Testimony

of

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before the

New York City Council Committee on Health

on

Intros 1524

January 29, 2020
250 Broadway, Committee Room
New York, NY

Good morning Chairman Levine and members of the Health Committee. I am Carolyn Olson, Assistant Commissioner for Environmental Surveillance and Policy at the New York City Department of Health and Mental Hygiene. I am joined today by my colleagues from the Department of Parks and Recreation. On behalf of Commissioner Barbot, thank you for the opportunity to testify on the Department's role in monitoring pesticide use on City-owned and -leased property and on Introduction 1524.

In 2005, New York City enacted groundbreaking legislation to control pesticide use. With Local Law 37, we became the largest city in the U.S. to regulate pesticides used on City-owned and -leased property. The Law prohibits the application of certain pesticides, requires public notification of pesticide use, and mandates that City agencies annually report all pesticide use to the Health Department.

Local Law 37 prohibits all pesticides classified as Toxicity Category 1 by the United States Environmental Protection Agency (EPA); pesticides categorized by the EPA as possible, probable, likely or known human carcinogens as of 2005; and pesticides considered a developmental toxicant by California as of 2005. The Law provides limited exemptions for certain pesticides, including biological pesticides, and exemptions for use at particular locations, such as professional sports playing fields. In addition, the law allows City agencies to seek a waiver from the Health Department for the use of prohibited pesticides, when necessary. When deciding whether to grant a waiver, Local Law 37 directs the Health Department to consider the magnitude of the pest infestation, the threat to public health, the availability of effective alternatives, and the likelihood of human exposure.

New York City is a uniquely dense, urban environment where many New Yorkers contend with cockroaches and other pests, making pesticides necessary to protect public health. The Health Department aims in its own pesticide use and in working with other agencies to balance the concerns about both the potential links between pesticide exposures and disease, and the health risks presented by pests. Mice and roaches are asthma triggers; rats can contaminate food and transmit disease; mosquitoes are vectors for the West Nile virus; and bed bugs can interrupt sleep and negatively impact mental health. Safe pesticide application to address harmful pests is focused on minimizing human exposure through careful, limited use. Scientific evidence on health effects associated with pesticides is constantly advancing; each year the Health

Department is mandated to report to City Council on pesticides that have been added or dropped from the EPA and California lists. Our goal is to encourage sparing and safe use of all pesticides.

Local Law 37 requires agencies to annually report pesticide use data to the Health Department, which we consolidate into a public report that includes trend analyses of use across City properties. The most recent report submitted to Council last July, shows success in City efforts to limit pesticide use, with reductions in many types of pesticides since reporting began in 2008. For example, use of herbicides to maintain the City's parks has declined 60% and is now strategically targeted towards specific outcomes– including wildfire prevention and natural area restoration, or to address public safety concerns at specific locations such as right-of-way Greenstreets. Additionally, City agencies are consistently investigating safer alternatives to prohibited pesticides. For example, pre-emergent pendimethalin is listed as a possible carcinogen by the EPA and has been used to maintain and reduce injury risk in hardscapes, like sidewalks. After requesting waivers while exploring potential alternatives for a few years, the Parks Department discontinued use of pendimethalin. Similarly, in the context of the continued public discourse regarding glyphosate, the City has since decreased its use by more than 80% since 2012, and Parks conducts limited glyphosate applications to areas that are not conventionally accessible to park visitors.

The City's pesticide use statistics also show increasing use of best management practices, aimed at reducing potential human exposure to pesticides by pairing their limited use with alternative measures of pest control. For example, a major aim of Local Law 37 is to shift the City's approach to rodent and insect control away from relying only on pesticides and toward Integrated Pest Management, or IPM. IPM focuses on not only targeted, low-risk pesticide use, but also the elimination of underlying conditions that support pest infestation—for example, by containing garbage in order to deny pests food; repairing leaks to reduce pests' access to water; eliminating nesting areas; and repairing holes and sealing cracks or gaps that allow pests to freely move about. The Health Department uses IPM in our own pest control work, limiting pesticide use as much as possible, and encourages best management practices at other agencies. Recognizing that the City accounts for only a small fraction of all pesticides used in New York City, the Health Department also publishes educational materials and provides free training to building professionals and members of the public on implementing IPM in a variety of settings.

The Health Department's use and promotion of IPM is critical to our effort to reduce health disparities when combatting pests in and around New Yorkers' homes. The presence of residential pests is tied to housing quality, and residents of color and those living in high-poverty neighborhoods bear a heavier burden of pest infestations and pest-related health conditions, such as severe asthma. Judicious application of pesticides and the implementation of other strategies through IPM have been critical to promoting healthier environments for all New Yorkers. The Health Department also mandates IPM by property owners for pest infestations in the homes of children and adults with severe asthma, further extending IPM beyond the City's own pest management work to address neighborhood health and housing inequities.

I will turn now to Intro 1524, which would authorize the use of only biological pesticides, except in the case of applicable exemptions or with the Health Department's issuance of a waiver with a shortened timeframe of two weeks. The Health Department appreciates the intent of this bill to further reduce pesticide use on City property, a goal which we share. We are concerned, however, that the proposed change to ban use of all synthetic pesticides would hamper the City's ability to rapidly respond to and control certain pest conditions. Both biological and synthetic pesticides can be toxic when not used safely, and in some cases, there are no biological alternatives to effectively control certain pests with significant public health impacts, including roaches, bed bugs, and mosquitoes. However, we recognize that the science around the health impacts of certain pesticides has evolved since Local Law 37 was passed in 2005, and we would be happy to join discussions around whether there are additional pesticides that should require a waiver for use on City-owned or -leased property.

Currently, waivers are issued for limited, highly controlled use of a prohibited pesticide to treat a specific pest problem where there is no viable alternative. Agencies develop a detailed application, describing the need and specific circumstances for use of the prohibited product, which is reviewed and – sometimes after discussion with agency applying – either approved or denied by the Health Department's Waiver Decision Committee. A small number of waivers have been granted for only a few weeks, while most are granted for a season or year. Short-timeframe waivers usually target an acute, severe infestation of pests, like termites, while other pest problems are intermittent over a longer period, like mosquitoes identified through surveillance as carrying West Nile Virus. In some cases, pesticides need to be available when monitoring in parks and botanic gardens suggests a possible fungal infestation, like Dutch Elm

Disease. The new prohibition set out in Intro 1524 would create unnecessary redundancy in the waiver review process, making it harder for City agencies to provide needed pest control. For example, a new waiver for potential West Nile Virus mosquito control would have to be issued every two weeks from June through October. Intro 1524 would also add waivers for synthetic pesticides without evidence of human health risks. We look forward to working with the Council to find ways to further reduce overall pesticide use by the City while balancing the need to protect the health of New Yorkers.

Thank you for the opportunity to testify. I would be happy to take questions.

Testimony of

Eric Weltman
Food & Water Action

In support of Intro 1524-2019

Int 1524-2019: A Local Law to amend the administrative code of the city of New York, in relation to the use of pesticides by City agencies.

January 29, 2020

Food & Water Action is a national nonprofit advocacy organization with thousands of supporters in New York City and an office in Brooklyn. We are pleased to strongly support Council Member Kallos' bill to amend the city's rules for pesticide use by city agencies. We believe it is an important step forward in protecting the environment and public health in New York City and the surrounding region.

From potential human health effects that include cancer, neurological and reproductive system problems and the potential for disrupting delicate endocrine system functions, to impacts on aquatic species, wildlife and pollinators, the list of potential impacts of synthetic pesticides is extensive. And unfortunately, the current federal system for approving these chemicals is inadequate, relying on outdated standards that don't address new understanding about the ways that pesticides impact health, cumulative effects of continued low-dose exposures, possible synergistic effects when chemicals interact or even the real world formulations and combinations in which these chemicals are used. The U.S. Government Accountability Office has found that the U.S. Environmental Protection Agency (EPA) has struggled to review the safety data of synthetic pesticides already in use.

One of the most ubiquitous pesticides used to kill weeds is glyphosate, the active ingredient in the herbicide marketed by Monsanto as Roundup. Monsanto's Roundup (and generic varieties using Roundup's active ingredient, glyphosate) are the most widely applied herbicides in the world.[1] The weed-killer was originally marketed as a way to control weed populations with less labor. However, evidence is mounting that the public health risks from Roundup and glyphosate are much more serious than originally anticipated:

- Roundup's active ingredient glyphosate is a probable human carcinogen, according to the World Health Organization's International Agency for Research on Cancer.[2]
- Roundup and other glyphosate herbicides are possible endocrine disruptors, meaning they can interfere with the body's hormones and lead to chronic health problems.
- Studies have found a correlation between Roundup exposure and kidney disease and non-Hodgkin's Lymphoma among farmers and farm workers, and birth defects and developmental disorders in the children of farmers exposed to Roundup.[3]

Agricultural use of Roundup, driven by the widespread adoption of genetically engineered crops that are designed to tolerate exposure to the herbicide, has exploded in the last two decades. But non-agricultural use makes up ten percent of global Roundup and other glyphosate herbicide applications.[4] In the U.S., 13 to 15 million pounds are sprayed by professional applicators on lawns, public parks, and commercial sites.[5]

Monsanto long advertised Roundup as "environmentally friendly" and "practically non-toxic" to fish, birds, and mammals – until they were sued in 1996 by New York's Attorney General for false advertising.[6] But environmental exposure to Roundup can be toxic to wildlife. One study observed the impact on frog populations by spraying the recommended application rate in a controlled setting, including a pond with tadpoles (simulating natural wetlands or flooded field depressions) and surface land with juvenile frogs. Ninety-eight percent of tadpoles in the pond died within three weeks; 79 percent of juvenile frogs on land died within one day.[7] Additional studies found harmful effects on fish even at levels several times below typical concentrations.[8]

More and more studies are revealing glyphosate's potential to harm the environment and our health.[9] However, the U.S. is still regulating Roundup largely based on initial safety studies that concluded that the formula was "practically nontoxic."[10] These early studies were limited in scope for several reasons. First, they assumed that Roundup would not be toxic to humans because it is designed to disrupt an enzyme that vertebrates do not have; however, studies has since demonstrated its toxic effect on vertebrates.[11] Second, many tested the toxicity of the active ingredient glyphosate in isolation; recent studies suggest, however, that the combination of ingredients in Roundup can be more toxic than glyphosate alone.[12] Finally, these studies were funded by the companies looking to get their products approved for sale, creating inherent biases.[13] In fact, several laboratories where these original studies took place have since been exposed for having committed scientific fraud.[14] One paper suggests that, had these research deceptions not occurred, it is possible that Roundup would never have been approved for sale.[15]

The impact of pesticides reach beyond the health impacts on those exposed at the point of application and reaches into local waterways where runoff can carry pesticides and other pollutants picked up by rain or melting snow. One long-term effort to track the levels of pesticides in rivers and streams has been conducted by the U.S. Geological Survey (USGS), which revealed that for the last two decades, one or more pesticides or pesticide breakdown products were detected more than 90 percent of the time in streams across all types of land uses. USGS also found that for urban areas, 90 percent of the streams exceeded pesticide levels that are benchmarks for harm to aquatic life.

As the city continues to deal with the extreme wet weather events that are a symptom of climate change, the challenges of managing stormwater in a way that minimizes damage to the environment are becoming more obvious.[16] One piece of the puzzle of stormwater management should be a focus on preventing pollution that can be carried into local waterways – including by limiting the use of synthetic pesticides on city properties.

There have been some long overdue attempts towards better regulation of Roundup, especially in the wake of the World Health Organization's classification of glyphosate as a probable human carcinogen,[17] but much more remains to be done and there is a role for state and local governments in this effort. In July 2017, the state of California added glyphosate to the list of chemicals known to the state to cause cancer, triggering a warning label requirement under its Proposition 65 law.[18] Globally, several countries have banned or restricted the use of Roundup and other glyphosate herbicides, and several localities in the U.S. have banned non-agricultural use of glyphosate and other pesticides outright.[19] Even more local governments taking steps to reduce or eliminate synthetic pesticide use on government property. Cities including Chicago, Seattle and others are in the process of or have completely eliminated synthetic pesticide use in their parks and public property.[20] If New York City were to take action to restrict the use of Roundup and other synthetic pesticides on city properties, it would add vital momentum to the effort to protect public health and the environment.

Limiting the cosmetic use of pesticides on city properties could not only reduce the exposures of children, pets and wildlife to unnecessary pesticides, but could also help relieve the burden on our aquatic ecosystems and reduce the pollution load in stormwater. This bill is a good example of how a precautionary approach can protect people and the environment. We urge members of the Council to support this bill.

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[1] Bøhn, T. et al. "Compositional differences in soybeans on the market: Glyphosate accumulates in Roundup Ready GM soybeans." *Food Chemistry*. Vol. 153. June 15, 2014 at 207.

[2] World Health Organization. International Agency for Research on Cancer. [Issue brief]. "IARC Monographs Volume 112: Evaluation of five organophosphate insecticides and herbicides." March 20, 2015 at 1; Food and Agriculture Organization of the United Nations and World Health Organization. [Summary Report.] "Joint FAO/WHO Meeting on Pesticide Residues." May 16, 2016 at 2; World Health Organization. [Online Q&A.] "Pesticide Residues in Food?" May 2016; Davies, Stephen. "Glyphosate unlikely to pose risk through diet, WHO says." *Agri-Pulse*. May 16, 2016.

[3]Jayasumana et al. "Glyphosate, hard water and nephrotoxic metals: Are they the culprits behind the epidemic of chronic kidney disease of unknown etiology in Sri Lanka?" *Environmental Research and Public Health*. Vol. 11, Iss. 2. February 20, 2014 at 2139; Schinasi, Leah and Maria E. Leon. "Non-Hodgkin Lymphoma and occupational exposure to agricultural pesticide chemical groups and active ingredients: A systematic review and meta-analysis." *Environmental Research and Public Health*. Vol. 11, Iss.4 April 23, 2014 at 4512 and 4521; Garry, Vincent F. et al. "Birth defects, season of conception, and sex of children born to pesticide applicators living in the Red River Valley of Minnesota, USA." *Environmental Health Perspectives*. Vol. 110, Iss. 3. June 2002 at 445.

[4] Benbrook, Charles M. "Trends in glyphosate herbicide use in the United States and globally." *Environmental Sciences Europe*. Vol. 28, Iss. 3. February 2, 2016 at 7.

[5] United States Environmental Protection Agency. Office of Chemical Safety and Pollution Prevention. "Pesticide Industry Sales and Usage: 2006 and 2007 Market Estimates." February 2011 at 15.

[6] Attorney General of the State of New York. Consumer Frauds and Protection Bureau and Environmental Protection Bureau. "Assurance of discontinuance pursuant to executive law § 63(15)." November 1996 at 2 to 3 and 7 to 11.

[7] Relyea, Rick A. "The lethal impact of Roundup on aquatic and terrestrial amphibians." *Ecological Applications*. Vol. 15, Iss.4. August 2005 at 1120 to 1121.

[8] Szarek, J. et al. "Effects of the herbicide Roundup™ on the ultrastructural pattern of hepatocytes in carp (*Cyprinus carpio*)." *Marine Environmental Research*. Vol. 50, Iss. 1-5. July 2000 at abstract.

[9] Myers, John Peterson et al. "Concerns over use of glyphosate-based herbicides and risks associated with exposures: a consensus statement." *Environmental Health*. Vol. 15, Iss. 19. February 17, 2016 at 5 to 6.
[10] Cuhra, Marek. "Glyphosate nontoxicity: The genesis of a scientific fact." *Journal of Biological Physics and Chemistry.* Vol. 15, Iss. 3. September 2015 at 90 and 94 to 95.
[11] Myers, John Peterson et al. "Concerns over use of glyphosate-based herbicides and risks associated with exposures: a consensus statement." *Environmental Health*. Vol. 15, Iss. 19. February 17, 2016 at 2; Krüger, Monika et al. "Detection of glyphosate residues in animals and humans." *Environmental & Analytical Toxicology*. Vol. 4, Iss. 2. March 2014 at 1.
[12] Cuhra, Marek. "Glyphosate nontoxicity: The genesis of a scientific fact." *Journal of Biological Physics and Chemistry.* Vol. 15, Iss. 3. September 2015 at 90 and 91; Myers, John Peterson et al. "Concerns over use of glyphosate-based herbicides and risks associated with exposures: a consensus statement." *Environmental Health*. Vol. 15, Iss. 19. February 17, 2016 at 7 and 9; Mesnage, R, B. Bernay, and G.E. Séralini. "Ethoxylated adjuvants of glyphosate-based herbicides are active principles of human cell toxicity." *Toxicology*. Vol. 313, Iss. 2 to 3. November 16, 2013 at 122 and 125 to 126.
[13] Antoniou, M. et al. "Teratogenic effects of glyphosate-based herbicides: Divergence of regulatory decisions from scientific evidence." *Environmental & Analytical Toxicology*. Special Issue: Toxicology of Pesticides. June 23, 2012 at 11.
[14] Cuhra, Marek. "Glyphosate nontoxicity: The genesis of a scientific fact." *Journal of Biological Physics and Chemistry.* Vol. 15, Iss. 3. September 2015 at 93.
[15] Samsel, Anthony, and Stephanie Seneff. "Glyphosate, pathways to modern diseases IV: cancer and related pathologies." *Journal of Biological Physics and Chemistry*. Vol. 15, Iss. 3 at 124.
[16] Crean, S. "Changing Climate Makes City Stormwater Management Harder, Health Risks Higher." Gotham Gazette. September 2, 2014.
[17] World Health Organization. International Agency for Research on Cancer. [Issue brief]. "IARC Monographs Volume 112: Evaluation of five organophosphate insecticides and herbicides." March 20, 2015.
[18] California Environmental Protection Agency. Office of Environmental Health Hazard Assessment. "Notice of Intent to List Chemicals by the Labor Code Mechanism: Tetrachlorvinphos, Parathion, Malathion, Glyphosate." September 4, 2015.
[19] Schlanger, Zoë. "France bans sales of Monsanto's Roundup in garden centers, 3 months after U.N. calls it 'probable carcinogen.' " *Newsweek.* June 15, 2015; Grossman, Elizabeth. "What do we really know about Roundup weed killer?" *National Geographic.* April 23, 2015; Turque, Bill. "MoCo becomes first major locality to ban cosmetic pesticides from lawns." *The Washington Post.* October 6, 2015; City of Takoma Park Maryland. "List of Restricted Pesticides." Updated February 26, 2016.
[20] Map of U.S. Pesticide Reform Policies, created by Beyond Pesticides and Organic Consumers Association. https://www.google.com/maps/d/viewer?mid=1VLpVWvifO2JOrgxf1-d1DLyDruE&ll=42.296797%2C-71.2923877&z=8.

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Statement of
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on
Intro 1524, A Local Law to amend the administrative code of the city of New York,
in relation to the use of pesticides by City agencies
to
Committee on Health
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January 29, 2020

Honorable Chair and members of the Committee. Thank you for the opportunity to address you on this critical public health and environmental matter. I am Jay Feldman, Executive Director of Beyond Pesticides, a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to improve protections from pesticides and promote alternative pest management strategies that reduce or eliminate a reliance on toxic pesticides. Our membership spans the 50 states, the District of Columbia, and groups around the world. We are submitting this statement on behalf of our members and supporters who are residents of New York City.

Beyond Pesticides strongly encourages the passage of Intro 1524. The approach to land care specified by this legislation identifies an allowed substance list to ensure that the products and practices used are compatible with the organic systems that protect people and local ecology. It is this approach to pesticide reform that will effectively stop the unnecessary use of hazardous pesticides applied in parks and public spaces throughout the city. While addressing urgent local concerns related to public and worker health and the environment, passage of this law in New York City will make an important contribution to reversing the escalating crisis in biodiversity, including pollinator declines and the climate crisis—which is exacerbated by petroleum-based, synthetic pesticides, the release of carbon into the environment, and the lost opportunity to sequester carbon in organic soil systems.

By restricting pesticide use on its own property, the City will provide critical protections for community health, particularly for children, the elderly, and vulnerable population groups that suffer from compromised immune and neurological systems, cancer, reproductive problems, respiratory illness and asthma, Parkinson's, Alzheimer's, diabetes, or learning disabilities and autism. We urge this Committee and the New York City Council to adopt Intro 1524, a measure that meets the urgent need for hazard reduction at a time of increasing awareness of the dangers that pesticides pose to human health and the environment, while the federal regulatory system is undergoing a severe reduction in programmatic work, adequate scientific assessment, and, in many cases, a reversal of safety decisions that had been made by the U.S.

Environmental Protection Agency (EPA) previously. This is an urgent problem, given that the state regulatory system (New York Department of Environmental Conservation [DEC]), and by association New York City, relies almost exclusively on the underlying scientific determinations of EPA.

Examples of the Need to Act

Three examples of this reversal by EPA shed light on a deeper problem that calls for local legislative action in the absence of federal and state protections. One of EPA's first decisions under the new administration back in 2017 was to rescind a 2015 decision to ban the use of the insecticide chlorpyrifos, which is a neurological toxicant that damages children's brains.[1] That set the tone for the agency's decision to take no action on the weed killer glyphosate (the active ingredient in Roundup), despite the independent scientific finding of the International Agency for Research on Cancer (IARC) of the World Health Organization on its cancer-causing properties, and other science on it leading to liver/kidney damage and endocrine disrupting effects.[2][3] In fact, rather than heed the scientific consensus on the carcinogenicity of glyphosate, EPA has joined the chemical industry in attacking IARC,[4] a highly esteemed institution that has been at the forefront of scientific determinations on cancer since its founding prior to EPA in 1965. And, as the agency continues to defend glyphosate publicly, its private interventions on behalf of industry, such as the discovery that individuals within EPA's Office of Pesticide Programs worked surreptitiously to "kill" an investigation of glyphosate by the U.S. Department of Health and Human Services,[5] have resulted in awards of over $2 billion in damages to claimants who indicate their cancers were caused by exposure to glyphosate-based herbicides.[6] This raises serious liability problems for the local governments and schools that use these pesticides. EPA's assault on public health has been particularly concerning for young children. In 2019, the agency, without scientific support, eliminated the safety factor for children's contact with neurotoxic synthetic pyrethroid insecticides, allowing exposure to increase by three times.[7]

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[1] Levin, Sam. 2019. Trump Administration won't ban pesticide tied to childhood rain damage. The Guardian. https://www.theguardian.com/us-news/2019/jul/18/epa-chlorpyrifos-ban-children-brain-damage-trump.

[2] International Agency for Research on Cancer. 2015. Monograph on Glyphosate. https://monographs.iarc.fr/wp-content/uploads/2018/06/mono112-10.pdf.

[3] USDHHS ATSDR. 2019. Toxicological Profile for Glyphosate. Washington DC. https://www.atsdr.cdc.gov/toxprofiles/tp214.pdf.

[4] IARC Director. 2018. IARC Response to Criticisms of the Monographs and the Glyphosate Evaluation. https://www.iarc.fr/wp-content/uploads/2018/07/IARC_response_to_criticisms_of_the_Monographs_and_the_glyphosate_evaluation.pdf.

[5] BaumHedlundLaw, 2017. Email communications between Dan Jenkins and Williams Heydens. https://www.baumhedlundlaw.com/pdf/monsanto-documents/Email-Correspondence-Where-Jess-Rowland-Reportedly-Said-If-I-can-kill-this-I-should-get-a-medal.pdf.

[6] Burger, Ludwig. 2019. Bayer nears seven-year low after $2 billion award in Roundup trial. Reuters. https://www.reuters.com/article/us-bayer-glyphosate-lawsuit-stocks/bayer-nears-seven-year-low-after-2-billion-award-in-roundup-trial-idUSKCN1SK0LQ.

[7] Beyond Pesticides. 2019. Dismissing independent Peer-Reviewed Science, EPA Allows Dramatic Increase in Children's Exposure to Toxic Pesticides Pushed by Industry. Daily News Blog.

These examples point to the reality that to protect the residents of the City, particularly children and those especially vulnerable to toxic chemical exposure, we need to eliminate hazardous materials, not with chemical-by chemical bans, but with a comprehensive program for land management that adequately restricts all pesticides. Int. 1524 limits pesticide use to those allowed under federal organic law, which ensures that the inputs are protective of health and are not destructive of biodiversity, including pollinators and birds.

Reported in a front page January 1, 2020 *New York Times* piece, "A top panel of government-appointed scientists [Science Advisory Board], many of them handpicked by the Trump administration, said on Tuesday that three of President Trump's most far-reaching and scrutinized proposals to weaken major environmental regulations are at odds with established science." These most recent rollbacks involve protection of waterways, limitations on vehicle emissions, and use of scientific data to support health regulations. Without reliance on science, an agency's determination is by definition "arbitrary and capricious," resulting in rulemaking that can be found illegal in the courts. Quoted in *The Times*, Vermont Law School professor Patrick Parenteau said, "The courts basically say if you're going to ignore the advice of your own experts you have to have really good reasons . . . that go to the merits of what the critiques are saying." Pesticide regulation are among those area of policy that have been hardest hit by the current dismantling of EPA.

EPA's regulation of toxic pesticides under the current administration reflects a deference toward chemical industry interests, rather than public and environmental health. These actions rightfully result in loss of public trust in the agency's determinations on pesticide's safety, and point to a need for localities like New York City to step in, in the best interest of its residents and local environment.

Healthy Landscape Management Ordinances Gain Momentum

Beyond Pesticides has seen firsthand the adoption of pesticide reform ordinances in New York state communities and throughout the country. Our *Map of U.S. Pesticide Reform Policies* highlights over 180 communities that have enacted some level of restrictive lawn and landscape pesticide policy.[8] Our organization has been involved in implementation of the practices required by these policies by conducting soil analyses on transition sites to evaluate soil biology, holding training seminars to teach cultural practices and organic compatible materials (see "Products Compatible with Organic Land Management"[9]), and producing organic land management plans that build soil microbial life to cycle nutrients naturally. This approach supports turf systems in parks and on playing fields that are more resilient, better able to withstand stress, and less dependent on water resources.

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https://beyondpesticides.org/dailynewsblog/2019/08/dismissing-independent-peer-reviewed-science-epa-allows-dramatic-increase-in-childrens-exposure-to-toxic-pesticides-pushed-by-industry/.

[8] Beyond Pesticides Map of Pesticide Reform Policies. 2020. https://www.google.com/maps/d/viewer?mid=1VLpVWvifO2JOrgxf1-d1DLyDruE&ll=39.03573413957711%2C-94.19459570507814&z=5.

[9] Beyond Pesticides Organic Compatible Product List. 2020. bit.ly/OrganicCompatible.

In terms of implementation, our experience shows organic methods of managing landscapes to be feasible and cost-effective. The success of New York's *Child Safe Playing Fields Act*, now in effect for nearly a decade, provides considerable evidence that public spaces, even those that must address substantial foot traffic and wear and tear, can be managed without the use of hazardous chemicals. Indeed, as land managers become familiar with the horticultural techniques required to support an organic system, including cultural practices and organic compatible products, the benefits of moving to these common sense, sustainable approaches to land care are realized through beautiful playing fields and a cleaner, healthier environment.

New York City Is Not Preempted by New York State Law

Beyond Pesticides is perplexed by any suggestion that New York City is preempted by state statutes from enacting a land management policy governing pesticide use on land owned and leased by the City. This proposed ordinance effects a management plan that sets a framework for the City's practices in its management of its parks and open spaces.

The most direct case against such an assertion that Intro 1524 is anything other than a land management ordinance is the underlying law that it amends, Local Law 37. That law, also governing the City's land management and use of pesticides has been in place unchallenged by either the state or pesticide industry since its passage in 2005. Intro 1524 simply updates the current land management requirements, which are outdated. We would be happy to address a strategy for the City to reassert its authority under current state law, which preempts the City's authority to regulate the use of pesticides on *private* property. However, that is not the subject of this hearing nor Intro 1524. Rather, as we have stated, the bill before the committee is specific to the City's management practices on its own land.

Conclusion

In light of the success and urgent need to move to safer land management practices, we urge this Committee and the New York City Council to adopt Intro 1524. In addition to protecting the health of residents of the City, this legislation protects the ecosystem of the City. Cities across the country are playing an instrumental role in addressing the devastating decline in biodiversity by eliminating toxic pesticides, and confronting the climate crisis by supporting soil systems that sequester atmospheric carbon. For an in-depth, scientifically cited analysis of the justification for local action on pesticide reform, please review the attached appendices.

Thank you for consideration of our comments.

Appendix A. Benefits of Organic Management

Incentivizing a Systems Approach that Eliminates the Need for Toxic Pesticides

By limiting the use of pesticides linked to adverse health and environmental outcomes, local pesticide ordinances can incentivize land managers to transition to practices that have been shown to maintain turf expectations with *de minimis* financial implications. While conventional, chemical-intensive turf and landscape management programs are generally centered on a synthetic product approach that continually treats the symptoms of turf problems with toxic chemicals, the alternative, systems-based approach focuses on the root causes of pest problems, which lie in the soil. These cutting-edge land management techniques reveal that toxic pesticides are not needed for successful turf management. Rather, this approach incorporates preventive steps based on supporting soil biology to improve soil fertility and turf grass health, natural or organic products based on a soil analysis that determines need, and specific cultural practices, including mowing height, aeration, dethatching, and over-seeding.

Research from the University of Maryland finds that proper mowing height alone can reduce weed and diseases by 50 to 80% in fescue grass.[10] In the case of mowing high, the natural system supported by this practice is an increase in the root depth of grass. Deeper roots provide greater capacity for the grass to draw water and nutrients from the soil, and stronger grass plants are better able to crowd out weeds or slough off pest pressure. Thus, the practices incorporated as part of a systems approach build resiliency, a term used to describe the ability for an environment to bounce back to its previous state after a disturbance. By fostering healthy soil biology, this approach leads to less need for outside inputs, such as synthetic pesticides and fertilizers. And when properly maintained, lawns and playing fields cared for in this way meet the same expectations of conventional, chemically managed turf.

Cost of Organic is on Par with Conventional in the Long-Term

Although there is often significant discussion over the expense of transitioning to an organic land care program, the cost of implementing an organic systems approach is not likely to be substantially more than current costs, and there is likely to be savings in the long-term. This is because chemical-intensive turf and landscape management programs are generally centered on an approach reliant on costly synthetic products that continually treat symptoms with toxic chemicals, rather than focus on the root causes of pest problems, which lie in the soil.

In considering cost, local governments should reflect not only on the direct costs of material inputs, but also on the externalities associated with pesticide use, including its ability to reduce exposure to carcinogens, prevent the contamination of groundwater and surface water, and the poisoning of wildlife. These are costs that residents are already paying for, through hospital visits, expensive clean-ups, and the need for species conservation and habitat restoration. Monetary benefits are generally privatized by chemical manufacturers. A 2016 literature review determined the health costs of pesticide use in the United States to be $15 billion annually, with the most significant cost being death due to chronic pesticide exposure, such as

[10] University of Maryland. 2016. Mowing/Grasscycling. https://extension.umd.edu/hgic/mowinggrasscycling-lawns.

fatal outcomes after contracting cancer.[11] The authors indicate that environmental costs of pesticide use total roughly $8 billion, but that is likely an underestimate due to the difficulty in pricing ecosystem services and obtaining accurate data on wildlife mortality.[12]

Cost concerns of switching from chemical to organic land management should be considered negligible over the long term. There may be some initial upfront costs for staff training, or the purchase of new material or equipment, but these costs decline significantly as focus shifts to root causes and soil health improves. This transition also captures additional external health and environmental costs that are currently borne by the public at large. Organic land management represents an economically viable approach for individual homeowners, landscapers, and local parks departments willing to commit to the change in practices organic land management entails.

The following provide select examples of the experience of cities and institutions with organic land care programs:

- There is report produced by nationally renowned turfgrass expert and Beyond Pesticides' board member Chip Osborne in coordination with Grassroots Environmental Education, which looks specifically at the cost of conventional and organic turf management on school athletic fields. The report concludes that once established, a natural turf management program can result in savings of greater than 25% compared to a conventional turf management program.[13]
- There is also the research from Harvard University which determined that, ultimately, total operating costs of its organic maintenance program are expected to be the same as the conventionally based program. In a *New York Times* article,[14] the school determined that irrigation was reduced by 30%, saving 2 million gallons of water a year as a result of reduced irrigation needs. The school was also spending $35,000/year trucking yard waste off site. The university can now use those materials for composting and has saved an additional $10k/year due to the decreased cost and need to purchase fertilizer from off-campus sources. [15]
- The Department of Energy and Environmental Protection in the state of Connecticut, which itself has a successful ban on pesticide use in school playing fields, notes in its information on organic lawn care that, "If your lawn is currently chemically dependent,

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[11] Bourguet, Denis and Guillemaud, Thomas. 2016. The Hidden and External Costs of Pesticide Use. Sustainable Agriculture Reviews. Vol 19, pp 35-120. https://link.springer.com/chapter/10.1007/978-3-319-26777-7_2.

[12] Ibid.

[13] Osborne, Charles and Doug Wood. 2010. A cost Comparison of Conventional (Chemical) Turf Management and Natural (Organic) Turf Management on School Athletic Fields. Grassroots Environmental Education. http://www.grassrootsinfo.org/pdf/turfcomparisonreport.pdf.

[14] Raver, Anne. 2009. The Grass is Greener at Harvard. http://www.nytimes.com/2009/09/24/garden/24garden.html?_r=2

[15] Harvard University. 2009. Harvard Yard Soils Restoration Project Summary Report. http://www.slideshare.net/harvard_uos/harvard-yard-soils-restoration-project-summary-report-22509-4936446.

initially it may be more expensive to restore it. But in the long- term, an organic lawn will actually cost you less money. Once established, an organic lawn uses less water and fertilizers, and requires less labor for mowing and maintenance."[16]

- The experience in South Miami, FL may also be instructive. The city completed a two-year pilot program that limited toxic pesticide use only to organic certified products, the city codified the practice into law. memorandum codifying these practices into law. A memo by the city describes the success of this approach regarding cost. It reads, "Thus-far this initiative has been a qualified success, allowing the city to cut down on its waste-footprint significantly at relatively little expense, and providing a model for other local government to use as guidance."[17]
- One year after passing and implementing an organic landscape management policy, the City of Irvine California's fields appeared "as pristine as ever," according to the Orange County Register.[18] It notes further, "Weeding by hand and using organic pesticides, which must be applied more frequently, will increase costs by about 5.6 percent in a $21.2 million landscaping budget, according to a city report on implementation of the program."

While a decade ago the natural systems approach required slightly increased up-front costs and saw savings in the long run, technology and practices have now progressed to the point where parity can often be achieved from the outset.

Appendix B. Key Areas of Concern with Toxic Chemicals

Pesticide-Induced Diseases

The scientific literature documents elevated rates of chronic diseases among people exposed to pesticides, with increasing numbers of studies associated with both specific illnesses and a range of illnesses. Beyond Pesticides' Pesticide-Induced Diseases Database[19] documents over 750 studies linked to human health effects. Of which, there are 359 studies on cancer; 107 studies on sexual and reproductive dysfunction; 102 studies on Parkinson's disease; 87 studies on learning and developmental disorders; 33 studies on birth defects; 32 studies on asthma; 18 studies on diabetes; and 12 studies on Alzheimer's disease.

The studies in the database show that our current approach to restricting pesticide use through risk assessment-based mitigation measures is not working. This failed human experiment must

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[16] Connecticut Department of Energy and Environmental Protection. 2016. Organic Land Care: Your neighbors will "go green" with envy. http://www.ct.gov/deep/cwp/view.asp?a=2708&q=382644#Expensive.

[17] City of South Miami. 2019. City Commission Agenda Item Report: Inter-office Memorandum. https://beyondpesticides.org/assets/media/documents/SouthMiami_FL_Organicordinance.pdf.

[18] Perkes, Courtney. 2017. Irvine Little League mom leads charge to wipe out pesticides on ball fields nationwide. Orange County Register. http://www.ocregister.com/2017/05/24/irvine-group-working-to-get-pesticides-off-city-baseball-fields-nationwide/.

[19] Beyond Pesticides. 2020. Pesticide Induced Diseases Database. http://www.beyondpesticides.org/resources/pesticide-induced-diseases-database/overview.

be ended. The warnings of those who have expressed concerns about risk assessment, such as U.S. Environmental Protection Agency (EPA) Administrator under Presidents Nixon and Reagan, William Ruckelshaus, have been borne out by three decades of use and study. Mr. Ruckelshaus in 1984 said, "We should remember that risk assessment data can be like the captured spy: If you torture it long enough, it will tell you anything you want to know." EPA's risk assessment fails to look at chemical mixtures, synergistic effects, certain health endpoints (such as endocrine disruption), disproportionate effects to vulnerable population groups, and regular noncompliance with product label directions. These deficiencies contribute to its severe limitations in defining real world poisoning, as captured by epidemiologic studies in the database.

Children's Vulnerability

Children face unique dangers from pesticide exposure. The National Academy of Sciences reports that children are more susceptible to chemicals than adults and estimates that 50% of lifetime pesticide exposures occur during the first five years of life.[20] In fact, studies show children's developing organs create "early windows of great vulnerability" during which exposure to pesticides can cause great damage.[21] For example, according to researchers at the University of California-Berkeley School of Public Health, exposure to pesticides while in the womb increases the odds that a child will have attention deficit hyperactivity disorder (ADHD).[22] Likewise, Cincinnati Children's Hospital Medical Center found a strong association between urinary concentrations of pyrethroids, a commonly used lawn care pesticide, and the development of ADHD, primarily in boys (aged 8 to 15). Any concentrations found above the level of detection corresponded to a three-fold increase in the chance of developing ADHD, when compared to boys without detectable levels.[23]

As EPA points out in its document, *Pesticides and Their Impact on Children: Key Facts and Talking Points*:[24]

- "Due to key differences in physiology and behavior, children are more susceptible to environmental hazards than adults."
- "Children spend more time outdoors on grass, playing fields, and play equipment where pesticides may be present."

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[20] National Research Council, National Academy of Sciences. 1993. Pesticides in the Diets of Infants and Children, National Academy Press, Washington, DC: 184-185.

[21] Landrigan, P.J., L Claudio, SB Markowitz, et al. 1999. "Pesticides and inner-city children: exposures, risks, and prevention." Environmental Health Perspectives 107 (Suppl 3): 431-437.

[22] Marks AR, Harley K, Bradman A, Kogut K, Barr DB, Johnson C, et al. 2010. Organophosphate Pesticide Exposure and Attention in Young Mexican-American Children: The CHAMACOS Study. Environ Health Perspect 118:1768-1774.

[23] Wagner-Schuman, et al. 2015. Association of pyrethroid pesticide exposure with attention-deficit/hyperactivity disorder in a nationally representative sample of U.S. children. Environmental Health 14, 44. https://ehjournal.biomedcentral.com/articles/10.1186/s12940-015-0030-y.

[24] See: https://www.epa.gov/sites/production/files/2015-12/documents/pest-impact-hsstaff.pdf.

- "Children's hand-to-mouth contact is more frequent, exposing them to toxins through ingestion."

In 2012, the American Academy of Pediatrics (AAP) released a landmark policy statement, *Pesticide Exposure in Children*, on the effects of pesticide exposure in children, acknowledging the risks to children from both acute and chronic effects.[25] AAP's statement notes that, "Children encounter pesticides daily and have unique susceptibilities to their potential toxicity." The report discusses how kids are exposed to pesticides every day in air, food, dust, and soil. Children also frequently come into contact with pesticide residue on pets and treated lawns, gardens, and indoor spaces.

Pesticides, such as glyphosate and its formulated products (Roundup) and 2,4-D, both widely used on turf and lawns, can be tracked indoors resulting in long-term exposures. Scientific studies show that pesticides, like 2,4-D, that are applied to lawns drift and are tracked indoors where they settle in dust, air and on surfaces and may remain in carpets.[26,27] Pesticides in these environments may increase the risk of developing asthma, exacerbate a previous asthmatic condition, or even trigger asthma attacks by increasing bronchial hyper-responsiveness.[28] This is especially important as infants crawling behavior and proximity to the floor account for a greater potential than adults for dermal and inhalation exposure to contaminants on carpets, floors, lawns, and soil.[29]

A study published in the Journal of the National Cancer Institute finds that household and garden pesticide use can increase the risk of childhood leukemia as much as seven-fold.[30] Similarly, a meta-analysis on residential pesticide use and childhood leukemia finds an association with exposure during pregnancy, as well as to insecticides and herbicides. An association is also found for exposure to insecticides during childhood.[31]

Prenatal exposures to pesticides can also have long-lasting impacts on infants and children. Herbicides, like glyphosate, can adversely affect embryonic, placental and umbilical cord cells, and can impact fetal development. Preconception exposures to glyphosate were found to moderately increase the risk for spontaneous abortions in mothers exposed to glyphosate

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[25] Roberts JR, Karr CJ; Council On Environmental Health. 2012. Pesticide exposure in children. Pediatrics. 2012 Dec; 130(6):e1765-88.

[26] Nishioka, M., et al. 1996. Measuring lawn transport of lawn-applied herbicide acids from turf. Env Science Technology, 30:3313-3320.

[27] Nishioka, M., et al. 2001. "Distribution of 2,4-D in Air and on Surfaces Inside Residences. Environmental Health Perspectives 109(11).

[28] Hernández, AF., Parrón, T. and Alarcón, R. 2011. Pesticides and asthma. Curr Opin Allergy Clin Immunol.11(2):90-6.

[29] Bearer, CF. 2000. The special and unique vulnerability of children to environmental hazards. Neurotoxicology 21: 925-934; and Fenske, R., et al. 1990. Potential Exposure and Health Risks of Infants following Indoor Residential Pesticide Applications. Am J. Public Health. 80:689-693.

[30] Lowengart, R. et al. 1987. Childhood Leukemia and Parent's Occupational and Home Exposures. Journal of the National Cancer Institute. 79:39.

[31] Turner, M.C., et al. 2010. Residential pesticides and childhood leukemia: a systematic review and meta-analysis. Environ Health Perspect 118(1):33-41.

products.[32] One analysis observed that women who use pesticides in their homes or yards were two times more likely to have offspring with neural tube defects than women who did not use pesticides.[33] Studies also find that pesticides, like 2,4-D, can also pass from mother to child through umbilical cord blood and breast milk.[34,35]

Biomonitoring testing has also documented pesticide residues in children. Residues of lawn pesticides, like 2,4-D and mecoprop, were found in 15 percent of children tested, ages three to seven, whose parents had recently applied the lawn chemicals. Breakdown products of organophosphate insecticides were present in 98.7 percent of children tested.[36] In one study, children in areas where glyphosate is routinely applied were found to have detectable concentrations in their urine.[37] While glyphosate is excreted quickly from the body, it was concluded, "a part may be retained or conjugated with other compounds that can stimulate biochemical and physiological responses." Research finds children born to parents exposed to glyphosate show a higher incidence of attention deficit disorder and hyperactivity.[38]

Pesticides and Pets

Studies find that dogs exposed to herbicide-treated lawns and gardens can double their chance of developing canine lymphoma (1) and may increase the risk of bladder cancer in certain breeds by four to seven times (2).

(1) Scottish Terriers exposed to pesticide-treated lawns and gardens are more likely to develop transitional cell carcinoma of the bladder, a type of cancer.[39]
(2) "Statistically significant" increase in the risk of canine malignant lymphoma in dogs when exposed to herbicides, particularly 2,4-D, commonly used on lawns and in "weed and feed" products.[40]

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[32] Arbuckle, T. E., Lin, Z., & Mery, L. S. (2001). An Exploratory Analysis of the Effect of Pesticide Exposure on the Risk of Spontaneous Abortion in an Ontario Farm Population. Environ Health Perspect, 109, 851–857.

[33]Brender, JD., et al. 2010. Maternal Pesticide Exposure and Neural Tube Defects in Mexican Americans. Ann Epidemiol. 20(1):16-22.

[34] Pohl, HR., et al. 2000. Breast-feeding exposure of infants to selected pesticides. Toxicol Ind Health. 16:65-77.

[35] Sturtz, N., et al. 2000. Detection of 2,4-dichlorophenoxyacetic acid (2,4-D) residues in neonates breast-fed by 2,4-D exposed dams. Neurotoxicology 21(1-2): 147-54.

[36] Valcke, Mathieu, et al. 2004. Characterization of exposure to pesticides used in average residential homes with children ages 3 to 7 in Quebec. National Institute of Public Health, Québec.

[37] Acquavella, J. F., et al. (2004). Glyphosate Biomonitoring for Farmers and Their Families: Results from the Farm Family Exposure Study. Environ Health Perspect. 112(3), 321-326.

[38] Cox C. 2004. Journal of Pesticide Reform. Vol. 24 (4) citing: Garry, V.F. et al. 2002. "Birth defects, season of conception, and sex of children born to pesticide applicators living in the Red River Valley of Minnesota." Environ. Health Persp. 110 (Suppl. 3):441-449.

[39] Hayes, H. et al., 1991. "Case-control study of canine malignant lymphoma: positive association with dog owner's use of 2,4-D acid herbicides," Journal of the National Cancer Institute, 83(17):1226.

[40] Glickman, Lawrence, et al. 2004. "Herbicide exposure and the risk of transitional cell carcinoma of the urinary bladder in Scottish Terriers," Journal of the American Veterinary Medical Association

Adverse Effects to Wildlife

While the data is pouring in on intersex species in waterways that surround urban and suburban areas and there are certainly a mix of factors, the contribution of runoff from suburban landscapes are seen as an important contributor. In *Suburbanization, estrogen contamination, and sex ratio in wild amphibian populations,* the authors from Yale University's School of Forestry and Environmental Studies and the U.S. Geological Survey (USGS) find the following: "While there is evidence that such endocrine disruption can result from the application of agricultural pesticides and through exposure to wastewater effluent, we have identified a diversity of endocrine disrupting chemicals within suburban neighborhoods. Sampling populations of a local frog species, we found a strong association between the degree of landscape development and frog offspring sex ratio. Our study points to rarely studied contamination sources, like vegetation landscaping and impervious surface runoff, that may be associated with endocrine disruption environments around suburban homes."[41]

Hazards of Synthetic Fertilizers

In crafting legislation aimed at protecting the environment and public health from toxic chemicals in favor of organic systems, it is incumbent upon lawmakers to consider the role of synthetic fertilizers. In the early 1900s, chemists Fritz Haber and Carl Bosch developed a process to fix nitrogen from the air into ammonia, ushering in a new era of petroleum-based industrial fertilizers and reshaping agricultural production. Other industrially-produced inorganic fertilizers, like ammonium phosphate, superphosphate, and potassium sulfate also became widely used throughout the 20th century. The rapid adoption of these products in chemical-intensive farming quickly led to their regular use on lawns and landscapes. But this has come with significantly downsides, including risks to public health, soil degradation, and the pollution of local waterways.

- Runoff from synthetic sources of nitrogen can cause nitrate and nitrite pollution that contaminates drinking water. Elevated nitrate concentrations in drinking water has been linked to methemoglobinemia, birth defects, cancers, and thyroid problems, even at levels below EPA allowable limits.[42]
- Nitrogen oxides produced in agricultural soils are significant contributors to air pollution, particularly in areas with high nitrogen fertilizer applications.[43] As opposed to conventional fertilizers, organic products "do not result in increased production of harmful nitrous oxide but rather enhanced emission of non-detrimental dinitrogen," according to Dr. John Reganold, soil scientist at Washington State University. The reason

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224(8):1290-1297.

[41] Lambert, M.R., Giller, G.S.J., Barber, L.B., Fitzgerald, K.C., Skelly, D.K., 2015. Suburbanization, estrogen contamination, and sex ratio in wild amphibian populations. Proc. Natl. Acad. Sci. 112, 11881e11886.

[42] Ward, M et al. 2018. Drinking Water Nitrate and Human Health: An Updated Review. Int J Environ Res Public Health. 2018 Jul; 15(7): 1557. 10.3390/ijerph15071557.

[43] Almaraz, M et al. 2019. Agriculture is a major source of NOx pollution in California. Science Advances. Vol. 4, no. 1, eaao3477 DOI: 10.1126/sciadv.aao3477, http://advances.sciencemag.org/content/advances/4/1/eaao3477.full.pdf.

for this difference lies in the more active and efficient microbial communities supported by organic fertilizers.[44]

- Nitrate leaching into groundwater from synthetic fertilizers is reportedly 4.4 to 5.6 times higher than organic fertilizers.[45]
- Synthetic fertilizers leaching through soil end up creating harmful algae blooms in local water bodies, leading to hypoxia and "dead zones."[4647]

While synthetic fertilizers are plant available nutrients, meaning they are in a form that allows immediate uptake from plants, natural and organic fertilizers generally require microbial life in the soil to break down materials into plant available forms. The fast action of synthetic fertilizers can provide lawns with a quick "green up," but nutrients that don't reach plant roots continue to work their way through the soil and can contaminate local waterways. Natural fertilizers, by breaking down slowly, are less likely to cause environmental contamination.

Appendix C. The Failure of EPA's Regulatory System

Pesticides are, by their very nature, poisons. The Federal Insecticide Fungicide and Rodenticide Act (FIFRA), the law governing pesticide registration and use in the U.S., relies on a risk-benefit assessment, which allows the use of pesticides with known hazards based on the judgment that certain levels of risk are acceptable. However, EPA, which performs risk assessments, assumes that a pesticide would not be marketed if there were no benefits to using it and therefore no risk/benefit analysis is conducted or evaluated by the agency "up front." Registration of a pesticide by EPA does not guarantee that the chemical is "safe," particularly for vulnerable populations such as pregnant mothers, children, pets, and those with chemical sensitivities. Below are examples of concern within the pesticide registration process. These factors should give pause to lawmakers tasked with protecting public and environmental health, and supports action to prohibit toxic pesticides and, in so doing, encourage alternatives.

Conditional Registration. EPA will often approve the use of a pesticide without all of the necessary data required to fully register the chemical, and will assign it a "conditional" registration. The agency assumes that while it waits for additional data the product would not

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[44] Shwartz, Mark. 2006. New study confirms the ecological virtues of organic farming. Stanford News Service. https://news.stanford.edu/pr/2006/pr-organics-030806.html.

[45] Kramer, Sasha et al. 2006. Reduced nitrate leaching and enhanced denitrified activity and efficiency in organically fertilized soils. 103 (12) 4522-4527; https://doi.org/10.1073/pnas.0600359103 https://news.stanford.edu/pr/2006/pr-organics-030806.html.

[46] Heisler, J et al. 2008 Eutrophication and Harmful Algal Blooms. A Scientific Consensus. Harmful Algae. Dec;8(1):3-13. doi: 10.1016/j.hal.2008.08.006 https://www.ncbi.nlm.nih.gov/pubmed/28781587.

[47] Diaz, Robert and Rutger, Rosenberg. 2008. Spreading Dead Zones and Consequences for Marine Ecosystems. Vol. 321, Issue 5891, pp. 926-929 DOI: 10.1126/science.1156401 http://science.sciencemag.org/content/321/5891/926.

cause adverse impacts that would prevent an eventual full registration. A recent report (2013) from the Government Accountability Office, entitled *EPA Should Take Steps to improve Its Oversight of Conditional Registrations,*[48] strongly criticizes this process, citing poor internal management of data requirements, constituting an "internal control weakness." The report states, "The extent to which EPA ensures that companies submit additional required data and EPA reviews these data is unknown. Specifically, EPA does not have a reliable system, such as an automated data system, to track key information related to conditional registrations, including whether companies have submitted additional data within required time frames." However, these recommendations do not go far enough. Pesticides without all the data required for a full understanding of human and environmental toxicity should not be allowed on the market. Several historic examples exist of pesticides that have been restricted or canceled due to health or environmental risks decades after first registration. Chlorpyrifos, an organophosphate insecticide, which is associated with numerous adverse health effects, including reproductive and neurotoxic effects, had its residential uses canceled in 2001. Others, like propoxur, diazinon, carbaryl, aldicarb, carbofuran, and most recently endosulfan, have seen their uses restricted or canceled after years on the market due to unreasonable human and environmental effects. Recently, a product manufactured by DuPont, Imprelis, with the active ingredient aminocyclopyrachlor, was removed from the market only two years after EPA approval under conditional registration.[49] Marketed as a broadleaf weed killer, Imprelis was found to damage and kill trees. However, in EPA's registration of the chemical, the agency noted, "In accordance with FIFRA Section 3(c)(7)(C), the Agency believes that the conditional registration of aminocyclopyrachlor will not cause any unreasonable adverse effects to human health or to the environment and that the use of the pesticide is in the public's interest; and is therefore granting the conditional registration."[50]

Failure to test or disclose inert ingredients. Despite their innocuous name, inert ingredients in pesticide formulations are neither chemically, biologically, or toxicologically inert; in fact they can be just as toxic as the active ingredient. Quite often, inert ingredients constitute over 95% of the pesticide product. In general, inert ingredients are minimally evaluated, even though many are known to state, federal, and international agencies to be hazardous to human health. For example, until October 23, 2014,[51] creosols, chemicals listed as hazardous waste under Superfund regulations and considered possible human carcinogens by EPA,[52] were allowed in

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[48] Government Accountability Office. August 2013. EPA Should Take Steps to Improve Its Oversight of Conditional Registrations. GAO-13-145. http://www.gao.gov/products/GAO-13-145.

[49] Environmental Protection Agency. June 2012. Imprelis and Investigation of Damage to Trees. http://www.epa.gov/pesticides/regulating/imprelis.html.

[50] Environmental Protection Agency. August 2010. Registration of the New Active Ingredient Aminocyclopyrachlor for Use on Non-Crop Areas, Sod Farms, Turf, and Residential Lawns. http://www.regulations.gov/contentStreamer?objectId=0900006480b405d8&disposition=attachment&contentType=pdf.

[51] Environmental Protection Agency. October 2014. EPA Proposes to Remove 72 Chemicals from Approved Pesticide Inert Ingredient List. http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceeac8525735900400c27/3397554fa65588d685257d7a0061a300!OpenDocument.

[52] Environmental Protection Agency. October 2013. Cresol/Cresylic Acid.

pesticide formulations without any disclosure requirement. EPA recently took action to remove cresols and 71 other inert ingredients from inclusion in pesticide formulations as a result of petitions from health and consumer groups. However, numerous hazardous inerts remain. For example, a 2009 study, entitled *Glyphosate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells*,[53] found that an inert ingredient in formulations of the weed killer Roundup (glyphosate), polyethoxlated tallowamine (POEA), is more toxic to human cells than the active ingredient glyphosate, and, in fact, amplifies the toxicity of the product – an effect not tested or accounted for by the pesticide registration process. A 2014 study, *Major pesticides are more toxic to human cells than their declared active principle*, found inert ingredients had the potential to magnify the effects of active ingredients by 1,000 fold.

Pesticide manufacturers argue against the disclosure of inert ingredients on pesticide product labels, maintaining that this information is proprietary. Limited review of inert ingredients in pesticide products highlights a significant flaw with the regulatory process. Rather than adopt a precautionary approach when it comes to chemicals with unknown toxicity, EPA allows uncertainties and relies on flawed risk assessments that do not adequately address exposure and hazard. Then, when data becomes available on hazards, these pesticides, both active ingredients and inerts, have already left a toxic trail on the environment and people's well-being.

Label Restrictions Inadequate. From a public health perspective, an inadequate regulatory system results in a pesticide product label that is also inadequate, failing to restrict use or convey hazard information. While a resident may be able to glean some acute toxicity data, chronic or long-term effects will not be found on products' labels. Despite certain pesticides being linked to health endpoints, such as exacerbation of asthma,[54] learning disabilities,[55] or behavioral disorders,[56] this information is not disclosed on the label. Furthermore, data gaps for certain health endpoints are also not disclosed.

Mixtures and Synergism. In addition to gaps in testing inert ingredients and their mixture with active ingredients in pesticide products, there is an absence of review of the health and environmental impacts of pesticides used in combination. A study by Warren Porter, PhD., professor of zoology and environmental toxicology at the University of Wisconsin, Madison, examined the effect of fetal exposures to a mixture of 2,4-D, mecoprop, and dicamba exposure —frequently used together in lawn products like Weed B Gone Max and Trillion— on the

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http://www.epa.gov/ttnatw01/hlthef/cresols.html.

[53] Benachour and Seralini. 2009. Glyposate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells. *Chemical Research and Toxicology.* *http://pubs.acs.org/doi/abs/10.1021/tx800218n.*

[54] Hernandez et al. 2011. Pesticides and Asthma. *Current opinion in allergy and clinical immunology.* http://www.ncbi.nlm.nih.gov/pubmed/21368619.

[55] Horton et al. 2011. Impact of Prenatal Exposure to Piperonyl Butoxide and Permethrin on 36-Month Neurodevelopment. *Pediatrics.* http://www.ncbi.nlm.nih.gov/pubmed/21300677.

[56] Furlong et al. 2014. Prenatal exposure to organophosphate pesticides and reciprocal social behavior in childhood.

mother's ability to successfully bring young to birth and weaning.[57] A 2011 study, entitled *Additivity of pyrethroid actions on sodium influx in cerebrocotorial neurons in primary culture,*[58] finds that the combined mixture's effect is equal to the sum of the effects of individual pyrethoids. This equates to a cumulative toxic loading for exposed individuals. Similarly, researchers looked at the cumulative impact the numerous pesticides that may be found in honey bee hives in the 2014 paper *Four Common Pesticides, Their Mixtures and a Formulation Solvent in the Hive Environment Have High Oral Toxicity to Honey Bee Larvae*.[59] The findings of the study send no mixed messages —pesticides, whether looked at individually, in different combinations, or even broken down into their allegedly inert component parts have serious consequences on the bee larvae survival rates. The synergistic effects in most combinations of the pesticides amplify these mortality rates around the four-day mark.

Research by Tyrone Hayes, PhD, professor of integrative biology at UC Berkeley has compared the impact of exposure to realistic combinations of small concentrations of pesticides on frogs, finding that frog tadpoles exposed to mixtures of pesticides took longer to metamorphose to adults and were smaller at metamorphosis than those exposed to single pesticides, with consequences for frog survival. The study revealed that "estimating ecological risk and the impact of pesticides on amphibians using studies that examine only single pesticides at high concentrations may lead to gross underestimations of the role of pesticides in amphibian declines."[60]

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[57] Cavieres MF, Jaeger J, Porter W. Developmental toxicity of a commercial herbicide mixture in mice: I. Effects on embryo implantation and litter size. Environmental Health Perspectives. 2002;110(11):1081-1085.

[58] Cao et al. 2011. Additivity of Pyrethroid Actions on Sodium Influx in Cerebrocortical Neurons in Primary Culture. *Environmental Health Perspectives. http://ehp.niehs.nih.gov/1003394/.*

[59] Zhu et al. 2014. Four Common Pesticides, Their Mixtures and a Formulation Solvent in the Hive Environment Have High Oral Toxicity to Honey Bee Larvae. PLOS One. http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0077547.

[60] Hayes TB, Case P, Chui S, et al. Pesticide Mixtures, Endocrine Disruption, and Amphibian Declines: Are We Underestimating the Impact? *Environmental Health Perspectives*. 2006;114(Suppl 1):40-50. doi:10.1289/ehp.8051.

Appendix D. Health Effects of Commonly Used Pesticides

A Beyond Pesticides Factsheet – A Beyond Pesticides Factsheet – A Beyond Pesticides Factsheet – A Beyond Pesticides Factsheet

Health Effects of 30 Commonly Used Pesticides

Pesticides

	Health Effects						
	Cancer	Endocrine Disruption	Reproductive Effects	Neurotoxicity	Kidney/Liver Damage	Sensitizer/ Irritant	Birth Defects
Herbicides							
2,4-D*	X[4]	X[10]	X[7]	X[8]	X[8]	X[1]	X[11]
Benfluralin					X[1]	X[1]	
Bensulide				X[2]	X[1]	X[2]	
Clopyralid			X[7]			X[2]	X[7]
Dicamba*			X[1]	X[2]	X[2]	X[1]	X[1]
Diquat Dibromide			X[12]		X[11]	X[1]	
Dithiopyr					X[1]	X[1]	
Fluazipop-p-butyl			X[1]		X[1]		X[1]
Glyphosate*	X[12]	X[8]	X[1]		X[8]	X[1]	
Imazapyr					X[7]	X[2]	
Isoxaben	X[3]				X[2]		
MCPA		X[6]	X[2]	X[2]	X[11]	X[1]	
Mecroporp (MCPP)*	Possible[3]	X[6]	X[2]	X[1]	X[9]	X[1]	X[1]
Pelargonic Acid*						X[1]	
Pendimethalin*	Possible[3]	X[6]	X[1]			X[2]	
Triclopyr			X[7]		X[9]	X[1]	X[7]
Trifluralin*	Possible[3]	X[6]	X[1]		X[2]	X[1]	
Insecticides							
Acephate	Possible[3]	X[6]	X[11]	X[9]		X[2]	
Bifenthrin*†	Possible[3]	Suspected[6,10]		X[8]		X[1]	X[9]
Carbaryl	X[3]	X[10]	X[8]	X[1]	X[11]	X[11]	X[7]
Fipronil	Possible[3]	X[6]	X[8]	X[8]	X[8]	X[8]	
Imidacloprid ‡			X[7]		X[2]		X[7]
Malathion*	Possible[3]	X[10]	X[11]	X[9]	X[2]	X[2]	X[2]
Permethrin*†	X[3]	Suspected[6,10]	X[1,7]	X[9,7]	X[9]	X[1]	
Trichlorfon	X[3]	X[6]	X[11]	X[2]	X[2]		X[2]
Fungicides							
Azoxystrobin					X[2]	X[2]	
Myclobutanil		Probable[6]	X[2]		X[2]		
Propiconazole	Possible[3]	X[6]	X[2]		X[1]	X[1]	
Sulfur						X[1]	
Thiophanate methyl	X[3]	X[1]	X[1]	Suspected[1]	X[1]	X[2]	X[1]
Ziram	Suggestive[3]	Suspected[6]		X[2]	X[2]	X[2]	
Totals:	16	17	21	14	25	26	12

These pesticides are among the top 10 most heavily used pesticides in the home and garden sector from 2006-2007, according to the latest sales and usage data available from EPA (2011), available at http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf.

† EPA lists all synthetic pyrethroids under the same category. While all synthetic pyrethroids have similar toxicological profiles, some may be more or less toxic in certain categories than others. See Beyond Pesticides' synthetic pyrethroid fact sheet at bit.ly/TLBuP8 for additional information.

‡ Imidacloprid is a systemic insecticide in the neonicotinoid chemical class, which is linked to bee decline.

Description

Most toxicity determinations based on interpretations and conclusions of studies by university, government, or organization databases. Empty cells may refer to either insufficient data or if the chemical is considered relatively non-toxic based on currently available data.

The list of 30 commonly used lawn chemicals is based on information provided by the General Accounting Office 1990 Report, "Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue," U.S. Environmental Protection Agency (EPA) National Pesticide Survey (1990), Farm Chemicals Handbook (1989), The National Home and Garden Pesticide Use Survey by Research Triangle Institute, NC (1992), multiple state reports, current EPA Environmental Impact Statements, and Risk Assessments, EPA national sales and usage data, best-selling products at Lowe's and Home Depot, and Beyond Pesticides' information requests.

For more information on hazards associated with pesticides, please see Beyond Pesticides' *Gateway on Pesticide Hazards and Safe Pest Management* at www.beyondpesticides.org/gateway. For questions and other inquiries, please contact our office at 202-543-5450, email info@beyondpesticides.org or visit us on the web at www.beyondpesticides.org.

Citations

1. U.S. EPA. Office of Pesticide Program *Reregistration Eligibility Decisions (REDs), Interim REDS (iREDs)*, and *RED factsheets*. http://www.epa.gov/pesticides/reregistration/.
2. National Library of Medicine, TOXNET, *Hazardous Substances Database*, http://toxnet.nlm.nih.gov/.
3. U.S. EPA. 2012. Office of Pesticide Programs, *Chemicals Evaluated for Carcinogenic Potential*. http://npic.orst.edu/chemicals_evaluated.pdf.
4. California Environmental Protection Agency. *Proposition 65: Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*. Office of Environmental Health Hazard Assessment. http://www.oehha.org/prop65/prop65_list/files/P65single052413.pdf.
5. The Pesticide Management Education Program at Cornell University. *Pesticide Active Ingredient Information*. http://pmep.cce.cornell.edu/profiles/index.html.
6. The Endocrine Disruption Exchange. 2011. *List of Potential Endocrine Disruptors*. http://www.endocrinedisruption.com/endocrine.TEDXList.overview.php.
7. Northwest Coalition for Alternatives to Pesticides (NCAP), *Pesticide Factsheets*. http://www.pesticide.org/get-the-facts/pesticide-factsheets.
8. Beyond Pesticides *ChemWatch Factsheets*, http://www.beyondpesticides.org/pesticides/factsheets/index.htm.
9. U.S. EPA. *Chronic (Non-Cancer) Toxicity Data for Chemicals Listed Under EPCRA Section 313*. Toxic Release Inventory Program. http://www.epa.gov/tri/trichemicals/hazardinfo/hazard_chronic_non-cancer95.pdf.
10. European Union Commission on the Environment. *List of 146 substances with endocrine disruption classifications, Annex 13*. http://ec.europa.eu/environment/endocrine/strategy/substances_en.htm#report2.
11. Extension Toxicology Network (EXTOXNET) *Pesticide Information Profiles*. http://extoxnet.orst.edu/ghindex.html.
12. International Agency for Research on Cancer, World Health Organization (IARC) category 2A, the agent (mixture) is probably carcinogenic to humans based on sufficient evidence of carcinogenicity in laboratory animal studies. http://monographs.iarc.fr/ENG/Classification/index.php.

Appendix E. Environmental Effects of 30 Commonly Used Lawn Pesticides

Environmental Effects of 30 Commonly Used Lawn Pesticides

Pesticides	Health Effects					
	Detected in Groundwater	Potential Leacher	Toxic to Birds	Toxic to Fish/ Aquatic Organisms	Toxic to Bees	Toxic to Mammals
Herbicides						
2,4-D*	X[1,2,3,4,7]	X[3,4]	X[1,2,3,11]	X[1,2,3,11]	X[1,11]	X[3,4,12]
Benfluralin	X[7]		X[3,11]	X[3,11]	X[5,11]	
Clopyralid	X[2,7]	X[2,11]	X[11]	X[11]	X[11]	
Dicamba	X[2,7]	X[1,2,3]	X[10,11]	X[1,2,3,11]	X[5,10,11]	
Diquat Dibromide		X[5]	X[1,3,11]	X[1,3,11]	X[5,11]	X[1]
Dithiopyr				X[5,6,11]	X[5,11]	
Fluazipop-p-butyl				X[1,4,6,11]	X[1,4]	
Glyphosate*	X[8]	X[5]	X[1,3,11]	X[1,2,11]	X[11]	X[4]
Imazapyr	X[2]	X[2,3]		X[2,5,11]	X[5,11]	
Isoxaben		X[11]	X[11]	X[3,11]	X[11]	
MCPA	X[4,7]	X[1,4,11]	X[1,3,11]	X[1,3,11]	X[5]	X[3]
Mecoprop (MCPP)*	X[4]	X[1,2,3,11]	X[3,11]	X[2]	X[11]	X[3]
Pelargonic Acid*			X[3 §]	X[3 §]	X[5]	
Pendimethalin*	X[3,7]		X[1,3,11]	X[1,3,11]	X[5,11]	X[3]
Triclopyr	X[2,7]	X[1,2,3,11]	X[2,3,11]	X[2,3,11]	X[5,11]	
Trifluralin*	X[4,7]			X[3,11]	X[5,11,12]	
Insecticides						
Acephate		X[1]	X[1,3,10,11]	X[3,11]	X[1,3,10,11]	X[3]
Bifenthrin*†			X[1,10,11]	X[1,10,11]	X[1,10,11]	X[1,4]
Carbaryl	X[1,3,7]	X[11]	X[2,11]	X[1,2,3,11]	X[1,2,3,11]	X[3,11]
Fipronil	X[7]	X[5,11]	X[2,4,10,11]	X[2,4,10,11]	X[2,4,10,11]	X[4]
Imidacloprid ‡	X[7]	X[1,2,10,11]	X[1,2,11]	X[1,2,11]	X[1,2,10,11]	
Malathion*	X[1,2,3,7]	X[1,3,5]	X[1,2,3,10,11]	X[1,2,3,10,11]	X[1,3,10,11]	X[3]
Permethrin*†	X[2,7]			X[1,2,3,11]	X[1,2,3,11]	
Trichlorfon		X[1,3,11]	X[1,3,11]	X[1,3,11]	X[1,11]	X[4 ‖]
Fungicides						
Azoxystrobin	X[9]	X[3,4,11]	X[11]	X[3,11]	X[11]	
Myclobutanil	X[7]			X[5]		
Propiconazole	X[7]	X[3]		X[3,11]	X[5,11]	X[11]
Sulfur		X[1]	X[11]	X[11]	X[11]	
Thiophanate methyl		X[3]		X[3,11]	X[11]	
Ziram		X[3,4]	X[1,3,11]	X[1,3,11]	X[11]	X[3]
Totals:	19	20	22	30	29	14

**These pesticides are among the top 10 most heavily used pesticides in the home and garden sector from 2006-2007, according to the latest sales and usage data available from EPA (2011), available at http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf.*
† EPA lists all synthetic pyrethroids under the same category. While all synthetic pyrethroids have similar toxicological profiles, some may be more or less toxic in certain categories than others. See Beyond Pesticides' synthetic pyrethroid fact sheet at bit.ly/TLBuP8 for additional information.
‡ Imidacloprid is a systemic insecticide in the neonicotinoid chemical class, which is linked to bee decline.
§ Based on soap salts.
‖ Based on in-vitro mammalian cell study.

Description

Most toxicity determinations based on interpretations and conclusions of studies by university, government, or organization databases. Empty cells may refer to either insufficient data or if the chemical is considered relatively non-toxic based on currently available data. The column labeled "Potential to Leach" refers to a chemical's potential to move into deeper soil layers and eventually into groundwater. The column labeled "Toxic to Mammals" refers to conclusions based on evidence from studies done on non-human mammals.

The list of 30 commonly used lawn chemicals is based on information provided by the General Accounting Office 1990 Report, "Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue," U.S. Environmental Protection Agency (EPA) National Pesticide Survey (1990), Farm Chemicals Handbook (1989), The National Home and Garden Pesticide Use Survey by Research Triangle Institute, NC (1992), multiple state reports, current EPA Environmental Impact Statements, and Risk Assessments, EPA national sales and usage data, best-selling products at Lowe's and Home Depot, and Beyond Pesticides' information requests.

For more information on hazards associated with pesticides, please see Beyond Pesticides' *Gateway on Pesticide Hazards and Safe Pest Management* at www.beyondpesticides.org/gateway. For questions and other inquiries, please contact our office at 202-543-5450, email info@beyondpesticides.org or visit us on the web at www.beyondpesticides.org.

Citations

1. Extension Toxicology Network (EXTOXNET) Pesticide Information Profiles. Available at: http://extoxnet.orst.edu/pips/ghindex.html.
2. Northwest Coalition for Alternatives to Pesticides (NCAP), Pesticide Factsheets. Available at: http://www.pesticide.org/get-the-facts/pesticide-factsheets.
3. U.S. EPA, Office of Prevention, Pesticides and Toxic Substances, Reregistration Eligibility Decisions (REDs), Interim REDS (iREDs) and RED Factsheets. Available at: http://www.epa.gov/pesticides/reregistration/status.htm.
4. National Library of Medicine. TOXNET Hazardous Substances Database. Available at: http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.
5. Pesticide Action Network Pesticide Database. Available at: http://www.pesticideinfo.org.
6. Fluoride Action Alert Pesticide Project Factsheets. Available at: http://www.fluoridealert.org/f-pesticides.htm.
7. U.S. Geological Survey, Water Quality in Principal Aquifers of the United States, 1991–2010. 2015. Available at: http://pubs.usgs.gov/circ/1360/.
8. Battaglin, W.A., M.T. Meyer, K.M. Kuivila, and J.E. Dietze. Glyphosate and Its Degradation Product AMPA Occur Frequently and Widely in U.S. Soils, Surface Water, Groundwater, and Precipitation. Journal of the American Water Resources Association (JAWRA) 50(2): 275-290. 2014. Available at: http://onlinelibrary.wiley.com/doi/10.1111/jawr.12159/abstract.
9. U.S. Geological Survey. Occurrence of Fungicides and Other Pesticides in Surface. Water, Groundwater, and Sediment from Three Targeted-Use Areas in the United States. 2013. Available at: http://www.sciencedirect.com/science/article/pii/S0045653512005218.
10. National Pesticide Information Center (NCPIC). Available at: http://npic.orst.edu/index.html.
11. University of Hertfordshire. PPDB: Pesticide Properties Database. Available at: http://sitem.herts.ac.uk/aeru/ppdb/en/.
12. U.S. Forest Service. Human Health and Ecological Risk Assessment. Available at: http://www.fs.fed.us/foresthealth/pesticide/risk.shtml.

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Last Updated May 2015

Testimony of Patricia J. Wood
Executive Director, Grassroots Environmental Education

New York City Council Hearing on INTRO #1524
January 29, 2020

Grassroots Environmental Education ("Grassroots") is a non-profit, science-based environmental health organization working in New York State. We educate and inform the public and decision makers about the links between common environmental exposures and human health using science-driven arguments for clean air, clean water and a safe food supply, and for stricter regulation of chemical toxins.

Grassroots strongly supports the adoption of INTRO #1524 - A Local Law to amend the administrative code of the city of New York, in relation to the use of pesticides by City agencies. This bill would prohibit city agencies from applying to any property owned or leased by the city any chemically based pesticide.

Few environmental subjects arouse the concern of the public as much as pesticides, especially as they relate to the health of our children. Rachel Carson's 1962 book, *Silent Spring*, started the process of raising awareness of the hazards pesticides posed to humans, wildlife and ecosystems as we simultaneously integrated them more and more into our private and public spaces. Today, it is hard to find green spaces that do not display the ubiquitous yellow pesticide application warning flags.

However, such spaces do exist at all New York State public, parochial and private schools, including daycare centers. This is because New York State lawmakers passed the groundbreaking ChildSafe Playing Fields Act in 2010, which prohibited the use of pesticides on school grounds. But New York City's children do not benefit from these protections that children in the suburbs and rural areas enjoy because they play, not on school fields, but on city-owned parks.

New York City's children already have a higher body burden of toxic environmental exposures living in an urban environment. Intro #1524 will address this injustice.

Everyday encounters with pesticide products currently used in our parks can affect our health through three routes of exposure - oral ingestion, dermal absorption and inhalation. Young children are at greatest risk because they play close to the ground and engage in typical hand to mouth behavior. They also take in more pesticides relative to body weight when compared to an adult. In addition, tracking pesticides into apartments and homes add another risk as many pesticide products are designed to breakdown in sunlight and

rain and through microbial activity, none of which are present inside our homes. This makes some pesticides more persistent once they are present indoors.

Pesticides have been linked with an increased risk of certain types of cancer, neurological and endocrine disruption problems, asthma and birth defects. A meta-analysis conducted by researchers at Harvard University and published in the journal *Pediatrics* found that children's exposure to herbicides was associated with an increased risk of leukemia. Adult exposure to herbicides, especially the chemicals contained in RoundUp, has been linked to non-Hodgkin lymphoma.

The American Academy of Pediatrics (AAP) noted that "Children encounter pesticides daily and have unique susceptibilities to their potential toxicity. Acute poisoning risks are clear, and understanding of chronic health implications from both acute and chronic exposures are emerging." (*Pediatrics* 2012; 130:e1757-e1763).

Moreover, the compelling and growing science on endocrine-disrupting chemicals (found in many pesticide products) reveals important windows of vulnerability during child development, especially puberty and pre-puberty, when the rapid growth of body systems can be disrupted from even extremely low-level exposures to toxins. This proposed ban on the use of pesticides at parks where children play is a critically important component of working to ensure the health of our very youngest citizens.

Grassroots Environmental Education has worked extensively with the New York State Department of Environmental Conservation providing training seminars in non-chemical land management. We have many resources that we can make available to New York City personnel and others responsible for maintaining fields and parks that we would make available with the passage of this bill.

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Written Testimony of the Children's Environmental Health Center
Icahn School of Medicine at Mount Sinai
Before the New York City Council Committee on Health

January 29, 2020

Testimony in Support of Intro 1524

To the honorable members of the New York City Council Committee on Health,

Thank you for the opportunity to submit testimony in support of **Intro 1524**, a Local Law to amend the administrative code of the city of New York, in relation to the use of pesticides by city agencies. As pediatricians and scientists at the Children's Environmental Health Center of the Icahn School of Medicine at Mount Sinai, we strongly support measures that protect the youngest New Yorkers from exposures to potentially harmful pesticides.

The implementation of Local Law 37 has contributed to the reduction in the use of harmful pesticides citywide, and we applaud this progressive legislation. Yet city agencies reported the application of pesticides 304,032 times in 2017, utilizing a total of 7,209 gallons and 142,735 pounds of potentially harmful chemicals on city parks and properties[1]. By further restricting the use of synthetic pesticides, the proposed Intro 1524 will strengthen the human health and environmental protections provided by Local Law 37.

Children are uniquely vulnerable to the health effects of pesticide exposure. Children are exposed to pesticides through contact with grass, soil, and other surfaces. Unintentional exposure can result from drift from spray applications and by tracking residues indoors on shoes and strollers.

The Centers for Disease Control and Prevention has found that children age 6-11 have higher levels of common pesticides in their bodies than adults[2]. This is due to their age-appropriate hand-to-mouth behaviors, closer proximity to the ground, and higher breathing rates, all of which place young children at increased risk for pesticide exposures compared with adults[3].

Children's vulnerability to chemical pesticides is further magnified by the rapid growth and development of their nervous systems and other bodily organs as well as by their immature detoxification mechanisms, which make it difficult to break down and excrete pesticides. These factors place infants and children at increased risk for harmful effects of pesticide exposures, which may be permanent and irreversible[4]. Additionally, because of their young age, children have more future years of life and thus more time to develop chronic diseases that may be triggered by early environmental exposures.

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Pesticides can pass from mother to fetus during pregnancy and breastfeeding. The exquisite vulnerability of the fetus to pesticide exposures is highlighted by recent studies showing associations between pesticide exposure during pregnancy and increased risk of autism, learning disabilities, and childhood cancers [5-7].

Health effects of pesticide exposure in children are well documented. Acute exposure to pesticides can lead to asthma exacerbations, cough, shortness of breath, nausea, vomiting, eye irritation, and headaches[8]. Pesticide exposure early in life is associated with increased risk of certain cancers[7,9-11], birth defects[12, 13], reproductive defects[14, 15], asthma[16, 17], and cognitive and behavioral problems[18-23]. Notably, the exposure levels measured in these studies are similar to those detected in the general public, indicating that even low levels of exposure from household use can be detrimental.

Several lines of evidence indicate the toxicity of specific pesticides commonly applied by city agencies for cosmetic purposes. Of particular concern is the non-selective broadleaf herbicide glyphosate, the active ingredient in RoundUp and most heavily used herbicide in New York City[1]. Laboratory studies demonstrate the ability of glyphosate to promote the growth of breast cancer cells, suggesting that it may disrupt hormonal signaling and contribute to breast cancer risk[24]. In humans, studies show associations between glyphosate exposure and spontaneous abortion and certain cancers in occupational settings[25-27]. Three recent epidemiological studies support a link between glyphosate exposure and risk of Non-Hodgkin lymphoma, with increased risk of up to 43% in workers who apply the chemical[28-30]. Based on these findings, the International Agency for Research on Cancer (IARC), a world authority on cancer risk factors, classifies glyphosate as a probable human carcinogen[28]. In July of 2017, the state of California added glyphosate to the Proposition 65 list of chemicals known to cause cancer or developmental toxicity[29]. Glyphosate is currently under registration review by the USEPA to evaluate its carcinogenic potential as well as other health and environmental impacts[30]. Importantly, the majority of studies to date have assessed the health impacts of glyphosate exposure on adults. Further research is needed to determine safe exposure levels in children, who are overall more sensitive to environmental exposures.

Additional health concerns surround the use of fungicides, the most commonly applied liquid pesticides in New York City, largely due to their application to golf courses[1]. The most commonly applied fungicides are suspected carcinogens that persist in the environment for many years and form toxic products when they break down. **We strongly urge you to end golf course exemptions and restrict the application of toxic fungicides.**

Finally, greater than 95% of most synthetic pesticide formulations consist of "inert" ingredients. Recent studies suggest that these "inactive" compounds, such as the synergist piperonyl butoxide, may in fact be more toxic than the active ingredient[31,32]. Because inert ingredients are not listed on the label and testing to assess safety is minimal, the health effects of these compounds are difficult to evaluate[33].

Health hazards of pesticide exposure can be prevented. The adverse health effects that result from pesticide exposures are highly preventable. While we are pleased that New York City Local Law 37 has resulted in reduced application of certain potentially toxic pesticides and herbicides, it does not go far enough to protect the health of New Yorkers.

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Increasingly, municipalities are taking steps to limit the use of pesticides on public property, citing concerns over public health and ecological impacts. Policy changes in pesticide regulations have successfully reduced exposures among the population. A municipal ban on cosmetic herbicides resulted in an 80% reduction in levels of the three most common pesticides in urban streams in Ontario[34,35]. The USEPA ban on residential uses of chlorpyrifos, a neurotoxic organophosphate insecticide, resulted in a ten-fold reduction in maternal and umbilical blood levels in New York City residents[36].

A 2005 analysis calculated that pesticide use in the U.S. results in $10 billion in total damages annually, of which an estimated $1.1 billion could be accounted for by impacts on public health[37]. These indirect costs greatly outweigh the expense of integrated pest management and other non-toxic lawn care methods.

Conclusion Children are at risk for pesticide exposures at schools, parks, playing fields, playgrounds, and other public areas in New York City where pesticides are routinely applied—a risk that could easily be mitigated by strengthening legislation that restricts the use of synthetic pesticides in favor of integrated pest management and biological pesticides proven to be safe and effective. We urge you to take steps to protect the health of your constituents by supporting Intro 1524.

Thank you for your consideration.

Sincerely,

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Ethel H. Wise Professor and Chairman, Department of Environmental Medicine and Public Health
Professor of Pediatrics
Director, Mount Sinai Children's Environmental Health Center
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References

1. New York City Department of Health and Mental Hygiene. Pesticide Use by New York City Agencies in 2017. November 2018.
2. https://www1.nyc.gov/assets/doh/downloads/pdf/pesticide/pesticide-use-report2015.pdf
3. 3. Centers for Disease Control and Prevention. 2012 Sept. Fourth National Report on Human Exposure to Environmental Chemicals.
4. Bearer, CF. The special and unique vulnerability of children to environmental hazards. *Neurotoxicology* 2000 21: 925-934.
5. National Research Council, National Academy of Sciences. 1993.*Pesticides in the Diets of Infants and Children*, National Academy Press,Washington, DC: 184-185.
6. Shelton JF et al. Neurodevelopmental disorders and prenatal residential proximity to agricultural pesticides: the CHARGE study. Environ Health Perspect. 2014 Oct;122(10):1103-9. doi: 10.1289/ehp.1307044.
7. Schmidt R. et al. Combined Prenatal Pesticide Exposure and Folic Acid Intake in Relation to Autism Spectrum Disorder. *Environ Health Perspect*; DOI:10.1289/EHP604
8. Bailey HD et al. Home pesticide exposures and risk of childhood leukemia: Findings from the childhood leukemia international consortium. *Int J Cancer.* 2015 Dec 1;137(11):2644-63. doi: 10.1002/ijc.29631.
9. American Academy of Pediatrics Committee on Environmental Health. Etzel, RA, ed. Pediatric Environmental Health, 2nd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003.
10. Nielsen, S.S., et al. Childhood brain tumors, residential insecticide exposure, and pesticide metabolism genes. *Environmental Health Perspectives* 2010. 118(1):144-149. doi: 10.1289/ehp.0901226
11. Turner M.C., et al.. Residential pesticides and childhood leukemia: a systematic review and meta-analysis. *Environ Health Perspect.* 2010 118(1):33-41. doi: 10.1289/ehp.0900966
12. Ferreira JD, et al. In utero pesticide exposure and leukemia in Brazilian children < 2 years of age. *Environ Health Perspect.* 2013 Feb;121(2):269-75. doi: 10.1289/ehp.1103942. Epub 2012 Oct 22.
13. Garry VF, et al. Pesticide appliers, biocides, and birth defects in rural Minnesota. *Environ Health Perspect.* 1996 Apr;104(4):394-9.
14. Brender, JD., et al. Maternal pesticide exposure and neural tube defects in Mexican Americans. *Ann Epidemiol.* 2010 20(1):16-22. doi: 10.1016/j.annepidem.2009.09.011.
15. Agopian AJ,et al. Case-control study of maternal residential atrazine exposure and male genital malformations. *Am J Med Genet A.* 2013 May;161A(5):977-82. doi: 10.1002/ajmg.a.35815.
16. Carmichael SL, et al. Hypospadias and residential proximity to pesticide applications. *Pediatrics.* 2013 Nov;132(5):e1216-26. doi: 10.1542/peds.2013-1429
17. Salam, MT, et al. Early-life environmental risk factors for asthma: findings from the Children's Health Study. *Environmental Health Perspectives*. 2003 112(6): 760.

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18. Hernández AF, et al. Pesticides and asthma. *Curr Opin Allergy Clin Immunol*.2010 11(2):90-6. doi: 10.1097/ACI.0b013e3283445939.
19. Rohlman DS, et al. Neurobehavioral performance in preschool children from agricultural and non-agricultural communities in Oregon and North Carolina. *Neurotoxicology*. 2005 Aug;26(4):589-98.
20. Grandjean P, et al. Pesticide exposure and stunting as independent predictors of neurobehavioral deficits in Ecuadorian school children. *Pediatrics* 2006;117(3):e546–e56.
21. Rauh VA, et al. Impact of prenatal chlorpyrifos exposure on neurodevelopment in the first 3 years of life among inner-city children. *Pediatrics* 2006;118(6):1845–59.
22. Engel SM, et al. Prenatal organophosphate metabolite and organochlorine levels and performance on the Brazelton Neonatal Behavioral Assessment Scale in a multiethnic pregnancy cohort. *Am J Epidemiol* 2007;265 (12):1397–404.
23. Bouchard MF, et al. Attention-deficit/hyperactivity disorder and urinary metabolites of organophosphate pesticides. *Pediatrics* 2010 125:e1270–e1277. doi: 10.1542/peds.2009-3058
24. Furlong MA, et al. Prenatal exposure to pyrethroid pesticides and childhood behavior and executive functioning. *Neurotoxicology*. 2017 Aug 12;62:231-238. doi: 10.1016/j.neuro.2017.08.005.
25. Thongprakaisang S, et al. Glyphosate induces human breast cancer cells growth via estrogen receptors. *Food Chem Toxicol*. 2013 Sep;59:129. doi: 10.1016/j.fct.2013.05.057
26. Arbuckle, T. E., et al. An exploratory analysis of the effect of pesticide exposure on the risk of spontaneous abortion in an Ontario farm population. *Environ. Health Perspect*. 2001, 109 (8), 851-7.
27. De Roos, A. J., et al. Cancer incidence among glyphosate-exposed pesticide applicators in the Agricultural Health Study. *Environ. Health Perspect*. 2005, 113 (1), 49-54.
28. Zhang L, Rana I, Shaffer RM, **Taioli** E, Sheppard L. Exposure to **glyphosate**-based herbicides and risk for non-Hodgkin lymphoma: A meta-analysis and supporting evidence. Mutat Res. 2019 Jul - Sep;781:186-206. doi: 10.1016/j.mrrev.2019.02.001.
29. Leon ME, et al. Pesticide use and risk of non-Hodgkin lymphoid malignancies in agricultural cohorts from France, Norway and the USA: a pooled analysis from the AGRICOH consortium. Int J Epidemiol. 2019 Oct 1;48(5):1519-1535. doi: 10.1093/ije/dyz017.
Pahwa M et al. Glyphosate use and associations with non-Hodgkin lymphoma major histological sub-types: findings from the North American Pooled Project. Scand J Work Environ Health. 2019 Nov 1;45(6):600-609. doi: 10.5271/sjweh.3830.
30. Leah Schinasi and Maria E. Leon. Non-Hodgkin lymphoma and occupational exposure to agricultural pesticide chemical groups and active ingredients: a systematic review and meta-analysis. *Int. J. Environ. Res. Public Health* 2014, *11*(4), 4449-4527. doi: 10.3390/ijerph110404449.
31. Guyton KZ, et al. International Agency for Research on Cancer Monograph Working Group, IARC, Lyon, France. Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate. *Lancet Oncol*. 2015 May;16(5):490-1. doi: 10.1016/S1470-2045(15)70134-8.
32. https://oehha.ca.gov/proposition-65/proposition-65-list

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33. https://www.epa.gov/sites/production/files/2017-04/documents/glyphosate-update-for-ppdc.pdf
34. Horton MK, et al. Impact of prenatal exposure to piperonyl butoxide and permethrin on 36-month neurodevelopment. *Pediatrics*. 2011 Mar;127(3):e699-706.
35. Liu B, et al. Prenatal exposure to pesticide ingredient piperonyl butoxide and childhood cough in an urban cohort. *Environ Int.* 2012 Nov 1;48:156-61. doi: 10.1016/j.envint.2012.07.009
36. Cox C, et al. Unidentified inert ingredients in pesticides: implications for human and environmental health. *Environ Health Perspect.* 2006 Dec;114(12):1803-6.
37. Cole DC et al. Municipal bylaw to reduce cosmetic/non-essential pesticide use on household lawns - a policy implementation evaluation. *Environ Health.* 2011 Aug 25;10:74. doi: 10.1186/1476-069X-10-74.
38. Aaron Todd and John Struger Changes in Acid Herbicide Concentrations in Urban Streams after a Cosmetic Pesticides Ban. *Challenges* 2014, 5, 138-151; doi:10.3390/challe5010138
39. Whyatt RM, et al. Contemporary-use pesticides in personal air samples during pregnancy and blood samples at delivery among urban minority mothers and newborns *Environ Health Perspect.* 2003;111:749.
40. Pimentel D. *Environment, Development and Sustainability* (2005) 7: 229–252.

New York City Council Committee on Health
Oversight – Use of Pesticides on City-Owned Property
Intro. 1524-2019
January 29, 2020
Emily Walker, Director of Outreach & Programs

Good afternoon. My name is Emily Walker, and I am the Director of Outreach & Programs at New Yorkers for Parks (NY4P). I want to thank the Committee on Health for letting us to testify at today's hearing.

We are testifying today to express concerns with Intro. 1524, which would institute a ban of all non-biological pesticide use on City-owned property. NY4P believes the legislation as written would be overly restrictive, and would have adverse impacts on management techniques used by NYC Parks, particularly in natural areas and park properties that present safety challenges for manual control of weeds and invasive species. While we agree with the spirit of the legislation as it relates to lessening the use of pesticides in our parks, we do feel that an outright ban on non-biological pesticides will create maintenance challenges that threaten some of our most unique open space assets.

Our parks system includes a variety of unique natural areas, many of which have been sites of targeted restoration in recent years. Work done by the NYC Parks Natural Resources Group has included restoring native plant populations in our natural areas, and managing the spread of invasive species. From a management standpoint, the ability to engage in invasive species removal in some of these locations is dependent on the targeted use of synthetic pesticides, which would be banned by Intro. 1524 in its current form. Even with the historic investment of $44M in the expense budget for NYC Parks in the FY20 City budget, the agency lacks the manpower that would be needed to effectively manage the control of invasives in these natural areas. Additionally, some of the areas targeted for invasive species removal include fragile native plantings, which would be destroyed or compromised by soil compaction and trampling by maintenance workers. These are very real considerations that we urge the Council to take into account as it weighs this legislation. NYC Parks also has many planted areas that exist in active roadways and medians. Some of these sites present significant safety challenges for maintenance workers, and the use of synthetic pesticides can help NYC Parks crews effectively target problem areas, while minimizing the risk to maintenance and operations crew members working near active roadways.

The agency currently does not use synthetic pesticides in playgrounds or parks that are largely accessible to the public. We agree that synthetic pesticide use should be limited as a management means of last resort, but still understand that there are management needs in our parks system that require their use for effective control of invasive species. We think it is worth noting that the only staff who are legally allowed to apply these pesticides are licensed professional who receive NY State certification – this is an important distinction to make. The NYC Parks crew members who engage in this work are highly trained, and held to a high standard professionally in order to be certified to use these substances in our parks.

It is also worth noting that current management techniques for the control of Dutch Elm disease and the Emerald Ash Borer require the use of synthetic pesticides that would be banned by the legislation. As we seek to protect these invaluable and vulnerable members of our urban canopy, we fear that the legislation would have the unintended consequence of impeding the real progress that has been made in recent years to protect our American Elm and Ash tree populations.

In an ideal scenario, synthetic pesticides would not be needed to help maintain our parks and green spaces, but we don't yet have a full suite of management options on hand that make it feasible for agencies like NYC Parks to effectively manage the invasive species and pests that present an existential crisis to the remaining natural assets that we have. We would point the City Council to the City of Portland, Maine's pesticide ordinance, passed in 2018, which takes an approach of minimizing the use of synthetic pesticides, while also finding a balance of allowing the use of them in certain instances where few other options exist, especially as it relates to controlling plant or insect species officially designated as invasive, and plants that present a physical hazard to City workers, like poison ivy. While we appreciate the Council's intent in making the City and its agencies take a more thoughtful and restrictive approach in their use of synthetic pesticides, we also believe the bill as written leaves little room for important management considerations. We urge the Council to revise the legislation to account for some of these changes.

Thank you for allowing me to speak today. I'm happy to answer any questions the Council might have.

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For over 100 years, New Yorkers for Parks (NY4P) has built, protected, and promoted parks and open spaces in New York City. Today, NY4P is the citywide independent organization championing quality parks and open spaces for all New Yorkers in all neighborhoods. www.ny4p.org

Hello. I'm Dr. Maya Shetreat. I'm a pediatric and adult neurologist who practices in New York City. I'm also an herbalist and Founder of the Terrain Institute, where we explore the science and practice of aligning human health and wellbeing--our "bioterrain"--with the health and wellbeing of the world around us-- air, soil, water, plants, trees, wildlife -- our ecoterrain. I'm the author of The Dirt Cure, in which I outline the importance of soil, food and time innature as the foundations of children and human health.

I'm also a NYC resident. I live in Riverdale. I run every day in the park by my house. I walk my dog there. I forage for plants and mushrooms there. My children and many of my patients walk and play in New York City parks every day. In fact, whenever I run during the day, I encounter children from one of the many Riverdale public and private schools walking, learning and exploring in the park by my house.

I teach about the benefits of being in nature which I'll briefly share with you because they are profound.
Improved focus and attention and executive function.
Less depression and better mood.
Better sleep
Better scores on standardized tests
Lower levels of stress hormones like cortisol
Increased production of cancer-fighting natural killer cells (NKCs)
Increased production of anti-cancer proteins.

There is no pill or treatment that can achieve the kinds of outcomes that an hour immersed in nature does. And for most residents of New York City, parks are the one place they have to experience these benefits.

Every year, several times per year, there will be a sign that I shouldn't enter for 24 hours because glyphosate or some other pesticide has been sprayed. And oftentimes, patients express that they are reluctant to spend time in parks because they're worried about pesticide residue.

Why are pesticides dangerous?
Diseases that pesticides are strongly associated with are currently at epidemic levels.
Low birthweight[1]
ADHD, PDD and learning disabilities
Asthma
Infertility
Alzheimer's and other forms of dementia
Parkinson's: A Washington State University study published in December found state residents living close to areas subject to treatments with the herbicide are one-third more likely to die an early death from Parkinson's disease.[2]

Cancer: A University of Washington study published in February 2019 found glyphosate increased the risk of non-Hodgkin lymphoma by as much as 41 percent.[3]

How Do Pesticides Affect Us?

Children, especially their brains, seem to be particularly vulnerable to these chemicals designed to deter insects. A study of over a thousand US children representative of the overall population showed that those with higher organophosphate pesticide metabolites in their urine were twice as likely to have an ADHD diagnosis than those with lower levels.

A review of several studies concluded that exposure to pesticides close to the time of birth (in or out of the womb) disrupts both thyroid and neurotransmitter function of a baby and is also associated with ADHD, as well as autism spectrum disorder.[4]

Many pesticides are also endocrine disruptors that can elicit premature puberty, polycystic ovarian syndrome (PCOS), or fertility issues; hypo or hyperthyroidism; obesity or growth delay; and neurodevelopmental problems.[5]

There's also a growing body of research that shows that children are affected by pesticides before they're even born.

One study measured prenatal exposure to common organochlorine pesticides like DDE or PCBs in 800 women and found that their children, ages 0 to 8, had anywhere from a significant increase in their risk of ADHD, depending on the particular pesticide exposure and the amount.[6] Other studies have determined that prenatal pesticide exposure increases the risk for neurological problems and pervasive development disorder (PPD) by 24 months.[7]

What is concerning about the prenatal studies is that even though the exposed mothers had no known adverse health effects from exposure, their children had lasting adverse effects on development. One author of these studies points out that pesticide exposure may contribute to a "silent pandemic" of developmental neurotoxicity.[8] Additionally, recent studies have linked pesticide exposure to obesity, asthma morbidity, and even the increasing incidence of food allergies. [123]

Babies and children themselves are more at risk.

Children are not simply "little adults." Children are particularly vulnerable to pesticides exposure because their organs, nervous systems and immune systems are still developing; their

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[1] http://www.ncbi.nlm.nih.gov/pubmed/25063718

[2] http://www.ncbi.nlm.nih.gov/pubmed/24726197

[3] http://www.ncbi.nlm.nih.gov/pubmed/?term=dichlorophenol+food+allergies

higher rates of cell division and lower body weight also increase children's susceptibility to pesticide exposure and risks. Their immature organs and other developing biological systems are particularly vulnerable to toxic contaminants. Exposure during certain early development periods can cause permanent damage.

In addition to being more vulnerable to pesticide toxicity, children's behavior and physiology make them more likely to receive greater pesticide exposure than adults. Most pesticide exposure occurs through the skin and children have more skin surface for their size than adults. Children have a higher respiratory rate and so inhale airborne pesticides at a faster rate than adults. Children also consume proportionately more food and water — and pesticide residues — than adults. With their increased contact with floors, lawns and playgrounds, children's behavior also increases their exposure to pesticides.

Pregnant Women and Generational Toxicity
Children are at risk from when they're in utero.

Epigenetics: heritable changes in gene expression due to environmental exposures.

In a study published by Washington State University, researchers found that when a pregnant mouse was exposed to glyphosate, the primary ingredient of RoundUp used in NYC Parks every season. The dose was at half the amount expected to cause no adverse effect.

The apparent effect on her and even her children was minimal. By the third generation, there were "dramatic increase" in several pathologies in testes, ovaries, mammary gland diseases, as well as obesity.[9] They experienced a 3X higher risk of prostate disease and 4X higher risk of kidney disease compared to controls. This concept is called generational toxicology. You're not just making a decision for this generation, but for *at least* four more generations.

And while these studies looked at glyphosate, look in the scientific literature and you will find countless studies showing that all other commonly used pesticides have similar generational toxicity.[101112]

Microbiome
A recent analysis of research suggests that glyphosate and other pesticides—are linked to conditions such as intestinal permeability, imbalanced gut bacteria, immune activation and allergies, impaired digestion, and damage to the intestinal wall.[13] This disrupts the gut-brain connection that's been implicated in conditions like multiple sclerosis, autism, and numerous other neurological disorders.

Beware of industry science
Polluting not just our parks and our bodies and the bodies of our children, pets and wildlife, but also our body of scientific literature. The Monsanto Papers reveal Monsanto-sponsored ghostwriting of articles published in toxicology journals and the lay media, interference in the

peer review process, behind-the-scenes influence on retraction and the creation of a so-called academic website as a front for the defense of Monsanto products.[14]

Are pesticides like glyphosate actually doing their job?
Glyphosate holds on to nutrients in the soil and prevents them from being taken up and utilized by a plant. This is relatively good news in the case of unwanted plants such as weeds, but doesn't bode well for the remaining plants. When glyphosate binds the minerals and destroys beneficial microbes that would otherwise help with nutrient uptake into a plant, diverse nutrients are less available. Which means the native plants we are trying to promote are being harmed, leading to an unhealthy environment that encourages more--not fewer--invasive plants to grow.

What are some solutions?
Rather than spraying pesticides for plant we deem invasive, let's start a program that educates people on ways to use these plants and inspires people to responsibly harvest them. This can build community and bring people together in parks. Japanese knotweed is a prime example. The shoots are edible and delicious. People could use them or donate them to food banks.

Enrich microbiome by adding compost to the soil.

Increase biodiversity by planting different kinds of native plants.

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[1] Scand J Work Environ Health. 2020 Jan 23. pii: 3878.
[2] Int J Environ Res Public Health. 2018 Dec 16;15(12).
[3] Mutat Res. 2019 Jul - Sep;781:186-206.
[4] Acta Paediatr. 2012 Aug;101(8):811-8. doi: 10.1111/j.1651-2227.2012.02693.x. Epub 2012 May 7.
[5] http://www.ncbi.nlm.nih.gov/pubmed/23367522
[6] Sagiv et al. Am J Epidemiol. 2010 Mar 1;171(5):593-601.
[7] http://www.ncbi.nlm.nih.gov/pubmed/18226078
[8] *Environ Health Perspect. 2010 Jun;118(6):890-6. Harari et al.*
[9] Sci Rep. 2019 Apr 23;9(1):6372.
[10] Vitam Horm. 2014;94:211-27.
[11] PLoS One. 2018 Aug 29;13(8):e0202662.
[12] PLoS One. 2017 Sep 20;12(9):e0184306
[13] http://responsibletechnology.org/glutenintroduction
[14] Int J Risk Saf Med. 2018;29(3-4):193-205

Roundup's Dangers: Toxicity, Exposures, and Liability 1/29/2020

The Toxicity of Roundup

Glyphosate is a synthetic herbicide, patented by the Monsanto Company in 1974, and now manufactured and sold by many companies in hundreds of products. Glyphosate is now the most widely used herbicide in the United States and worldwide. While glyphosate has been examined for toxicity, until recently, weed-killer formulations containing glyphosate and adjuvants or co-formulants (additives used to enhance the effect of primary active ingredient) had not been widely or rigorously studied. However, the declared active ingredients of pesticide formulations are never applied in their isolated form; other substances are added to modify the physio-chemical properties of the herbicide or to improve the penetration or stability of the declared active ingredient. The identity of the co-formulants (declared as inert) is nearly always kept confidential under the umbrella of trade secrecy. Moreover, they are not used in medium or long term in vivo toxicity tests of pesticides on mammals for the establishment of their acceptable daily intake. As a result of the variability in co-formulants added to glyphosate-based herbicides (GBHs), which differ between manufacturers and countries and are not compulsorily declared, the formulation and the active ingredient are often treated as the same substance, and co-formulants were not target ingredients in (eco)toxicological studies until recently.

It is now well established, in both in vitro and in vivo studies, that GBHs and their co-formulants, such as polyethoxylated tallow amine, are more toxic than glyphosate alone. Despite our understanding of such synergistic effects, it is only now, after more than 45 years of widespread use, that the US government is investigating the toxicity of "glyphosate-based herbicides" on human cells. The EPA's 1993 registration review of Glyphosate-based herbicides relied on a pool of 300 publications, 73% of which were published prior to 1985; importantly, only 11 were peer-reviewed. A search of PubMed, conducted on November 6, 2016, revealed more than 1500 published studies on glyphosate in the prior decade alone. Laura N Vandenberg, *et al.*, "Is it time to reassess current safety standards for glyphosate-based herbicides?" Journal of Epidemiology and Community Health (June 2017), 71(6): 613–618, available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5484035/, (last visited on January 29, 2020). It is incomprehensible that the safety assessments of the most widely used herbicide on the planet have relied largely on fewer than 300 unpublished, non-peer-reviewed studies while excluding the vast, modern literature on glyphosate-related effects.

Polyethoxylated tallow amine (POEA), one ingredient traditionally used in Roundup as a surfactant to help glyphosate adhere to the leaves of plants,[1] has been the focus of particular scrutiny as research has shown that this added ingredient can be extremely damaging to human cells. European regulators became so concerned with POEA that in 2016 they agreed to ban it from use as a co-formulant in glyphosate-based herbicides after the European Food Safety Authority (EFSA), in a 2015 report, said there was insufficient data available to perform a risk assessment on POEA. The EFSA stated: "Its genotoxicity, long term toxicity/carcinogenicity, reproductive/developmental toxicity and endocrine disrupting potential should be further clarified." European Food Safety Authority, "Request for the

[1] In part of an April 18, 2016 email string with the EPA, a Monsanto executive confirmed the company's inclusion of POEA in its products, telling the EPA "the surfactant system used almost exclusively in Roundup agricultural herbicide formulations globally throughout these two decades (the 1980s and 1990s) contained a polyethoxylated tallow amine surfactant..." Carey Gillam, "Weedkiller products more toxic than their active ingredient, tests show," UK Guardian (May 8, 2018), available at https://theintercept.com/2019/08/23/monsanto-republicans-cancer-research/, (last visited on January 28, 2020).

evaluation of the toxicological assessment of the co-formulant POE-tallowamine," EFSA Journal 13(11):4303 (November 12, 2015), available at https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4303, (last visited on January 28, 2020).

The evidence continues to mount showing that glyphosate-based herbicides have detrimental effects on numerous systems, including immune, endocrine, reproductive, and neurological systems. In February of 2019, a meta-analysis published in Mutation Research/Reviews in Mutation Research, which analyzed data from more than 30,000 farmers and agricultural workers from studies done in France, Norway, and the U.S., reported a "compelling link" between glyphosate-based herbicides and diffuse large B-cell lymphoma. Luoping Zhanga, *et al.*, "Exposure to glyphosate-based herbicides and risk for non-Hodgkin lymphoma: A meta-analysis and supporting evidence," Mutation Research/Reviews in Mutation Research (February 2019), V. 781, July–September 2019, pp. 186-206, available at https://www.sciencedirect.com/science/article/pii/S1383574218300887, (last visited on January 29, 2020). A recent pilot study examined whether exposure to GBH at a dose of glyphosate considered to be "safe", i.e. the US Acceptable Daily Intake of 1.75 mg/kg bw/ day, defined as the chronic Reference Dose determined by the US EPA, affects the development and endocrine system across different life stages in rats. The study demonstrates that Roundup exposure, at a dose level considered as "safe," from prenatal period to adulthood, induced endocrine effects and altered reproductive developmental parameters in male and female rats. Manservisi, F., *et al.*, "The Ramazzini Institute 13-week pilot study glyphosate-based herbicides administered at human-equivalent dose to Sprague Dawley rats: effects on development and endocrine system," Environ Health (2019); 18: 15, published online March 12, 2019, doi: 10.1186/s12940-019-0453-y. The scientific evidence now shows that in vitro, low concentrations of Roundup have caused a reduction in sperm motility. In vivo, sexual development is significantly affected by exposure to GBH, with the range of observed effects including: i) both increased or reduced concentration of total testosterone; ii) increased 17β-estradiol (E2) serum concentrations in males; iii) delayed sexual maturation in females; and iv) reduced spermatogenesis. *See* Romano, R.M., *et al.*, "Prepubertal exposure to commercial formulation of the herbicide glyphosate alters testosterone levels and testicular morphology," Arch. Toxicol. 2010, 84, 309–317; Romano, M.A., *et al.*, "Glyphosate impairs male offspring reproductive development by disrupting gonadotropin expression," Arch. Toxicol. 2012, 86, 663–673; Williams, A.L., *et al.*, "Developmental and reproductive outcomes in humans and animals after glyphosate exposure: A critical analysis," J Toxicol. Environ. Health B Crit. Rev. 2012, 15, 39–96; Cassault-Meyer, E., *et al.*, "An acute exposure to glyphosate-based herbicide alters aromatase levels in testis and sperm nuclear quality," Environ. Toxicol. Pharmacol. 2014, 38.

In addition to altering reproductive developmental parameters, endocrine disrupters have the potential to trigger serious diseases such as cancers, reproductive and developmental problems, and birth defects. Recently, tests undertaken for the first time by the National Toxicology Program Division of the National Institute of Environmental Health Sciences looking at herbicide formulations with the active ingredient glyphosate and other chemicals, have confirmed that these formulations are much more toxic to human cells than the active ingredient by itself, finding that glyphosate-based formulations proved to be genotoxic.[2] "Comparison of the Genotoxicity of Glyphosate, (Aminomethyl) phosphonic Acid, and Glyphosate-Based Formulations Using In Vitro Approaches," Swartz, CD, Christy, NC, Sly, JE,

[2] The NTP tests were requested by the Environmental Protection Agency after the International Agency for Research on Cancer (IARC) in 2015 classified glyphosate as a probable human carcinogen. The IARC report also highlighted concerns about formulations which combine glyphosate with other ingredients to enhance weed killing effectiveness.

Witt, KL, and Smith-Roe, SL, (September 19, 2019), available at https://ntp.niehs.nih.gov/ntp/results/pubs/posters/swartz_emgs20190919.pdf, (last visited on January 28, 2020). As a result, the NTP is now conducting in vitro tests of glyphosate-based *formulations* for potential mutagenicity and induction of chromosomal damage, as well as for potential clastogenic effects.

Lest there be any confusion with regard to statements issued by Monsanto, it is now unmistakably clear that the company has sought to repress all evidence of harm from GBHs. In one 2003 internal company email, a Monsanto scientist stated: "You cannot say that Roundup is not a carcinogen ... we have not done the necessary testing on the formulation to make that statement. The testing on the formulations are not anywhere near the level of the active ingredient." Another internal email, written in 2010, said: "With regards to the carcinogenicity of our formulations we don't have such testing on them directly." In another internal Monsanto email also obtained as part of discovery in the court case, a Monsanto scientist writes to a colleague, "we are in pretty good shape with glyphosate but vulnerable with surfactants. What I've been hearing from you is that this continues to be the case with these studies – Glyphosate is OK but the formulated product (and thus the surfactant) does the damage." Carey Gillam, "Weedkiller products more toxic than their active ingredient, tests show," UK Guardian (May 8, 2018), available at https://theintercept.com/2019/08/23/monsanto-republicans-cancer-research/, (last visited on January 28, 2020).

Monsanto used its influence with lawmakers to antagonize regulators, applied pressure and investigative threats to shape the science used to research glyphosate and other controversial chemical compounds, and coordinated efforts to question the IARC's credibility and slash U.S. support for the international body. Information has come to light revealing Monsanto's work to conceal the potential health risks around glyphosate. New documents show that Monsanto operated a "fusion center" to discredit critics of the company, including former Reuters journalist Carey Gillam, who has written extensively about glyphosate. A separate cache of litigation files, released in May 2018, revealed that Monsanto also contracted with Hakluyt, a corporate intelligence firm, to keep close tabs on political elites in Washington. The company consulted with senior Trump and EPA officials, and confirmed that the administration would support Monsanto on glyphosate issues. "We have Monsanto's back on pesticide regulation," a domestic policy adviser in the White House told Hakluyt. The last year has exposed other cloak-and-dagger tactics. The company was criticized for ghostwriting scientific studies on the safety of glyphosate, which were presented as independent research. At the San Francisco civil trial over glyphosate, an FTI consultant working for Monsanto was caught posing as a journalist working for the BBC and another British outlet.

Liability Risks

While the benefits of using Roundup are purely cosmetic, its use engenders not only the tremendous costs to the health of workers and their families, but also significant risks of liability for entities that use GBHs in the face of mounting evidence of their toxic effects.

Current Litigation

At present, more than 42,000 people have filed suit against Monsanto Company (now Bayer) alleging that exposure to Roundup herbicide caused them or their loved ones to develop non-Hodgkin lymphoma (NHL), and that Monsanto covered up the risks. As part of the discovery process, Monsanto has had to turn over millions of pages of internal records, which are now posted on the website of the

U.S. Right to Know organization, a 501(c)(3) non-profit investigative research group, and can be accessed through this link (https://usrtk.org/monsanto-papers/).

Estimates are that Monsanto, which merged with German multinational pharmaceutical company Bayer AG in 2018, is facing as many as 11,000 cases relating to glyphosate. The first three trials ended in large awards to plaintiffs for liability and damages, with juries ruling that Monsanto's weed-killer was a substantial contributing factor in causing them to develop NHL. Bayer is appealing the rulings. A summary of the federal and state court cases, with the upcoming trial dates for new cases, is set forth below:

Federal Court Cases – On April 4, 2019, Federal Judge Vince Chhabria ordered Bayer/Monsanto to enter into mediation with plaintiffs' attorneys. As mediation continues, more than 2,190 lawsuits are pending in U.S. District Court in San Francisco and have been combined for handling as multidistrict litigation (MDL) under Chhabria. The first federal trial, the case of Edwin Hardeman v. Monsanto, was bifurcated at the request of Monsanto, limiting evidence jurors heard during a first phase to causation only. On March 19 a unanimous jury decision handed a first-round victory to Hardeman, as the six jury members found that Hardeman's exposure to Roundup was a "substantial factor" in causing his non-Hodgkin lymphoma. On March 27, the jury returned a verdict of approximately $80 million, including punitive damages of $75 million. Court/discovery documents are posted below for Edwin Hardeman v. Monsanto. Judge Chhabria reduced the punitive damages awarded Hardeman to $20 million from $75 million, putting the total award at $25,313,383.02. The next federal trial is set for February 24, 2020 in the case Stevick v. Monsanto Co., 16-cv-2341-VC.

State Court Cases – Thousands of plaintiffs have made similar claims against Monsanto in state courts. The first trial in the Roundup litigation concluded on August 10, 2018 with the jury ruling that Monsanto's weed-killer was a substantial contributing factor in causing DeWayne "Lee" Johnson's cancer, and ordering Monsanto to pay $289.25 million in damages, including $250 million in punitive damages. The judge reduced the punitive damages to $39 million in an order dated Oct. 22, 2018 which put the total verdict at approximately $78 million. Monsanto has appealed, seeking to throw out the judgment, while Johnson has cross appealed, seeking to reinstate the jury award. The appeal is filed in the California State Court of Appeals, case number A155940. The most recent trial was Pilliod v. Monsanto. On May 13, 2019, jurors returned a verdict awarding Alva and Alberta Pilliod $2 billion in punitive damages and $55 million in compensatory damages. The judge in the case then cut the total verdict to $87 million. Pilliod v. Monsanto was the first case in the California Roundup Judicial Council Coordination Proceedings (JCCP) and the third Roundup cancer case to proceed to trial. A state court trial for plaintiff Sharlean Gordon that had been set for Aug. 19, 2019 in St. Louis was continued until January 27, 2020.

Upcoming Trials:
POSTPONED 01/15/2020 – Lake County Superior Court, Lakeport, Cal., Bellah v. Monsanto
POSTPONED 1/21/2020 – St. Louis City Court, St. Louis, Mo., Wade v. Monsanto #1722-CC00370
POSTPONED 01/22/2020 – Alameda County Superior Court, Bargas v. Monsanto HG19026873
01/17/2020 – Contra Costa Superior Court, Cal., Caballero v. Monsanto MSC19-01821
POSTPONED 01/24/2020 – Riverside Superior Court, Cal., Cotton v. Monsanto #RIC-1903180
POSTPONED 01/27/2020 – St. Louis County Court, Clayton, Mo., Gordon v. Monsanto #17SL-CC02721
02/24/2020 – U.S. District Court for the Northern District of California, San Francisco, Cal., Stevick v. Monsanto
03/30/2020 – St. Louis City Court, St. Louis, Mo., Seitz v. Monsanto

04/13/2020 – St. Louis County Court, Clayton, Mo., Priest v. Monsanto
05/13/2020 – St. Louis County Court, Clayton, Mo., Bognar v. Monsanto
06/29/2020 – St. Louis City Court, St. Louis, Mo., Kane v. Monsanto
07/13/2020 – St. Louis County Court, Clayton, Mo., Whitaker v. Monsanto
07/24/2020 – Riverside Superior Court, Cal., Cotton v. Monsanto #RIC-1903180
08/03/2020 – St. Louis County Court, Clayton, Mo., Leung v. Monsanto
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03/01/2021 – St. Louis County Court, Clayton, Mo, Jorgensen v. Monsanto
03/01/2021 – St. Louis County Court, Clayton, Mo, Berry v. Monsanto
04/05/2021 – St. Louis County Court, Clayton, Mo., Salsman v. Monsanto
05/03/2021 – Jackson County, Kansas City, Mo., Gutierrez v. Monsanto
05/10/2021 – St. Louis County Court, Clayton, Mo., Chaplick v. Monsanto Case No. 19SL-CC04115.
07/12/2021 – St. Louis County Court, Clayton, Mo., Moore v. Monsanto
08/02/2021 – St. Louis County Court, Clayton, Mo., Davis v. Monsanto
08/09/2021 – Jackson County, Kansas City, Mo., Steffens v. Monsanto
10/04/2021 – St. Louis County Court, Clayton, Mo., Amm v. Monsanto
10/25/2021 – Jackson County, Kansas City, Mo., Marler v. Monsanto

This is a list of the cases filed only in California and Missouri. As you might surmise, there are thousands more in other jurisdictions across the United States. Because of the great burden on the courts presented by these cases, state courts are creating multi-district proceedings in the hope that many cases may be aggregated for hearing.

Country Bans on Use of Glyphosate-base Herbicides

The following countries have issued outright bans on glyphosate, imposed restrictions, or issued statements of intention to ban or restrict glyphosate-based herbicides, including Roundup, over health concerns and the ongoing Roundup cancer litigation:

Argentina: In 2015, more than 30,000 health care professionals advocated for a glyphosate ban following the International Agency for Research on Cancer's (IARC) report on glyphosate, which concluded the chemical is probably carcinogenic to humans. More than 400 towns and cities in Argentina have passed measures restricting glyphosate use.

Australia: Numerous municipalities and school districts throughout the country are currently testing alternative herbicides in an effort to curtail or eliminate glyphosate use.

Austria: In June of 2019, Austria announced that it planned to ban glyphosate within the year. Leader of the Social Democrats, Pamela Rendi-Wagner, said she is "pleased" that her party's long-standing effort to ban glyphosate in Austria would "finally pay off" now that her party's motion had a majority in the Austrian parliament. The measure to ban glyphosate passed in July of 2019. The Austria glyphosate ban will take effect on January 1, 2020.

Bahrain: According to Oman's Ministry of Agriculture, Bahrain and five other countries in the Gulf Cooperation Council (GCC) have banned glyphosate.

Belgium: Banned the individual use of glyphosate. In 2017, Belgium voted against relicensing glyphosate in the EU. The country was also one of six EU member states to sign a letter to the EU Commission calling for "an exit plan for glyphosate..."
Bermuda: Outlawed private and commercial sale of all glyphosate-based herbicides. In 2017, the government relaxed its ban on glyphosate, allowing the Department of Environment and Natural Resources to import restricted concentrations of glyphosate for managing roadside weed overgrowth.
Canada: Eight out of the 10 provinces in Canada have some form of restriction on the use of non-essential cosmetic pesticides, including glyphosate. Vancouver has banned public and private use of glyphosate, aside from the treatment of invasive weeds. In June of 2019, New Brunswick officials announced that the province would reduce glyphosate spraying in certain areas with the promise that more regulation will follow.
Colombia: In 2015, Colombia outlawed the use of glyphosate to destroy illegal plantations of coca, the raw ingredient for cocaine, out of concern that glyphosate causes cancer. In March of 2019, President Ivan Duque asked for the judicial ban on aerial glyphosate spraying to be lifted. However, in July of 2019, the court maintained the judicial ban on glyphosate, ruling that the government has to prove that glyphosate is not harmful to human health and the environment in order for the ban to be lifted.
Czech Republic: Agriculture Minister Miroslav Toman said the country will limit glyphosate use starting in 2019. Specifically, the Czech Republic will ban glyphosate as a weedkiller and drying agent.
Denmark: The Danish Working Environment Authority declared glyphosate to be carcinogenic and has recommended a change to less toxic chemicals. Aalborg, one of the largest cities in Denmark, issued private-use glyphosate ban in September of 2017. In July of 2018, the Danish government implemented new rules banning the use of glyphosate on all post-emergent crops to avoid residues on foods.
El Salvador: In 2013, the country adopted a law banning glyphosate over links to deadly kidney disease.
France: French authorities banned the sale, distribution and use of Roundup 360 in early 2019. In May of 2019, French Agriculture Minister Didier Guillaume announced that France would eliminate the use of glyphosate by 2021 with limited exceptions. Some 20 mayors throughout the country have banned glyphosate in their municipalities.
Germany: Environment Minister Svenja Schulze announced in September 2019 that Germany will ban glyphosate by 2023. The ban, agreed to by the Cabinet, includes a "systemic reduction strategy" that will prohibit glyphosate spraying in domestic gardens and at the edges of farmland. Certain retail stores in Germany have already pulled glyphosate-based herbicides like Roundup from shelves.
Greece: Greece was one of nine EU countries to vote against relicensing glyphosate in November of 2017. The country was also one of six EU member states to sign a 2018 letter to the European Commission calling for "an exit plan for glyphosate..." According to Greek Minister of Agricultural Development Evangelos Apostolou, "[i]t is our duty to push in the direction of risk management, in the interests of consumers, producers and the environment." In March of 2018, the Greek government approved a five-year license for Monsanto's Roundup against the wishes of Greek environmentalists.
India: In October of 2018, the government of Punjab banned the sale of glyphosate in the state. "All pesticide manufacturers, marketers and dealers in the State shall not sell glyphosate formulations-concentrations with immediate effect. The licensing authorities have been asked to take necessary steps for removal of entries for glyphosate from the licenses issued by them," said State Agriculture Secretary K.S. Pannu. In February of 2019, the Indian state of Kerala issued a ban on the sale, distribution and use of glyphosate.
Italy: Italy's Ministry of Health placed a number of restrictions on glyphosate use. Italian legislators have also raised concerns about glyphosate safety, and have come out against relicensing the herbicide in the European Union. In 2016, the Italian government banned the use of glyphosate as a pre-harvest treatment and placed restrictions on glyphosate use in areas frequented by the public. In November of 2017, Italy was one of seven EU nations to vote against relicensing glyphosate.

Kuwait: According to Oman's Ministry of Agriculture, Kuwait and five other countries in the Gulf Cooperation Council (GCC) issued glyphosate bans.
Luxembourg: One of Luxembourg's largest supermarket chains removed glyphosate from its shelves following the release of the IARC glyphosate report. Luxembourg was one of nine EU countries to vote against relicensing glyphosate in November of 2017, and in early 2018, the country signed a letter to the EU Commission calling for "an exit plan for glyphosate..."
Malawi: In April 2019, Malawi's Principal Secretary of the Ministry of Agriculture, Irrigation and Water Development told the country's National newspaper that import licenses for glyphosate-based herbicides like Monsanto's Roundup would be suspended immediately.
Malta: In July of 2019, Malta banned the use of glyphosate in public spaces. The spraying of glyphosate will not be allowed on roadsides or near schools, among other places.
Netherlands: Banned all non-commercial use of glyphosate.
New Zealand: The cities of Auckland and Christchurch passed resolutions to reduce the usage of chemicals for weed and pest control in public places. The Physicians and Scientists for Global Responsibility, a New Zealand charitable trust, called for a glyphosate ban in 2015.
Oman: Eng Saleh al Abri, director general of agricultural development in Oman's Ministry of Agriculture and Fisheries (MoAF), told a reporter that glyphosate "hasn't been available in Oman since 2016." Eng Abri added, "This active ingredient has been banned throughout the GCC (Gulf Cooperation Council) since last year." In addition to Oman, the GCC includes Saudi Arabia, Qatar, Kuwait, Bahrain, and the United Arab Emirates (UAE).
Portugal: Prohibits the use of glyphosate in all public spaces. The president of the Portuguese Medical Association has also called for a worldwide ban of glyphosate.
Qatar: According to Oman's Ministry of Agriculture, Qatar and five other countries in the Gulf Cooperation Council (GCC) have banned glyphosate.
St. Vincent and the Grenadines: Acting on advice from their Pesticides Board, the Caribbean country placed an immediate suspension on the import of glyphosate-based herbicides.
Saudi Arabia: Issued a glyphosate ban along with five other countries in the Gulf Cooperation Council (GCC).
Scotland: Aberdeen cut back its use of herbicides and Edinburgh's City Council voted to phase out glyphosate. In November of 2017, five of Scotland's six EU parliamentarians voted in favor of a motion that would phase out glyphosate by 2022.
Slovenia: Slovenia was one of six EU member states to sign a 2018 letter to the European Commission citing "concerns" about the risks associated with glyphosate. The letter called upon the Commission to introduce "an exit plan for glyphosate..."
Spain: According to Kistiñe Garcia of the Spanish NGO, Ecologistas en Acción, Barcelona, Madrid, Zaragoza and the region of Extremuda have decided to ban glyphosate. The regions of La Rioja (major Spanish wine region) and Aragon have also approved motions against endocrine-disrupting chemicals, which includes glyphosate.
Sri Lanka: Sri Lanka was the first country to issue a nationwide ban on glyphosate. However, in 2018, the government decided to lift the ban due to crop losses and overgrowing weeds.
Sweden: Raised concerns about glyphosate safety and has pushed against relicensing the herbicide in the EU. In 2017, the Swedish Chemicals Agency (SCA) announced it was planning to tighten rules on private use of plant protection products. Under the plan, private users would only be allowed to use products containing "low-risk substances." According to the SCA, glyphosate is an example of an active substance not expected to be included among low-risk substances, meaning in due time, private consumers may not be permitted to use herbicides containing glyphosate.
Switzerland: Concerned about public well-being, the Swiss supermarket chains Migros and Coop removed glyphosate-based products from their shelves due to health risks. In 2017, the Green party put

forth a plan to ban glyphosate in Switzerland. The proposed plan was rejected by the Federal Council, Switzerland's executive.

Thailand: In August 2019, Deputy Agriculture Minister Mananya Thaiseth ceased licensing extensions for three hazardous farm chemicals, including glyphosate. Following the announcement, U.S. government officials pressured Thailand to exempt the three chemicals citing a potential threat to the grain trade. But Thailand's public health minister Anutin Charvinrakul said during a press conference that "our job is to take care of the people's health." The Thailand glyphosate ban starts on December 1, 2019.

United Arab Emirates: Issued a glyphosate ban along with five other countries in the Gulf Cooperation Council.

United Kingdom: Following the landmark $289 million Monsanto Roundup verdict on Aug. 10, 2018, Homebase, one of the UK's largest DIY retailers, announced that it would review the sale of Roundup and Ranger Pro. However, according to the Sun, Homebase and other major retailers still stock the weed killers for sale.

Vietnam: Following the jury verdict in Hardeman v. Monsanto Co., Vietnam announced that it would ban glyphosate imports. According to Hoang Trung, Director of the Plant Protection Department under the Ministry of Agriculture and Rural Development, "the removal of this substance from the list of pesticides allowed to be used in Vietnam will be done in the near future."

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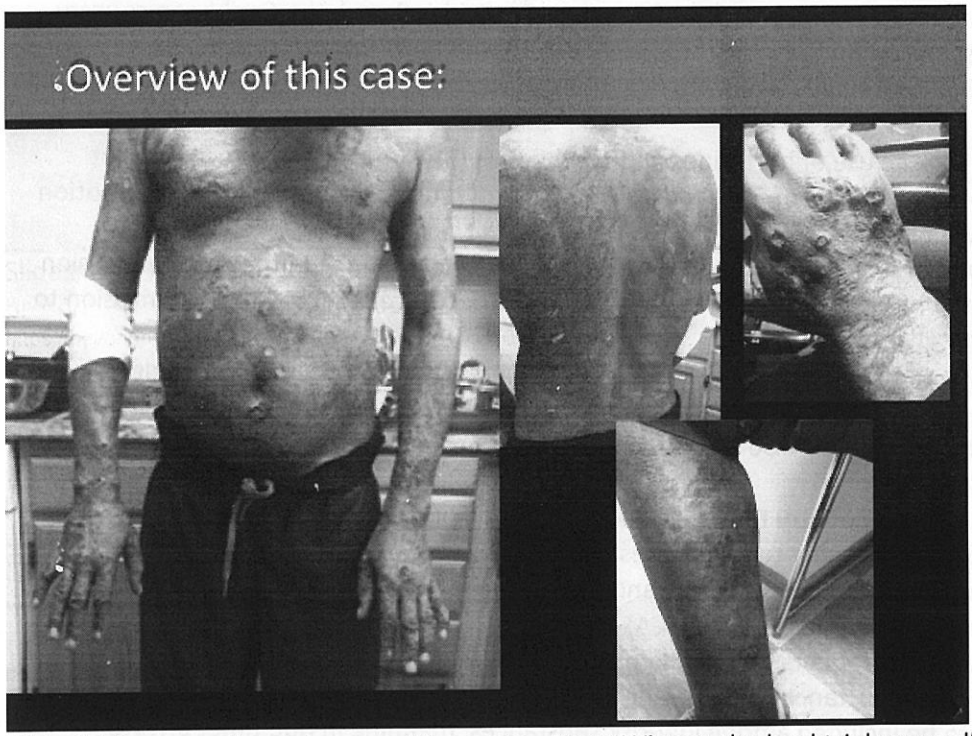

Slide # 4 Dewayne Lee Johnson v Monsanto , Brent Wisner, the lead trial counsel's presentation to the jury, who found that Monsanto acted with "malice or oppression."
https://beyondpesticides.org/dailynewsblog/2018/08/groundskeeper-used-monsantos-herbicide-roundup-contracted-cancer-non-hodgkin-lymphoma-nhl-wins-289-million-jury-verdict/

1/29 Health Committee Testimony

My name is Bertha Lewis and I am the Executive Director and Founder of The Black Institute, which is now entering into its tenth year. Since its conception, The Black Institute has been fighting for environmental justice for minority communities.

Ten years later, environmental justice is the new buzzword in New York City and New York State. We have banned plastic bags, started using paper straws but communities of color continue to be left out of the conversation.

People of color & low income neighborhoods bear the brunt of poor environmental policy and suffer from **environmental racism!**

Round Up has been linked to:

1. Severe kidney damage
2. Decreased cognitive function
3. Asthma
4. Behavioral problems
5. Non-Hodgkin's Lymphoma
6. Birth defects
7. Lung cancer
8. Chromosomal damage
9. Pediatric cancers

In 2016 NYC sprayed more than 500 gallons across all city agencies. In 2018 the City Parks Department sprayed 228 gallons alone.

Communities of color, especially young children, that rely on public spaces for their recreation are disproportionately affected by the use of this toxic chemical.

I have included a copy of The Black Institute's report, which was released today, January 29th, Poison Parks, details the dangerous environmental racism at play when it comes to this issue.

I applaud Councilmembers Kallos and Rivera for their leadership on this issue, and the committee Chair Mark Levine for expediting today's hearing.

I urge Speaker Johnson to call this legislation to the floor for a vote. Protect New Yorkers, not Bayer's corporate profits.

FOR THE RECORD

POISON PARKS

"Environmental racism is racial discrimination in environmental policy-making. It is racial discrimination in the enforcement of regulation and laws, in the deliberate targeting of communities of color for toxic waste disposal and the siting of polluting industries. It is racial discrimination in the official sanctioning of the life-threatening presence of poisons and pollutants in communities of color; and, it is racial discrimination in the history of excluding people of color from mainstream environmental groups, decision-making boards, commission, and regulatory bodies."

– Reverend Dr. Benjamin F. Chavis, Jr., Founder of the United Church Commission on Racial Justice

THE BLACK INSTITUTE

SPECIAL REPORT BY THE BLACK INSTITUTE

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Poison Parks
January 2020

Prepared by: Jack Einstein
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Acknowledgements: Special thanks to Reverend Billy and the Stop Shopping Choir and Richman Law Group.

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EXECUTIVE SUMMARY

In the past decade, America has seen an increase in environmental awareness beginning with many attributing this sudden awareness to the Flint water crisis. While a new wave of environmental justice emerges, many Americans fail to see is that the majority of people affected by these problems are people of color. Unfortunately, people of color that live in low-income neighborhoods bear the brunt of poor environmental policy and suffer from environmental racism. This is not isolated to Flint alone, here in NYC, Black and Brown neighborhoods are being disproportionately sprayed with glyphosate, the cancer-causing, active ingredient in Roundup.

The New York City Parks Department has long used Roundup to control weeds on city property. This toxic herbicide is manufactured by agro-technological company, Monsanto. Roundup contains a cocktail of chemicals that are linked to severe kidney damage, asthma, non-Hodgkin's Lymphoma, and birth defects, among other grave disorders and side effects. Following multiple extensive studies, the International Agency for Research on Cancer (IARC), a division of the World Health Organization, considered glyphosate a "probabl[e] carcinogen"—linking the herbicide to non-Hodgkin's Lymphoma and lung cancer in humans, a variety of cancers in rodents, chromosomal damage in mammals, and reproductive errors in amphibians. It is a terrifying reality that more than 500 gallons of this chemical were sprayed throughout New York City in 2016.[1] Minority and low-income communities suffer from the use of this chemical and have become victims of environmental racism.

Glyphosate is slowly poisoning state and city employees, children, the elderly, and pets. In 2012, the Academy of Pediatrics found that "Children encounter pesticides daily and have unique susceptibilities to their potential toxicity...evidence demonstrates associations between early life exposure to pesticide and pediatric cancers decreased cognitive function and behavioral problems." Employees that apply the chemical are the most at risk as their rate of exposure far surpasses that of any other group.

Despite these warnings, City agencies are quick to argue that there is no harm in using these dangerous chemicals, as they are currently approved by the United States Environmental Protection Agency (EPA). However, the EPA allows highly toxic chemicals to stay in registry and on the market due to their practice of reevaluating effects and conducting reviews every 15 years to determine whether a registered pesticide continues to meet lawful standards. Roundup's effects have not been studied since 1993, after almost twenty years on the market; and 2018 marks its first review since 1993. In this review, the EPA consistently finds something biased or inadequate in each case reporting a positive correlation between non-Hodgkin's Lymphoma and exposure to glyphosate.[2] At the same time, any report with findings supporting that glyphosate does not cause cancer, faced far less scrutiny.

[1] "Pesticide Use by New York City Agencies in 2016." Division of Environmental Health & Bureau of Environmental Surveillance and Policy & New York City Department of Health and Mental Hygiene. July 2016.
www1.nyc.gov/assets/doh/downloads/pdf/pesticide/pesticide-use-report2016.pdf

[2] "Revised Glyphosate Issue Paper: Evaluation of Carcinogenic Potential." EPA. Dec. 2017.
cfpub.epa.gov/si/si_public_file_download.cfm?pdownload_id=534487

Each year more than 300 million pounds of this toxin are used throughout the United States.[3] It is sprayed on parks, playgrounds, and schools. Therefore, comprehensive laws need to be passed in order to support studies of glyphosate's toxic effects. The benefits of city parks are endless: they improve our physical and physiological health, strengthen our communities, and make our cities and neighborhoods more attractive environments to live and work. Thus, banning glyphosate products is of the utmost importance. The International Federation of Gynecology and Obstetrics states that it is impossible to ignore the "accumulating robust evidence of exposures and adverse health impacts related to toxic environmental chemicals." There are safe and healthy methods of reducing weeds without the use of toxic chemicals that threaten the City's most vulnerable. In New York City, parks and recreation areas are timeless community magnets. They provide a place of relaxation and connection to others: a place for children to play, our pets to be free, and opportunity to escape the grind of city life, and need to be protected. In order to achieve this goal, New York City must:

- Stop the routine use of dangerous toxic pesticides/herbicides,
- Only allow safe products that are EPA registered, with active ingredients approved by the National Organics Standards Board,
- Immediately adopt an official Integrated Pest Management (IPM) measure that requires public monitoring, record-keeping, and use of non-chemical methods and safer pesticides before using other treatments.

[3] Main, Douglas. "Glyphosate Now the Most-Used Agricultural Chemical Ever." *Newsweek*. February 2016. www.newsweek.com/glyphosate-now-most-used-agricultural-chemical-ever-422419

HISTORY OF ENVIRONMENTAL RACISM

The term 'environmental racism' was first coined in 1982 by the United Church of Christs' Commission for Racial Justice. The organization, led by Dr. Benjamin Chavis, later published a study in 1987 called "Toxic Wastes and Race in the United States: A National Report on the Racial and Social Economic Characteristics of Communities of Hazardous Waste Sites".[4] The study found a correlation between race and the location of hazardous waste materials in residential communities across the United States. Environmental racism or eco-racism has become an issue that disproportionately affects all communities of color and is defined as "practices that place African Americans, Latinos, and Native Americans at greater health and environmental risk than the rest of society."[5] Environmental racism describes the subjection of racially marginalized groups to disproportionate exposure to pollutants from industry, natural resource extraction, toxic waste, poor land management, and sometimes lack of access to clean water. This term also describes the disadvantaged ecological relationships between the industrialized West and developing nations which threaten the health, overall well-being, and safety of these populations. Communities of color also have higher exposure rates to air pollution compared to their white, non-Hispanic counterparts. There is an extensive and severe history of environmental racism in the United States dating back to the pre-Jim Crow Era. Marginalized groups in America suffered before these facts were labeled as such and environmentalism became a topic of discussion among academics. It was and continues to be through the efforts of community-based coalitions, alliances with national recognized organizations, and legal action that minorities have been able to confront individual industries' racist tendencies.

ENVIRONMENTAL JUSTICE MOVEMENT

The environmental justice movement has failed to address large-scale environmental practices funded by big business, which disproportionately affects communities of color.

Environmental justice today has ignored the needs and demands of minority populations across the world. The movement has ignored the institutionalization of environmental racism. The attitude remains "separate, but equal." Racism has been institutionalized in the policies and decision-making processes of lawmakers, governments, and corporations—and, although individuals who hold racist attitudes come and go, institutionalized racism forms a backbone and foundation on which a racist society may continue to flourish. Rozelia S. Park states that, "environmental racism, 'contributes to the structure of racial subordination and domination that has similarly marked many of our public policies in this country.'" Ultimately, national policies reflect the attitudes of policymakers and racist corporate policies influence and interact to reinforce one another. Effective environmental justice must safeguard communities as places where all people can live, work, and play without fear of exposure to toxic materials and conditions. The environmental justice movement began in the early 1970's and continues today; however, the tools needed to address environmental justice are missing and without an informed public, change cannot be made.

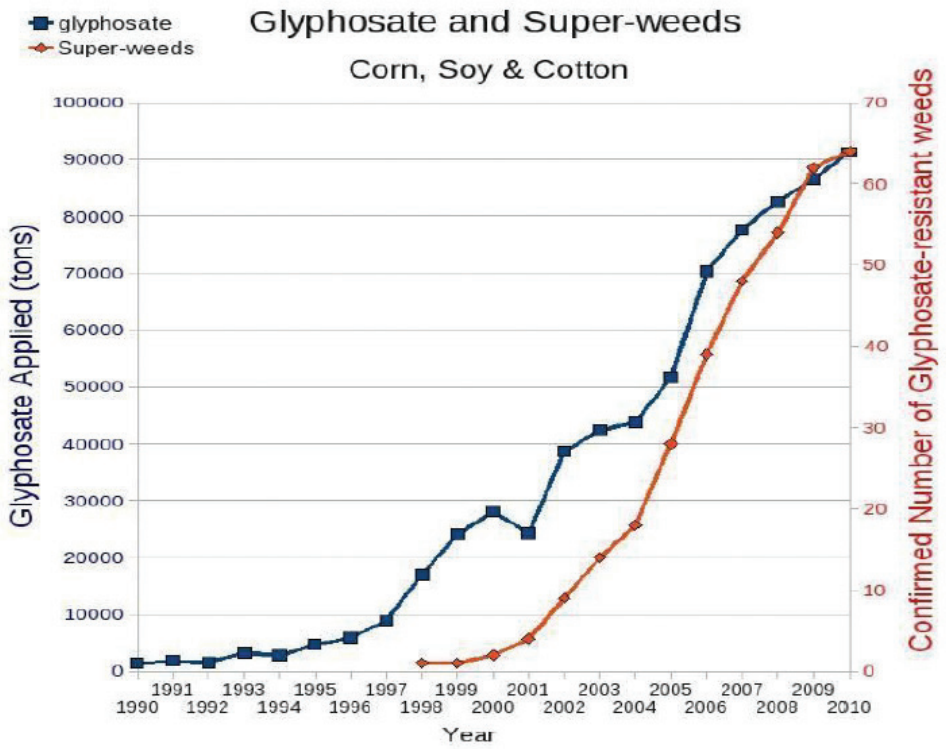
[4] "Environmental Justice: History." African American Voices in Congress. www.avoiceonline.org/environmental/history.html. *See report:* "Toxic Wastes and Race in the United States." 1987. www.nrc.gov/docs/ML1310/ML13109A339.pdf

[5] Bullard, Robert. Race and Environmental Justice in the United States. Yale Journal of International Law. 1993. https://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1 615&context=yjil

BACKGROUND ON HERBICIDES

The turn of the twenty-first century marked a new shift in the use of modern pesticides and herbicides, which sparked a debate over Monsanto's role in the global market. Monsanto's largest manufactured pesticide, Roundup, was introduced in 1974. Today, Roundup, WeatherMax, Roundup UltraMax, and other glyphosate products are among the world's most widely used herbicides. Aside from the main ingredient, glyphosate, these products contain water, ethoxylated tallowamine surfactant, related organic acids of glyphosate, and excess isopropylamine. Ethoxylated tallowamine surfactant is a binding agent that increases the effect of active ingredients—glyphosate in this case. This allows the herbicide to adhere to weed leaves and to penetrate the plant. Excess isopropylamine is an intermediate compound that is used to coat materials such as pesticides, plastics, rubber chemicals, pharmaceuticals. Excess isopropylamine is also an additive used in the petroleum industry.

FIGURE 1: The graph below details the correlation between glyphosate usage and the production of super weeds propagating as a result of growing resistance to the pesticide. The graph also shows the increasing dosage of glyphosate on weeds and how that affects the number of weeds growing and showing resistance. ***Source: USDA, super-weed data from Charles Benbrook***

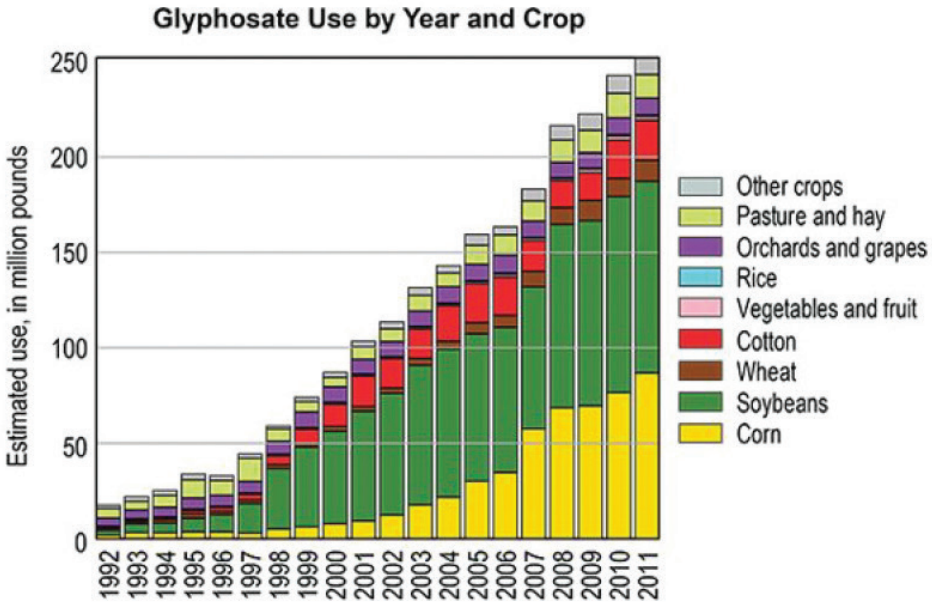


When glyphosate is applied on a plant, the active ingredient travels throughout the plant so that the entire plant dies. It takes several days for the plant tissue and roots to yellow, wither, and die—preventing further regeneration. Glyphosate binds itself to most soils, and according to Monsanto, is not available for uptake by roots or nearby plants. The compound works by disrupting the enzyme (ESPS synthase) synthesis that produces amino acids essential for plant growth. This particular enzyme is not available in animals, causing Monsanto to argue the low toxicity of glyphosate to humans. However, this neglects other possible means of contact and the subsequent effects. Monsanto claims that glyphosate, used in over 700 products (agricultural, forestry, home use, etc.) has low toxicity when used at the recommended levels. However, studies have shown weeds to be growing resistant to the product, thus requiring higher dosage applications[6]

These products are marketed to have broad, non-selective targets, however, there is no dimension of the population and/or environment that can be completely protected against herbicide exposure. Due to the nature of these chemicals, their known negative effects on [human, animal, and plant] health and the environment should trigger a closer examination into their side effects as environmental risk factors. In April of 2017, a study titled "Chemical pesticides and the Human Health: The Urgent Need for a New Concept in Agriculture," conducted at a Shanghai medical school found that glyphosate has neurological impacts, associated with conditions like Parkinson's Disease. It was concluded that animals, such as humans, store pesticide byproducts in the fat and muscle tissue of their liver, lungs, and the endocrine organs. Within the human population, glyphosate exposure is linked to non-Hodgkin's Lymphoma, renal tubule carcinoma (kidney cancer), pancreatic islet-cell adenoma (neuroendocrine tumor), miscarriage/ low birth weights, pulmonary edema (excess fluid), autism, Parkinson's Disease, Alzheimer's, Anxiety, fatigue, depression, and severe eye, mouth, and nose irritation, skin burns, and inflammation. Aside from direct contact, residues of glyphosate have been found in a variety of everyday foods and beverages: water, wine, fruit juices, honey and oatmeal products, corn, soy, milk, eggs, and animal feed to name a few.

[6] "Facts About Glyphosate-Resistant Weeds." Purdue Extension. www.extension.purdue.edu/extmedia/gwc/gwc-1.pdf

FIGURE 2: The below graph shows the estimated use of glyphosate and the percentage that is used on particular crops. This shows that as the years progress, a larger percentage of pesticide dosage was allocated to soybean, cotton, and corn crops.



In an April 2018 article, the Guardian reported on a 2017 email chain (obtained through the Freedom of Information Act) sent from FDA (Food and Drug Administration) chemist Richard Thompson to his colleagues.[7] Thompson recorded the results of a study in which the FDA had trouble finding food that did not carry traces of the pesticide. Richard Thompson wrote that "broccoli was the only food 'on hand' that he found to be glyphosate-free." In a separate report, FDA chemist Narong Chamkasem found 'over-the-tolerance' levels of glyphosate in corn. This study detected exposure at 6.5ppm (parts per million), when the legal limit is 5.0ppm. Such a discrepancy would normally be reported to the EPA; however, an FDA supervisor wrote that corn is not considered an "official sample." Within the same findings, the Chamkasem's study also found traces of glyphosate in honey and oatmeal products. Testing was temporarily suspended, and the FDA ruled that such findings were not considered a part of the official report.

Generally, the FDA is responsible for testing food samples for the presence of various pesticides/herbicides, however, despite its 40 plus years of usage, the agency has just started testing for glyphosate residues in 2015. The EPA, however, marks that pets may indeed be at risk for health concerns if they ingest it or are in contact with plants that have been recently sprayed with the pesticide. Toxicologist Linda Birnbaum, director of the U.S. National Institute of Environmental Health Sciences (NIEHS), concludes, "Even with low levels of pesticides, we're exposed to so many and we don't count the fact that we have cumulative exposures." Ultimately, current regulatory analysis does not account for the repeated dangers of low levels of dietary exposure.

[7] Gillam, Carey. "Weedkiller found in granola and crackers, internal FDA emails show." *The Guardian*. April 2018.www.theguardian.com/us-news/2018/apr/30/fda-weedkiller-glyphosate-in-food-internal-emails

GLYPHOSATE ALTERNATIVES

Despite the lack of formal studies, biodegradable alternatives to artificial pesticides have been proposed. These include the use of EcoSmart products (that rely on food grade plant oils to do the same job as pesticides), 2-Phenethyl Propionate and Eugenol (oil of clove), BioSafe products, horticultural strength vinegar, orange oil, and/or mechanical weed treatment. In order to stop the widespread use of Roundup in New York City, the risks associated with the product must be recognized by the Parks Department and other agencies responsible for applying or contracting businesses to apply the harmful product. These agencies continue to use Roundup based on the EPA's assessment that is "not likely to be carcinogenic to humans." New York City must be prepared to submit to the IARC's conclusions by conducting an independent study, as California has done. In doing so, NYC can establish and adhere to its own standards.

It is not necessary to revert to hand-pulling weeds, if the use of non-toxic alternatives can be implemented. Burbank, California banned glyphosate-containing herbicides and replaced them with organic herbicide, Avenger.[8] Avenger's active ingredient is d-limonene (citrus oil), a nonselective, post-emergent organic herbicide that naturally strips away the waxy plant cuticle, causing it to dehydrate and die. University and independent testing results prove that the product is as effective and faster acting than other leading synthetic herbicides.

GLYPHOSATE USE IN NYC

The NYC Division of Environmental Health, Bureau of Environmental Surveillance and Policy, and the Department of Health and Mental Hygiene (DOHMH) releases an annual report detailing the use of pesticides (rodenticide, insecticide, herbicide, fungicide, and others) throughout New York City Agencies. The latest report was released in 2016 and details a summary of pesticide use, any changes (comparing the current findings to previous years), and a breakdown summary of each agencies' use based on volume in gallons, weight, and total number of applications, as well as the active ingredient(s).[9] The data listed is reported and acquired by the appropriate NYC agency.

The DOHMH launched an electronic reporting tool in 2014 that all NYC agencies, contractors, and licensed pest control applicators can use. Despite this system, it is not possible to determine if every agency reports every pesticide application. FOIL documents obtained by Reverend Billy and the Stop Shopping Choir showcase an abysmal reporting strategy that is likely inaccurate. Savitri, a representative of The Immediate Life, the non-profit that runs The Stop Shopping Choir, has reported that pesticide applicators make 'guestimations' of the amount of product they have sprayed and a note the location loosely.

[8] Clark Carpio, Anthony. "Burbank to discontinue using Roundup in city parks for a year." July 2017. www.latimes.com/socal/burbank-leader/news/tn-blr-me-roundup-stopped-20170713-story.html

[9] "Pesticide Use by New York City Agencies in 2016." Division of Environmental Health & Bureau of Environmental Surveillance and Policy & New York City Department of Health and Mental Hygiene. July 2016. www1.nyc.gov/assets/doh/downloads/pdf/pesticide/pesticide-use-report2016.pdf

Local Law 37 of 2005 established new requirements regarding pesticide use on property owned or leased by New York City, including the prohibition of certain pesticide products, posting of warning notices prior to applications and new recordkeeping provisions. Local Law 37 further established a series of exemptions to pesticide use prohibition, which are as follows:

- Pesticides classified by the United States Environmental Protection Agency as toxicity Category 1 (§17-1203(a)). Products assessed as Toxicity Category 1 have the word "Danger" on the product label.
- Pesticides classified by the EPA Office of Pesticide Programs as carcinogenic (§ 17-1203(b)). This prohibition includes known, probably likely, and possible carcinogens.
- Pesticides classified by the State of California's Office of Environmental Health and Hazard (OEHHA) Assessment as developmental toxins (§17-1203(c)).

The law cites the phasing out of certain pesticides of NYC agencies; however, exemptions are made in relation to EPA standards. Because glyphosate is not banned by the EPA, DOHMH has granted an exemption to its use. DOHMH, further fails to recognize California's ruling of the pesticide as a carcinogen and its subsequent ban, again because the EPA takes precedence. In addition to the above, staff and contractor turnover may prevent timely and appropriate reporting of data. As a result, these findings may be inaccurate to certain degrees.

According to the NYC report, pesticides were applied a total of 237,812 times (with a total gallon usage of 6,711 and 163,182 pounds of product).[10] Insecticides were the most frequently applied with a 64% increase in the volume of liquid insecticides compared to 2015. Approximately two-thirds of this increase was due to the increased use of pyrethroids by New York City Housing Authority (NYCHA) to target bedbugs. In terms of herbicide use, there was a 25% decline in the use of liquid herbicide in 2016 compared to previous years. However, solid herbicide product use was 2.5 times higher than in 2015.

These applications were sprayed across 28,000 acres of parks, playgrounds, athletic fields, natural areas, recreational facilities, beaches, historic buildings, and parkways.[11] The data available states that pesticides are also applied on all city-owned golf courses and at organizations that operate on Parks property such as zoos, conservatories, and botanical gardens. It is detailed that Parks and Recreation employs 104 certified pesticide applicators. The New York City Charter mandates the preparation of a contract budget to identify expenditures for contractual services, defined as any "technical, consultant, or personal service provided to the City by means of contract."[12] According to DPR's contract Budget for Fiscal Year 2018, the Department holds 287 contracts valued at approximately $46.8 million (including three contracts valued at approximately $6 million for the maintenance and operation of the City's three zoos managed by the Wildlife Conservation Society (WCS)).[13]

[10] Ibid.

[11] Ibid.

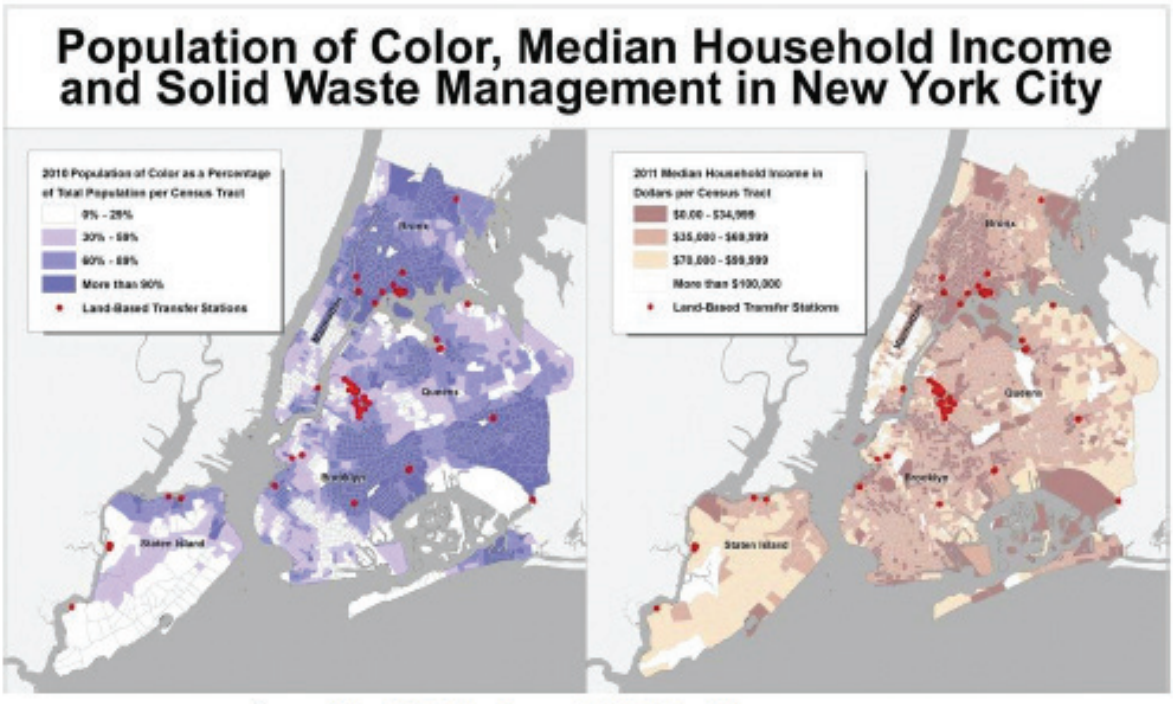
[12] Ibid.

[13] "Report of the Finance Division on the Fiscal 2018 Preliminary Budget and the Fiscal 2017 Preliminary Mayor's Management Report for the Department of Parks and Recreation." The Council of the City of New York. March 2017. http://council.nyc.gov/budget/wp-content/uploads/sites/54/2017/03/846-DPR.pdf

New York City's current policies and practices in regulating toxic pesticides are inherently racist and manifest themselves in the unequal health and environmental hazards in communities where people of color predominantly reside. Brooklyn, where the population contains the largest population of color within New York City according to the 2010 U.S. Census (89% Native Black), has been said to be "the most heavily pesticide[d] and herbicide[d] county in the entire state," by No Spray Coalition's Mitchel Cohen.

Not only are communities of color more directly affected, more people of color hold jobs that would expose them to glyphosate products. People of color are also doubly exposed to the dangers of pesticides because they live in greater proximity to pollution caused by waste disposal. The waste from these pesticides are collected by trucks that use high-polluting diesel fuel and dump waste in New York City's over-burdened neighborhoods where people of color predominantly reside. As of 2014, the neighborhoods of Newtown Creek and the South Bronx hosted 32 transfer stations, more than 60% of NYC's annual waste and more than 50% of the total transfer stations in the City (59 in total).[14] Both of these areas have higher than average hospitalizations, child asthma, and death rates linked to air pollution. In addition, Newtown Creek has 19 Waste Transfer Stations, the densest cluster in the city.[15] In NYC, highways and industrial facilities are located away from higher-income areas, i.e. Manhattan, where a majority of white people live. Thus, people of color living in these low-income communities are impacted at a higher rate because they are both exposed to toxic pesticides and are the hardest hit by these toxins—with the fewest resources to fight these conditions.

FIGURE 3: The map below shows the locations of waste transfer stations in relation to low-income neighborhoods.



Source: New York Environmental Justice Alliance

[14] Crean, Sarah. "Neighborhoods Burdened by Processing City's Trash Look to New Sanitation Commissioner." ALIGN. https://alignny.org/press/neighborhoods-burdened-by-processing-citys-trash-look-to-new-sanitation-commissioner

[15] Waste Transfer Stations. Newtown Creek Alliance. www.newtowncreekalliance.org/waste-transfer-stations

The growing number of studies detailing the negative effects of glyphosate on public populations have instigated a motion to address government agencies' usage of the product, especially in communities of color. When considering those most affected by toxic pesticides and herbicides, workers and NYCHA (New York City Public Housing Association) public housing tenants and employees are at the highest risk. In addition, children and pets also face an increased risk with easily compromised immune systems. The Title VI provisions in the Civil Rights Act of 1964 acknowledges that "racial and ethnic minorities and poor children may be exposed to more pollution." Consequently, any instances where policies permit the spraying of pesticides, the African American community is disproportionately affected.

In California, the Center for Biological Diversity, Californians for Pesticide Reform, the Center for Food Safety, the Pesticide Action Network, and the Center for Environmental Health found that 54% of glyphosate is sprayed in 8 counties, largely located in the Southern Valley—an area inhabited predominantly by people of color. Caroline Cox, research director at the Center for Environmental Health states:

> ***"No one should be needlessly exposed to chemicals like glyphosate, that may cause cancer and other health problems. It's especially troubling that communities of color who are already at serious risk from chemicals in their environment are the most likely to suffer from exposures to this dangerous pesticide. The state must take the lead in protecting all Californians from glyphosate."***

The report, Lost in the Mist: How Glyphosate Use Disproportionately Threatens California's Most Impoverished Counties, agrees with previous studies that found that Hispanics and other impoverished individuals disproportionately live in areas of high pesticide use. A 2014 California Department of Health study concluded that Hispanic children were 46 percent more likely than white children to attend schools near hazardous pesticide use. There is growing concern among Black and Latino communities regarding public spaces including; playgrounds, parks, recreation centers, etc. This is the perfect opportunity to address these concerns, as the FDA and EPA are both reassessing the dangers of various pesticides with the public, agricultural, and recreational sectors.

Following this discussion, a number of countries (See figure 4) and the EU banned the use of glyphosate, following the recommendation of the European Food Safety Authority (EFSA). Such countries include, the Netherlands, Portugal, Austria, Sri Lanka, Italy, and France. This is significant because smaller countries with fewer resources, such as Sri Lanka, still had the capacity to ban the use of this dangerous chemical.

FIGURE 4: Countries that have banned glyphosate as of 2016

Sri Lanka	Scotland	Ireland
Brazil	Hungary	Argentina
Portugal	Poland	Belgium
Australia	Bermuda	Spain
El Salvador	Colombia	Austria
Sweden	Switzerland	Italy
Slovenia	Malta	Greece
Croatia		Luxembourg

PROFESSIONAL DANGER

City workers including building services workers, farmers, and laborers all have the potential to come into contact with glyphosate-containing chemicals. This exposure uniquely affects people of color working for NYC. The NYC Parks Department is 64% people of color, including all positions in the department. However, when broken down further, building services employees are 96% people of color, laborers are 56% people of color, farmers are 78% people of color, and transportation service workers are 77% people of color.[16] Combined, an average of 77% of these employees are people of color. Black and Brown New Yorkers make up many NYC employees that would come in contact with glyphosate.

Glyphosate-containing chemicals such as Roundup have historically been marketed as safe to drink, although a Monsanto advocate refused to drink it when pressured.[17] The Monsanto advocate refused to drink the chemical while simultaneously advocating for the endangerment of professionals that would then be asked to apply to chemical.

As described in the job definitions of the NYC Government Workforce Profile Report for Fiscal Year 2017, building services and laborers would work with pesticides. It is assumed that farmers would also work with the chemical as it is associated with the occupation and transportation workers have reported spraying glyphosate products on railways. These are not the only jobs that may use chemical herbicides, anyone employed as a pesticide applicator, whether they are NYC employees or not, would also use the chemical. As court cases have come to reveal, regardless of the use, misuse, or non-use of protective gear, spraying Roundup has still resulted in cases of non-Hodgkin's Lymphoma.

[16] NYC Government Workforce Profile Report FY 2017. NYCDCAS. 2017. www1.nyc.gov/assets/dcas/downloads/pdf/reports/workforce_profile_report_2017.pdf

[17] Visser, Nick. "Monsanto Advocate Says Roundup Is Safe Enough To Drink, Then Refuses To Drink It." Huffington Post. March 2015. www.huffpost.com/entry/monsanto-roundup-patrick-moore_n_6956034

IMPACTS ON THE COMMUNITY

Applying glyphosate to city parks and playgrounds puts Black and Brown families at risk of being exposed to a chemical that can cause cancer. While their white, affluent counterparts leave the city for the summer, low-income, Black and Brown families will find themselves in free public spaces such as city parks.

Reports show that glyphosate has been sprayed in NYC parks since at least 2011 and likely long before that. Information obtained through a FOIL request by Reverend Billy and the Stop Shopping Choir details the dates, locations, and amount of glyphosate sprayed in certain areas. This data shows that Idlewild Park in Queens had higher application rates in 2017 and 2018 compared to surrounding locations. Based on this data, normal concentrations for glyphosate remain in the .5% to 3% range. However, concentrations in Idlewild Park get as high as 50%. According to census data, the communities surrounding Idlewild Park are approximately 90% African American. People of color that use this park are being hit with extraordinarily high amounts of glyphosate concentrate. Not to mention the impact this high concentration would have on pesticide applicators who are mostly men of color.

The only location that was sprayed at a higher concentration was Roy Wilkins Recreation Center. This recreation center is also located in a predominantly African American community. At this location, 100% glyphosate concentrate was sprayed in 2017. Any concentration is unacceptable, but the pure disregard for the lives that could be affected by this chemical is astounding. Imagine spraying Agent Orange all over your child's neighborhood rec center.

The same FOIL document shows that in Manhattan, Harlem was disproportionately sprayed in comparison with the rest of Manhattan. When analyzing this data, only locations that included parks, playgrounds, or recreation centers on park land were considered. Of the fifty parks or playgrounds sprayed in Manhattan in 2018, only 8 locations were not in Harlem. Forty-two locations were in Harlem where about 62% of the population is Black or Brown.

It is difficult to keep children happy and healthy on a miniscule budget. Poisoning parks with toxic chemicals is yet another strike against the Black and Brown community. Enjoying a free, public space should not carry unexpected consequences. The number of cancer cases being reported should be a reminder to city officials that the herbicide is not safe and should not be treated as such. A chemical that disproportionately impacts people of color is an act of environmental racism. When Black and Brown families that are economically disadvantaged must bear the burden of toxic exposure at a higher rate than white families, there is no argument that can change the racist nature of the subject.

COURT CASES

California has become the leader in winning court cases against Monsanto's Roundup. There have been several successful court cases including the highly publicized Dewayne "Lee" Johnson v. Monsanto, Hardeman v. Monsanto, and Pilliod v. Monsanto. There are many other cases that have yet to reach the court system.

The Johnson v. Monsanto trial by jury under Judge Curtis Karnow of the San Francisco court system, offers hope in the continued fight to ban glyphosate and other related products throughout the United States. After three days of deliberation, the San Francisco jury unanimously awarded DeWayne Lee Johnson, an African American man and former groundskeeper for the Bay Area suburban school district, $39 million in compensatory damages and an additional $250 million in punitive damages, although the total award amount was later reduced to 78.5 million.[18] Mr. Johnson reportedly developed non-Hodgkin's Lymphoma after spending four years (2010-2014) applying Monsanto's Roundup weed killer. Figure 5 shows an image of the lesions and bumps on his hand caused by cancer. According to Ken Cook, president of Environmental Working Group, "Monsanto made Roundup the OxyContin of pesticides, and now the addiction and damage they caused have come home to roost. This won't cure DeWayne Lee Johnson's cancer, but it will send a strong message to a renegade company." Despite being acquired by German agro-industrial Bayer AG, Monsanto continues to operate independently. Scott Partridge, Monsanto's vice president of global strategy argues, "[this] decision does not change the fact that more than 800 scientific studies and reviews—and conclusions by the U.S. Environmental Protection Agency, the U.S. National Institutes of Health and regulatory authorities around the world—support the fact that glyphosate does not cause cancer, and did not cause Mr. Johnson's cancer." This statement disregards evidence from IARC that has provided well researched reports on glyphosate.

FIGURE 5: Depictions of Dewayne "Lee" Johnson's terminal non-Hodgkin's Lymphoma.

[18] "Dewayne Johnson v. Monsanto Company | California State Court." Baum, Hedlund, Aristei, Goldman Consumer Attorneys. www.baumhedlundlaw.com/toxic-tort-law/monsanto-roundup-lawsuit/dewayne-johnson-v-monsan to-company

As of March 2019, the Los Angeles County Board of Supervisors banned the use of glyphosate-containing herbicides in Los Angeles County. The moratorium includes a ban on Monsanto's Roundup. The moratorium is effective until more research is done of the effects of the probable carcinogen. Until more testing is done, the chemicals are banned. The County Board of Supervisors decided to impose this ban the same day that Monsanto was held accountable for the first case of Roundup poisoning brought before a judge; 70-year-old Edwin Hardeman's Non-Hodgkin's Lymphoma.

According to the EPA, "Glyphosate products can be safely used by following label directions. There are no risks to children or adults from currently registered uses."[19] However, as was previously explained and determined through several successful court battles in California and more than 960 pending lawsuits in San Francisco alone, glyphosate poses a risk to human health. It is Monsanto's negligence and illicit activity that has allowed the EPA to maintain that glyphosate is a safe substance.

MONSANTO'S ROLE

The merger of Monsanto and Bayer resulted in the formation of the largest agro-technical company on the planet. The conglomerate controls over 25% of the world's seeds. Monsanto, known for producing cancer-causing chemicals, was bought by Bayer, a company that produces cancer medications. Countless lawsuits have done little to dissuade the powerful company.

Carey Gillam, a leading investigative journalist on the subject, reported that there is evidence "... showing that Monsanto worked closely with the Environmental Protection Agency to block a toxicity review of glyphosate by a separate government agency."[20] According to her research, the EPA report on glyphosate was delayed for four years by several key people including Jess Row, an EPA official and "friend" of Monsanto. Evidence also supports that Monsanto 'ghost-wrote' several scientific papers that concluded glyphosate was safe. According to Gillam with whom we have corresponded with for this report, every 'scientific' paper on glyphosate that was ghost-written by Monsanto concluded that glyphosate was safe.

The Monsanto Papers, documents that were released during trials, show how Monsanto colluded with the EPA to make sure the information on glyphosate would not be released. The Monsanto Papers quoted a prominent DC law firm partner with contacts in the EPA: "In essence, the political leadership favors deregulation and dismisses the expert risk analysis..." Correspondence between Monsanto and Hakluyt, a British corporate intelligence firm, reveals a conversation about how the reversed ban on Chlorpyrifos is proof that the White House will not target glyphosate.[21]

Those who looked to sue the company remain relatively unsuccessful, unless they happened to find themselves in California. Unfortunately for the majority of those suing, legalities including limitations and loopholes in product liability are making it difficult to successfully file a lawsuit.

[19] "Glyphosate." EPA. www.epa.gov/ingredients-used-pesticide-products/glyphosate

[20] Gillam, Carey. "NYC Leaders join calls for ban on Monsanto herbicide." Environmental Health News. April 2019. www.ehn.org/monsantos-herbicide-defense-falling-on-deaf-ears-as-nyc-leaders-join-calls-for-ban-2634 974362.html?rebelltitem=3#rebelltitem3

[21] Baum, Hedlund Aristei, Goldman PC. Relevant documents included: www.baumhedlundlaw.com/toxic-tort-law/monsanto-roundup-lawsuit/monsanto-secret-documents

CURRENT LEGAL ACTIONS IN NYC

Currently, City Council Member Ben Kallos has drafted a bill [Int. No. 1524] that would ban the use of chemical pesticides on city property. The bill's co-prime sponsor, Council Member Carlina Rivera, has worked on pesticide policies as well. According to Wilfredo Lopez, Kallos' Legislative Director, the NYC Parks Department has gone on record stating that they have not sprayed glyphosate products since 2018. However, according to off-the-record interviews conducted by Reverend Billy and the Stop Shopping Choir, Parks pesticide applicators claim they have continued to spray glyphosate into 2019. The city also has contracts with landscaping firms Dragonetti Brothers and Bartlett. Both firms have recorded use of glyphosate in the FOIL documents and are still allowed to spray on city property. As recently as June 2019, Dragonetti Brothers were contracted to spray at the Bergen Beach Community Board's property.[22] According to the article, this property is located near Paerdegat Basin that runs off into Jamaica Bay. This could pose a problem if glyphosate will continue to be sprayed near bodies of water.

Fortunately, the bill will include conservatories that operate in public parks as well. The largest conservancy is the Central Park Conservancy (CPC) that cares for Central Park. The CPC is a private, not-for-profit organization that has a long-standing contract the City. According to their own website:

> ***"In connection with the City's partnership with the Central Park Conservancy, the City retains overall control and policy responsibility for Central Park. The Parks Commissioner and officials of the City of New York/NYC Parks are involved in all aspects of Park planning and must approve all capital improvements the Conservancy seeks to undertake. In addition, administrative rulemaking, law enforcement, and concessions operations in Central Park are under the exclusive domain of the City."[23]***

Although the CPC has been unresponsive to requests for more information regarding their pesticide use, the Central Park Conservancy would have to comply with city regulations.

[22] Sandoval, Gabriel. "Community Board Sprays Weed-Killer Its Council Pal Wants to Ban." The City. July 2019. https://thecity.nyc/2019/07/community-board-sprays-glyphosate-as-city-council-eyes-ban.html

[23] About Us. Central Park Conservancy. www.centralparknyc.org/about

CONCLUSION

Following these latest developments, Monsanto faces a slew of high potential liabilities from hundreds, if not thousands of lawsuits. Currently, statewide lawmakers in Hawaii, California, and Connecticut are considering introducing legislation to ban or restrict the use of the toxic product. Environmental justice groups throughout the United States are celebrating the Johnson vs. Monsanto verdict as the perfect opportunity to fight to get carcinogenic pesticides off the market. However, as current President Donald Trump and EPA chief Scott Pruitt have rolled back environmental protections, it more imperative than ever to ban glyphosate.

New York City lawmakers should take this opportunity to pursue legislation to ban the use and sale of glyphosate. In so doing, the city would ensure the health and well-being of the City's public, including its minority populations. The New York City Council also has the option to amend Local Law 37. Because the EPA does not ban the use of glyphosate products, NYC needs to amend Local Law 37 to include glyphosate as a category 1 pesticide, effectively banning the chemical from use. This is the perfect opportunity for Mayor de Blasio and the New York City Council to reform Local Law 37, in conjunction to overwhelming evidence that glyphosate is a dangerous toxin that must be banned from all public spaces. Currently, Local Law 37, works according to EPA standards; however, California has shown that there are constructive alternatives to glyphosate containing products. There is no legal requirement stating that the City cannot ban the chemical because the EPA has not. As we have seen in California, localities are welcome to ban glyphosate and any other chemical the locality/ city/county sees fit.

Another issue in New York State is the three-year limitation for product liability. Consumers of the product will only have three years from the date of diagnosis to make a case against Monsanto. Unfortunately, cancer does not always give someone three years, stamina, or willpower for a long, drawn-out trial. Governor Cuomo and the state of NY should conduct an independent glyphosate toxicity report outside of influence from the EPA, Monsanto, or Bayer.

Under the current federal administration, it is difficult to assess the resulting impact on policy and legislation when it comes to environmental regulation. Despite overwhelming evidence, the EPA continues to defend its reasons for not listing glyphosate as a danger to human health. The Inspector General of the EPA is seeking to investigate reports that an agency employee colluded with Monsanto, in order to conduct biased research on glyphosate. In addition to preventing such actions in the future, the federal government must be able to pursue comprehensive regulation towards companies that knowingly endanger the health of its citizens.

The greatest force to tackle environmental justice, however, are environmental justice groups and advocates. Environmental organizations must be inclusive of these groups in order to engage the public and encourage comprehensive change. In order to change the conversation regarding economic justice, environmental justice advocates must work strategically to make equity a priority across all platforms. We demand that states pursue environmental justice analyses and engage low-income communities and communities of color in the conversation. In so doing, states will prioritize and promote the health and well-being of all people.

THE BLACK INSTITUTE

THE BLACK INSTITUTE DEMANDS:

- That Mayor De Blasio and the New York City Counsel ban glyphosate, amend Local Law 37, and hold hearings on the use of pesticides in NYC, and
- that Governor Cuomo and the state of New York reject and ban the use of glyphosate at the state level, and
- that the federal government must require states to pursue unbiased environmental impact studies on glyphosate.

INFORMATION FOR AFFECTED RESIDENTS

If you or a loved one are suffering from symptoms of pesticide poisoning, please contact **The Black Institute** so that we may refer you to our partners at **Onder Law Firm.**

Symptoms of **glyphosate** poisoning cary from person to person but low-dose exposures can cause skin and eye irritation, vomiting, and diarrhea. Glyphosate can also be fatal if a large quantity is ingested. Common cancers related to long-term exposure to glyphosate include but are not limited to; **non-Hodgkin's Lymphoma**, multiple myeloma, lung cancer, and other cancers as well as chemically damaging human DNA.

It is your responsibility as a concerned citizen to fight against the use of toxic chemicals in **New York City.** What we can accomplish here has the potential to spread to the state level and effect positive change for an even larger number of people. Please consider reaching out to **The Black Institute** to speak about organizing an event or protest that sounds the alarm on glyphosate in our parks. If you are interested you can reach us at **(212) 871-6899.**

POISON PARKS

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January 29, 2020

Testimony of Jessica Haller, Vice Chair, Board of Directors, Hazon on behalf of Hazon

To the Committee on Health, New York City Council:

Thank you, Council Member Kallos and the members of the Committee on Health for the opportunity to submit testimony on Intro 1524 on Banning the use of toxic Chemical Pesticides on City property.

I am here to testify on behalf of Hazon, a NYC faith-based environmental organization, where I serve as Vice Chair of the Board of Directors and Chair of the Hazon Seal of Sustainability. Hazon has more than 50,000 members across the US; 75 communal institutions, many of them here in NYC, participate in its Seal of Sustainability program.

Hazon means *vision,* and its vision is to create and support healthy and sustainable communities. Hazon has recommended the banning of pesticide use since the inception of the Seal program six years ago. The risks of pesticide use to human health almost always outweigh the benefits to horticulture or agriculture.

I applaud this bill and encourage the committee to send it on to the full Council with your strong recommendation for passage.

This legislation is exceptional not only for its ban on pesticides, but also because it implements the precautionary principle, which bans pesticides that are classified as *probable*, *likely,* and *possible* human carcinogens. The precautionary principle states that, when an activity causes some threat or harm to the public or the environment, general precautionary measures should be taken. It places the burden of proof on safety, not harm.

So often in this country, the burden of proof falls on citizens and mothers in the playground to defend their kids and their health. Most people assume that government uses the precautionary principle, which historically has not been true in the US. I applaud the Council for ensuring this important concept is part of the legislation. Thank you for promulgating it in our City.

Here's why this legislation is so important:

1. NYC School Children, especially in the Bronx, are facing an epidemic of asthma. Certain pesticides can cause and/or exacerbate asthma.

2. Pesticide exposure is also linked to increasing the risk of certain kinds of cancers, neurological and endocrine system harm, and birth defects.

3. Our children are among the most frequent users of the City's outdoor spaces. They play on the ground, near the floor. They roll balls through the grass.

4. Children aged 6-11 have higher levels of lawn chemicals in their blood than any other age category.

5. The chemicals are tracked into homes and schools on shoes, where they reman for much longer than when subjected to sun and rain outside.

As a mother of four, I can attest to both the small size of kids, that they play on the floor and roll in the grass, and should be allowed to do so. I also attest to the absolute fear and panic that comes with hearing that your local park is going to be sprayed by the City, as happened in my neighborhood May 2010.

My friend, a pediatrician, lived at the time across from Ewen Park, between the Kingsbridge and Riverdale neighborhoods in the Bronx, blocks from the 231st Street, and across from a Public School. With three kids and a dog, she spent a lot of time in Ewen Park, and was horrified to see signs one day warning the community of the spraying.

She, another friend, and I mobilized quickly, contacting Speaker Quinn, Council Member Koppell, the Press, State Senator Schneiderman, the Governor, and in 36 hours managed to stop the spraying. The spraying stopped in Ewen Park that one time, but not in the hundreds of other parks, and not for all time.

As I wrote to a local paper at the time:

> "These past 36 hours have taken 3 Riverdale moms through a roller coaster story of environmental hazard, fear, and ultimate victory against a scheduled spraying of Monsanto's RoundUp herbicide in our Ewen Park.
>
> This story needs to be told - and the community need to be alerted to the fact that the parks we spend time in, where our dogs roam and our kids roll in the grass, can be subject to spraying of such a virulent herbicide. In light of the President's report on cancer and our friends recent diagnosis of Acute Myelogenous Leukemia - this story is timely and important."

Reflecting on the events of 10 years ago, I am heartened that this bill will help make sure that our children will not be exposed to dangerous pesticides.

In closing, I want to confirm that the bill includes herbicides such as RoundUp, a notorious chemical used by City Parks in the amount of more than 500 gallons in 2016.

The bill lists sub-classifications of pesticides, including "Anti-microbial pesticide, Bacteriostats, Disinfectants, Sanitizers, Fungicides and fungistats." The word "herbicide," however, does not appear. I hope that this toxic chemical is the intended target of this bill and that language to that effect will be added. I understand that there may be State requirements necessitating the specific language, and if so, and if we agree on intent, then my comment is resolved.

Thank you.

VOTERS FOR ANIMAL RIGHTS

786 Jefferson Avenue
Brooklyn, NY 11221
vfar.org

Good morning, Chairman Levine and members of the Health Committee. I am Kathy Nizzari, board member of Voters for Animal Rights. Thank you for the opportunity to voice our support of Intro 1524, and urge the Council to pass this important legislation. As we've already heard, the use of glyphosates have unintended consequences which can be fatal, not only to humans as evidenced by the more than 13,000 lawsuits against the manufacturers but, also to the city's wildlife and even the dogs who walk in our streets and our parks.

Wildlife and our own dogs can be impacted both directly by consuming a food source that was exposed, and indirectly, by drift, secondary poisoning, runoff, carried by rain into sewers, or groundwater contamination. Glyphosate is also responsible for declining Monarch butterfly populations. Bees, crucial to pollination and who have seen a huge decline in recent years, can't always locate their hives once exposed to glyphosate, affecting not only their own health but that of the colony. We must do what we can to protect the bee population or risk losing our own food supply.

It is vital that action be taken now. While DDT was banned in 1972 for its toxic and deadly effects, it is still detected in some marine mammal species, including dolphins and whales. Scientists do not know how long glyphosate remains in the soil or in living beings. These dangers are why its use has been banned in cities and entire countries around the world.

VFAR also asks that you not include an exemption for rat poison which is lethal to at least 14 species of birds. The risk to companion animals, squirrels, birds and other animals who may accidentally ingest it is too great. And, the success of the Department of Health's prevention program points to that being a better solution than any extermination methods. Again, we thank you for your time, and ask that you pass Intro 1524.

VOTERS FOR ANIMAL RIGHTS

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Brooklyn, NY 11221
vfar.org

Good morning, Chairman Levine and members of the Health Committee. I am Allie Feldman Taylor, President of Voters for Animal Rights in Brooklyn, New York. Thank you, Chairman Levine for holding this hearing. Thank you Council Member Kallos for introducing this bill. And thank you to my Council Member on the health committee, Alicka Ampry-Samuel for co-sponsoring this legislation. 21 locations in Bed Stuy have been sprayed with these dangerous chemicals.

VFAR supports the passing of Intro 1524 to ban the use of glyphosates in our parks and other city properties. We know the health hazards to human lives of this toxic pesticide. It has been reported to increase the risk of non-Hodgkin lymphoma and other cancers by 41% in humans. But it is a lesser known fact that glyphosates also impact wildlife and the ecosystem. Its use, at levels deemed safe by the EPA, has been linked to a whole host of health risks for wildlife, amphibians, birds, insects, and aquatic animals including fish. These include: cancer, endocrine disruption, cognitive impairment, decreased motor skills and coordination, neurotoxicity, kidney and liver damage, birth defects, slower metabolism and growth, altered microbiomes, weakened immune system, biological mutations and reproductive issues including infertility. Some of these changes have led to fatal consequences. Three years ago, the National Institutes of Health proved that the presence of glyphosate could alter the composition of algae, the base of the food chain, which could have profound ecological effects on all life. Some researchers suspect we don't yet know the full and far-reaching impacts of this herbicide. For these reasons, we urge the Council to pass Intro 1524.

We also ask that you not include an exemption for rat poison for two reasons:
1. The Department of Health has gotten better results with their prevention policies and programs than any extermination city officials have used.

2. We always run the risk of dogs, squirrels, birds, and other animals living in New York City being exposed to and possibly poisoned by rodenticide.

Again, we thank you for this important measure in protecting the health of all New York City residents, human and animal, and ask that you pass Intro 1524.

THE HUMANE SOCIETY
OF THE UNITED STATES

1255 23rd Street, NW
Suite 450
Washington, DC 20037
P 202-452-1100
F 202-778-6132
humanesociety.org

January 28, 2020

Chairman Mark Levine
New York City Council -Committee on Health
250 Broadway
New York, NY 10007

RE: Banning the use of toxic chemical pesticides on City owned or leased property

Good Morning, Chairman Levine and Honorable Committee Members.

My name is Brian Shapiro, New York State Director for the Humane Society of the United States. Representing our members and supporters in New York City, I'm here to support Intro. 1524.

There's an abundance of wildlife in NYC, and the use of common pesticides results in a cost to this wildlife. The use of pesticides grew exponentially following World War II and by 1962, with the publication of Rachel Carson's Silent Spring, it was understood that pesticide use could result in unforeseen impacts on human and natural landscapes. Presently, municipalities, schools and universities across the United States are restricting the use of toxic pesticides to protect public health and the environment.

The extensive use of pesticides exposes animals in urban, suburban, and rural areas to unnecessary risks resulting in sublethal and lethal effects. Wildlife of all species can be impacted by pesticides through direct or indirect application: pesticide drift, secondary poisoning, runoff into local water bodies, and or groundwater contamination. It's possible that some animals could be sprayed directly while others consume plants or prey that have been exposed to pesticides. The Humane Society of the United States encourages cities, communities, and individuals to reduce, eliminate and or find alternatives to pesticides, herbicides, and other chemical laden fertilizer that can be harmful not only wildlife, but to pets and children as well.

Pesticide exposure has been linked to cancer, endocrine disruption, reproductive effects, neurotoxicity, kidney and liver damage, birth defects, and developmental changes in a wide range of species. Both short term and long term exposure to pesticides can also alter an organism's behavior, impacting its ability to survive. In birds, for example, exposure to certain pesticides can impede singing ability, making it difficult to attract mates and reproduce. Pesticides can also affect birds' ability to care for offspring, causing their young to die.

The HSUS supports Intro. 1524 and urges city agencies to reduce overall pesticide use to the greatest extent practicable.

Sincerely,

Brian Shapiro
New York State Director
bshapiro@humanesociety.org
(845) 707-5350
humanesociety.org

Testimony by the New York State Nurses Association on Intro 1524

Flandersia Jones, RN, MPH – BronxCare Health System

The New York State Nurses Association stands in solidarity with all seeking the passage of Intro 1524. NYSNA represents 43,000 nurses across New York State, including 25,000 RNs in New York City, which includes nurses in the city's public hospitals.

As nurses on the frontlines of patient care we see firsthand the destruction that climate change and environmental degradation have on the health of our patients. Pollutants that are being discharged into our city air are causing a steady increase in chronic asthma conditions in our most vulnerable communities. These communities are also faced disproportionately with contaminated water supplies.

Pesticides in our parks hurt all of our children, but they especially harm marginalized communities, ones that are made up of people of color. Ingesting pesticides only adds to the healthcare burden of marginalized communities.

We are in support of a climate justice movement working towards a city not dependent upon fossil fuels.

We called upon the state to ban dangerous pesticides from being sprayed on school playgrounds and at daycare centers in 2010, but now, a decade later, NYC parks have not followed suit.

For the sake of the public health of New York City, let's not wait one more day to get this legislation passed and implemented. We have all the tools at our disposal to show us how to do it! Thank you.

van cortlandt park alliance

November 25th, 2019

Hon. Ben Kallos
244 East 93rd Street
New York, NY 10128

Dear Council Member Kallos:

I am writing on behalf of the Van Cortlandt Park Alliance (VCPA) to respectfully request that you withdraw the introduction of Local Law 1524, which would ban chemical pesticide use on any city owned property. If this became law, it would have a devasting impact on natural areas in NYC parks including Van Cortlandt Park located in the Northwest Bronx.

Van Cortlandt Park is the 3rd largest park in New York City with 1,146 acres. Approximately half of the park is comprised of natural areas with over 500 acres of forest. Unfortunately, the forests of VCP are segmented and disturbed by the three highways that cut through them. This weakens their health and creates a susceptibility to non-native invasive plant species that outcompete native plants for space and provide very little value as habitat and/or food for our wildlife. According to the Master Plan for Van Cortlandt Park, "At the current rate of expansion without increased management, Norway Maples will dominate another 50 acres by 2032, killing the understory and preventing the succession of the native forests." Norway Maple is a non-native tree species that currently dominates 130 acres of Van Cortlandt Park. In addition, the Master Plan states that "At the current rate of expansion without increased management, 30 acres of forest will be killed by invasive vines by 2032". The vines that are impacting our parks include non-native invasive species such as porcelain berry and bittersweet. As these non-native invasive species take over, the biodiversity of the forest declines, reducing the overall health of the ecosystem.

These issues are currently being addressed by a combination of pesticides and manpower including NYC Parks and VCPA employees along with over a thousand volunteers every year. However, even with the use of both pesticides and manpower, it is a losing battle. Without a balanced approach including pesticides, the battle will be lost, unless there were a significant increase in funding for additional parks employees dedicated to the manual removal of invasive species.

In an ideal world we would also oppose the use of pesticides. But in reality, a balanced use of pesticides is the only recourse at current Park staffing and funding levels. Therefore, on behalf of our forests, we are asking you to please withdraw Local Law 1524. If you would like to visit Van Cortlandt Park to see it first hand, please let me know. We would be happy to host a tour. If you have any questions I can be reached at julie@vancortlandt.org or 718-601-1460.

Sincerely,

Julie Micou Cerf
Interim Executive Director

cc: Councilman Andrew Cohen
Mitchell Silver, New York City Parks Commissioner
Iris Rodriguez-Rosa, Bronx Parks Commissioner

NYLPI
JUSTICE THROUGH COMMUNITY POWER

Comments of Christine Appah
New York Lawyers for the Public Interest
to New York City Council Committee on Health in support of Intro. 1524

New York Lawyers for the Public Interest (NYLPI) urges the City Council to pass Intro 1524 because it will protect workers, children, seniors and all who enjoy our green spaces from toxic and possibly carcinogenic chemicals. This ban is particularly important in environmental justice communities where the cumulative effects of toxic exposures can have lifelong effects on the health of entire communities.

NYLPI works to alleviate the disproportionate impact of environmental burdens on lower-income communities and communities of color across New York City. A significant part of NYLPI's work focuses on preventing and mitigating the effects of toxic chemicals in the built and natural urban environment. The connection between pesticides and environmental justice has been central to our policy work on chemical exposures. NYLPI is also part of the JustGreen Partnership, a multi-organization coalition that works on various environmental issues throughout New York state. Last year, the JustGreen Partnership successfully lobbied for the passage of legislation that created a statewide ban on chlorpyrifos, a type of pesticide that has far reaching health effects on the public including neurological and developmental harm.

Intro 1524 builds upon fifteen years of New York City's work towards the safer administration of pesticides by ending the use of certain chemical pesticides by the City. Under the current regulatory framework, the City phases out chemicals that have been deemed likely human carcinogens by the United States Environmental Protection Agency (EPA) or California's state office of Environmental Health Hazards. These chemicals fall into a restricted-use category, and the City updates its list of banned chemicals in step with the EPA's or California's directives. However, if a pesticide does not appear on either restricted list, it will not be included in the list of chemicals that the City will prohibit. If the EPA or California fail, in the face of compelling evidence, to designate a chemical as carcinogenic, New Yorkers will not be protected under current law. A primary example of this is the herbicide glyphosate which has been in use since 1974. While this bill does not focus solely on glyphosate, an ingredient in the commonly known herbicide, Roundup, it serves as a primary example of a type of pesticide that is allowed under current law despite being the subject of growing concern in our city and around the world.

The impact of glyphosate on human and environmental health has been the subject of local, national and international debate, scientific research studies and legal battles.
As recently as 2015, the International Agency for Research on Cancer (IARC) of the World Health Organization (WHO) declared that pesticides containing glyphosates were probably carcinogenic to humans, thus sparking many countries to institute bans on the chemical.[1] In

2016, the United Nations and the WHO published an additional study, which explained that consumption of glyphosate from dietary sources is unlikely to be a cause of cancer.[2] The IARC continues to support its findings. Although glyphosate is not considered as a carcinogen by the U.S. Environmental Protection Agency, it is still a chemical of great concern across the country and around the world.

Intro 1524 would address the omission of glyphosate in the EPA's list by allowing the City to phase out chemicals that are deemed carcinogens or likely carcinogens by not only the EPA, but would also include decisions from other regulatory bodies as well. With the growing importance of our park spaces and the pressures of pest infestation in a city as large and complex as New York City, there is a great need to re-examine our current regulatory scheme to ensure that it is still working to offer the safest protocols for New Yorkers. Intro 1524 would move to ban the use of a broader scope of toxic pesticides in its parks and leased spaces, including, but not limited to glyphosate.

A review of the most recent reports on the City's pesticide use, while showing a decreased use of pesticides, demonstrates that Intro 1524 is necessary. The city's use of herbicides has declined but it continues to use some pesticides containing glyphosates. The most recent report notes that "[l]iquid herbicide product use continued to decline in 2016. Volume declined 25% mostly due to reduced use of glyphosate products[…]. "[3] Intro 1524 would completely prevent the usage of glyphosates in City parks and would require the City to transition towards biological alternatives to the chemical pesticides that are in use today.

The bill also would amend the law to address the situation where synthetic and non-synthetic substances that are currently listed as "allowed" on the United States Department of Agriculture's national list of allowed and prohibited substances become a chemical of concern to New York City's legislature. The bill would allow the City to have discretion over the types of pesticides that it wants to prohibit. Strengthening local and state environmental regulatory schemes is more urgent due to decreased regulations on the federal level.

Ending the use of toxic chemicals like glyphosate would also protect communities that are increasingly engaging in urban agriculture. Many community gardens are close to park spaces. As the growth of urban farming continues as a vital source of nutrition for many New Yorkers, this ban would help to ensure that the herbs, fruits and vegetables grown are not absorbing – directly or residually – chemicals that may not be entirely safe to eat in large volumes. Other provisions in the bill would help to protect our waterways from run-off of pesticides.

Finally, and perhaps most importantly, Intro 1524 would protect workers who come into frequent contact with pesticides through their work of maintaining and protecting our park space. Studies have shown that pesticide residue can have a lasting presence and impact on the health of workers that are regularly exposed to them.[4] Workers must take advanced precautions to protect themselves from pesticide exposure. The ban would support environmental health for many who would not otherwise have the option of utilizing different chemicals.

Other major cities are also taking bold steps to prevent further exposure to glyphosate and other chemicals.[5] Glyphosate bans have been instituted in Portland, Maine, Austin, Texas and Miami, Florida. For example, Seattle, Washington moved to effectively ban the use of products containing glyphosate from their park spaces.[6] This measure is in line with their policies developed over several years that have moved towards making a majority of Seattle's parks "pesticide free."[7] Considering New York City's role as a leading innovator for environmental health, proposed Intro1524 would help improve our City's public health for generations to come.

Conclusion

NYLPI looks forward to working with the City Council and the administration to strengthen environmental protection for our green spaces and our communities.

Christine Appah, Senior Staff Attorney
New York Lawyers for the Public Interest
151 West 30th Street, 11th floor
New York, NY 10001
CAppah@nylpi.org
(212) 244-4664

Sisters of Charity Center
6301 Riverdale Avenue
Bronx, NY 10471 - 1093
718.549.9200
fax 718.884.3013
www.scny.org

SISTERS of CHARITY NEW YORK

Council Member Benjamin Kallos
5th District
244 East 93rd Street
New York, NY 10128

Attn: in support of Intro 1524 of 2019

January 30, 2020

Dear Council Member Benjamin Kallos,

I am in support of legislation, Intro 1524, which would prohibit the use of pesticides in New York City's 1700 parks to protect the children that play there.

Thank you for championing this important issue and legislation that will require that New York City use only biological pesticides, derived from natural materials.

The Office of Peace, Justice and Integrity of Creation for the Sisters of Charity of New York is involved in promoting integral ecology – a term that Pope Francis explains in *Laudato Si': Care for Our Common Home* that calls us to see the interconnectedness of all life and act out of that reality. Through groups in the Congregation and in collaboration with outside groups, we raise awareness, educate, and advocate for the wellbeing of our Common Home, Earth, its peoples and all life.

Historically, as a Congregation, we founded many institutions that were/are involved in the health and wellbeing of children and families through direct service. The Office of Peace, Justice and Integrity of Creation, in its advocacy work, recognizes that legislation is needed in many areas to ensure the right to a healthy life. This proposed legislation is an important step toward ensuring the health of our young, our future generation to whom we have a grave responsibility and are accountable to.

I am sure that you and your colleagues have seen the Grassroots Environmental Education Children and Pesticides Fact Sheet. And, that you have studied the issue of how children are more severely impacted by pesticides than adults. In my role as Director of the Office of Peace, Justice and Integrity of Creation, I encourage you to keep working for passage of this legislation. Thank you for all your efforts in making New York City healthier and environmentally sustainable. Our children, our future, need you as their Champions.

Gratefully,

Carol DeAngelo

Sister Carol De Angelo, SC
Director of Office of Peace, Justice and Integrity of Creation

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Maya Sheinfeld, MD

Address: 4625 Douglas Ave, Bronx NY

I represent: Green Streets / Terrain Institute

Address: Same as Son

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Ken Spreth MD

Address: 175 Community Dr.

I represent: National Health

Address: 175 Community (MD)

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 1/29/2020

(PLEASE PRINT)

Name: Dan Clay

Address: 125 Barclay Street NY NY 10007

I represent: President, L. 1507, DC37

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card | 1524

I intend to appear and speak on Int. No. _____ Res. No. _____

☑ in favor ☐ in opposition

no pestisides

Date: _____

(PLEASE PRINT)

Name: Carol Raffis

Address: 675 Raritan Rd

I represent: schools

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card | _____

I intend to appear and speak on Int. No. 1524 Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Flandersia Jones

Address: _____

I represent: NYSNA

Address: 131 W 33rd St NY, NY 10001

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card | _____

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Mitchel Cohen

Address: 2652 Glenwood Avenue

I represent: NY Spray Coalition

Address: same

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Bruce Rosen

Address: 600 West End Ave #1A1 NYC 10024

I represent: United for Action

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 1/29/20

(PLEASE PRINT)

Name: Jenifer Greenfeld

Address: 830 5th Ave. NY, NY

I represent: NYC Parks

Address: 830 5th Ave NYC

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1/29/20

(PLEASE PRINT)

Name: Ellen Weininger (Grassroots Environmental Education)

Address: SPEAKING IN BEHALF OF DR. SARAH EVANS, MOUNT SINAI SCHOOL OF MEDICINE

I represent: _____

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1/29/20

(PLEASE PRINT)

Name: BRIAN SHAPIRO, NEW YORK STATE DIRECTOR

Address: 100 MILL HILL RD WOODSTOCK, NY 12498

I represent: HUMANE SOCIETY OF THE UNITED STATES

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Jay Feldman

Address: 701 E ST, SE, Wash DC

I represent: Beyond Pesticides

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1-29-20

(PLEASE PRINT)

Name: PATRICIA WOOD

Address: 52 MAIN ST PT WASH. NY 11050

I represent: GRASSROOTS ENV. ED.

Address: (same)

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Paula Rogovin

Address: 625 Linden Ave.

I represent: children

Address: PS290 Manhattan New School

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☐ in favor ☑ in opposition

Date: _____

(PLEASE PRINT)

Name: Ed Lauer

Address: 114 E. 21st St

I represent: _____

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Monica Ritterspoon

Address: 46 Stuyvesant St

I represent: 10th St & Stuyvesant St Block Ass

Address: 46 Stuyvesant St oociation

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Kirsten Brashares

Address: 163 W. 88th St. NY NY 10024

I represent: _____

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1/28/20

(PLEASE PRINT)

Name: Allie Taylor

Address: 780 Jefferson Ave Brooklyn

I represent: Voters For Animal Rights

Address: Same

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Jennifer Greenfeld Asst. Comm. Forestry

Address: The Arsenal

I represent: NYC PARKS

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Liam Kavanagh First Deputy Comm.

Address: The Arsenal

I represent: NYC Parks

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1/29/2020

(PLEASE PRINT)

Name: Jack Einstein

Address: _____

I represent: Richman Law Group

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Randal White

Address: _____

I represent: Richman Law Group

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Carolyn Olson, Assistant Commissioner, Environmental Health

Address: _____

I represent: NYC Department of Health and Mental Hygiene

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Eric Weltman Food & Water Action

Address: 32 Court St, Brooklyn

I represent: Food & Water Action

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☐ in favor ☑ in opposition

Date: 1.29.20

(PLEASE PRINT)

Name: Emily Walker

Address: 55 Broad St., 23rd Fl.

I represent: New Yorkers for Parks

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 1/29/20

(PLEASE PRINT)

Name: Liam Kavanagh

Address: 830 5th Ave, NYC

I represent: NYC Parks

Address: 830 5th Ave, NYC

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Children from PS290

Address: Parents from PS290

I represent: PS 290

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☑ in favor ☑ in opposition

Date: _____

(PLEASE PRINT)

Name: Joel Kupferman

Address: _____

I represent: ENV. JUSTICE INITIATIVE

Address: 225 BROADWAY 2625 - NY 10007

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1/29/2020

(PLEASE PRINT)

Name: Jessica Haller

Address: 4503 Fieldston Rd

I represent: Hazon

Address: 25 Broadway Suite 1706 NYC 10004

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: James Arden

Address: 330 Park Ave NYC NY 10169

I represent: Orthodox

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1524 Res. No. _____

☒ in favor ☐ in opposition

Date: 1/29/20

(PLEASE PRINT)

Name: KATHY NIZZARI

Address: 410 W 25 St NYC 10001

I represent: VOTERS FOR ANIMAL RIGHTS

Address: Jefferson Ave Brooklyn, NY

Please complete this card and return to the Sergeant-at-Arms