

What is the Truth about Organic Pesticides?

I try to buy and eat organic, but I'm a bit confused by articles on the web that say that organic also uses pesticides that are more toxic than conventionally grown foods. Is this fake news? If not, what is Beyond Pesticides reply to this? Why should I still buy organic if they also use toxic pesticides?

Charles, Buford, GA

Hi Charles,

Thanks for your question. We appreciate the opportunity to dispel some of these concerns, as there does appear to be a concerted effort online and in some media to tarnish the organic label and present a “both sides” argument that organic is no better, safer, healthier, or environmentally friendly than food grown conventionally in chemical-intensive agriculture. It is not true that organic uses the highly toxic substances used in conventional agriculture. In fact, the review process for allowed materials is much more rigorous in its protection of human health and biodiversity, resulting in the only real option we have to preserve life on this planet.

Critics often try to disparage organic by pointing out that organic allows pesticide use. Technically, this is true, but the details really do matter. Any materials approved for use in organic production are evaluated for three important criteria: i) no adverse impact on humans and the environment; ii) essential (necessary) in organic production, and; iii) compatible and consistent with an organic systems approach defined by the organic law. An independent stakeholder board of 15 experts from a range of perspectives, including organic farmers, environmentalists, consumers, a retailer, a scientist, and a certifying agent together approve or disapprove materials for use in organic using the aforementioned criteria. This review process utilizes a range of data—from government agencies, independent peer-reviewed science, and public interest groups—and is informed by a Technical Evaluation Report. And because a 2/3's majority is required to add a material to the allowed list in organic production, this process is intended to ensure that the allowed synthetic inputs are innocuous, from their production through use and disposal.

Contrast that with the Environmental Protection Agency's (EPA) process for registering pesticides. Up front, the agency assumes that whatever product a pesticide manufacturer wants to register provides a public or user benefit. This is an assumed economic benefit. EPA then conducts an assessment to weigh those benefits against the risks a chemical poses to public health and the environment. In setting allowed residues (tolerances) on food, the health-based standard of food safety law also assumes pesticide benefits. And there are a number of catches here that tilt the assessment in favor of the pesticide industry. EPA protocol relies on the pesticide manufacturer to produce and submit all the safety test data necessary for the registration and labeling of pesticide products, and permits the industry to retain much of the information on product

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ingredients as confidential business information (CBI). The agency rarely considers scientific data from independent peer-reviewed scientific journals or non-governmental organizations (NGOs). EPA does not look at whether a pesticide is essential for crop production, or whether less toxic alternative products could do the same job. There are health and environmental data requirements, but some of these can be delayed through a “conditional” registration that allows a pesticide to market without a full assessment of its risks. This process results in widespread farmworker poisoning, and pesticide residues on food that are causing growing concerns, given their connection to diseases like cancer, autism, learning disabilities, birth defects, Parkinson's, diabetes, and other health impacts. It has also resulted in widespread insect and weed resistance, water contamination, soil degradation, and pollinator and other insect decline.

Although pesticides and other materials approved for organic production “sunset” (removed for use) after five years, unless a super-majority of the stakeholder board votes to retain the product, EPA-registered pesticides are notoriously difficult to remove from the market when hazards are discovered, requiring the government to spend significant resources on lengthy negotiations, and possibly litigation, with pesticide manufacturers.

Readers of *Pesticides and You* know that we are just as tough on organic standards as we are on regulations governing conventionally grown crops. That's because it takes

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.

constant input from consumer advocates to make certain the organic label is adhering to its founding principles, and not watered down. Make no mistake, there are a select few organic pesticides of concern still in use, notably copper and sulfur-based products. Note that organic standards impose strict monitoring and restrict levels of copper that can be added to the environment. And with any pesticide in organic, its use is not allowed without an “organic systems plan” that, through soil management, can avoid or limit most uses. Beyond Pesticides will continue to work with the public and farmers to continually improve organic and remove uses of allowed materials when the data supports the need to do so. We have successfully contributed to the elimination of neurotoxic rotenone in banana production and antibiotics in organic apple and pear production, and with public help will seek to maintain the integrity of a rigorous review process that the public can trust.

Organic is not always perfect, but the standards allow for the continuous improvement of organic systems with transparent and participatory decision making. On the other hand, without reform from either within or outside EPA, conventionally produced foods will continue to use a vast number of highly toxic pesticides that put public health and the environment at unnecessary risk.

Regarding safety, numerous studies have shown that switching from a conventional to organic diet significantly lowers detectable pesticide levels in the body. So, we do know that switching to organic makes a big impact in the amount of your pesticide exposure. To further highlight why organic food is the right choice, Beyond Pesticides created the *Eating with a Conscience* (EWAC) database. Visit EWAC for a run-down on the dozens of toxic pesticides allowed to remain on conventionally grown food before it gets to the dinner plate, as well as the impacts these chemicals have on farmworkers and pollinators that help produce our food [bp-dc.org/eatingconscience].

Where Can I Get the Low-down on Chemicals Used in Pesticide Products?

I'm trying to do some research on the chemicals used by the lawn care company my homeowner association (HOA) has hired. Can you direct me to some resources?

Fred, Charlottesville, VA

Hi Fred,

Our website (beyondpesticides.org) is a great place to start your research. If you have already obtained the label for the product(s) your landscaper is using, look there to find the active ingredient. [Note that pesticides products or formulations include a mixture of chemicals, beyond the active ingredient, not disclosed on the product label—creating a large area of concern.] We are working to capture health and environmental data for all active pesticide ingredients registered by EPA through our *Gateway on Pesticide Hazards and Safe Pest*

Management [bp-dc.org/gateway], but if you come across a chemical we have not listed, we hope you'll contact info@beyondpesticides.org to let us know. The *Gateway* provides for each active ingredient data on the chemical's health and environmental effects, ranging from cancer, its potential to leach into groundwater, to its toxicity to pollinators. These cited data points can be used to make the case against the use of these chemicals by your HOA. But, convincing individuals about a pesticide's hazards is only one part of the equation. To rid your community of toxic pesticides, you need to explain the viability of the alternative approach. Visit our *Lawns and Landscapes* program page [bp-dc.org/lawns] for fact sheets on organic land care, and resources for organic soil fertility and organic compatible products for pest problems. We are available to assist you in moving forward.

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 Action of the Week

(2/11/19): Tell Oregon Department of Agriculture to Ban Tree-Killing Herbicide, Aminocyclopyrachlor (ACP). ACP is a tree-killing pesticide masquerading as a broadleaf herbicide. The Oregon Department of Agriculture (ODA) has the opportunity to lead the country in banning this inherently dangerous chemical.

Mark comments: Thank you. Tree-killing pesticides will erode our ecosystems, cause damage to all vegetation and denude our forests.

Lynn comments via Facebook: In my state, they spray not just the roadsides, but all the trees and shrubs growing on the sides of the roads. It's so ugly to drive down a beautiful scenic highway and see nothing but brown dead leaves and grass.

Excerpt from Beyond Pesticides Daily News Blog

(1/16/19): Western Monarchs Experience Catastrophic Declines over the Last Year. Preliminary counts in California indicate the western monarch butterfly population dropped 86% from 2017 to 2018.

Felicia comments via Facebook: This is absolutely heartbreaking! One of the most beautiful sights in the East Bay Hills was always the monarch migration.

Tom comments via Facebook: When I was a kid in grade school, they were in the school yard every year. Uncountable numbers. They aren't there anymore. They have gone the way of the dinosaur.



Drinking Water Contaminated with Neonicotinoid Insecticide Byproducts

Scientists at the U.S. Geological Survey (USGS) and the University of Iowa (UI) have published worrisome news on the neonicotinoid insecticide front. In “Chlorinated Byproducts of Neonicotinoids and Their Metabolites: An Unrecognized Human Exposure Potential?,” published in *Environmental Science & Technology Letters* in January 2019, the authors report the discovery of two metabolites of imidacloprid (a neonicotinoid insecticide) not previously identified in drinking water—desnitro-imidacloprid and imidacloprid-urea. The researchers note that these metabolites, created as a result of typical water treatment (chlorination and/or pH treatment), have never been evaluated

for their potential risks to human and environmental health, saying: “The mammalian toxicity of transformation products formed during water treatment processes remains unknown. It is possible that chlorination of neonicotinoids and their metabolites will . . . alter their bioactivity.”

Bug Bombs Don’t Work—At All

If people buy it, it must have benefits, says EPA. But, according to research published in the journal *BMC Public Health* (January 2019), bug bombs do not work. Bug bombs are completely

ineffective at reducing German cockroach infestations. Not only are the bombs ineffective, the research indicates that these products are putting people at unnecessary risk. “In a cost-benefit analysis, you’re getting all costs and no benefits,” said Zachary DeVries,

Lawsuits Filed to Protect Endangered Species

ACTION REQUIRED ON BUMBLEBEE

Although the rusty patched bumblebee was placed on the endangered species list in 2017, the Trump Administration has failed to put in place legally required safeguards for the species. As a result, the Natural Resources Defense Council (NRDC) is suing the Department of the Interior (DOI) for failing to designate locations where specific protections could help restore the endangered bumblebee’s population. Advocates say DOI’s failure to comply with requirements under the 1973 *Endangered Species Act* (ESA) is consistent with the Trump Administration’s continued disregard for ongoing pollinator declines and environmental protections in general.

Under ESA, DOI is required to determine “critical habitat” that contains physical and biological requirements a listed species needs in order to recover. That area must be designated within one year of placing a species on the endangered list, using best available scientific data.

PESTICIDES’ IMPACT ON CRITICAL HABITAT IGNORED

A petition submitted in January by the Center for Biological Diversity (CBD) calls on the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) to initiate rule-making to prohibit nearly all pesticide use in areas that are deemed critical habitat for endangered species. It asks these federal agencies to use their authority under ESA to protect wildlife from the threats caused by pesticides—

which both agencies have long recognized.

In its press release, CBD notes that it is suing “after decades of intransigence by the Environmental Protection Agency [required to conduct consultations with wildlife agencies], which has refused to comply with the legal mandates of the *Endangered Species Act* to protect the nation’s most imperiled species from highly toxic pesticides like chlorpyrifos and atrazine that are known to harm wildlife.”



Antibiotics in Citrus Production Take the “Good” Out of Morning

Time to put the “good” back in morning with organic orange juice. Despite the national and international crisis of deadly bacterial resistance to antibiotics, the Environmental Protection Agency may make permanent its 2017 emergency use decision to permit up to 480,000 acres of citrus trees in Florida to be treated with more than 650,000 pounds of the antibiotic streptomycin per year; 23,000 citrus acres in California will likely be treated annually. The decision allows residues of streptomycin, having previously finalized allowed residues of the antibiotic oxytetracycline.

Both antibiotics are being allowed for the purpose of controlling a bacterial disease, citrus greening (*Candidatus Liberibacter asiaticus* [CLas] bacterium that causes Huanglongbing). The World Health Organization has called bacterial resistance “one of the biggest threats to global health, food security, and development today.” Organic standards do not allow antibiotic use. Organic citrus growers use organic soil management practices and biological controls.



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PhD, co-author of the study, “Exposure risks and ineffectiveness of total release foggers (TRFs) used for cockroach control in residential settings.” Dr. DeVries said, “Bug bombs are not killing cockroaches; they’re putting pesticides in places where the cockroaches aren’t; they’re not putting pesticides in places where cockroaches are and they’re increasing pesticide levels in the home.”

EPA Fails to Restrict Roundup, as French Court Issues Ban

An analysis, “How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?,” by Charles Benbrook, PhD and published in the journal *Environmental Sciences Europe* (January 2019), adds to the chronicle of U.S. Environmental Protection Agency (EPA) failures to protect human health from toxic pesticides, with a focus on glyphosate. Meanwhile, a French Court has pulled the license for a Roundup product, citing the French government’s failure to protect public



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health. In his paper, Dr. Benbrook examines the divergent positions on the carcinogenicity of glyphosate—the active ingredient in a number of herbicides, most notably Monsanto’s (now Bayer’s) Roundup—taken by the International Agency for Research on Cancer (IARC) and EPA.

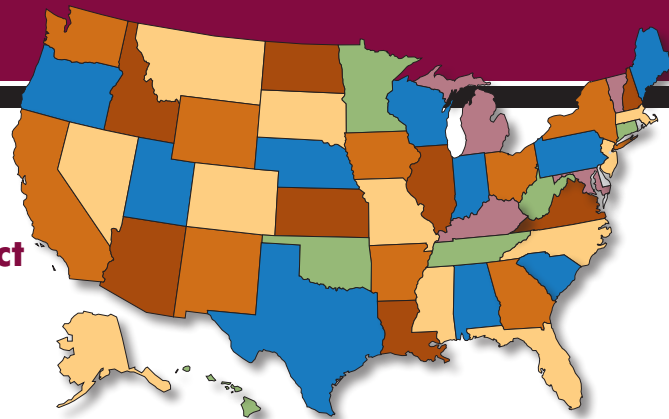
Dealmaking Protects Farmworkers

Dealmaking on Capitol Hill extracted an EPA agreement to drop its plan to weaken farmworker protections from toxic pesticides in exchange for Demo-

cratic Senators’ support for the confirmation of Alexandra Dunn to the EPA Office of Chemical Safety and Pollution Prevention. The irony that a deal is necessary to get an agency with protection in its name to do its job was not lost on the dealmakers. Under former EPA Administrator Scott Pruitt, the agency backtracked on provisions put in place during the Obama administration to update farmworker protections following decades of inaction. In March of last year, 28 Senators urged then-Administrator Pruitt to retain farmworker protections. The new Administrator, Andrew Wheeler, had announced in October that he was moving ahead with the reversal.



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Tree-Killing Weed Killer Subject to Restrictions in Oregon

Due to an herbicide, nearly 1,500 dead or dying trees have been reported along Oregon's iconic state road 20, home to old growth ponderosa pines. Many of these 150- to 300-year old trees are now dead from aminocyclopyrachlor (ACP), a tree-killing pesticide that is sold as a broadleaf herbicide. The Oregon Department of Agriculture (ODA) agrees and has said, "Because [ACP] is a relatively new herbicide it is unknown how many trees stressed from past applications of [ACP] will die in the future." Even at tiny levels, ACP run-off and drift kills trees.

In 2014, DuPont chemical company settled a nearly \$2 million lawsuit with the U.S. Environmental Protection Agency (EPA) after the herbicide (under the brand name Imprelis®) was found to kill trees at golf courses, homeowners associations, businesses, and private residences. Despite this history,

regulators left ACP on the market. Its use was banned on lawns and turfgrass, but allowed for roadside rights-of-way. A couple years ago, Bayer purchased the rights to ACP from DuPont and continues to market and sell the chemical under the brand names Perspective®, Streamline®, and Viewpoint®.

ODA announced late last year that it was temporarily banning the use of ACP on roadsides while it put together a new rule. ODA is considering public comments on its proposal to make its temporary ban on roadside uses permanent. Oregon officials stopped short of proposing a complete ban, allowing a limited one-time per year exemption from the ban when spraying an invasive weeds in a limited area.

An Organic Diet Is Safer, Study Corroborates

A study conducted by University of California Berkeley, supported by Friends of the Earth, and published in the journal *Environmental Health* (January 2019) demonstrates that consumption of organic foods reduces significantly the levels of synthetic pesticide residues in the bodies of U.S. children and adults. Although the test population is relatively small, the study adds to the evidence that organic food production and consumption are key to protecting human health. The study measures in the urine of research subjects residues of metabolites and parent compounds of neonicotinoids, organophosphates, pyrethroids, and 2,4-D. The most significant reductions are identified for the organophosphates malathion and chlorpyrifos, chemicals of urgent concern because of their extreme neurotoxicity, particularly for children.

The study, "Organic diet intervention significantly reduces urinary pesticide levels in U.S. children and adults," corroborates

previous work showing that consumers take in significant and health-threatening levels of pesticides through conventional diets, and can dramatically reduce these intakes by switching to organic. A 2018 French research study of adults finds that the most frequent consumers of organic food have 25% fewer cancers overall than those who never eat organic, and that those with the highest percentages of organic foods in their diet see significant reductions in the incidence of lymphomas and postmenopausal breast cancers. In 2006, researchers note that pesticide metabolites drop to below detectable limits after an organic diet intervention and remain undetectable until a conventional diet is resumed. In a 2014 Australian study, a one-week organic diet protocol results in reductions of two pesticide metabolites by 89% and 96%, respectively. Taken together, these research results establish what many would say is the obvious—food grown with chemical-intensive practices result in greater dietary exposure to pesticides than food produced in organic systems.

Bavarians Petition to Save the Bees

Residents recently rallied in Bavaria—a southern state of Germany—in an effort to save the bees. Braving the cold in eye-catching bee outfits, a broad coalition of activists collected over a million signatures (the necessary 10% of the state’s eligible voters) to move a petition into the state legislature. The petition pushes forward changes in farming practices to support pollinators. While bees are the charismatic champion of the campaign, petitioned changes will support biodiversity in general. Now that signatures are gathered, the state parliament has three months to either accept the proposal or put it to a state-wide referendum.

Native Bee Protections Inadequate, Scientists Say

It is well-known now that pollinators are in trouble worldwide. A series of papers by biologists at the University of Guelph, Ontario, posits that pesticide regulations aimed at protection of honey bees fall far short of the critical task of protecting the multitude of bee species that are important pollinators of human food crops. These recent papers, drawn from 2017 workshops, entitled “Workshop on Pesticide Exposure Assessment Paradigm for Non-Apis Bees: Foundation and Summaries,” brought together 40 bee researchers from various universities, and representatives from Canadian, U.S., and European regulatory agencies, and the agrochemical industry. Beset by shrinking habitat, pathogens, and toxic chemical exposures, bee pollinator populations are at great risk, even as “our dependency on insect-pollinated crops is increasing and will continue to do so as the global population rises,” said [Professor Nigel] Raine, [PhD], [a] co-author of all three papers recently published in the journal *Environmental Entomology* Protecting wild pollinators is more important now than ever before. Honeybees alone simply cannot deliver the crop pollination services we need.” There are, in fact, more than 20,000 bee species worldwide, and 3,500–5,000 bee species in North America alone.

Glyphosate Researchers, Attacked by Industry, Win Science Award

The American Association for the Advancement of Science (AAAS) has awarded two researchers the group’s Scientific Freedom and Responsibility Award for their work uncovering the link between glyphosate and chronic kidney disease (CKD), which has killed at least 25,000 Sri Lankans and 20,000 Central Americans. Award recipients Sarath Guanatilake, MD and Channa

Catastrophic Decline in Western Monarchs Last Year

Preliminary counts in California indicate the western monarch butterfly population dropped 86% from 2017 to 2018, according to a survey by volunteer citizen scientists organized by the Xerces Society. The trend from the initial sample (97 sites) finds that the population of overwintering butterflies is estimated to be less than 30,000—0.05% of its historical size.

To get an accurate count of monarch populations, volunteers follow a monitoring guide, which recommends beginning a count on a still, cool, and dry morning so that monarchs are still clustered together. Volunteers count a small cluster of monarchs and then extrapolate that number to arrive at a total for the larger cluster being observed. Citizen science has been crucial to understanding the decline of monarchs and insects worldwide. As reported by *The New York Times*, the escalating *Insect Apocalypse*—with devastating declines in total insect populations—has been documented with data captured by volunteers and scientists writing for peer-reviewed science journals.

Using statistical analyses of citizen science data, a 2017 study reported in *Biological Conservation* (2017), “Citizen science monitoring demonstrates dramatic declines of monarch butterflies in western North America,” calculates the extinction risk of monarch butterflies in western North America to be ~50–70% within 20 years, and ~65–85% within 50 years. The precarious situation of the butterfly population can be attributed to both recent events and long-term stressors, including pesticide use.



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Jayasumana, PhD faced death threats and claims of research misconduct as they went toe-to-toe with agrichemical industry giant Monsanto (now Bayer's Monsanto), the major manufacturer of glyphosate-based products, including Roundup.

"To right a wrong when significant financial interests are at stake and the power imbalance between industry and individual is at play takes the unique combination of scientific rigor, professional persistence and acceptance of personal risk demonstrated by the two scientists recognized by this year's award," says Jessica Wyndham, director of the Scientific Responsibility, Human Rights and Law Program at AAAS.

Maryland County Bans Glyphosate (Roundup) in Its Parks, Pending Complete Pesticide Ban

Prior to a pesticide ban taking effect in Montgomery County Maryland Parks, the Department of Parks announced in December 2018 that it would discontinue the use of glyphosate-based herbicides through March 2019, just before it usually begins spraying. The agency has used glyphosate as part of its Integrated Pest Management (IPM) program for weed management. Montgomery Parks indicates it will release further information on the use of glyphosate in mid-March. In November last year, Montgomery County Council member Tom Hucker wrote to the head of Parks, supported by a community-wide petition, urging that glyphosate be banned immediately.

In 2016, Montgomery Parks instituted a pesticide reduction program in compliance with Montgomery County, Maryland's 2015 adoption of County Code 33B, which phases out the use of toxic pesticides on county-owned property, including parks, and on private property. In 2017, a Montgomery Circuit Court overturned the portion of the law pertaining to a ban on private



Urban farm at Wager Houses, New York City Housing Authority, New York, New York.

land, saying that it would "conflict with federal and Maryland state regulations that allow the use of the pesticides." The council has appealed that ruling, and in June 2018, an amicus brief was filed by 10 organizations, including *Beyond Pesticides*, in support of the 2015 ordinance.

Acute Pesticide Incidents Lead to Loss of Smell

Individuals who have been acutely poisoned by pesticides at some time in their life are more likely to lose their sense of smell, according to a recent study published in *Environmental Health Perspectives*. Researchers focused on the effect of high pesticide exposure events (HPPE), such as a pesticide spill or other incident, on a farmer's ability to smell later in life. This study, "High Pesticide Exposure Events and Olfactory Impairment among U.S. Farmers" (January 2019), is the first to indicate pesticide exposure may result in olfactory impairment.

Social Justice Serves People and Pollinators

A UK Study concludes that the expansion of community gardens, identified as "pollinator hotspots" with "high pollinator diversity," offer an important opportunity for assisting ailing pollinator species and improving community quality of life. Writing in *Nature Ecology and Evolution* (January 2019), the researchers say towns and cities can be planned and managed more effectively to steward existing urban biodiversity and create essential havens for pollinators and people under stress. To increase city-scale robustness, the researchers, in "A systems approach reveals urban pollinator hotspots and conservation opportunities," advise increasing community garden allotments, planting perennial flowering plants in cemeteries, and improving management of public parks. The authors explain that increasing the number of community gardens, particularly in low-income neighborhoods, is the best strategy per unit area, as it would expand viable habitat for pollinators throughout cities, while providing much-needed green space and food sources for people.