

Safely Disposing of Pesticides

How do people get rid of pesticides that they don't want? I inherited a house from some relatives and they have a whole shed full of nasty chemicals I want out. There must be a central location to dispose of these products, right?

Camille, New York, NY

Hi Camille,

Generally, pesticide applicators are encouraged to purchase and mix only what they intend to use. The U.S. Environmental Protection Agency (EPA) asks homeowners and applicators to "avoid disposing of pesticides whenever possible," and even suggests individuals ask their neighbors if they have a similar pest problem that could use their extra pesticide. We strongly advise against taking that recommendation.

The best option to get rid of unwanted pesticides is to attend a pesticide disposal event. In the U.S., state agencies (states are the primary enforcement agent for federal pesticide law) will generally sponsor these events, set a date, publicize it, and invite applicators, dealers, homeowners, ranchers, farmers, etc. to bring their unwanted pesticide products. This is similar to events that ask individuals to discard their old or unwanted medications. However, depending on where you live, these events can be few and far between.

If there is not a disposal event close by or scheduled anytime soon, check with your state and local pesticide enforcement agencies. Beyond Pesticides provides a list of state agency contacts here if you have any trouble finding out the particular agency in your state (bp-dc.org/statepages). If you cannot find resources that way, we suggest you conduct a google search for hazardous waste disposal collection companies, and ask if they are capable of handling pesticide refuse. EPA lists a number to call for resources, 1-800-CLEANUP or earth911.com, but we found the website lacking and the number to be out of service.

Given the lack of local, state, and federal resources for pesticide disposal, combined with EPA's encouragement that the solution to pesticide pollution is continued use, it may not be surprising that there are some concerns about improper pesticide disposal. Back in 2013, we covered in our journal the story of a Utah family that had to move from their home after their neighbor, who ran a pesticide business out of his home, appeared to be using his backyard as a pesticide dumping ground (bp-dc.org/poisoneddreams). Pesticides should never simply be dumped into the ground, and especially not into street drains where they can make their way into local waterways and cause irreparable harm to aquatic life. These chemicals should also never be disposed of down the sink, toilet, or drain, as water utilities are not prepared to filter pesticide residue. It can be surprisingly tricky to get rid of unwanted pesticides, but proper disposal is critically important for public health and the environment.



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Putting Out Fire Ants

Fire ants are invading the baseball and soccer fields my kids play on. I have spoken with landscapers, and they indicate they're using a product containing acephate. It looks very toxic and I don't want it anywhere near children. Do you have least-toxic options I could forward to them?

Marie, Miami, FL

Hi Marie,

Fire ants are becoming an increasing concern throughout the southern U.S. As they continue to expand their range, we have recently heard residents as far north as Maine dealing with infestations. The risk fire ants pose to public health makes this a relatively tough question. Even in communities with very progressive pest management policies, there are usually exemptions for stinging or biting insects. But ultimately, every decision to use a pesticide should be made with input from community members like yourself. And even when we have these exemptions, that does not mean we should not still first look to nontoxic and least-toxic options to manage dangerous pest infestations.

An integrated approach to fire ant management is likely to achieve the best results. We don't recommend most of the available broadcast baits on the market, as, like the

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neurotoxic organophosphate acephate, they are toxic and likely to put children that use these fields at risk of chronic health impacts. Acephate, in particular, has been linked to reproductive impacts, and is classified as a possible human carcinogen by EPA. These pesticides will also reduce soil biological health and kill predatory and native ant species that could compete with fire ants.

We would recommend the use of a boric acid baiting system targeted around the mound, rather than broadcast application of a synthetic insecticide. Past research from USDA indicates that solutions of 1% boric acid can achieve 90% colony reduction. Many common boric acid baits on the market will contain higher levels of boric acid (usually around 5%). The problem with this concentration is that it will kill ants before they are able to get it to the queen. The more diluted amounts will allow the ant to survive long enough to share the bait with the queen and rest of the colony. Sugar or greasy food integrated into a 1% boric acid mixture in a bowl or even a soaked paper towel placed near a colony will cause them to swarm the bait and hopefully bring it back to the queen. If this is not feasible, spinosad is an organic compatible insecticide that can be used, but this is one of the more toxic organic ingredients on the market. We'd only suggest its use if boric acid did not work, and, if used, we strongly suggest only applying it in and around the mounds, and not broadcast applying the product. A quick note that these baits are unlikely to work if fire ants are not actively foraging. You can place some food by the mound to make sure they are. Boric acid baits should be replenished about once a week for roughly six weeks.

The second step of an integrated approach is to address individual mounds, generally after at least several days of letting the bait do its work. You can drench the mound with hot, boiling water, dig up the mound with a shovel (be very careful!), or dust diatomaceous earth over the colony. You may also want to consider using the least-toxic insecticide d-limonene and gauge its effectiveness. This product is applied by saturating the fire ant mound. The Organic Materials Review Institute (OMRI) lists two organic compliant products to manage fire ants—Antixx Fire Ant Bait containing spinosad, and Orange Guard Fire Ant Control containing d-limonene.

Fire ants have gotten out of control in many areas because, as a species native to South Africa, there are few natural predators in the environment that can put a check on their populations. USDA is attempting to address this issue through the introduction of phorid flies. In their native range, phorid flies parasitize fire ants and can knock down populations quickly. Three of the six species USDA introduced have now established themselves and begun to expand their range. USDA is also working to establish a microsporidium fungi that has been known to infect fire ants and reduce the reproductive rate of fire ant queens.

It is also worth noting that organic lawn care practices can be effective in eliminating fire ant habitat, and preventing

their further spread. The species like to colonize bare patches of turf, so management techniques that utilize core aeration to break up soil and improve compaction and pore space, proper watering, and regular overseeding with the correct grass seed can help fill in spaces that may otherwise become occupied by fire ant mounds.

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 (6/4/2018): Monarch Population Loss Tallied at 80% since 2005.

Monarch butterflies are in the midst of a staggering decades-long population decline that has rapidly accelerated since 2005, research published by an international team of scientists and the University of Florida last month indicates.

Eric comments: I used to see monarch butterflies all the time as a kid in the 1960s and 1970s. They were the most common butterfly around. Even a trip to Jones Beach (NY) would visually produce hundreds of them swarming around and feeding off my tomato plants blossoms and other garden plants in the summer here on Long Island. In the last decade, I have seen only a handful of them; actually finding more praying mantises on my garden plants than any butterflies, period! This year I can't even recall seeing one monarch butterfly in my backyard! This is so sad! Hopefully we can do something to help bring back the monarch butterfly population again!

Melissa reviews Beyond Pesticides via Facebook:

I live in Maine and there are already several towns and cities (and more attempting to follow) that have passed ordinances that prohibit the residential use of pesticides. It's been no small accomplishment to get these ordinances passed and it is so upsetting to hear that this important work may potentially be reversed [not included in the final proposed Farm Bill]. Maine is already experiencing ongoing problems in our harbors and lakes with deadly algae blooms due to run off containing excess nitrogen carried down river from fertilizers, not to mention the damage caused to our waterways from the excessive use of pesticides. Being a beekeeper and seeing firsthand the negative effects that pesticides have on our bees is utterly scary and sad. The greed in Washington has to stop!

Off-Label “Emergency” Pesticide Use Unchecked

The risks to human health and the environment are not adequately measured when the U.S. Environmental Protection Agency (EPA) allows off-label uses of pesticides under its emergency exemption program, according to a September report of EPA’s Office of the Inspector General (OIG). The inspector general recommends that EPA “develop and implement applicable outcome-based performance measures to demonstrate the human health and environmental effects of the EPA’s emergency exemption decisions.” EPA disagreed with the recommendation, leaving the issue of chronic overuse of the emergency exemptions unresolved. Under Section 18 of the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA), EPA has the authority to approve the

temporary emergency use of unapproved pesticides if the agency determines the pesticide is needed to prevent the spread of an unexpected outbreak of crop-damaging insects, for example. OIG’s report finds “significant deficiencies in the OPP’s online database management, in its draft Section 18 emergency exemption standard operating procedure and application checklist, and in its reports to Congress and the Office of Management and Budget.”

Beyond Pesticides has found a growing number of Section 18 requests from states over the last ten years for emergency exemptions and the use of pesticides to control various resistant weed and insect pests that either

do not meet the criteria for “non-routine” or “emergency” conditions set forth in FIFRA, or whose pesticide use would pose elevated risks to the environment. A recent Center for Biological Diversity, *Poisonous Process*, finds, as of 2017, EPA had granted 78 “emergency” exemptions for sulfoxaflo, a highly bee-toxic insecticide similar to a neonicotinoid on more than 17.5 million U.S. acres.



Efforts to Ban Chlorpyrifos Move Ahead

Court Orders Action

EPA was ordered by a Federal Court in August to finalize its proposed ban of the neurotoxic insecticide chlorpyrifos, based on undisputed findings that the pesticide is unsafe for public health, and particularly harmful to children and farmworkers. The ruling comes in a lawsuit brought by a coalition of labor and health organizations, represented by Earthjustice. EPA’s appeal, filed in October, is pending.

Chlorpyrifos is a dangerous nerve agent organophosphate pesticide that can damage the developing brains of children. Prenatal and early life exposure to chlorpyrifos is linked to lower birth weight and neurodevelopmental harms, including reduced IQ, loss of working memory, attention disorders, and delayed motor development. It is also acutely toxic to farmworkers—routinely sickening workers and sending them to the hospital.

The pesticide, produced by Corteva Agriscience (formerly Dow AgroSciences), is widely used on apples, oranges, broccoli, and dozens of other crops, and is registered for use on golf courses and for public health mosquito spraying. It was banned from home use in 2000 because of the hazards to children. The court ruling comes after former EPA Administrator Scott Pruitt in March 2017 reversed EPA’s own proposal to ban this pesticide.

California Finds Contamination

In July, the California Department of Pesticide Regulation (CDPR) released its scientific assessment concluding that chlorpyrifos should be listed as a Toxic Air Contaminant (TAC) in the state based on evidence of its neurological effects and exposure risks of concern. Legislation has been introduced in Congress to ban chlorpyrifos and similar pesticides nationwide.

Scientists Weigh In

A group of leading toxics experts, who published a paper, *Organophosphate exposures during pregnancy and child neurodevelopment: Recommendation for essential policy reforms*, in the journal *PLOS Medicine* on their research on organophosphate pesticide exposure during pregnancy and impacts on child development, are calling for a ban on the chemical.

Meanwhile, U.S. and European scientists, who evaluated the underlying science used by regulators to allow widespread use of chlorpyrifos for decades, found serious flaws in the analysis produced by industry-contracted laboratories. The independent review indicates that the regulators’ conclusion was based on averaging impacts to the brain, rather than looking at the cerebellum, the specific brain region affected. Regulators had previously identified “inappropriate and inconclusive manipulation of data,” but allowed its use.

Glyphosate/Roundup: Problems in Science and Law

Jury Verdict Against Monsanto

In a stunning legal victory for a man who contracted non Hodgkin lymphoma (NHL) after using the herbicide glyphosate (Roundup), school groundskeeper Dewayne (Lee) Johnson won a \$289 million jury verdict against the chemical's manufacturer, Monsanto, now a part of the chemical company Bayer. The jury on August 10, 2018 awarded the 46-year old \$39 million in compensatory damages, and \$250 million in punitive damages. The jury found that Monsanto acted with "malice or oppression." The judge reduced the total award to \$89 million and now Bayer announced it is appealing. Over 8,000 similar lawsuits are pending in U.S. courts.

Congress Threatens Local Authority to Restrict Pesticides

Meanwhile, more than 50 jurisdictions across the country have stopped glyphosate use on public property and in some cases, when not prohibited by state law, banned use on private property. Over 60 local officials from across the country sent a letter to Congress opposing a provision to take away local authority to restrict pesticides in the Farm Bill passed by the U.S. House of Representatives in June. At this writing the bill is under consideration.

More Science Findings of Harm

New Zealand scientists, publishing in the journal *PeerJ*, have found that the combination of herbicides (including glyphosate and dicamba) and antibiotics, both found widely in the environment and food supply, contributes to the escalation of widespread bacterial resistance. Scientists found that a combination of herbicide and antibiotic exposure results in the development of offspring that requires higher amounts of antibiotics to control. *E. coli* exposed to Roundup (glyphosate) and Kamba (dicamba), in combination with either tetracycline or streptomycin, ultimately led to microbial populations that required higher amounts of antibiotics to control. Author



Jack Heinemann, PhD, said, "Such combinations can be like trying to put out the raging fire of antibiotic resistance with gasoline."

Residues More Widespread

The number of food products found to contain glyphosate residues is increasing monthly, from bread, honey, beer, to children's cereal. Most recently, the Environmental Working Group found high levels of glyphosate residues in Cheerios and other popular oat-based food products. This adds to earlier findings of glyphosate in General Mills' Nature Valley bars, which the company labeled as "natural," and was the subject of litigation by Beyond Pesticides, Organic Consumers Association, and Moms Across America. General Mills agreed to remove from its product label "Made with 100% Natural Whole Grain Oats."

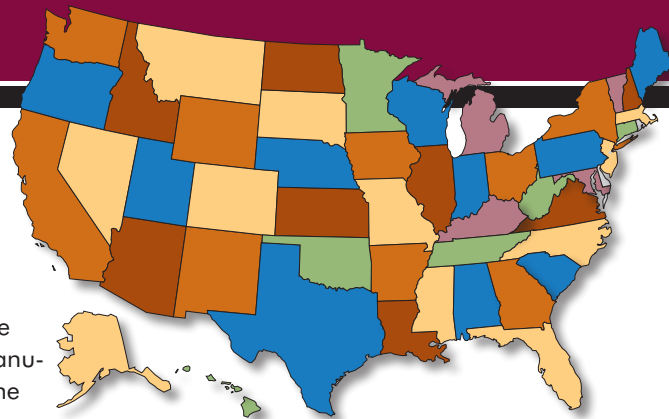
Litigation and local action to ban glyphosate and adopt organic practices are critical tools in the absence of federal action to eliminate the pesticides use. Use Beyond Pesticides' website or contact the organization at info@beyondpesticides for assistance.



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Going Backwards on Bees

The Trump administration has reversed a 2014 U.S. Fish and Wildlife (FWS) decision to ban neonicotinoids on National Wildlife Refuges. When the ban was originally adopted, FWS stated, "We have determined that prophylactic use, such as a seed treatment, of the neonicotinoid pesticides that can distribute systemically in a plant and can potentially affect a broad spectrum of non-target species is not consistent with Service policy. We make this decision based on a precautionary approach to our wildlife management practices . . .," introducing precaution to pesticide policy.



Treated Utility Poles and Railroad Ties Raise Continuing Concern

A lawsuit first filed nearly a decade ago over dioxin contamination released from the storage of chemical treated utility poles was settled in September in U.S. District Court in San Francisco between California utility company Pacific Gas & Electric (PG&E) and the Ecological Rights Foundation (ERF). The settlement commits PG&E to identifying storage yards holding treated poles, and implementing technologies that reduce dioxin levels through the year 2026. The utility poles of concern were treated with the wood preservative pentachlorophenol, which is regulated as a pesticide by the U.S. Environmental Protection Agency

(EPA), and is known to produce dioxin as a byproduct of its manufacture. "Dioxins are among the most toxic chemicals known to science," noted ERF attorney Fredric Evenson.

Meanwhile, residents in the town of Great Barrington, MA raised concerns this fall about the health effects that could result from creosote-coated railroad ties stored in their neighborhood by the Massachusetts Department of Transportation (MDOT), according to a report in the *Berkshire Eagle*. Creosote is identified as a probable human carcinogen by EPA and the International

Agency for Research on Cancer (IARC) of the World Health Organization, and is listed as a carcinogen by the European Union and under California's prop 65. The chemical has also been linked to organ damage, reproductive toxicity, and certain chemical compounds in the creosote mix, such as benzopyrenes and phenols, are considered endocrine (hormone) disruptors. Similar to another wood preservative, pentachlorophenol, banned as a persistent

Bees and Ecosystems at Risk

Reproductive Failure in Bumblebees, Adverse Behavioral Effects in Frogs

Adding to the large body of science, male bumblebees exposed to field-realistic doses show reduced sperm production and 50% mortality at the lowest doses in a *PLOS* published study by researchers at Worcester Polytechnic Institute in Massachusetts. Noting the significant adverse effects of neonic toxicity to the life cycle of wild bees, the consequences of exposure are greatest during bumblebees' mating and nesting phases. Neonicotinoids, like clothianidin, could be dramatically impacting bumblebee populations by lowering the number of reproducers in late summer and, consequently, the number of queens establishing new colonies the following spring. "[Neonicotinoids] pose a potential hazard to wild bumblebees at every stage of their annual life cycle," says Robert Gegear, PhD, coauthor of the study, in an interview with *Mass Live*.

Mosquito Spraying Harms Bees

A study published in the *Journal of Apicultural Research* finds significant numbers of U.S. honey bees at risk after exposure to hazardous synthetic pesticides used for spraying mosquitoes. With many beekeepers rarely given warning of insecticide spraying, researchers say the risk of losing colonies increases. Advocates say spraying for Zika, West Nile Virus, and other mosquito-borne illnesses results in counterproductive insecticide spraying that adds further stress to managed and native pollinators already undergoing significant declines due to habitat loss.

Researchers found 13 percent of U.S. beekeepers at risk of losing colonies from Zika spraying. In addition, it was determined that many regions of the U.S. best suited for beekeeping are also those with favorable conditions for Zika-prone mosquitoes to proliferate. These regions include the southeast, the Gulf Coast, and California's Central Valley. "[Considering] all the threats facing bees," says study lead author Lewis Bartlett of the University of Exeter's Center for Ecology and Conservation in a university press release, "Even a small additional problem could become the straw that broke the camel's back." In its 2016 report, *Mosquito Control and Pollinator Health: Protecting Pollinators in the Age of Zika and Other Emerging Mosquito Diseases*, Beyond Pesticides found, "The U.S. Environmental Protection Agency (EPA) has identified 76 pesticide chemicals that are highly acutely toxic to honey bees." Beyond Pesticides cites this threat in addition to lack of spray efficacy in urging that more serious attention be given to mosquito prevention strategies by the Centers for Disease Control and Prevention (CDC) and local communities.

Amphibians Threatened

New research finds that the ill effects of neonicotinoids also extends to amphibian populations. Scientists at the National Wildlife Research Center in Ottawa, Canada found that chronic exposure to real-world levels of the neonicotinoid imidacloprid limits the ability of juvenile wood frogs to escape a predator attack. This research adds additional evidence that neonicotinoids are harming aquatic food chains, and reinforces calls for U.S. regulators to follow the science and adequately restrict these toxic pesticides.

organic pollutant by the Stockholm Convention, EPA and U.S. regulators have failed to take action, despite the availability of recycled steel, cement, and composite materials for utility poles.

Pesticides Found in All Household Samples in NY

The indoors of rural homes in New York are contaminated with pesticides used outdoors, according to a study published by Cornell University researchers in *JSM Health Education & Primary Health Care*. The study is a warning, especially to households with young children who are at increased risk of health effects from even minute levels of pesticide exposure. “Numerous health problems occur from exposure to pesticides, such as cancer, birth defects, and ocular [vision-related] toxicity, among a number of other health issues,” said Joseph Laquatra, PhD, coauthor of the research. “Households with crawling toddlers should be concerned, as toddlers will accumulate pesticide residues on their hands and then ingest them due to hand-to-mouth behaviors.” Researchers found a range of pesticides in all 132 tested households that agreed to test for pesticide residues. Wipe samples were collected from both carpeted and non-carpeted areas, and tested for pesticides used commonly as part of agricultural production in the region. The pesticides analyzed included 15 compounds ranging from organophosphates, like chlorpyrifos and malathion, to synthetic pyrethroids, like resmethrin, the triazine herbicide atrazine, and the widely used herbicide 2,4-D.

Management of Pesticide Waste a Global Threat

The unsustainable life cycle management of pesticides during the past seven decades has created huge stockpiles of these (and other toxic) chemicals



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More Urgency to Go Organic

Lower Cancer Risk. A population-based cohort study of 68,946 French adults finds that greater consumption of organic food—as opposed to food produced with chemical-intensive practices, which use toxic pesticides and synthetic fertilizers—is associated with a reduction in overall cancer risk, and reduced risk of specific cancers, namely, postmenopausal breast cancer and lymphomas. The *NutriNet-Santé Prospective Cohort Study* was published in October in the journal *JAMA Internal Medicine*.

Increased Productivity and Profitability. The benefits of organic extend to farms, their productivity and profitability. Ecologically-based farming systems contain far fewer pests and generate much higher profits than their conventional, chemical-based counterparts, according to research published in the journal *PeerJ* earlier this year by scientists at South Dakota State University and the Ecdysis Foundation. The study supports calls to reshape the future of agriculture, as “regenerative” farms, which avoid tillage and bare soil, integrate livestock, and foster on-farm diversity. These farms are found to represent an economically viable alternative to overly simplified, pesticide and fertilizer-dependent cropping systems. Given the study’s focus on corn cropping systems, such a shift is possible for thousands of farmers throughout the U.S. Researchers looked at roughly 75 fields on 18 farms, measuring the organic matter in the soil, insect pest populations, corn yield as well as profit. Farms using pesticide treatments, which in corn fields is represented primarily by the use of neonicotinoid-coated seeds, have ten times higher pest levels than regenerative farms.

A Call for Organic Transformation. The Chief Minister of the Sikkim state in northeast India, Pawan Chamling, addressed a news conference in the Italian Parliament in October to issue a call for a complete, global transition to organic agriculture by 2050. Citing the increasing dangers of climate disruption and its impacts, Mr. Chamling said that such conversion to pesticide- and petrochemical-free practices would reduce carbon emissions by 50%.



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across much of the globe, primarily Eastern Europe, Africa, the Middle East, and Latin America. The journal *Environmental Science and Pollution Research* has published a special series of articles and reports from the International HCH & Pesticides Association (IHPA), entitled *The legacy of pesticides and POPs [persistent organic pollutants] stockpiles—a threat to health and the environment*. Stockpiles have accumulated because some products have been banned for health or environmental reasons by governments and international treaty, leaving containers of stocks that deteriorate and migrate to contaminate the environment and put people at risk.

Shareholders Ask General Mills to Reduce Pesticides

Nearly one-third of General Mills shareholders called on the company in October to improve product stewardship and eliminate pesticides, like bee-toxic neonicotinoid insecticides or the probable carcinogenic weed killer glyphosate, from its supply chain.

The proposal was put forward by the nonprofit organization As You Sow, and Green Century Equity Fund (GCEF), a mutual fund. This is the latest public shareholder action GCEF has made regarding corporate pesticide reform, with the company previously putting pressure on the Dr. Pepper Snapple Group for its allowance of pesticides within its supply chain. While the actions are encouraging, some advocates are urging shareholder groups to go beyond increased accountability and transparency and push companies to focus on sourcing organic to ensure that no pesticides contaminate the environment or food products.

The shareholder proposal ultimately garnered support from 31% of General Mills shareholders. “Shareholders believe the company can, and should, do more to protect the health of their supply chain and the public from toxic pesticides,” said Christy Spees, environmental health program manager at As You Sow to the *Star Tribune*.

The proposal states, “While the company asserts that it is currently

‘document[ing] continuous improvement’ concerning environmental impacts from its supply chain for multiple crops, including corn, it has so far not demonstrated that it is measurably tracking and reporting pesticide use reduction.”

Although additional transparency could help shed light on the toxic pesticides making their way into popular General Mills products, sourcing only organic would eliminate any need for such tracking, as organic certification requires all synthetic inputs are vetted under organic standards. As a government program, this approach would provide more accountability through inspections than a third-party certification or an internal corporate tracking process.

Monarch Butterflies in Steep Decline

Monarch butterflies are in the midst of a staggering decades-long population decline that has rapidly accelerated since 2005, research published by an international team of scientists and the University of Florida in October indicates. The study, *A long-term survey of spring monarch butterflies in north-central Florida*, found that monarchs making their way to central Florida after emerging from their breeding grounds in Mexico have declined by 80% over the last decade and a half. This is roughly the same time frame that beekeepers began to see precipitous declines in honey bee colonies. Researchers point to industrial development and increasing pesticide use as factors that have accelerated the decline.

“A broad pattern is that 95 percent of corn and soybean products grown in the U.S. are Roundup Ready crops that resist glyphosate,” said study coauthor Earnest Williams, PhD, of New York’s Hamilton College. “That has a national impact. What’s really needed are patches of native vegetation and nectar sources without pesticides. It’s not just for monarchs, but all pollinators.”