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#### NATIONAL HEADQUARTERS

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

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Jay Feldman, Executive Director

Drew Toher, Community Resource and Policy Director

Sarah Bluher, Science and Regulatory Manager

**Barbara Dale**, Marketing and Public Education Manager

**Garret White**, Events Coordinator and Information Assistant

Terry Shistar, PhD, Science Consultant

Debra Simes, Editorial and Digital Support

**Gina Navarro**, IPM in Health Care Facilities Project Director

Autumn Ness, Hawai'i Organic Land Management Project Director

**Duane Sparkman**, Hawai'i Organic Land Management Project, Technical Consultant

**Max Etheart**, Community Network and Office Support

#### PESTICIDES AND YOU

Jay Feldman, Publisher, Editor

David Gerratt, NonprofitDesign.com, Design

Terry Shistar, PhD, Drew Toher, Debra Simes, Garret White, Contributors

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## MAIL



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### **Professional Assistance Required?**

I'm having a pest problem in my home and am looking for a professional that can help me address the issue. We have a new baby and just bought the house, so we don't want any toxic pesticides to contaminate our living space. Any recommendations?

Cameron, Arizona

#### Hi Cameron,

We certainly understand your concerns. For common pest problems that are not an all-out infestation, we suggest you first check out Beyond Pesticides' ManageSafe webpage [bp-dc.org/managesafe], where you will find least-toxic management practices to address most household pests without the use of toxic pesticides. Not only can these guides be helpful for managing current pest problems, they provide help to establish pest prevention measures that eliminate the possibility you will need to call a pest management professional in the future.

If the pest problem does rise to the level of needing professional assistance, a good place to check first is our Safety Source for Pest Management [bp-dc.org/safetysource], which provides a resource of companies that have filled out our survey on pest management practices. Not all pest providers that have completed our survey utilize all organic management practices, so we encourage you to review the survey responses we post to our website—so you have a good understanding of a particular service provider.

If we do not have a listing in your state or near your residence, you may still be able to find companies that can provide least-toxic pest management services in your area. We urge you to do an internet search to find providers, and quiz them on their management practices with the questions that we ask in Safety Source. After you explain your issue, request the list of pesticide products they may use for your problem. You can consult Beyond Pesticides' Pesticide Gateway [bp-dc.org/gateway] or contact us if you need help understanding whether the active ingredient in a particular product is acceptable to use around you and your family. Many chemical-focused companies will try to downplay the risks of any synthetic chemical or convince you they are safe; but, if that is how they are trying to get your business, we suggest that you try another provider. Be firm and persistent and we are confident you will find a service provider willing to meet your needs.

### **Golf Can Go Organic**

I'm getting tired of the constant spraying going on in my community. We're surrounded by golf courses. I thought that would be great and convenient, but I didn't know they would be using so many chemicals. Are there organic golf courses out there that don't spray these toxic pesticides? I think I will need examples to take to them if I'll have any chance of changing their minds.

### Linda, Minnesota

#### Hi Linda,

We are sorry to hear about the spraying occurring in your community. The development of housing associations around golf courses presents pesticide risks that many residents may not have expected when first deciding to move into an area.

Going organic on a golf course is a challenging undertaking, but it can be done, and there are several examples in different climates throughout the U.S. The Vineyard Golf Course in Martha's Vineyard, MA is a great example of this in action—particularly because the course has been successfully using organic methods for over a decade. And reports from superintendents indicate that increased cost is not a significant issue. In a 2008 Golf Digest report, it was reported that the "Vineyard budget is in the mid-range for New England private courses, spending a little more on labor costs."

There is also the Applewood Golf Couse in Golden, Colorado. The course, established by the Adolph Coors Brewery in 1961, transitioned to organic as far back as 1981 as part of efforts to ensure the water source for Coors beers was not contaminated.

Another example is the Big Trees Golf Course located outside Yosemite National Park. A nine hole course, it boasts

### SHARE WITH US!

Beyond Pesticides welcomes your questions, comments, and 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 send questions and comments to: 701 E Street SE, Washington, DC 20003. on its website, "The golf course is one of the few organic golf courses in the United States. No pesticides are applied to the course and only reclaimed gray water is used for watering the greens."

Providing these examples to your local golf course superintendent should help ease concerns over a potential transition. However, you will also need to garner support from members of the course and other residents in the surrounding community. Beyond Pesticides is always available to assist individuals with their efforts. Reach out to *info@beyondpesticides.org* or 202-543-5450.

### Saving Water with Natural Land Care?

I've heard that natural land care saves water. As a California resident, I'd like to do that with my yard. Is there science that backs this up—what exactly do I need to do?

Diana, Sacramento, CA

Hi Diana,

Great to hear that you are working toward water savings in your backyard. Luckily, improving the water retention capacity of soils is not tough, and there is ample evidence that doing so will result in water savings that will translate to a lower water bill. All that is required is the consistent building of organic matter in your soil. Studies find that for every one percent of organic matter content added to soil, it can hold an additional 16,500 gallons of plant-available water per acre. At the landscape level, for every one percent of organic matter added, each cubic foot of soil will be able to hold an additional 1.5 quarts of water.

One great way to add organic matter to your yard's soil is through the use of compost topdressings, particularly on areas where you are growing turf. Adding roughly a quarter inch of compost in the fall will help ramp up organic matter in the landscape. It is also an important part of fostering an overall organic system. In addition to improving the soil's moisture retention, it also helps improve soil pore space and aggregation (arrangement of soil particles), making sure soil does not compact and water gets to plant roots. It also helps feed the microorganisms in your soil, which creates a positive feedback effect. More organic matter leads to higher rates of biological activity in the soil, as more and more microorganisms are able to find food, water, and shelter. These microorganisms then die and degrade back into the soil, further improving organic matter content.

To increase the sustainability profile of your home even more, source as much compost as you can create on site from kitchen scraps, yard waste, and other "brown" and "green" organic matter. See Beyond Pesticides' composting guide for assistance [bp-dc.org/compost]. Another great way to improve organic matter, and therefore water retention of soils is by adding green manures, which are plants that are cultivated to cover bare areas of the garden and deliver nutrients to the soil. Also called cover crops, these include plants such as clover, rye, and buckwheat. Let these grow for a couple months, and mow or lightly till them into the soil to add organic matter. That's a particularly helpful strategy for gardens and raised beds that may be fallow during certain times of the year. Around other areas, such as trees and shrubs, maintaining a thick layer of mulch will ensure you are adding organic matter and continuing to improve the soil's ability to hold water.

### 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!

#### Excerpt from Beyond Pesticides Daily News Blog article (12/7/2018): Release of GE Mosquitoes Canceled by Cayman Islands Officials. The British

Cayman Islands will no longer fund the release of genetically engineered (GE) mosquitoes, as reports indicate that the program failed to achieve its intended goals.

John Norris, MD comments: Enjoyed the article. I would add physicians in the Florida Keys have petitioned for culturing of the to-be-released antibiotic dependent GE insects due to the concern that the tetracycline process could produce seriously antibiotic resistant bacteria and spread these bacteria to our patients' homes and businesses. This could be especially dangerous to our patients with weak immunity, such as diabetics, asthmatics, the very young, the very old, HIV patients, COPD patients, chemo patients, and so many more. The physicians want culturing of the insects to identify their microbiome and incorporation of the information into any release.

# Excerpt from Beyond Pesticides Action of the Week (12/8/2018): Tell USDA All Ingredients Used in

**Organic Must Be Reviewed.** The ingredients not listed on a pesticide product are not fully reviewed for their adverse effects and may be the most toxic chemicals in the formulation. **Sandra comments:** Organic should mean organic. All ingredients need to be tested and monitored to assure compliance. Don't cut corners. This is America's food for our children. **Kathleen comments:** Years ago, a family friend who was an agricultural researcher with the University of California Extension Service (called himself a "weed man") insisted to me that Roundup was perfectly safe. Now we know it is anything but safe. Other products the "experts" have told us are safe deserve the scrutiny that finally exposed the dangers of Roundup.

### **USDA GE Food Labeling Criticized as Confusing**

n December, the U.S. Department of Agriculture (USDA) finalized its rule on genetically engineered (GE) food ingredient labeling. After years of local, state, and federal pressure to implement a clear, concise labeling requirement for GE foods, advocates say USDA's rule is a failure and a capitulation to agrichemical corporations that promote GE farming.U.S. Representative Chellie Pingree (D-ME) told the Portland Press



Herald that the new rule is "an insult to consumers." She said, "These labels should give people the facts on whether ingredients in their food have been genetically altered, plain and simple." The standards are being adopted under the 2016 National Bioengineered Food Disclosure Standard (Public Law 114-216), a controversial law that was widely criticized as too weak, while preempting stronger state law. Products will display a label graphic of a sunny farmscape with the term "bioengineered" or "derived from bioengineering," language not widely understood by consumers.

USDA narrowly defines the ingredients subject to GE disclosure. When a food product has multiple ingredients, but the first listed is either meat, poultry, eggs, broth, stock, or water, any additional ingredients that may be



GE are not subject to labeling. Consumers will have no way of knowing that they are buying food with GE ingredients. Further, "refined" GE ingredients (such as oil from GE soybeans, or candy bars with high fructose corn syrup from GE corn) will not be labeled as long as the refining process is "validated" by USDA. Advocates point to food certified and labeled organic as the solution, since GE is prohibited in organic production.

### Senate Bill to Ban Chlorpyrifos Introduced

n the closing days of the 115th Congress, U.S. Senator Brian Schatz (D-Hawai'i) introduced a bill to ban the neurotoxic insecticide chlorpyrifos, shown to cause brain effects in children. The Prohibit Chlorpyrifos Poisoning Students Act (S.3764) would elevate Hawai'i's state ban to the national level, banning the use of the chemical near (300 foot buffer) schools in 2019 and banning its sale and distribution altogether the following year. The legislation follows a 2017 bill introduced by Senator Tom Udall (D-NM), Protect Children, Farmers and Farmworkers from Nerve Agent Pesticides Act, S. 1624, that deems any food with chlorpyrifos residues to be adulterated and therefore illegal. H.R. 3380, Pesticide Protection Act, introduced in 2017 and reintroduced in January by U.S. Representative Nydia Velasquez (D-NY), bans the registration and use of chlorpyrifos. EPA reversed a decision to ban the chemical's ongoing agricultural uses in

2017, after banning residential uses (except use on golf courses and for disease carrying mosquitoes) in 2000.

In June, 2018, Hawai'i became the first state to ban chlorpyrifos, effective 2022. Two months after the bill became law, the U.S. 9th Circuit Court of Appeals ordered the Environmental Protection Agency (EPA) to implement its previous proposed ban of the chemical in the U.S. EPA has appealed the ruling. A 2016 revised EPA human health risk assess-ment found that the agency's exposure threshold is exceeded for children, citing concerns about levels in the air at schools, homes, and communities in agricultural areas.



Rally in Hawai'i that pushed for the successful statewide ban on chlorpyrifos in 2018.

### Multiple Pesticide Residues in Soil Raise Alarm

Astudy published in the November issue of Science of the Total Environment reveals numerous pesticide residues persisting in soil, harming the viability of agricultural lands, and increasing risk of off-site contamination. Funded by the Horizon 2020 programme of the European Commission, researchers from the European Diverfarming project at the University of Wageningen in the Netherlands suggest nations urgently reevaluate conventional land use and inputs, including water, energy, fertilizers, machinery, and pesticides.

The study objective: Determine which pesticides have the highest soil persistence and toxicity to nontarget species. Three hundred seventeen surface soil samples were analyzed from 11 European countries with the largest amounts of active agricultural land, including six distinct cropping systems, different soil properties, and crops with the highest pesticide use per hectare. Samples were then analyzed for 76 pesticides, which are most often applied on conventional crops. Eighty-three percent of samples contained varying degrees of pesticide residues, with 25% showing one pesticide residue, and 58% showing mixtures of two or more, and 17% with no detections.

Overall, 43 different residues were detected, with a total of 166 pesticide combinations. Glyphosate (the most widely detected), DDT (which was banned in 1972), and broadspectrum fungicides, including boscalid, epoxiconazole, and



tebuconazole, were the compounds detected most frequently and at the highest concentrations.

Advocates say similar data revealing pesticide persistence demands improved short- and long-term environmental hazard analyses. Researchers indicate that risk assessments must be adapted to assess toxicity of mixtures of pesticide residues to a wide range of soil microorganisms, and for a range of environmental effects, from airborne pesticide residues and runoff into aquatic ecosystems.

Soil contamination alters microbial organism functions, soil biodiversity, and food safety. Meanwhile, organic agriculture specifically incorporates soil health management, cover crops, and crop rotations to enhance natural ecosystem processes.

### **EPA Continues to Defer to Chemical Industry**

**E** PA ignored the input of an expert weed scientist on the controversial herbicide dicamba, bending to Bayer (Monsanto) and the pesticide industry, according to emails obtained by the Arkansas Democrat and Chronicle (ADC) through a Freedom of Information Act request. The scandal centers on the recent re-approval of the pesticide, a highly volatile, and drift-prone herbicide that has caused serious crop damage for many farmers. States, like Arkansas, are stepping in to restrict dicamba use in the absence of adequate federal action.

Emails that ADC received indicate that Jason Norsworthy, PhD, a weed scientist with the University of Arkansas, worked closely with Bayer (Monsanto) in conducting field trials and found high volatility and drift of the company's new dicamba-based herbicide, XtendiMax. The product was developed in the face of widespread resistance to glyphosate-based herbicides in genetically engineered (GE) farm fields.

Rather than respond to study results showing the need for a buffer of over 400 feet, and agreed upon by agency officials, Acting EPA Administrator Andrew Wheeler is ignoring adverse impacts to farmers and nontarget species, deferring to Bayer and setting the buffer at 57 feet. This decision raises questions of meddling with EPA's scientific process (similar to a 2017 decision to reverse its ban of the highly neurotoxic insecticide chlorpyrifos) and a litany of structural problems within the pesticide registration process: mixtures and synergy not tested, inert ingredients not disclosed, safety studies generated by industry, and conditionally registering pesticides, like XtendiMax, without required health and environmental safety information.

### Petition Seeks to Prohibit Fracking Water in Organic

eollowing an outpouring of public comments to the National Organic Standards Board (NOSB) over several years, The Cornucopia Institute, in November, filed a petition seeking to prohibit the use of oil and gas wastewater in organic production. The petition calls for rulemaking to establish the wastewater as a prohibited substance. Organic consumers expect that the organic products they buy are grown without toxic chemical inputs. However, oil and gas wastewater (including fracking wastewater) can be used to irrigate crops. Chemicals present in the wastewater include heavy metals, antimicrobials, and other chemicals with carcinogenic, reproductive, developmental, endocrine disrupting, and a range of other toxic effects. When the Organic Foods Production Act (OFPA) was passed, there was no agricultural use of oil and gas wastewater, so the regulations did not address their hazards.

### Blackberry Leaves Decompose to Thwart Mosquito Breeding



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study at the University of AMaine (UMaine) finds that adding blackberry leaf litter in stormwater catch basins creates an "ecological trap," enticing mosquito females to lay eggs in sites unsuitable for larvae survival. Stormwater catch basins regularly accumulate leaf litter, which serve as habitat for the mosquito species Culex pipiens (Cx. Pipiens). Previous UMaine research found that decomposing leaf litter from Amur honeysuckle (Lonicera maackii) and common blackberry (Rubus allegheniensis) produces chemical compounds that attract and stimulate Cx. Pipiens female to oviposit, or lay eggs. Results show that catch basins with blackberry leaves have consistently higher numbers of Cx. pipiens eggs, but very low larvae survival. Honeysuckle, however, shows high larvae survival and high adult emergence, but reduced larvae survival

with a 50-50 mixture of honeysuckle and blackberry.

The study, Discovery and exploitation of a natural ecological trap for a mosquito disease vector, confirms that survival of mosquito larvae, being filterfeeding invertebrates, is dependent mainly on the aquatic habitat containing the appropriate bacterial community to suit the larvae's nutritional needs. *Cx. pipiens* females select oviposition sites based solely on the presence of decomposing leaf litter, regardless of whether the appropriate bacterial community may be lacking.

### U.S. Asks World Trade Organization to Force Lower International Safety Standards

The U.S. is pushing back against international standards that restrict pesticides by asking the World Trade Organization (WTO) to intervene. At issue are new EU maximum residue levels (MRLs) on food for the following pesticides: buprofezin, diflubenzuron, ethoxysulfurom, ioxynil, molinate, picoxystrobin and tepraloxydim.

Advocates are concerned that a U.S. challenge to stronger EU standards, or special trade concerns (STC), could cause WTO to force a weakening of standards internationally. Most significantly, the EU proposed lowering its MRLs on imports. The EU said lower MRLs are needed to protect consumers. In response, the U.S. said new MRLs would cause barriers to trade and, therefore, must be rejected by WTO. Advocates point to the introduction of genetically modified organisms (GMOs) as an example of the U.S. attempting to use WTO to block standards that restrict potentially hazardous products. Recently, the U.S. has been involved in four of five new specific trade concerns raised before WTO. As part of reviewing the current agreement of the Committee on Sanitary and Phytosanitary Measures—which works to ensure protections for humans, animals, and plants, while avoiding barriers to trade—one STC the U.S. dislikes is the Vietnamese National Assembly's Livestock Production Law, which imposes an import ban on livestock products produced with the use of chemicals prohibited for domestic production in Vietnam.

The U.S. also expressed its dislike of an EU Court of Justice decision on "mutagenesis"—a process of inducing mutagenic changes—requiring that all organisms obtained through mutagenesis undergo the same risk assessment and review requirements, labeling, monitoring, and traceability laws as those imposed on GMOs. The EU has shown time and time again that it will enact stricter pesticide regulations than the U.S. In 2005, EU environment ministers agreed to uphold five national bans on GMOs. However, the U.S. once again claimed bans on GMO restrictions were barriers to trade and must not be honored. Advocates believe the latest move to block lower MRLs is an attempt by the U.S. to undermine other countries' decisions to protect their environment, human health, and social standards.



### Behavioral Effects in Bumblebees Linked to Neonicotinoid Insecticides

arvard University researchers, publishing in the journal Science, have demonstrated the mechanisms by which neonicotinoid insecticides harm bumblebee populations. The study, Neonicotinoid exposure disrupts bumblebee nest behavior, social networks, and thermoregulation, finds that exposure to imidacloprid, a neonicotinoid—the most widely used category of insecticides worldwide—causes serious behavioral effects to the functioning and viability of bee colonies.

In the study, imidacloprid-exposed worker bees exhibit reduced general and nurturant activity, and a tendency to locate themselves at the periphery of the nest. The study notes decreased caretaking and nursing behaviors, which in turn harms productivity and thermal regulation in the colony. These tasks are important to colony development; impaired thermoregulation negatively affected the bees' typical construction of an insulating wax canopy for the nest, and poor caretaking can affect brood growth. Investigators note that, "These changes in behavior acted together to decrease colony viability, even when exposure was nonlethal." The authors also observed that many of these dysregulated behaviors are more pronounced at night than during sunlight hours, and are exhibited by queens, as well as workers. Prior to the subject study, neonicotinoids were

### Endocrine Disrupting Herbicide, Atrazine, Exceeds Legal Drinking Water Limits in Midwest

**B**ased on EPA reported data, "[N]early 30 million Americans in 28 states have some level of atrazine in their tap water," according to Environmental Working Group's updated Tap Water Database. EPA's annual drinking water quality reports reveal community drinking water systems in the Midwest that have seasonal exceedances of the allowable limit for the herbicide atrazine at three to seven times above the federal legal limit. Atrazine, linked to endocrine disruption, neuropathy, and cancer, is the second most widely used pesticide in corn growing areas, with over 73 million pounds applied to agricultural fields each year.

A 2009 study by Paul Winchester, MD, professor of clinical pediatrics at Indiana University School of Medicine and medical director of the Neonatal Intensive Care Unit at Franciscan Health in Indianapolis, linked birth defects to time of conception, with the greatest impact on children conceived when concentrations of atrazine and other pesticides are highest in the local drinking water. During peak use, atrazine levels in drinking water have been recorded at three to seven times above the legal limit. In addition to the well documented impact on the environment, recent studies have linked prolonged pesticide exposure to not only shortened gestation and preterm birth for women, but also neurodevelopment delays in children. Ultimately, these unreported seasonal peaks result in persistent adverse health impacts in affected communities.

Water utilities are familiar with persistent pollution from atrazine use. In 2012, water utilities settled a class action lawsuit against the manufacturer of atrazine, Syngenta, to clean up atrazine contamination of its treated water. Even at levels established as "safe" or acceptable by EPA drinking water standards, atrazine is linked to endocrine disrupting effects.



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# AROUND THE COUNTRY

understood to reduce growth in developing bee broods by impairing adults' foraging abilities—related to both spatial navigation and so-called "floral learning" (acquiring and remembering how best to secure nectar from a variety of flowers of varying structural complexity).

Neonicotinoids are used frequently as seed coatings, as well as on a great number of agricultural crops. They are systemic pesticides that are taken up by plants and transported to leaves, flowers, roots, and stems, as well as to pollen and nectar; pollinators are at great risk of exposure to these compounds through their foraging activities. These pesticides also contaminate waterways and are highly toxic to aquatic organisms.

### DDT in Glacial Melt Puts Alaskan Communities at Risk

*T*ith climate change, meltwater and runoff from Alaskan glaciers are showing detectable levels of organochlorine pesticides that bioconcentrate in fish and put people at risk, according to researchers at the University of Maine (UMaine). DDT, lindane, and other organochlorines have been detected throughout the world, even in natural areas thought to be untouched and pristine. UMaine scientists, in Organochlorine Pollutants within a Polythermal Glacier in the Interior Eastern Alaska Range (published in the journal Water), show that the atmospheric transport and ubiquitous deposition of these pesticides continue to pose risks to U.S. residents long after regulations banned their use.

Although most of the highly toxic class of organochlorine pesticides, like DDT, were banned in the early 1970s, certain uses were retained. Lindane, for example, had its pest management uses phased out gradually until 2007, but is still allowed today as a scabies and lice shampoo. While use of these pesticides has declined in the U.S., much of the



developing world, including many Asian countries, such as China, India, and North Korea, still report use. This results in atmospheric transport of the pesticides and, relevant to the UMaine research, increases the likelihood that the chemicals will eventually be deposited onto Alaskan glaciers through snow or rain. The UMaine research team investigated the amount of DDT and lindane historically and recently deposited into the Jarvis Glacier, located in Eastern Alaska, northwest of Juneau.

Researchers analyzed glacial meltwater and ice core samples down to the bedrock. Results found that ice core samples taken between 20 and 45 feet contain the highest concentrations of organochlorines, with concentrations decreasing closer to bedrock. Meltwater generally contains slightly higher levels of pesticides than any ice core samples taken. Although concentrations detected are low and none exceeded 1.12 ng/L (nanogram/liter), researchers indicate that the risk is not direct exposure, but the bioconcentration of these chemicals up the food chain.

Study coauthor Kimberly Miner, PhD, indicates that even with low levels of organochlorines, both adults and children who regularly consume fish from contaminated streams are at increased risk of cancer, as their consumption levels are likely to exceed EPA thresholds. She indicates that children are particularly vulnerable and, as climate change accelerates the rate of melting, these concerns are only likely to intensify. "This secondary impact of climate change will be felt most strongly by children, and needs to be addressed in a comprehensive way," Dr. Miner said. Organochlorine contamination not only puts individuals at health risk, it jeopardizes the traditions and subsistence way of life for many Alaskan native peoples, necessitating significant investment in culturally appropriate solutions.

### California Criticized for Adopting Inadequate Measures to Restrict Chlorpyrifos

n mid-November, the state whose agricultural operations used more than 900,000 pounds of chlorpyrifos in 2016 (down from two million pounds in 2005) moved to establish some temporary restrictions on its use. Regulators at the California Department of Pesticide Regulation (CDPR) issued interim restrictions on the compound while the agency works on a formal regulatory process to list chlorpyrifos as a "toxic air contaminant" and develop permanent restrictions on its use. The interim measures in California include: banning aerial application of chlorpyrifos; ending its use on many crops—except for those determined to be "critical" by virtue of there being few, if any, alternatives (as determined by the University of California Cooperative Extension and listed on CDPR's website); establishing a guarter-mile buffer zone for 24 hours after any application of the pesticide; and requiring a 24/7/365, 150-foot application setback from houses, businesses, schools, and other sensitive sites. CDPR, it should be noted, is recommending, rather than requiring, implementation of the temporary restrictions beginning January 1, 2019. Groups seeking a ban of chlorpyrifos use have called the measures wholly inadequate, given the settled science on the pesticide's adverse effects on children's brains.