



## We Will Never Forget Bhopal

**D**ecember 2 marks the 35th anniversary of the world's worst industrial chemical accident in Bhopal, India. During the night of December 2, 1984, the Union Carbide pesticide manufacturing plant released the highly toxic gas methyl isocyanate (MIC) into the air of Bhopal. MIC is used in the production of carbamate insecticides carbaryl (Sevin®), aldicarb (Temik®), and a formulation of carbaryl and gamma-hexachlorocyclohexane (g-HCH) (Sevidol®). The reports were horrifying—an estimated 25,000 people died from direct effects of the exposure, and hundreds of thousands suffer from permanent disabilities or chronic problems.

The health effects were not limited to those exposed that night. Generations of children suffer from birth defects as a result of the accident, including what

one doctor described as 'monstrous births.' Many people are still exposed to the contaminated site and chemicals released from it. Big and small, industrial accidents and daily exposure of workers and communities near to production facilities for pesticides and their ingredients are an integral part of the cradle-to-grave harm that occurs as long as pesticides are used in food production and managing landscapes. "Having visited Bhopal and spoken with the victims of the horrific explosion, as well as those who are victimized by daily pesticide exposure across the globe has motivated me to commit all my energy to the transition to a world without toxic pesticides," said Jay Feldman, executive director of Beyond Pesticides. Organic agriculture eliminates the use of toxic chemicals

in food production. The transition from conventional chemical-intensive land management to organic systems is the key step to preventing chemical accidents and daily exposures, while eliminating petroleum-based synthetic pesticides, protecting biodiversity, and reversing climate change," said Mr. Feldman.

## Trump Administration Issues Broad Weakening of Protections from Pesticides

**T**here has been a marathon of deregulation in the Trump administration that benefits the pesticide industry.

### ATRAZINE

The U.S. Environmental Protection Agency (EPA) announced a proposal to increase the amount of the weed killer atrazine allowed in U.S. waterways by 50% during the chemical's registration review—a stark reversal of previous proposals to significantly reduce atrazine levels in the environment. Atrazine, a broadleaf herbicide, is linked to endocrine disruption, neuropathy, and cancer. It disrupts the sexual development of frogs at levels far below the current allowed concentrations by EPA. Studies by Tyrone Hayes, PhD, University of California, Berkeley, and others have shown that concentrations as low as 0.1 ppb turn tadpoles into hermaphrodites. A 2009 study links birth defects to the



**Frogs exhibit birth defects.**

relative concentrations of atrazine and other pesticides in drinking water at the time of conception.

EPA's proposal would increase the Concentration Equivalent Level of Concern (CELOC), a limit established to protect aquatic organisms, by 50%. The new EPA position reverses its 2016 assessment based on a finding that *levels of concern for chronic risk are exceeded by as much as 22, 198, and 62 times for birds, mammals, and fish, respectively.*

### PYRETHROIDS

EPA stripped away protections that limit children's exposure to a class of chemicals associated with childhood cancer, autism, and other learning disorders. The result of the agency's actions will dramatically increase the use of synthetic pyrethroids, insecticides found in indoor and outdoor bug sprays, bug bombs, and often used on conventionally grown fruits

and vegetables. The agency, without scientific support, is eliminating the safety factor for children and allowing exposure to increase by three times. Pyrethroids are a common class of neurotoxic insecticides that have been repeatedly linked by peer-reviewed studies to neurological issues. They are also extremely damaging to non-target invertebrates, according to EPA's own analysis.

### PARAQUAT

EPA is downplaying the connection between exposure to the herbicide paraquat and the development of Parkinson's disease, per registration review documents released by the agency in October. Although unsurprising given the current administration's track record of defending some of the most heinous chemicals still on the market, the review nonetheless marks a low point for scientific integrity within EPA's Office of Pesticide Programs, according to advocates. In a similar manner to how the agency conducted its epidemiological evaluation of pyrethroids, EPA made broad statements dismissing scientific evidence as insufficient. While the chemical has been banned in the European Union since 2007, as a 2016 *New York Times* exposé found, millions of pounds are still being imported into the U.S. from other countries and sprayed on nearly 15 million acres of U.S. cropland. Advocates are pushing for Congressional passage of HR 3817, the *Protect Against Paraquat Act*, introduced by Congresswoman Nydia Velazquez (D-NY).

### ENDANGERED SPECIES

The Trump Administration has reignited the attack on the *Endangered Species Act* (ESA), one of the most effective environmental laws in restoring threatened and endangered species and their habitat. New rules will: (i) weaken the consultation process designed to prevent harm to endangered animals and their habitats from federal agency activities; (ii) curtail the designation of critical habitat and weaken the listing



© iStockphoto/Marlia Zaporozhtseva

process for imperiled species; and (iii) eliminate all protections for wildlife newly designated as "threatened" under the Act. With species declining across the globe, protecting those already at heightened risk is a major goal of environmental organizations. An important provision of the Act is the requirement that every federal agency that proposes to authorize, fund, or carry out an action that may affect a listed species or its critical habitat must consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. Although many species—including the bald eagle, Florida manatee, and California condor—have been protected and brought back from the brink of extinction under the ESA, an estimated 500 species have disappeared in the past 200 years. With these serious rollbacks, pesticide use will exacerbate the loss of species.

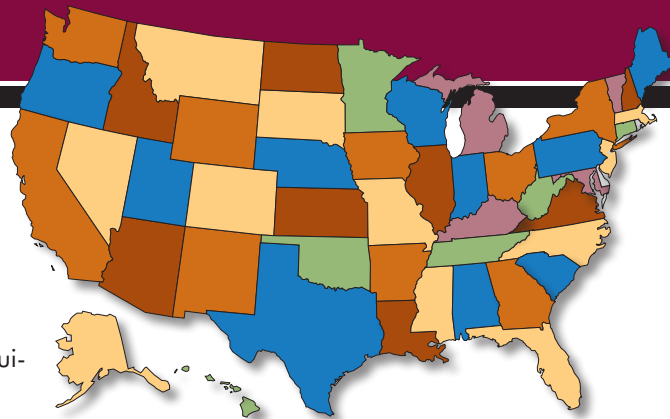
### HONEY BEE DATA

The U.S. Department of Agriculture (USDA) is suspending indefinitely the data collection for its Honey Bee Colonies Survey and Report. The move came less than three weeks after EPA once again

approved "emergency" uses of the pesticide sulfoxaflo, a bee-killing compound similar to the notorious neonicotinoids, insecticides that contribute significantly to the phenomena of pollinator collapse ("colony collapse disorder") and massive insect loss ("insect apocalypse") that are underway worldwide.

### FROM ORGANIC TO GENETICALLY ENGINEERED

The People's Garden, a show place for organic production when it was established on the grounds of USDA on the national mall in 2009, has been renamed and remodeled to highlight genetically engineered (GE) crops and farming techniques that directly counter the organic movement. The new exhibit, entitled "Voice of the Farmer," is part of the "Trust in Food" initiative of *Farm Journal* magazine. Ironically, the former name of the garden honored President Abraham Lincoln's description of USDA as "The People's Department." The People's Garden initiative supported a collaborative effort of over 700 local and national organizations working to advance community and school gardens.



## City of South Miami Becomes First Organic Community in Florida

The City of South Miami in October became the first organic community in the state of Florida, passing a landmark ordinance limiting hazardous pesticide use on public property in favor of safer practices. An increasing number of communities in the state have begun to restrict the use of toxic pesticides, with North Miami passing an Integrated Pest Management plan last year, and Miami, Stuart, and Key West banning glyphosate. South Miami, embracing organic under the direction of Mayor Phillip Stoddard, PhD—also a professor of Biological Science at Florida International University—has a history of leading the state in the protection of public health and the environment. In 2014, the city declared South Miami a wildlife sanctuary, thereby restricting the use of highly toxic mosquito spraying. The move protected populations of the state’s rare and endemic wildlife, such

as the Florida bonneted bat, which begins to feed on mosquitoes in the spring at the same time spraying usually begins.



© iStockphoto/Meritkov

## Fungicides Linked to Ecosystem Disruption, Algal Blooms

Commonly used fungicides induce trophic effects cascading down the food web and leading to the overgrowth of algae, according to research published in the journal *Chemosphere*. Real world complexities not studied under current regulatory review lead to the allowance of significant adverse effects not just on individual species, but entire ecosystems. Researchers investigated how fungal parasites known as chytrids control the growth of phytoplankton. While some strains of chytrids are notorious for their impact to frog species, some do in fact provide important stopgaps within ecosystems. “By infecting cyanobacteria, parasitic fungi limit their growth and thus reduce the occurrence and intensity of toxic algal blooms,” says Institute of Freshwater Ecology and Inland Fisheries (Berlin) researcher Ramsy Agha, PhD, co-author the study. “Whereas we usually perceive disease as a negative phenomenon, parasites are very important for the normal functioning of aquatic ecosystems and can—as in this case—also have positive effects. Pollution by fungicides can interfere with this natural process,” the researcher adds.

exposure to both fungicides results in a significant reduction in infections by the chytrid parasite, facilitating harmful algae blooms by suppressing fungal pathogens that otherwise control their growth.

The agricultural fungicides tebuconazole and azoxystrobin were tested on chytrid-infected toxic bloom-forming cyanobacteria in a laboratory setting. At real world concentrations,



© iStockphoto/Casarsa Guru

## Monsanto's Trail of Contamination and Poisoning

### MONSANTO POISONS THEN SKIRTS LAW IN HAWAII

**B**ayer Monsanto endangered public health and the environment by knowingly storing and applying the highly hazardous and banned insecticide methyl parathion on Maui, Hawaii, according to a release from the U.S. Attorney's office for the Central District of California. While the company admitted the crime, it went to work to get the crime and charges downgraded from criminal to a misdemeanor. According to reports from the Project on Government Oversight (POGO), the California U.S. Attorney's office was prepared to file full felony charges against the company for its violation of federal pesticide and hazardous waste disposal laws. Bayer Monsanto went to the Department of Justice, according to this report, and negotiated the downgraded charge. As POGO indicates, circumventing the long-held tradition of autonomy within U.S. Attorney offices is intended to occur only "in the most unusual of circumstances." Filed in court documents in the case against Monsanto was an internal 2018 email citing a White House commitment to the company: "We have Monsanto's back on pesticides regulation. We are prepared to go toe-to-toe on any disputes. . . . Monsanto need not fear any additional regulation from this administration. "

### ATTACK ON CALIFORNIA AUTHORITY TO RESTRICT PESTICIDES

**E**PA is challenging a California required pesticide label that discloses that the herbicide glyphosate may cause cancer. The move comes after the state of California listed glyphosate on its Prop 65 list of chemicals known to cause cancer, birth defects, or other reproductive harm. While a state judge gave the Prop 65 warning labels the go-ahead, a prior ruling from U.S. District Court



© iStockphoto/IdealPhoto30

Judge William Shubb, a President H.W. Bush appointee, in Sacramento placed a preliminary injunction on the California requirement that remains in place today. The state added glyphosate to its Prop 65 list after the International Agency for Research on Cancer (IARC) designated the chemical as a group 2A carcinogen (probably cancer causing). Under Prop 65, California regulators are required to provide "clear and reasonable" warning labels when any one of four requirements in the law are triggered. IARC's designation by the state as an "authoritative body" thus prompted the listing. In the agency's press release, EPA Administrator Andrew Wheeler said, "It is irresponsible to require labels on products that are inaccurate when EPA knows the product does not pose a cancer risk." We will not allow California's flawed program to dictate federal policy."

### GROUPS CALL FOR GLYPHOSATE BAN

**S**ixteen organizations representing health, environmental, farmer, and farmworker communities joined together in September to call on EPA to remove glyphosate from the market. The groups cite a combination of high-profile lawsuits, environmental impacts, increasing reports of weed resistance, and growing public concern over the health effects of glyphosate in their comments on EPA's interim reregistration review decision for the chemical. The comments warn that EPA is further damaging the public's trust in the agency's review process for toxic pesticides. The groups challenge EPA's attack on IARC, citing it being in the "forefront of scientific determinations on carcinogenicity since its founding prior to EPA in 1965."

## Brain Damaging Pesticides Banned in EU, while Ban Proposed in New York

In early December, the European Union (EU) voted to ban the neurotoxic insecticides chlorpyrifos and chlorpyrifos-methyl from use beginning February 1, 2020. Shortly after, the Governor of New York, Andrew Cuomo, vetoed legislation to ban chlorpyrifos and instead issued an immediate ban on aerial application, and proposed a regulatory phase-out that bans all uses by December 2020, except use on apple tree trunks by July 2021. The proposal is subject to a public comment period.

The EU regulatory committee decided not to renew approvals following a European Food Safety Authority (EFSA) finding, released in August, that there is no safe exposure level for chlorpyrifos. In the absence of federal action on the pesticide in the U.S., individual states are deciding to stop its use.



© iStockphoto/yousunrjilidiz

Chlorpyrifos damages fetal brains and produces cognitive and behavioral dysfunctions, particularly in 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. Farmworkers are at heightened risk of acute exposure effects of the chemical (including accidents and spills), which can cause respiratory paralysis and even death.

A study published by University of California Berkeley researchers in the *Proceedings of the National Academy of Sciences*—among the first to use advanced brain imaging to assess cortical activation—shows altered brain activity during tasks that call on executive function in teenagers from California's Salinas Valley (the site of significant organophosphate use) whose mothers were exposed prenatally.

## Tracking Bees

### INSPECTOR GENERAL: EPA'S EFFORTS TO PROTECT BEES FALL SHORT

The Office of the Inspector General (OIG) for EPA released a report this summer criticizing EPA's oversight of states' Managed Pollinator Protection Plans (MP3s). OIG audited the agency's performance in overseeing MP3s, voluntary plans adopted at the state level with the goal to "reduce pesticide exposure to pollinators (generally, honey bees managed and contracted out to growers for pollination services) through timely communication and coordination among key stakeholders." The report includes findings that EPA has: no means to evaluate the national impact of MP3s; not developed a strategy to use data from a planned fall 2019 survey to evaluate either the national impact of MP3s or the agency's support of state MP3 implementation efforts; and, focused primarily on acute risks (those that occur during a single exposure to a specific pesticide), and gives insufficient attention to chronic exposures to pesticides and to native pollinator protection activities. The MP3 program began in 2014 when President Barack Obama issued a memo

establishing a Pollinator Health Task Force (PHTF), directing federal agencies to take action to improve the health of bees and other pollinators.



### STUDY AGAIN CONFIRMS IMPORTANCE OF BEES

Bees offer greater economic benefits to farmers than synthetic inputs, according to a large-scale field study published in *Proceedings of the Royal Society B* (biological research) in October. Addressing the ongoing question regarding the costs and benefits of biodiversity as compared with chemical use in agriculture, the researchers' conclusion are captured in the title of their article, "Bee pollination outperforms pesticides for oilseed crop production and profitability." Data for the study was collected over six years from 294 oilseed rape (OSR) fields in France with various levels of soil quality, fertilizer and pesticide applications, and pollinator abundance. Researchers measured pollinator biodiversity with nets and traps at the field sites. Farmers offered data on yield, costs, and profits. The study analyzed combined effects of inputs on OSR yield and found that bee abundance is the only variable that has a positive effect on profitability.