prohibited as a product of excluded methods (GMO is an excluded method) does appear to permit the use of products made from soy oil of GMO soybeans. So the Crops Subcommittee of the NOSB, with our concurrence, proposed an annotation "made from non-GMO soybeans." We also suggested an expiration date for the listing, to allow for easier delisting or annotation in the event that wax from organically produced soy (another opportunity for incentivizing) becomes available.

The discussion of the soy wax petition highlights issues around the prohibition of GMO inputs (termed “excluded methods”) in organic production. The National Organic Program (NOP) told the NOSB that if it truly wants to exclude soy wax made from GMO soybeans, then it should include that in the recommendation. The NOSB was reluctant to do so, however, because some members thought that such an annotation might suggest that excluded methods are not truly excluded in other materials on the National List. The disagreement and/or confusion was so great that the NOSB chair called an “emergency break” to discuss it.

It turns out that NOP was right. The OMRI decision tree does permit a number of crop inputs that are made from GMO crops, including soybean meal, cotton gin trash, or other materials applied to the soil. This includes oils derived from nonorganic or non-segregated source crops; substrate for a non-GE microbe or enzyme that may contain nonorganic commodity crops. So, if the NOSB wants to limit the use of soy wax to that made from non-GE soybeans, then it needs to specify that requirement. And the concern that other materials allowed in organic production might also come from GE crops is also valid.

Excluded methods.

Prohibiting genetically engineered ingredients.

Other crop inputs that could be derived from GE crops include corn gluten meal, corn steep liquor, cottonseed meal, alfalfa meal and pellets, compost, compost tea, cotton gin trash, molasses, soybean meal, sugar, and oils from canola, corn, cottonseed, or

from animals that may have been fed GE crops (and may thus contain GE crop residues). Other materials review organizations or organic certifiers may have different criteria, but OMRI’s materials decisions are widely used by organic producers and certifiers.

In contrast to the OMRI decision tree, a proposal published by the NOSB Materials Subcommittee for consideration at the spring 2016 NOSB meeting takes a stronger stance. It says, “This term [genetically modified organism] will also apply to products and derivatives from genetically engineered sources.” The Materials Subcommittee cited the “NOSB Principles of Organic Production and Handling” in the Policy and Procedures Manual, which state,

Genetic engineering (recombinant and technology) is a synthetic process designed to control nature at the molecular level, with the potential for unforeseen consequences. As such, it is not compatible with the principles of organic agriculture (either production or handling). Genetically engineered/modified organisms (ge/gmo’s) and products produced by or through the use of genetic engineering are prohibited.

NOSB work on GE policy will be ongoing as long as the biotechnology industry continues to develop new technologies and products. However, the issue of soy wax has pointed out a need to clarify the application of the prohibition against genetically engineered organisms. The NOSB must complete work on (at least) the preliminary policy statements –those contained in the Excluded Methods Terminology Proposal– in order to clarify what is allowed and what is prohibited for organic farmers, certifiers, and input producers.

We support a statement such as the spring 2016 proposal, “This term [genetically modified organism] will also apply to products and derivatives from genetically engineered sources.” This is a process-based criterion and is thus more consistent with organic standards than the OMRI decision tree.

Eliminating chlorine-based materials.

Sanitizers need to be considered in context.

The NOSB voted to add another chlorine-based disinfectant –hypochlorous acid– for use in crops, handling, and livestock and postponed the vote on sodium dodecylbenzene sulfonate as an active ingredient in antimicrobial products containing lactic acid. The NOSB is also conducting a sunset review of ozone and peracetic acid as disinfectants used in crop production. Beyond Pesticides believes that the NOSB should review all the sanitizers and disinfectants together.

We proposed that the NOSB subcommittees should commission a technical review that (1) determines what disinfectant/sanitizer uses are required by law, and (2) comprehensively examines more organically-compatible methods and materials to determine whether chlorine-based materials are actually needed for any uses. In doing so, the



A great blue heron flies over a flooded soybean field in northwestern Ohio.

soy. In the case of some of these materials, OMRI applies decision trees to assess whether it is “considered a GMO or product of a GMO.” OMRI does not judge all materials made from GE crops to be “a GMO or product of a GMO.” Some other materials that are not considered by OMRI to be excluded as GE are manure

Beyond Pesticides is a plaintiff in a lawsuit along with other groups of consumers, farmers, certifiers, and environmentalists) that challenges USDA's reversal of the sunset process, which has historically required the NOSB to vote, by a 2/3's decisive margin, to re-list a material that has sunsetted after five years, based on a rigorous review in accordance with OFPA criteria. The court rejected a motion to dismiss filed by USDA, arguing that it had the authority to, without public notice and comment, reverse sunset to allow a material to stay, by default, on the National List unless the NOSB, with a decisive 2/3's vote, recommends to remove the material from the list. The case goes to trial within the year.

technical review authors should consult with EPA's Safer Choice Program and investigate materials on the Safer Chemical Ingredients List. If there are uses for which chlorine is necessary, then the NOSB should include them in the National List and limit the use to those particular uses with an annotation.

The sunset review of ozone and peracetic acid as disinfectants used in crop production.

The provisions allowing synthetic nutrient vitamins and minerals need to be corrected.

In 1995, the NOSB made a recommendation stating, "Upon implementation of the National Organic Program (NOP), the use of synthetic vitamins, minerals, and/or accessory nutrients in products labeled as organic must be limited to that which is required by regulation or recommended for enrichment and fortification by independent professional associations." The current listing does not comply with the NOSB recommendation, and the Handling Subcommittee produced a discussion document offering some options for changing it.

Beyond Pesticides supports a modification of the Handling Subcommittee's first option –although nonsynthetic vitamins and minerals required by law should be allowed in organic food, any other supplementation of food and all supplementation of infant formula should be allowed only in products labeled "made with organic." The reasoning for food is straightforward. Organic consumers expect that their food contains a full complement of vitamins and minerals based on organic agricultural production practices, not supplementation.

On the other hand, infant formula is known to be an imitation product. Making formulas for infant feeding has required attempts to make cow's milk more like breast milk and adding nutrients that are not optimal or sufficient. So it is a very complex problem and difficult to reconcile with organic principles. Thus, the top-of-the-line infant formula would be labeled "made with organic" rather than "organic."

Carrageenan review.

One very controversial material is carrageenan. Beyond Pesticides opposes the relisting of carrageenan because it may have adverse effects on the health of consumers, its production results in adverse ecological impacts, there are alternatives to its use, and its use is inconsistent with a system of organic and sustainable production. Independent scientists have presented evidence to the NOSB demonstrating inflammatory impacts of carrageenan. Due to consumer concerns about the use of carrageenan in organic products, it has been removed from many,

and every product containing carrageenan is available without it – demonstrating the lack of essentiality.

Policy and Procedures Manual and the Importance of the NOSB

When the organic law was passed and placed under the authority of USDA, hostile to organic as a viable commercial sector, it was the statutory power of the NOSB that garnered organic community support for the federal law. The first USDA organic rule, which set aside the recommendations of the NOSB, exemplified the organic divide. However, a public outpouring of support for the core values expressed in the law, along with the NOSB's specific and unique authorities representing the organic community –which includes growers, processors, and sellers of organic merchandise as well as consumers and environmentalists– resulted in a course correction. There are continuing disagreements with USDA on organic standards, decision making process, and co-existence with GMO contamination. However, the NOSB serves as the gatekeeper of the National List to ensure that USDA does not water down the organic label by allowing the use of substances that do not meet the rigorous criteria in OFPA.

The NOSB has struggled to distinguish itself from other boards established under Federal Advisory Committee Act by pointing to its statutorily defined mission and attempting to maintain control over its agenda. In doing so, it created a document that serves as bylaws for the NOSB, the Policy and Procedures Manual (PPM).

The Policy Development Subcommittee, with heavy involvement of NOP, produced extensive revisions to the PPM, which were approved at the spring meeting. Beyond Pesticides opposed many changes that weakened the authority of the NOSB. In addition, we objected to a process that created wholesale revisions without explanation or justification. With the successful litigation on reversing USDA's allowance of contaminated compost and the organic community's challenge to the reinterpreted sunset provision, organic is due for another course correction.

Conclusion

Members of the public can engage with the organic standard setting process on many levels. All organic consumers must get involved at some level to ensure that production practices and materials restrictions are strong. It must be clear that the expectations of organic consumers are met within the context of sound and responsible, organic, agricultural production practices, and that the organic label, as a result, is trusted. Watch the *Keeping Organic Strong* page on Beyond Pesticides' website and see how you can stay involved: <http://bit.ly/KeepingOrganicStrong>.

Farmers Rally to Stop USDA from Certifying Organic Hydroponics



The marchers led by Enid Wonnacott, Executive Director of NOFA VT and organic farmer Kate Duesterberg of Cedar Circle Farm. Photo courtesy: David Chapman

Organic without Soil Is Like Democracy without People

Introduction

Organic farmers from New England rallied in East Thetford, VT on October 30 to protest the eroding of organic standards by the U.S. Department of Agriculture (USDA), focused, in particular, on USDA's decision to permit organic labeling of hydroponic fruits and vegetables. Farmers descended on the National Organic Standards Board (NOSB) in the Fall of 2015 to challenge the allowance of hydroponics in organic. Since that time, the USDA-convened Hydroponic and Aquaponic Task Force (HTF) has issued a report, which may have elevated the confusion on an issue that the NOSB addressed in 2010 when it upheld the requirement that organic certified production must be soil-based.

The reports of the Task Force—two subcommittees of the Task Force wrote separate reports that were published under one cover—provide good evidence that hydroponics is not, and cannot be, organic. The subcommittees—the 2010 NOSB Recommendation Subcommittee (2010 SC) and the Hydroponic and Aquaponic Subcommittee (HASC)—have very different viewpoints. The former represents the view that organic production must be in the soil, and the second promotes certification of “organic” hydroponics. The confusion is heightened by a table in the document with columns labelled “NOSB 2010 Recommendation Summary” and “Task Force Analysis.” The format delivers an extremely misleading impression that the whole HTF supports the certification of “bioponics” as organic.

Without any confusion of message, farmers are saying no to hydroponic crops displaying the organic label. U.S. Senator Patrick Leahy, the prime sponsor of the federal organic law, joined the rally to say, “I know the fight we had to go through to get the original organic regulations passed,” he said. “The *Organic Food Production Act* [OFPA] is one of my proudest pieces of legislation. Every so often someone will try to undercut it. We know what grown in the soil means, and we know what hydroponic means. I want ‘organic’ to mean organic!” OFPA is clear that required systems plans are focused on the soil, stating (7 USC 6513, Organic Plan), “An organic plan shall contain provisions designed to foster soil fertility, primarily through the management of organic content of the soil through proper tillage, crop rotation, and manuring.”

The U.S. government is alone among developed countries in granting the much-desired “organic” label to hydroponic growing. Hydroponic production is a soil-less process that has long been the norm in conventional greenhouse production. Now it is fast becoming the norm in organic certification for several major crops, such as tomatoes and berries. Hydro plants are fed via fertilized irrigation water. This process has long been embraced by conventional greenhouse producers for its simplicity, high yields, and low costs. Experts say the explosive growth in hydroponic imports may force some organic farmers out of business in as little as five years.

A Vermont organic tomato farmer who served on the USDA Hydroponic Task Force, Dave Chapman, told the rally that the hydroponic incursion has become an “invasion,” as hydroponic producers worldwide discover that they can now gain access to America’s coveted organic market. Peppers from Dutch greenhouses that could never be certified as organic in Holland become “organic” when they cross the border. Hydroponic lettuce and tomatoes from Mexico and Canada are now pouring into the U.S. Driscoll’s, the world’s largest berry grower, now has over 1,000 acres of hydroponic berry production.

“The federal standards are being taken over by the hydroponics industry,” said Mr. Chapman, who noted that Driscoll’s is one of the

most powerful voices on the NOSB and in USDA’s National Organic Program. He continued: “Unless we can fight back, ‘organic’ will soon become meaningless. This hydroponic invasion has been almost invisible to the farmers and eaters of America, as no hydroponic food is labeled as such. The more that I learned serving on the USDA Task Force, the worse it got. Who knew that over 1,000 acres of Driscoll’s “organic” berries were actually hydroponic? None of us knew.”

The NOSB should take this matter up and reaffirm its 2010 decision to keep the soil in organic. **Let the Secretary of Agriculture know how you feel about the foundational importance of soil and soil biology in organic production: <http://bit.ly/soilisorganic>.**

Letter sent to the NOSB on October 26, 2016.

Dear NOSB Members,

Reading the testimony submitted to the NOSB on the debate around organic certification, we saw a comment that contained inaccurate statements that should be corrected. On August 3, Peter Jens submitted testimony on behalf of PuraNatura Foundation, a European pressure group lobbying in favor of the hydroponics industry. His letter included some misleading information. We feel it is necessary to submit this comment to shed some light on PuraNatura’s statement and give you an accurate picture of what is being discussed in the European Union (EU) on organic production.

According to the contribution by PuraNatura Foundation, the description of the organization’s growing techniques as using hydroponics in the Hydroponic and Aquaponic Task Force Report is wrong. Specifically, PuraNatura Foundation states that *“the text describes us as using hydroponics which is blatantly wrong,” emphasizing their growers’ use of “containers with a healthy mix from soil, compost, coco coir and peat.”* In addition, PuraNatura Foundation claims there is *“widespread use of out-of-soil growing practices throughout Europe.”* Both statements represent misinformation and need to be clarified.

Misinformation 1 –PuraNatura Foundation’s growing techniques are not hydroponic:

Growing on substrates such as coco coir is typical of modern conventional hydroponic practices, and coco fiber marketed towards commercial greenhouse producers is sold as a “hydroponic” substrate. The USDA Hydroponic Task Force subcommittee seeking to clarify the 2010 NOSB recommendation clearly accepted that the term “hydroponic” included growing on plant fibre substrates, and was not limited to mineral substrates such as rockwool. It is misleading to describe the cultivation in such growing media as comparable to natural living soil or non-hydroponic systems, in which the fertility is primarily derived from the natural release of nutrients through the gradual decay of organic matter and the myriad interactions with the soil ecosystem.



Pete Johnson of Pete’s Greens leads the tractors. Photo courtesy: David Chapman

The cultivation of plants in growing media, such as coconut husks and peat moss (plant fibre) substrates, does not allow plant roots to come into contact with the ground (soil and subsoil), and neither do these substrates represent living soil. When growing in such substrates, the nutrients are transported to the plants via a fertilizer solution in the irrigation, rather than coming from the substrate itself. The small volumes of substrate used in such systems would never be able to support crop growth without the use of liquid fertilizers from external sources as the primary source of fertility.

There are numerous examples of Dutch greenhouse growers producing crops on such substrates and marketing their hydroponically grown products as organic in the U.S., while these same crops are not permitted to be called organic in Europe. These same greenhouse growers are marketing the same products as hydroponic in Europe. Some of these greenhouse operators are affiliated with the PuraNatura Foundation.

Misinformation 2 –There is a widespread use of out-of-soil growing practices throughout Europe:

This is simply untrue. In the EU, Regulation 834/2007/EC sets the legal framework for organic production and includes a clear reference to soil-bound in organic production. Reg. 889/2008/

EC, which implements Reg. 834/2007/EC, goes even further as it was adopted to harmonize organic production practices among Member States and to introduce a ban on hydroponic techniques.

For most EU countries, growing in soil is interpreted as requiring that the cultivation of fruit and vegetables happens in the upper layer of the earth's crust, which is to say, in the ground. This approach is very much in line with the original definition of organic production, which considers that all organic growing should happen in the ground and should be soil-bound. In this way, these countries support a consistent communication to European consumers on the production methods of plants. They follow the core principle of organic agriculture, which is that the soil feeds the plant, the plant feeds the animal, and the animal feeds the soil.

However, a very few EU countries (representing only around 4% of the EU population) started to tolerate certain types of out-of-soil (container) techniques in organic production, which has created a lack of harmonization in organic practices in Europe.

This confusion paved the way for the European Commission to submit in 2014 a legislative proposal reviewing Reg. 834/2007/EC, for which negotiations between EU institutions (Parliament and Council) are expected to conclude in December 2016.

The current trends of discussions in the European Union support a clear position in favor of soil-bound organic production for ALL EU countries, and of a ban of all hydroponics in organic production.

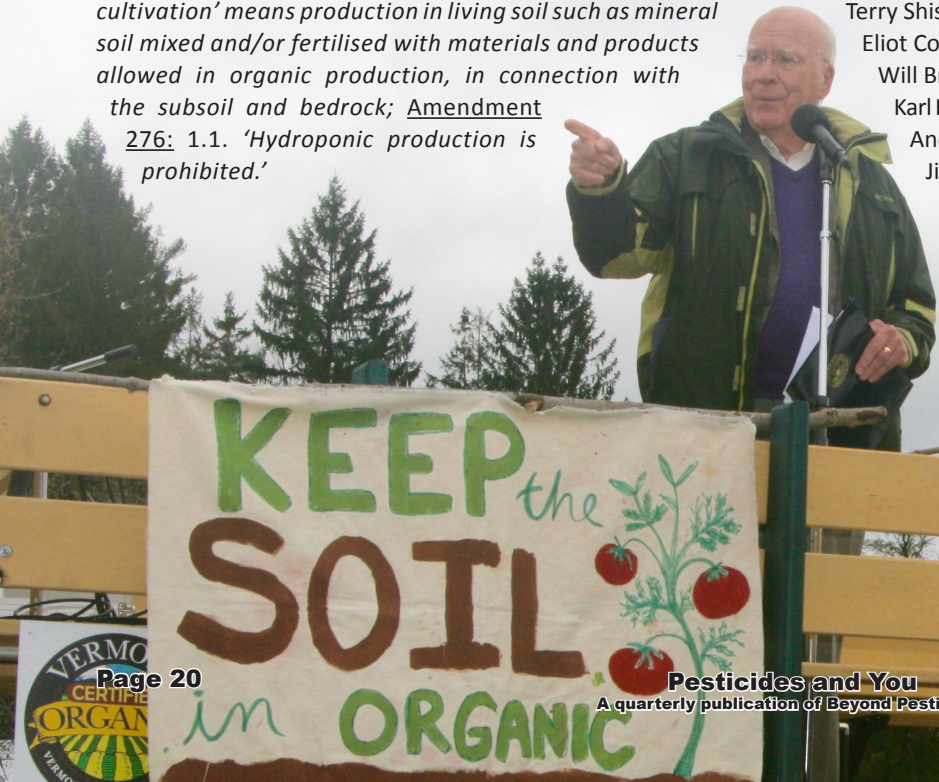
In mid-October 2015, the European Parliament Committee on Agriculture and Rural Development (COMAGRI) expressed its position for a stricter and clearer definition of soil-bound production and confirmed the prohibition of hydroponics in European organic agriculture, voting in favor of the following amendments: Amendment 102: (43e) 'soil-bound crop cultivation' means production in living soil such as mineral soil mixed and/or fertilised with materials and products allowed in organic production, in connection with the subsoil and bedrock; Amendment 276: 1.1. 'Hydroponic production is prohibited.'

Decision makers in the EU are standing with the positions of IFOAM-Organics International EU, the association that represents the interest of the organic sector in Europe. In IFOAM EU's position paper (2013) it is stated that "the main principle of organic greenhouse production: greenhouse production must be in living soil (mineral soil mixed and/or fertilised with materials and products included in Annex I of regulation (EC) No 889/2008) in connection with the sub-soil and bedrock."

As NOSB members, you have the chance to pave the way for clear standards in organic production. Your decisions will either create international alignment or will further cause international fragmentation. We urge you to pay attention to the arguments you will be confronted with and fight to keep our soil in organic, and organic in the soil!

Signed by:

- Dave Chapman, Long Wind Farm
- Jeff Moyer, Former Chair NOSB, Executive Director, Rodale Institute
- Eric Sideman, Ph.D., Former NOSB, Hydroponic Task Force
- Jay Feldman, Former NOSB, Executive Director Beyond Pesticides
- Joan Gussow, Ph.D., Former NOSB
- Goldie Caughlan, Former NOSB, board member of Cornucopia Institute Beyond Pesticides
- The Biodynamic Association
- Northeast Organic Farming Association (NOFA) NY
- Adrianna Natsoulas, Executive Director, NOFA NY
- Liana Hoodes, Former director, National Organic Coalition
- Tom Beddard, Lady Moon Farms
- Will Raap, Founder, Gardeners Supply
- Alan Schofield, President, Organic Growers Alliance
- Stuart Hill, Ph.D., Retired professor of soil zoology McGill University
- Davey Miskell, Miskell's Premium Organics
- Fredrich Jobin-Lawler, Abri Vegetal Farm
- William Liebhard, Ph.D., Emeritus prof UC Davis, Former chief scientist Rodale Institute
- Thea Maria Carlson, Co-Director, The Biodynamic Assoc
- Barth Hall, P. Ag, Prairie Star Farm
- Anais Beddard, Lady Moon Farms
- Terry Shistar, Ph.D., Board member Beyond Pesticides
- Eliot Coleman, Four Seasons Farm
- Will Brinton, Ph.D., President, Woods End Laboratories
- Karl Hammer, Farmer, President, Vermont Compost Company
- Andrea Hazzard, Hazzard Free Farm Grains and Beans
- Jim and Megan Gerritsen, Wood Prairie Family Farm



U.S. Senator Patrick Leahy (D-VT) speaks at the rally. Photo courtesy: David Chapman

It's All About the Birds and the Bees

Local Washington, D.C. public schools team up with Beyond Pesticides to learn about pollinators.

**by Annie D'Amato and
Nichelle Harriott**

This past June, students in two first grade classrooms at local District of Columbia Public Schools (DCPS) learned about the importance of pollinators firsthand when staff members from Beyond Pesticides visited their school. The first step in launching a widely available pollinator curriculum, Beyond Pesticides teamed up The Bees Waggle, to provide a fun, hands-on lesson about pollinators and their importance to our food system. Students learned about biodiversity, soil health, and the negative effects of pesticides on pollinators before creating and installing pollinator homes for their school gardens.

Day of Learning

The day of learning kicked off at Brightwood Education Campus, located in Northwest D.C., where students engaged in a lesson developed by Beyond Pesticides and Bees Waggle founder Jessica Goldstrohm. After learning about the role of pollinators in our food system, the children participated in several hands on activities that emphasized the key points within the curriculum. The activities included a demonstration of the interconnectedness of all living organisms with a biodiversity web simulation. Here, the scholars learned that if one organism in a food system starts to take more than its fair share of resources, the rest of the web finds itself out of balance. At the end of the lesson, the first graders each crafted their own small "bee hotel" to take home before heading outside to plant a butterfly house in their school garden. The butterfly house will serve as nesting habitat for migrating butterflies, including the Monarch butterfly, which have experienced rapid population declines over recent years.



Top photo: Students from J.O. Wilson elementary school in D.C. in front of their new bee hotel; Bottom photo: Jessica Goldstrohm of The Bees Waggle with students from Brightwood Education Campus in D.C.

What's the Buzz?

"My favorite part of today was when we built the bee house." -Antonio, age 7

"Today what I learned today about bees is that they carry pollen and that there are many different types of bees." -Dynasty Small



"We were so happy that Beyond Pesticides came today to J.O. Wilson and gave the kids a hands on opportunity to work within a science curriculum. They were able to understand that bees aren't harmful creatures, they're just misunderstood and they had an experience to go out in nature in the garden and actually create something and see something from the beginning to the end. All of the kids really enjoyed it, it was an excellent hands on learning experience, so thank you!" - Kate Maitland, 1st Grade Teacher J.O. Wilson Elementary

"I came out to Washington, D.C. to visit two elementary schools today. We sat in with first graders at two separate schools and taught them all about pollinators and how important they are... We tried to do this in a way that would encourage them not to be so scared of bees and to appreciate pollinators, so that pollinators become important to all of us, because they provide our food. Kids get really jazzed about it, they love learning about this stuff and they love going around telling everyone about it, so it's a really neat program. I encourage all of you to take advantage of this and do it in your own classrooms, you won't regret it at all, it's fantastic!" - Jessica Goldstrohm, The Bees Waggle

The educational team then moved to Northeast D.C., where they visited first grade scholars at J.O. Wilson Elementary School. Here the children received a similar lesson and participated in hands-on activities, applying the information they learned to solve puzzles about food systems, which involved working as a team to place several pictures of pollinators and food in the order that represents the food cycle from start to finish. For example, students assembled in order one puzzle with a bee that led to the pollination of the clover plant and production of clover seeds, followed by the clover growing to be fed to a cow, who eventually provided milk for humans to drink. The goal of the lesson was to encourage the children to use their critical thinking skills to figure out the role of pollinators in providing food, and use that knowledge to draw connections between pollinators and themselves.

Building a Bee Hotel

The visit to J.O. Wilson culminated with the building of a large bee hotel for the school garden. Bee hotels provide natural habitat for native bees, such as the leafcutter and mason bee. These bees are known as “solitary bees” because they make individual nest cells for their larvae, as opposed to living in colonies like honey bees. They typically nest in small holes or tunnels, and Beyond Pesticides sponsored the creation of a hotel, which the students completed by inserting pre-drilled wood logs. These tunneled logs serve as nesting sites for bees. Working together, the first-graders created a welcoming habitat for native pollinators. The hotel found a permanent home in the school’s fruit and vegetable garden, where it will help facilitate the pollination of those plants for years to come.

Educating local school children is just one of the many ways Beyond Pesticides works to protect pollinators. By teaching children about the importance of bees and other pollinators early in life, we instill the idea that bees are helpful organisms in the larger food system, as opposed



Students at Brightwood Education Campus in D.C. construct their bee hotels.

to ‘scary’ insects. Beyond Pesticides believes this knowledge will remain with the children as they grow older, creating a new generation of adults who fully understand the importance of biodiversity and the negative impacts pesticides have on an ecosystem.

Reducing fear and increasing awareness about pollinators are both positive outcomes of the time Beyond Pesticides’ educational team spent in each of these classrooms. The organizations’ goal for this upcoming school year is to multiply those lessons exponentially by making the lesson publicly available on our website. Teachers across the country will be able to download and implement the curriculum in their classroom, engaging students with hands on activities and thoughtful discussions about the importance of pollinator in our world.

To check out and download Beyond Pesticides’ Pollinator Curriculum, please visit <http://bit.ly/PollinatorCurriculum>. You may also find additional lessons available through Ms. Goldstrohm on her website www.thebeeswaggle.com.

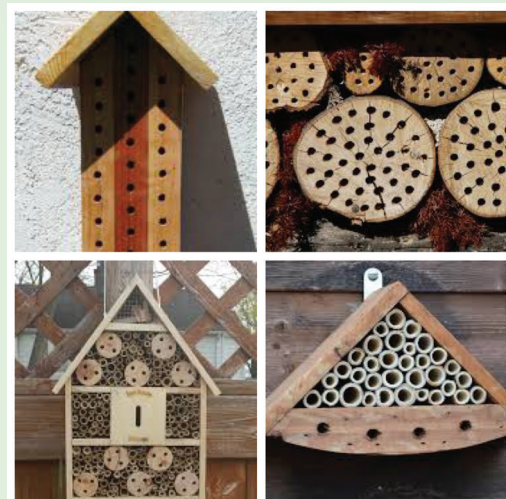
Build Your Own Bee House

Bee Houses are a great way to increase pollinator habitat in your own yard or garden, as they provide shelter and nesting areas for native bee populations. They can take a variety of different shapes and forms, ranging from elaborate house structures to a simple block or log.

Materials: Untreated or natural wood

Construction:

1. Drill holes in the block, spaced 3/4” apart. For leafcutter bees, the holes should be 1/4” wide and 2 1/2 -4” deep. For mason bees, drill 6” deep, 5/16” wide holes. Do not drill completely through the block.
2. Place block on the side of a house or shed, beneath the eave, or mount it securely on a fence post or pole at the edge of the yard. Attach an overhanging roof piece to the block, if placed away from an overhang or building eave.
3. Block should be erected in early spring and placed at least three feet above the ground. Position block to face southeast, allowing it to get morning sun. Hang your bee house under the eaves of your house or garden shed, protected from direct sun and rain.



Bee house photos. Courtesy of (Clockwise Top left): born1945, Hans, PollyDot, and anneheathen.

For more information and to see Beyond Pesticides’ Pro Tips for making your structure a bee-friendly success, visit bit.ly/BuildaBeeHouse. Be sure to send Beyond Pesticides a picture of your house for a chance to win one of our Bee Protective Starter Kits.

Mapping the Movement to Sustainable Communities

Documenting local policies that restrict pesticide use

A new resource for communities, released by Beyond Pesticides and Organic Consumers Association (OCA), maps local pesticide policies that protect people, pollinators, and the wider environment. The *Map of Local Pesticide Reform Policies* currently spotlights over 115 communities in 21 states that have taken local action to protect their communities from the adverse effects of pesticides in the face of daily toxic chemical use –with a range tactics, from eliminating highly toxic chemicals to the adoption of organic practices. This continuously updated resource documents the wave of change occurring nationwide, as local and state policy makers advance protection of people and the environment that are not provided by federal policy. **View the map online at bit.ly/pesticidepolymap.**

Currently, the map includes 18 communities with a pesticide-free parks program, 27 with restrictions to protect pollinators, 65 communities with policies that restrict pesticide use on all publicly owned property, and 23 that extend restrictions to private land. (Only seven states do not preempt [prohibit] local jurisdictions from restricting pesticide use on private land.)

“The *Map of Local Pesticide Reform Policies* reveals a strong desire by local governments to adopt laws that restrict the use of highly toxic pesticides linked to a range of adverse effects and environmental outcomes in favor of nontoxic practices,” said Drew Toher, public education associate at Beyond Pesticides.

“The Map is certain to be a most valuable tool in the pesticide-free activist’s tool chest! This innovative interactive map is not only a user-friendly resource for politicians and policy makers, but is also a great resource for engaging

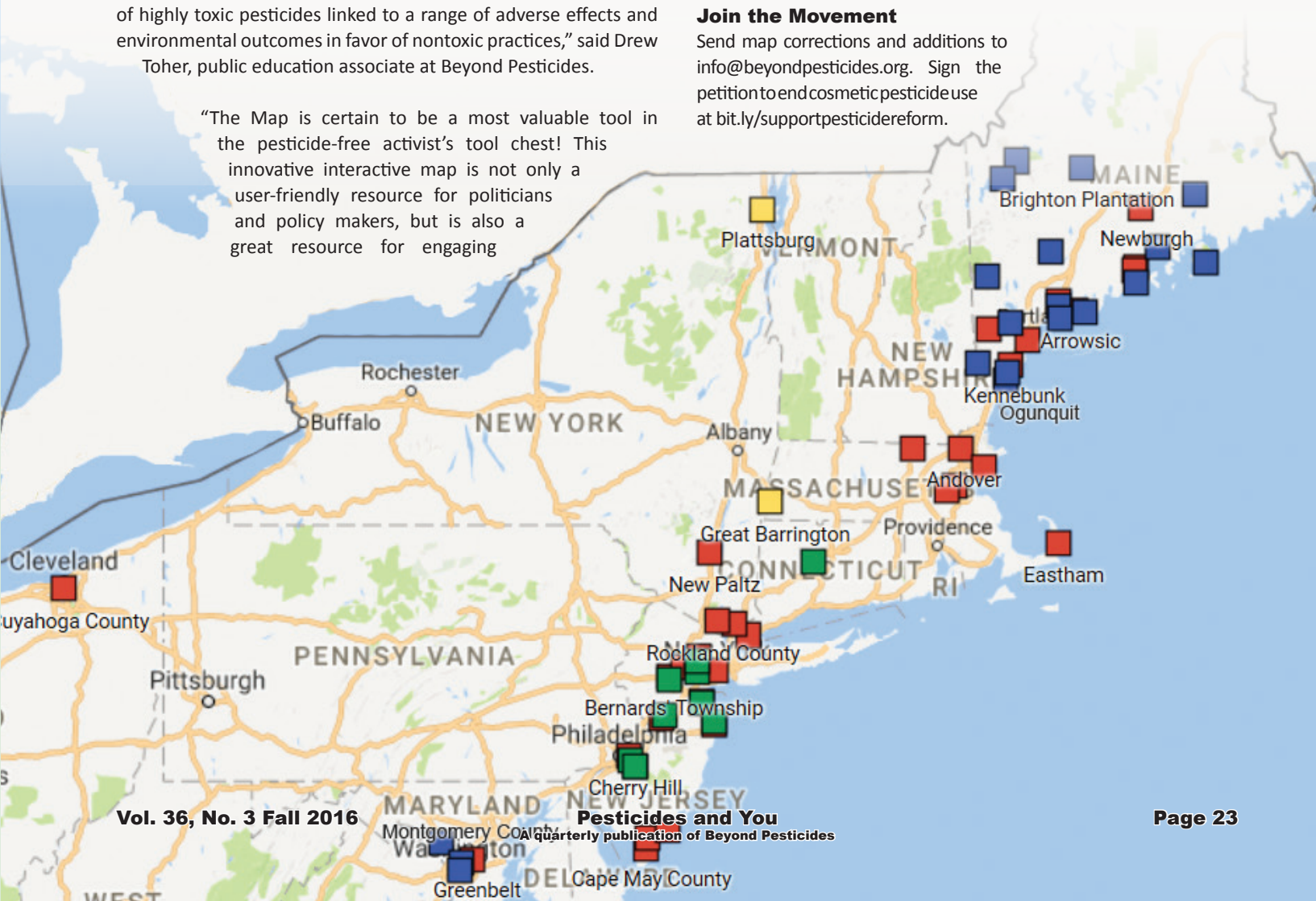
concerned citizens in the fight against pesticides in their community!,” said Pat Kerrigan, OCA’s retail education coordinator.

Of the 30 most commonly used pesticides, 16 are possible and/or known carcinogens, 17 have the potential to disrupt the endocrine (hormonal) system, 21 are linked to reproductive effects and sexual dysfunction, 12 have been linked to birth defects, 14 are neurotoxic, 25 can cause kidney or liver damage, and 26 are sensitizers and/or irritants. Children are especially sensitive to pesticide exposure, as they take in more pesticides relative to their body weight than adults, and have developing organ systems that are more vulnerable and less able to detoxify toxic chemicals. Pollinator populations are experiencing catastrophic declines linked to the use of a class of systemic pesticides called neonicotinoids, which are taken up by plants and expressed in their pollen, nectar, and dew droplets.

Meaningful change often starts at the local level, when concerned residents and grassroots organizations join together with elected officials and policy makers to protect health and the environment. The *Map* provides the public and local leaders with the names and location of the localities that have passed policies, the type of policy passed, a short description of the scope of the policy, and a link to view its text.

Join the Movement

Send map corrections and additions to info@beyondpesticides.org. Sign the petition to end cosmetic pesticide use at bit.ly/supportpesticidereform.



10% Human How Your Body's Microbes Hold the Key to Health and Happiness

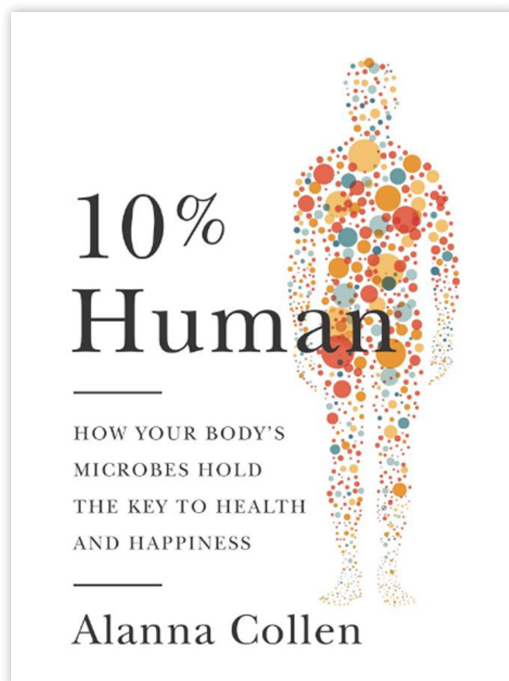
10% Human, Alanna Collen, 2015, 336pp.

Our survival requires a radical change of worldview. Each of us contains more cells in and on our body that belong to microbes – and contain microbial DNA – than those that originate from our own genes. In fact, only 10% of our cells are genetically human, and only 1% of the DNA in our bodies is “human.” The 90% of our cells that are microbial in origin are not (mostly) pathogenic, nor are they (mostly) just along for the ride. They are (mostly) symbionts that help our bodies function as they should. Our bodies, rather than being distinct organisms, should be thought of as biological communities or “superorganisms.” We are truly the product of coevolution.

10% Human describes many ways that our view of our microbiota, as at best inconsequential and at worst dangerous, hurts us. Most of us are now aware that when we take a course of antibiotics, we are disturbing the microbes in our gut that help us digest food. However, disturbing our microbiota has greater consequences than a bout of diarrhea. (“Microbiota” refers to the microorganisms that live in/on us; “microbiome” refers to the genome of those organisms.) Disturbing the microbiota can contribute to a whole host of “21st century diseases,” including diabetes, obesity, food allergies, heart disease, antibiotic-resistant infections, cancer, asthma, autism, irritable bowel syndrome, multiple sclerosis, rheumatoid arthritis, celiac disease, inflammatory bowel disease, and more.

Not all disturbance in the microbiota comes from the conscious use of antibiotics. Researchers Stephanie Seneff and Anthony Samsel have recently documented that the rise in these same diseases is tightly correlated with the use of the herbicide glyphosate (Roundup™). They have also shown that glyphosate exposure can result in the inflammation that is at the root of these diseases. In the context of this book, the glyphosate results are not surprising, since glyphosate has been patented as an antibiotic.

The pervasiveness of triclosan in consumer products has led to wide-



spread environmental contamination of waterways, where it disrupts aquatic ecosystems. And its residues can be found in human bodies, where it has been linked to allergies, opportunistic infections, and hormone disruption, as well as disrupting the natural microbiota of the skin.

As the author says, “We are accompanied from the very first breath of life to the very last by our colony of microbes. As our bodies grow and change, our microbiomes adapt, providing us with an extension to our own genomes that can adjust within hours to better suit our needs, and their own.” Recognizing our dependence on the health of our microbiome leads to the understanding that we humans are a piece of a larger whole, both individually and collectively.

We must take a cooperative approach to living with other organisms. *The Soil Will Save Us* (reviewed in the Spring 2016 issue of *Pesticides and You*) made this point for soil organisms. *10% Human* makes it for the microorganisms that live in and on our bodies. In the context of materials used in organic production and handling, we have also made this point. *10% Human* says, “We are, as a society, obsessed with *hygiene*, and through its impact on the beneficial microbes that we harbour, we are coming to harm.” In the context of organic production, we have pointed out that rather than assuming a benefit for all uses of sanitizers and disinfectants, the National Organic Standards Board must evaluate the use of these chemicals recognizing that it is a healthy balance of microorganisms, not the absence of microbial life, that promotes safety in food handling.

From the practical viewpoint, I recommend *10% Human* to those suffering from allergies, autism, *Clostridium difficile* infections, and other 21st century illnesses, to parents (or parents-to-be) contemplating childbirth and infant feeding options, and to all who want to understand the place of humans in the web of life. The book makes untenable the view of humans standing alone at the pinnacle of evolution, requiring a shift in worldview to come to a cooperative relationship with microorganisms.

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Fall 2016 ■ Vol. 36 No. 3



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