EARTHJUSTICE

POISONED FOOD, POISONED BRAINS

Mapping dangerous pesticides in the foods we eat

Claudia Angulo and her son Isaac (left). *Photo Credit / Craig Kohlruss for Earthjustice.* **Penny Richards at her home in Oswego, IL. Behind her is the farmland where pesticides were sprayed when she was pregnant with her son (right).** *Photo Credit / Jamie Kelter Davis for Earthjustice.* **Angulo and Richards, both have children with intellectual challenges.**

Background

Since the mid 1960s, the country's fruits and vegetables have been sprayed with organophosphate pesticides, harmful man-made chemicals that sound scientific evidence shows, impair children's neurological abilities and poison workers. The dire human health consequences of organophosphates are not accidental. In the 1940s, the Nazis developed organophosphates for chemical warfare. After World War II, chemical companies repurposed this class of nerve agents for agricultural use. With the demise of DDT and similar pesticides in the 1970s, organophosphate use in agriculture exploded and now, they are sprayed on dozens of crops in the United States, including 50 percent of apples, all major citrus crops, corn, table grapes, and cherries, to name just a few.

In August 2021, the Environmental Protection Agency (EPA) banned chlorpyrifos – the most infamous organophosphate – from food after Earthjustice and its clients repeatedly sued and won in court. Earthjustice's argument was simple. Scientific studies show chlorpyrifos cannot be used on fruits and vegetables because it is unsafe for the general population, especially children and workers. When EPA announced the ban, it said in a press release that it was banning chlorpyrifos from "all food to better protect human health, particularly that of children and farmworkers." The ban is set to take effect in the winter of 2022.

But chlorpyrifos is just one of dozens of organophosphates that were reauthorized for use in agricultural fields in 2006, even though all organophosphates poison the nervous system and harm children's brain development. In fact, decades of scientific research finds that exposure to organophosphates, particularly during pregnancy, can lead to reduced IQ, loss of working memory, and attention deficit disorders in children. These harms can occur at even lower levels of exposure than those that cause acute poisonings, according to studies that tracked mothers and children. What is more, at allowable levels of exposure, organophosphates can cause acute poisoning to farmworkers, even when workers wear the most protective equipment.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

By law, EPA must ensure pesticide use complies with health and environmental standards. This is why it is conducting new registration reviews for over a dozen organophosphates. In November of 2021, Earthjustice filed a petition along with health, community, and farmworker groups to ban organophosphates. It did so after it reviewed and extracted data from 17 organophosphate human health risk assessments conducted by EPA, as well as agricultural pesticide usage data from the United States Geological Survey (USGS). The goal of this report and database is to document the location and amount of organophosphate usage in the United States, in addition to the dangerous health effects associated with exposure. These 17 organophosphates were selected due to their known harmful health effects and/or widespread use. The data Earthjustice analyzed is available for the public to extract and explore in a **searchable database at earthjustice.org/organophosphates**. Chlorpyrifos is included in this database, as it still being used in the United States.

The database shows where and on what crops organophosphates are used on, the foods that contain high levels of pesticide residues, high-risk exposure pathways, and a summary of human health effects associated with organophosphate exposure. The database also includes links to EPA's health risk evaluations as well as brief regulatory history. This is the first time that organophosphate risk findings and USGS mapping data have been collated. And the findings are staggering.

A farmworker makes her way through a tomato crop in Ventura, CA.
Photo Credit / Dave Getzschman for Earthjustice

Key Takeaways

Organophosphate pesticides are pervasive in our environment. They are in the air we breathe, the water we drink, and the food we eat.

Certain regions where organophosphates are used most heavily are particularly at-risk, including central and southern California, Arizona, Louisiana, Mississippi, Alabama, central and southern Florida, southern Georgia, and South Carolina.

Exposure to organophosphate pesticides occurs from multiple pathways and is associated with a wide range of adverse health effects, including cancer and reproductive damage.

All organophosphate pesticides are acutely neurotoxic – meaning that people who are exposed at high doses over a brief period can experience severe neurological symptoms – and are linked to neurodevelopmental harm to fetuses and infants. Many of the organophosphates in this analysis are also carcinogenic on some level[i] and/or associated with reproductive harm.

Farmworkers who directly handle organophosphates are at most immediate risk of exposure, but people living in the United States can be exposed to organophosphates through multiple pathways, including through their drinking water, food, and even around their homes through pesticide drift.

Organophosphate pesticides residues on food and in drinking water are widespread and pose a risk to human health, particularly in children.

Communities are exposed to organophosphates through food and drinking water, even if they don't live near agricultural fields. Organophosphate residues have been detected in a variety of fresh produce, sometimes at levels that exceed allowable limits that are already too high to protect children from neurodevelopmental harm. Organophosphates can also be found in fruits and vegetables that are not legally allowed to have these pesticides on them, like basil. Infants and toddlers face the greatest risk of harm. In the case of some organophosphates, children are exposed to more than 100 times EPA's risk levels of concern.

i. A carcinogen "at some level" is defined as either a possible/suggestive or likely carcinogen, as classified by EPA in the organophosphate human health risk assessments. EPA classified the following OP pesticides as "possible" or "suggestive" carcinogens, indicating limited evidence from animal studies of carcinogenicity: Acephate, Dichlorvos, Dicrotophos, Dimethoate, Malathion, and Phosmet. EPA classified the following organophosphates as "likely" carcinogens, indicating sufficient evidence from animal studies of carcinogenicity: Ethoprop and Tribufos. For Ethoprop, EPA further considered and found cancer risks of concern in its human health risk assessment.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

People living near fields where organophosphate pesticides are used are at even greater risk of harm.

EPA found that people who live near fields where organophosphates are used, here referred to as "residential bystanders," can experience dangerous levels of exposures. Some of these communities are already more vulnerable to harm than the general population. For example, in Imperial County, California, a majority Latino community, residents tend to be economically disadvantaged, have poor access to healthcare and suffer from high rates of underlying respiratory disease like asthma.[ii] These factors can individually and in combination, increase the likelihood of residents in this community to experience serious harm from organophosphate exposures.[iii]

Findings in detail

EPA assessments show that organophosphates are pervasive in our environment. They can be found in nearly every major agricultural state, though hotspots for multiple kinds of organophosphates are found in central and southern California, Arizona, Louisiana, Mississippi, Alabama, central and southern Florida, southern Georgia, and South Carolina. And these hot spots are based on low estimates. If one considers high estimates, meaning USGS incorporates anecdotal evidence of use, Idaho, Kansas, Arkansas, Oklahoma, North Carolina, and Pennsylvania can be added to the list.

The most immediate and dangerous effects of organophosphates fall on workers who directly apply them to crops or work in fields where they are used. Living near the treated fields also poses dangers. For more than half of the organophosphates examined, adults and children living near treated fields can face harm from exposure to pesticide drift through the skin or mouth, according to federal agency assessments. For some of the organophosphates examined, inhalation is likely the way residents face harm; these are men, women and children who breathe in neurotoxic chemicals just because of where they live.

But organophosphates do not just stay in the fields. Federal agency assessments have detected organophosphate residues on fruits and vegetables sold in U.S. stores at levels that pose risks to human health. Every year, organophosphate residues are found on produce at levels that exceed the allowable limits set by EPA, and these limits are already too high to protect children from neurodevelopmental harm. Some organophosphates were even detected on fruits and vegetables that should not have the residues on them at all, like cilantro and sweet bell peppers. This means people in the United States live in the dark as they bring organophosphates lurking in fresh produce into their homes.

Organophosphates applied on food millions of people eat are linked to cancer, reproductive damage, and harm to the immune system, in addition to neurodevelopmental harm. Of the 17 organophosphates examined, nearly half are characterized as carcinogens on some level and/or associated with reproductive harm. One is associated with immunotoxicity.

Warnings about dangerous pesticides are posted next to agricultural fields in that surround a school in Salinas, CA. *Photo Credit / Martin DoNascimento for Earthjustice*

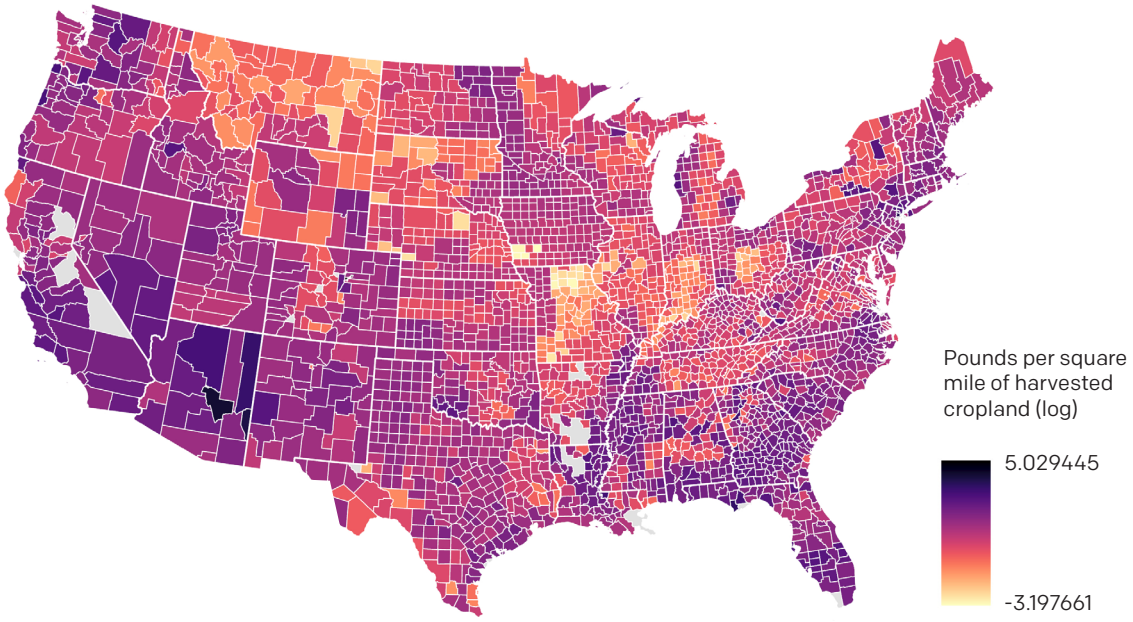
ii. *Farzan, S. F., Razafy, M., Eckel, S. P., Olmedo, L., Bejarano, E., & Johnston, J. E. (2019). Assessment of Respiratory Health Symptoms and Asthma in Children near a Drying Saline Lake.* International journal of environmental research and public health, *16(20), 3828. https://doi.org/10.3390/ijerph16203828.*

iii. *Cliona M. McHale et al., Assessing Health Risks from Multiple Environmental Stressors: Moving from G×E to I×E, 775 Mutational Research 11– 20 (Jan. 2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5863617/; NRC, Science and Decisions: Advancing Risk Assessment at 110, 111, and 213 (2009), https://pubmed.ncbi.nlm.nih.gov/25009905/.*

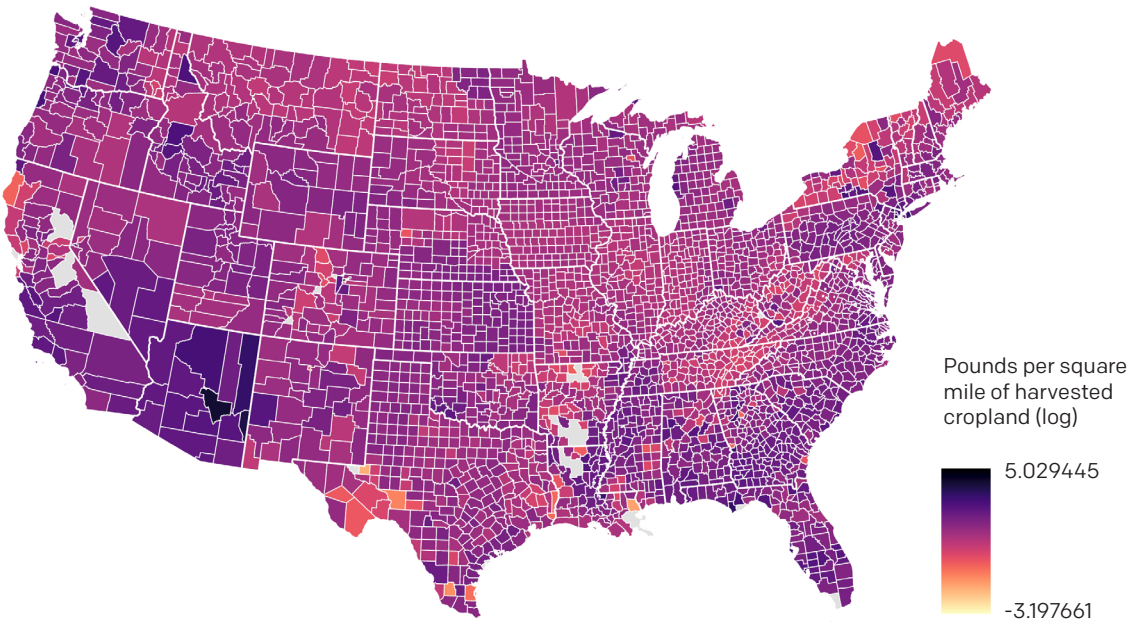
PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

Organophosphate pesticides are pervasive in our environment. They are in the air we breathe and the food we eat.

Earthjustice's database and maps based on government data show that organophosphates are used most heavily in central and southern California, Arizona, Louisiana, Mississippi, Alabama, central and southern Florida, southern Georgia, and South Carolina.

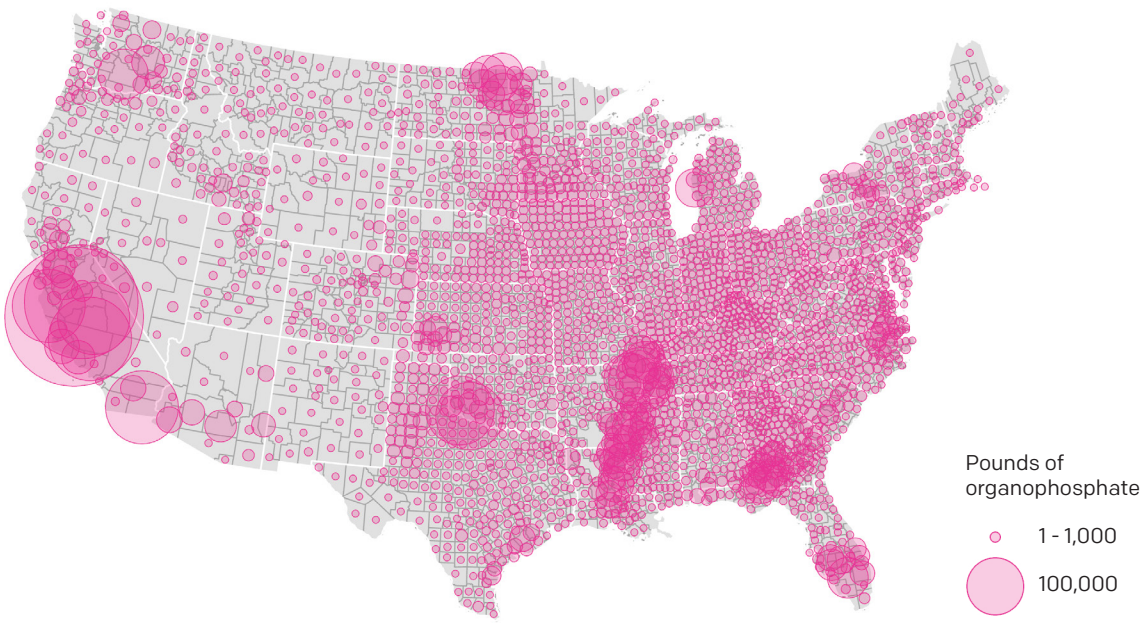


Map 1: Estimated Organophosphate Use across County Harvested Cropland, 2017 EPest-low Method

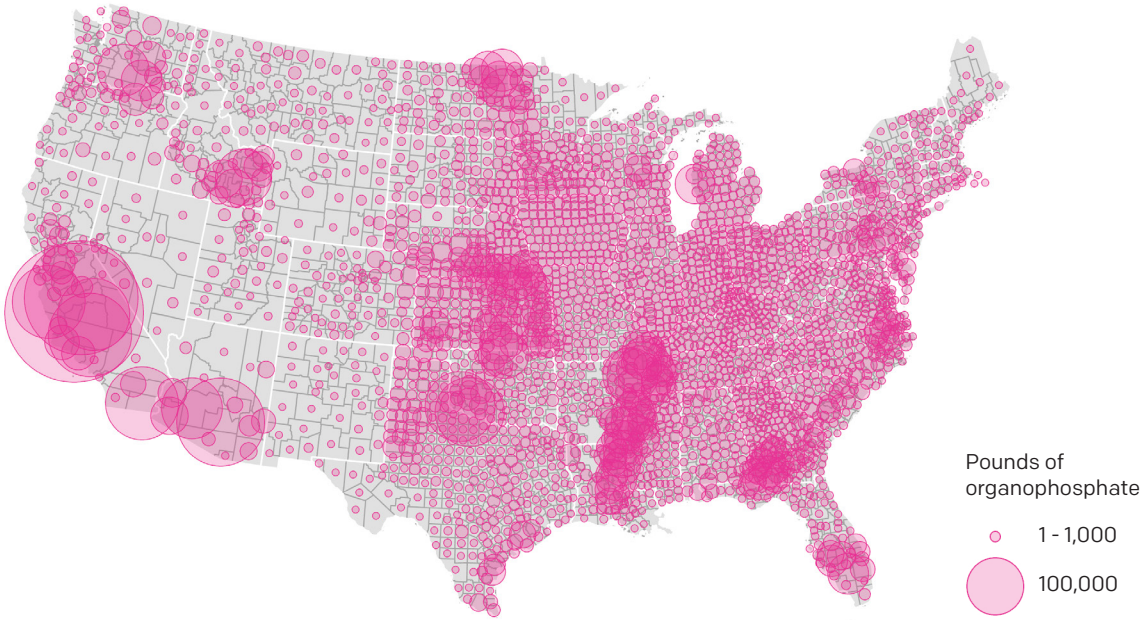


Map 2: Estimated Organophosphate Use across County Harvested Cropland, 2017 EPest-high Method

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org



Map 3: Estimated Volume of Organophosphate Use by County, 2017 EPest-low Method



Map 4: Estimated Volume of Organophosphate Use by County, 2017 EPest-high Method

USGS *EPest-low and EPest-high estimates indicate a range of crop-specific pesticide use based on surveyed data obtained by each state, except for the state of California. EPest-low estimates rely on models that assume zero use for any crop where pesticide use data was not reported within a Crop Reporting District ("CRD"), and thus more accurately reflects that. The USGS calculated pesticide use estimates by applying pesticide-by-crop use rates to the harvested acreage for each crop in each CRD. Note that the concentrations indicated in the maps above reflect the USGS estimates allocated to total harvested acreage for all crops reported in the county and total harvested acreage for all crops reported in the state. For this reason, unless all harvested crops reported in the county or reported in the state were applied with OPs, the concentrations found on the maps will be diluted in comparison to the true concentration. Methods for how the concentrations were calculated are described in Maps: Organophosphate Pesticides in the U.S.*

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

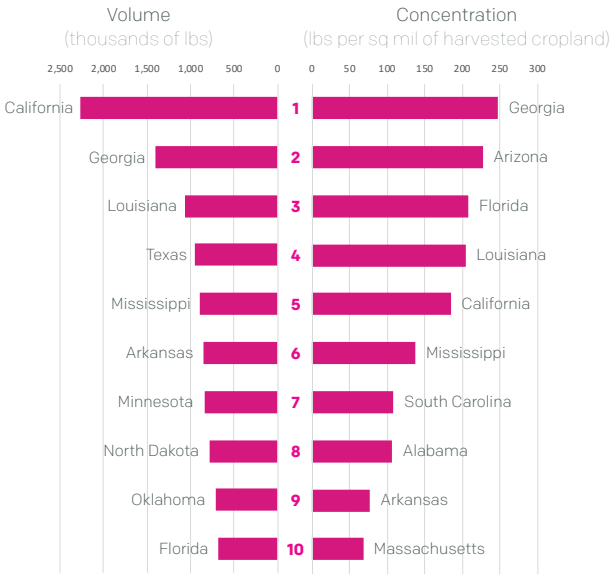


Figure 1: Ranking of States (Top 10) Based on Aggregate Organophosphates Use, 2017 EPest-low Method

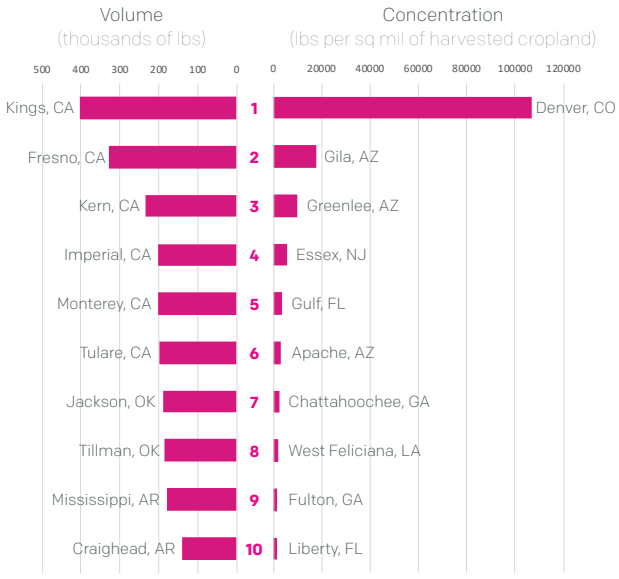


Figure 2: Ranking of Counties (Top 10) Based on Aggregate Organophosphates Use, 2017 EPest-low Method

Exposure to organophosphate pesticides occur from multiple pathways and is associated with a wide range of adverse health effects.

People can be exposed to organophosphates through multiple pathways, including through their drinking water, food, and even around their homes. Even at low levels of exposure, organophosphates can lead to serious negative health effects.

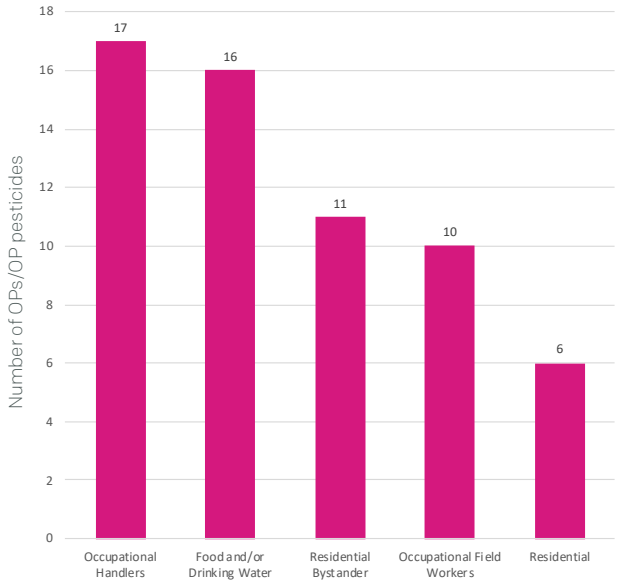


Table 1: Dietary Risk of Organophosphates in Children and Infants[iv]

	21-DAY DIETARY EXPOSURE ANALYSIS IN CHILDREN			
PESTICIDE	HIGHEST RISK AGE GROUP*	HIGHEST RISK EXPOSURE PATHWAY		TIMES HIGHER THAN EPA'S RISK THRESHOLD
		DRINKING WATER	FOOD	
Acephate	Infants	●		18
Bensulide	Infants	●	●	>100
Chlorethoxyfos	Infants	●		240
Chlorpyrifos-methyl	Children		●	1.4
Diazinon	Infants, Children	●		>100
Dichlorvos	Infants	●	●	5.9
Dicrotophos	Infants	●		3.2
Dimethoate	Infants	●	●	12
Ethoprop	Infants	●		>100
Malathion	Infants	●		4.8
Naled	Infants	●		5.5
Phosmet	Infants, Children		●	19
Terbufos	Infants	●	●	>100
Tribufos	Infants	●	●	2.26

Figure 3: Dietary Risk of Organophosphates in Children and Infants[v]
*Infants are defined as <1 year old. Children are defined as 1-2 years old

iv. Note: this does not reflect dietary risk from phorate exposure because EPA has not conducted a human health risk assessment for phorate since 1999.

v. Note: this does not reflect dietary risk from phorate exposure because EPA has not conducted a human health risk assessment for phorate since 1999.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

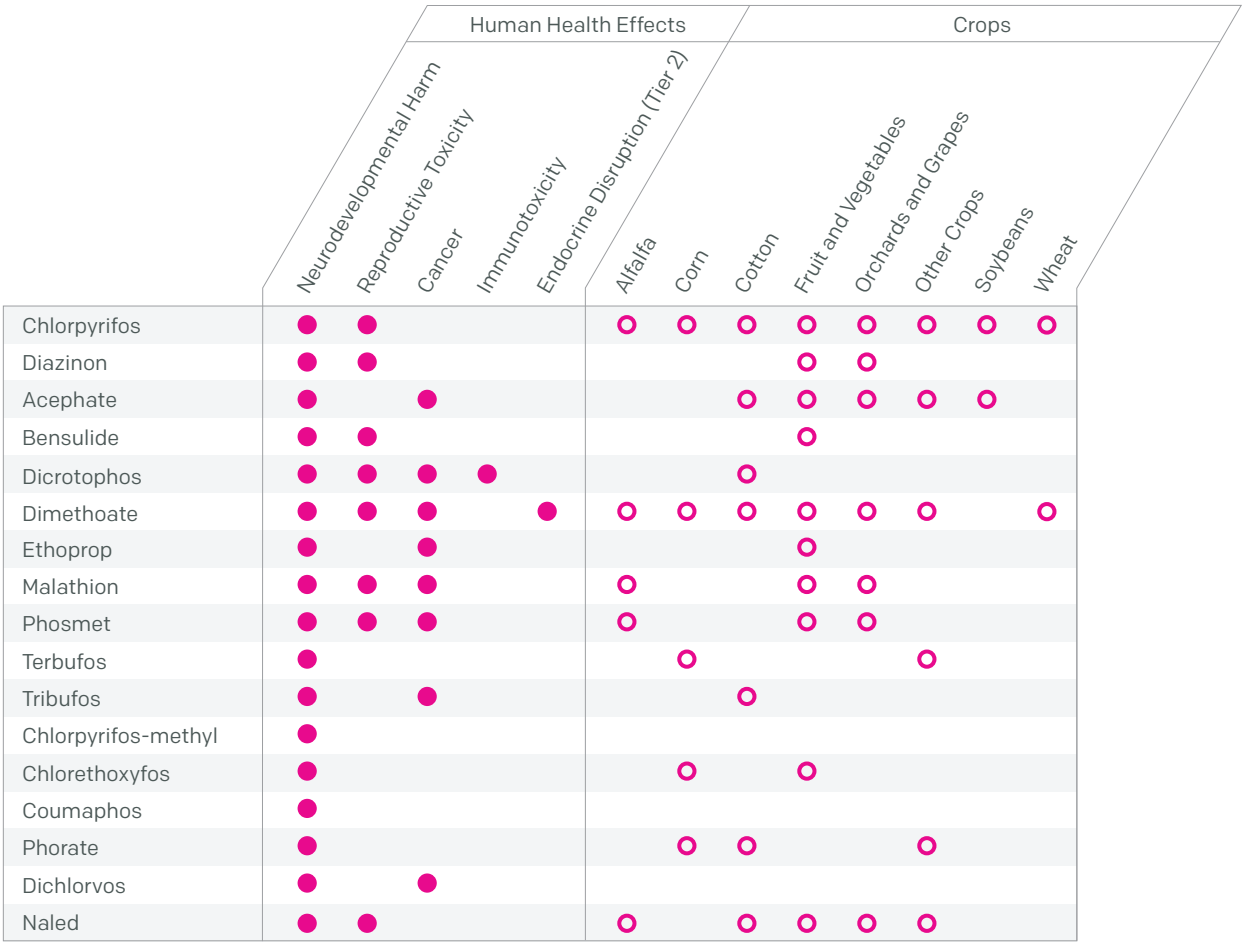


Figure 4: Table of Health Effects Side by Side With Crops, by Pesticide

All organophosphates are **acutely neurotoxic, meaning that people who are exposed over a short period of time can experience severe neurological symptoms. They also are linked to neurodevelopmental harm to fetuses and infants at lower exposure levels**. Beginning in 2014, EPA found that chlorpyrifos exposure during pregnancy is linked to long-term harm to children's developing brains, causing lower IQs, loss of working memory, developmental delays, attention deficit disorders, and structural changes in the brain.

In addition to neurotoxicity, organophosphates are associated with other serious health effects like cancer and reproductive harm. Of the 17 most dangerous and commonly used organophosphates (those examined in the database):

- Nearly half (8 out of 17) are characterized as carcinogens on some level.[vi]
- Nearly half (8 out of 17) are associated with reproductive harm.[vii]
- One is associated with immunotoxicity.[viii]
- One is associated with endocrine disruption.[ix]

vi. The following OP pesticides were associated with carcinogenicity on some level, according to the US EPA: Acephate, Dichlorvos, Dicrotophos, Dimethoate, Ethoprop, Malathion, Phosmet, and Tribufos.
vii. The following pesticides were associated with reproductive harm, according to the US EPA: Bensulide, Chlorpyrifos, Diazinon, Dicrotophos, Dimethoate, Malathion, Phosmet, and Naled.
viii. Dicrotophos is associated with harm to the immune system, according to the US EPA.
ix. Dimethoate is associated with disruption of the endocrine system, according to the US EPA.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

Organophosphate residues on food and in drinking water are widespread and pose a risk to human health, particularly children.

People in the United States are exposed to organophosphates through their diet, even if they don't live near fields where organophosphates are sprayed. EPA's risk assessments conducted between 2014-2016 determined food and/or drinking water are concerning pathways of exposure in the general population for all the most dangerous and commonly used organophosphates.[x] Yet the agency failed to take action to protect the public while organophosphates have been languishing in the registration review process for years.[xi] **Susceptible groups like infants and toddlers face greater risk of harm from dietary exposure** to organophosphates. As shown in Figure 4, steady-state (21-day) exposures to most of these pesticides examined at these young age groups show infants and toddlers are exposed to dangerous levels **– some over 100 times higher – than EPA's levels of concern**.

According to food residue monitoring data obtained by the USDA Pesticide Data Program (PDP), **organophosphate residues are found on food products sold in the US**.[xii] EPA set limits on which organophosphates could be on which crops, and how much. And yet, the most recent data from 2018 - 2019 shows that some foods still have levels of residues that exceed allowable limits, and on other foods, residues were found even though the food was not legally allowed to have organophosphates at all.

Residues were detected at levels that **exceeded the allowable limits on**:

- **Cilantro** (Chlorpyrifos, Acephate)
- **Basil** (Chlorpyrifos, Acephate)
- **Raisins** (Chlorpyrifos)
- **Mangoes** (Acephate)
- **Mustard greens** (Acephate)
- **Snap Peas** (Dimethoate)

Residues were detected even though they are not legally allowed to have residues of the OP on:

- **Cilantro** (Diazinon, Dimethoate, Ethoprophos)
- **Basil** (Diazinon, Dimethoate, Malathion)
- **Frozen Strawberries** (Dimethoate)
- **Frozen Spinach** (Dimethoate)
- **Mangoes** (Dimethoate)
- **Sweet bell peppers** (Ethoprophos)

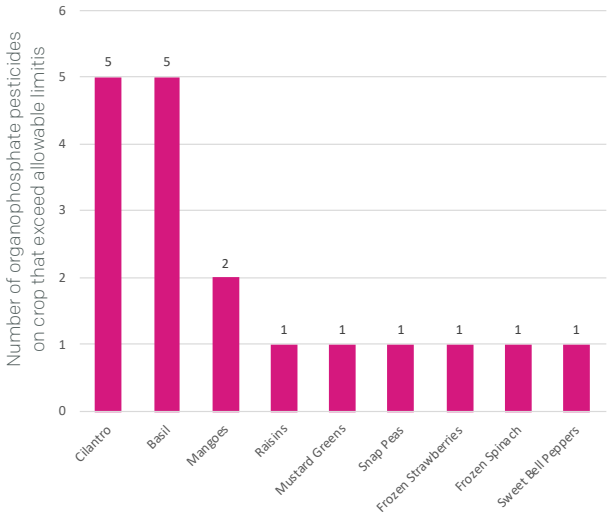


Figure 5: Food Tolerance Violations (Foods Listed Above)

Penny Richards shows a portrait of her family. *Photo Credit / Jamie Kelter Davis for Earthjustice*

x. Note: this does not reflect dietary risk from phorate exposure because EPA has not conducted a human health risk assessment for phorate since 1999.
xi. List of OP pesticides found in food and/or drinking water at levels of concern to the general population: Acephate, Bensulide, Chlorethoxyfos, Chlorpyrifos, Chlorpyrifos-methyl, Coumaphos, Diazinon, Dichlorvos, Dicrotophos, Dimethoate, Ethoprop, Malathion, Naled, Phosmet, Terbufos, and Tribufos.
xii. See point 5 in the "Methodology" section for details on our PDP analysis methodologies.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

People living near fields where organophosphate pesticides are used are at risk of harm to their health.

EPA found that people who live near fields where organophosphates are used, referred to as "residential bystanders," can experience dangerous levels of exposures to these pesticides. These exposures occur primarily from pesticides sprayed through the air that migrate from agricultural fields to nearby neighborhoods either as drift following spray application, called "spray drift", or as lingering particles that can migrate from fields over time.

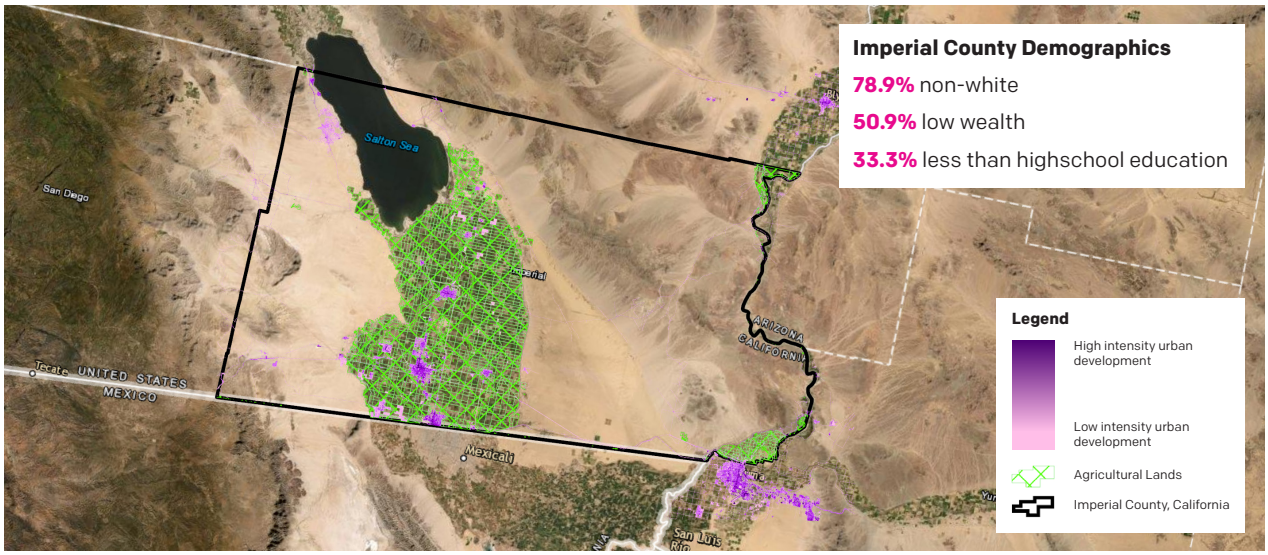
Through these routes, residential bystanders can be exposed to high levels of organophosphates by breathing in, touching, or ingesting pesticide residues around their homes.

EPA found that in residential bystanders (including both adults and children):

- Oral, skin, and inhalation exposures resulting from pesticides sprayed through the air were associated with risk levels of concern for **more than half (11 of the 17) organophosphates examined**.[xiii]
- Because the residues of pesticides sprayed through the air can drift long distances from the field, EPA identified the need for no-spray buffers around schools, homes, playfields, and other places people gather to prevent toxic exposures to these pesticides.
- Despite this fact, EPA has **not required these buffers for any of the organophosphate pesticides**, besides chlorpyrifos, leaving children in low-income families and communities of color especially at risk.

These finding are alarming, and yet still likely underestimate the true risk of harm to bystanders from exposure to organophosphates. Take for example communities residing in Imperial County, CA, where aggregate organophoshate use (in pounds) is ranked 4th in the country (see Figure 2), and residents are predominantly non-white and low income, with over 30% of the population receiving less than a high school degree.

Studies have shown that psychosocial stress from factors like poverty and racial injustice can make communities like those in Imperial County more susceptible to harm from organophosphate exposure than the general population.[xiv] EPA does not take these factors into account when assessing risk, and in doing so, fails to protect communities that are already burdened by racial and social injustice and dangerously high levels of pesticide exposure.



Map showing proximity of urban developments to agricultural fields in Imperial County, CA. Imperial, population 181,000, is one of the highest users of organophosphates in the country. *Created by Hetty Chin / Earthjustice; Basemap: Esri, HERE, Earthstar Geographics; Data Sources: USCB, USGS NLCD 2016, U.S. EPA EJSCREEN Indexes – 2017*

xiii. The following OP pesticides are associated with risk levels of concern as a result of spray drift, according to the US EPA: Acephate, Bensulide, Chlorpyrifos, Diazinon, Dicrotophos, Dimethoate, Ethoprop, Malathion, Naled, Phosmet, and Tribufos.

xiv. Cliona M. McHale et al., Assessing Health Risks from Multiple Environmental Stressors: Moving from G×E to I×E, 775 Mutational Research 11– 20 (Jan. 2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5863617/; NRC, Science and Decisions: Advancing Risk Assessment at 110, 111, and 213 (2009), https://pubmed.ncbi.nlm.nih.gov/25009905/.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

Yaneli Martinez and other Safe Ag Safe Schools members protest outside the EPA building in Sacramento, CA, during a hearing about Chlorpyrifos on Nov.7, 2018. *Photo Credit / Earthjustice*

Conclusion

Chlorpyrifos, the most infamous organophosphate, was finally banned from food in August 2021. The ban is scheduled to take effect in March 2022. EPA acknowledged it had to ban this pesticide to protect children from learning disabilities and other long-lasting, irreversible harm. But chlorpyrifos is just one in a class of many organophosphates that scientists say are all dangerous to people, especially children, and evidence only continues to mount. According to a 2020 study, between 2001 and 2016 organophosphate pesticides accounted for an estimated $594 billion in societal costs, including added health care and education.

EPA is now evaluating the registration of all organophosphates and is tasked with deciding whether to continue to allow the use of these nerve-agents on food. But if EPA banned chlorpyrifos from food over safety concerns, then it must do the same with all organophosphates. The agency's own risk assessments and years of independent scientific studies find that all organophosphates are dangerous. Chlorpyrifos is just the poster child of a family of nerve-agent pesticides that must be banned from[i] the country's food.

Earthjustice, along with labor, civil rights, environmental, health, and children's advocacy groups, is calling on EPA to ban all organophosphates. This coalition filed a petition to ban organophosphates in November 2021.

Methodology

In this report, Earthjustice examined the following 17 organophosphates that remain in use in the U.S. and are widely used and/or associated with dangerous health effects, including neurodevelopmental harm and cancer. Data presented in this report were extracted from the sources listed below to better understand the extent and location of agricultural usage, contamination of foods, exposure pathways of concern, and human health effects associated with each of these 17 organophosphates. The data analyzed in this report is available for the public to extract and explore in a searchable database available at earthjustice.org/organophosphates.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

1. **United States Geological Survey (USGS) National Water-Quality Synthesis Project**: The Pesticide National Synthesis Project: 2017 annual county-level crop-specific pesticide-use estimates for 14 organophosphate pesticides were extracted from the USGS National Water-Quality Synthesis Project: The Pesticide National Synthesis Project. The estimated use of organophosphates was allocated across harvested-cropland data from the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) database and the USDA Census of Agriculture. The 81 (Pasture/Hay) and 82 (Cultivated Crops) land classifications defined in the National Land Cover Database 2016 (NLCD 2016) were combined to visually represent the agricultural area in which the harvested croplands may be found. Methods for calculating the volume and the rate of organophosphate pesticide-use across harvested cropland at the county-level and state-level, as well as the creation of the maps are described in Maps: Organophosphate Pesticides in the U.S. A 300-feet buffer was added around the agricultural lands for the top five counties with the highest volume and the top five counties with the highest rate of organophosphate pesticide-use across harvested cropland for both the USGS EPest-low and EPest-high methods.
2. **United States Environmental Protection Agency (EPA) EJSCREEN:** Environmental indicators, demographic indicators, and Environmental Justice indexes provided by the EPA's EJSCREEN were extracted for the census block groups that intersected the agricultural lands of the counties with the highest rates of organophosphate pesticide use across harvested cropland, as described above.
3. **United States Environmental Protection Agency (EPA) Human Health Risk Assessments (HHRAs):** Earthjustice reviewed and extracted the information pertaining to human health effects, exposure pathways of concern, and registered pesticide uses from EPA's HHRAs for each of the 17 OP Pesticides.[xv]

A crop duster airplane sprays an organophosphate pesticide on cotton and potato fields in 2008 near the town of Arvin, south of Bakersfield, CA. *David McNew / Getty Images*

xv. Information pertaining to the OP pesticide chlorpyrifos was obtained in part from EPA's 2016 human health risk assessment, which is the most health protective recent human health risk assessment for chlorpyrifos. Although EPA did also release a final human health risk assessment in 2014 and a subsequent updated version in 2020 that both found serious risks of concern for many uses of chlorpyrifos, including to workers, both versions relied on methodologies that underestimated risk to the developing fetus and therefore failed to protect children from neurodevelopmental harm at low levels of exposure. In other words, the risks of concern arising from chlorpyrifos use are likely far greater and more pervasive than those identified in the 2014 and 2020 risk assessments. Thus, to more accurately reflect real-world risks and adhere to the most health protective risk determinations, this database only reflects information from the 2016 version.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org

4. **United States Code of Federal Regulations (CFR):** Tolerances, or the maximum amount of pesticide residue allowed on food by EPA based on its 2006 safety determinations, were obtained for all 17 OPs examined from 40 CFR part 180 et seq.
5. **United States Department of Agriculture Pesticide Data Program (USDA PDP):** Earthjustice obtained information on foods with high organophosphate residues from food product sampling tests by the USDA PDP in 2018 and 2019. Food products were considered high residue if PDP-measured pesticide levels presumptively violated U.S. pesticide tolerance levels (the maximum amount of pesticide residue allowed on food by EPA based on its 2006 safety determinations). Note: the PDP tests a relatively small sample of food products and does not test all organophosphate pesticides. Thus, no detection does not necessarily mean that there are no residues of concern for a particular organophosphate pesticide.

Farmworkers harvest a field that was treated with pesticides right next to a school in Salinas, CA. *Photo Credit / Earthjustice*

About the Authors

Rashmi Joglekar, Ph.D. is a staff scientist with the Toxic Exposure and Health Program, and is based in Washington, D.C. Prior to joining Earthjustice, Rashmi Joglekar completed her Ph.D. from the Integrated Toxicology and Environmental Health Program at Duke University, earning a degree specializing in neurodevelopmental toxicology.

Hetty Chin is a web specialist based in Earthjustice's headquarters. She holds a postbaccalaureate certificate in Geographic Information Systems from Penn State University.

PRESS CONTACT:
Alejandro Dávila Fragoso,
National Media Strategist
adavila@earthjustice.org