Take Action to Ban Glyphosate (Roundup)

IRT Toolkit

Institute for Responsible Technology
ResponsibleTechnology.org
RoundupRisks.com

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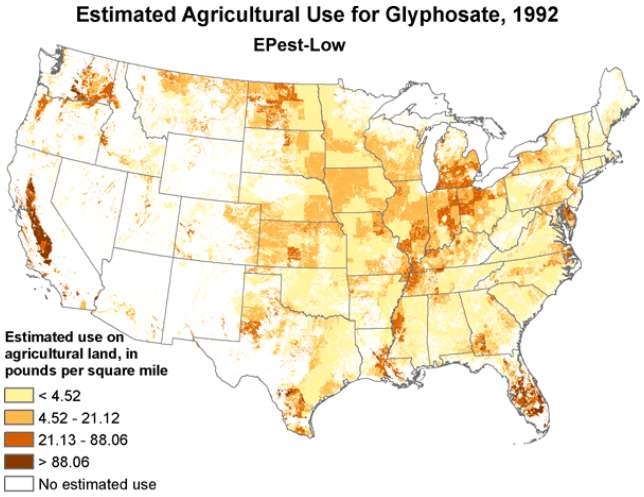
We wish to acknowledge and thank the Midwest Pesticide Action Center (MPAC) of Chicago and Beyond Pesticides for their technical support and permission to use their excellent resources.

Introduction.

Most glyphosate use is agricultural. However, use of the herbicide in lawn care and landscaping places an additional toxic burden on the environment and increases health risks especially for children and pets.

The staggering amount of glyphosate that has been released into the environment worldwide since the introduction of Roundup Ready crops is impossible to document. Current estimates for the United States alone approach 300 million pounds per year. Click on the map to watch an animation of the deepening spread of glyphosate over the U.S. from 1992 to 2012.



The prevalence and persistence of glyphosate and Roundup in parks and playgrounds, as well as in food, makes it imperative that immediate action be taken to raise public awareness and create a new leadership for healthier, safer communities.

Thus, this toolkit is focused on glyphosate. We recognize, however, that long term success needs a comprehensive approach, and therefore we have included many resources that support broad-based pesticide reduction plans usually referred to as integrated pest management (IPM) plans.

Getting Started

Raising public awareness and creating new leadership to foster safe and healthy communities is really a task that properly belongs to each community.

To make it easier, especially for new activists, we identified six crucial steps.

Step One: Educating yourself.

Educating yourself is the first step to educating others. Take time to review the list of resources. There is a lot of information that you will need at your fingertips as you begin to reach out to your community. All the following items are included in the Master Resource List (Appendix I).

- Learn about the health risks and available supporting research. Current research has linked glyphosate to antibiotic resistance, birth defects, cancer, damage to the gut biome, endocrine disruption, infertility, kidney disease, and neurodegenerative disease (e.g. Alzheimer's, Parkinson's). The Health Risks of Glyphosate table (Appendix II) contains citations and links sorted by health condition.

- Progressive communities across the U.S. are taking action. See this map provided by Beyond Pesticides. Top tier models include:

    - South Portland, ME (in process)
    - Montgomery County, MD (process near complete)
    - Cuyahoga County, OH (implemented)
    - Hyattsville, MD (in process)
    - Camden, ME (implemented)
    - Douglas County, WI (implemented)

- Also included is editable petition to Prohibit Use of Glyphosate in Public Areas (download Word doc), and a one page overview of the case for banning glyphosate and Roundup (Appendix III).

Step Two: Check existing regulations.

Check the regulations in your state. Read the fact sheet from Beyond Pesticides to learn more about State Preemption Law as it applies to pesticide regulations in your state. This makes a big difference in how broadly you can implement a ban.

Also, be sure to find out what policies your municipality may already have in place. Visit with the person in charge of maintaining parks and playgrounds to assess the level of awareness and get an idea of how responsiveness they might be to change.

Step Three: Write down your goals.

Write down your definition of success. See page 11 of the Activist's Toolkit from Midwest Pesticide Action Center (MPAC) for ideas.

For example:

- The city passes an ordinance banning the use of conventional pesticides on all publicly managed spaces.
- The school agrees to use organic, natural fertilizers and no pesticides to manage school grounds.
- The neighborhood agrees to voluntary non-use of glyphosate-based herbicides.

In addition to the Activist's Toolkit, MPAC publishes the Municipal Pesticide Reduction Toolkit. Both of MPAC's publications include a number of examples in policies, ordinances and resolutions.

The Tool Kit to Pass a Local Ordinance, is an excellent resource for general information and ideas for organizing community action. It is full of good tips for individuals without prior organizing experience; even those who do will find it useful.

Step Four: Start building your coalition.

Inviting people to join your campaign.

Start with an organizing committee of a few committed individuals and make a list of people you will need to get on your side, such as a local MD, outspoken Mom, city council member, school board member, parks and recreation supervisor. . . This is a good time to bring someone on board who has expertise with managing contacts, sending group emails, and using social media.

Step Five: Choose your materials.

Assembling a packet of materials is a matter of quality not quantity. Your packet will reflect your purpose. Some of the items can be adapted from the list of resources: others you will want to create to meet a specific need. Things that are nice to have—but not all necessary—include fact sheets, brochures, flyers, memes for social media, banners for websites, PowerPoint slides and other graphics.

Step Six: Outline a communication strategy.

Plan how you will deliver your message.

- Raising the issue at a public meeting
- Writing letters to decision makers

- Phone calls
- Social media
- Creating an online petition (i.e. Change.org)
- Getting media attention

What you can expect from us.

The IRT Campaign to Ban Glyphosate is part of our overall effort to raise public awareness of the health risks of genetically modified foods and chemical pesticides.

As a nonprofit educational institution, we can:

1. Support volunteers with information and networking to take action in their communities.
2. Share information and feedback from local action groups with other organizations and policy leaders.
3. Investigate and report the risks and impact of GMOs and chemical pesticides on health, environment, the economy, and agriculture.

About IRT

The Institute for Responsible Technology (IRT) is a non-profit organization that researches and reports news and information about the health risks of genetically engineered food and agritoxins. GMOs (genetically modified organisms) are present in processed foods and many food products.

Major commodity crops grown from GMO seed include: corn (90%), soybeans (93%), canola (93%), cotton (90%), and sugar beets (98%).* GMO sweet corn, papaya, zucchini, and yellow summer squash are also for sale in grocery stores, but in lesser amounts. Genetically modified alfalfa is grown for use as hay and forage for animals. *percentages are based on U.S. acreage as of 2013 (USDA)

Send your questions and comments to coordinator@responsibletechnology.org.

Title with Link	Description
MPAC Activist's Toolkit	From Midwest Pesticide Action Center, a comprehensive guide to promoting sustainable lawn and landscape care. 36 pp. complete with links to additional resources.
City of Richmond, CA glyphosate ban	Resolution No. 19-15(a). A resolution of the city council of the city of Richmond implementing a pilot program to prohibit the use of pesticides in weed abatement activities. FEB 2015.
Glyphosate / Roundup: NOT SAFE	One page overview.
Glyphosate Monograph	Detailed background on glyphosate from Pesticide Action Network Asia & The Pacific. 50 pp. NOV 2009
Glyphosate Testing Report: Findings in American Mothers' Breast Milk, Urine and Water	Conducted by Moms Across America and Sustainable Pulse. APR 2014.
GMOs, Glyphosate and US Health Trends	Published in Journal of Organic Systems, 9(2), 2014, authors Swanson, Leu, Abrahamson and Wallet document the steep rise of chronic diseases in the context of changes to the American diet from GMOs and glyphosate.
Health Effects of 30 Commonly Used Pesticides	A Beyond Pesticides Factsheet. 2 pp. May 2015.
Health Risks of Glyphosate	List of health risks with links to supporting research. All pdfs are ready for download. Prepared by IRT. JUN 2015
Montgomery County, MD, Bill 52-14 to prohibit non-essential pesticides	Copy of Memorandum to County Council introducing proposed legislation for a county-wide ban on certain pesticides
Municipal Pesticide Reduction Toolkit	From Midwest Pesticide Action Center, 121 pp. of useful information and examples for sustainable pest control

Petition to Prohibit Use of Glyphosate in Public Areas	Editable model document prepared by IRT. JUN 2015
Sample Event Flyer	Glyphosate Action Session flyer. PDF.
Sample Resolution to share with your city council	Created by Dr. Jeff Ritterman. FEB 2015
State Preemption Law regarding regulation of pesticides	A Beyond Pesticides Factsheet detailing the background and implications of state regulations that govern how local law may or may not be applied. Fall 2013.
Tool Kit to Pass a Local Ordinance	A general "how to" guide prepared by the Underage Drinking Enforcement Training Center. 6 pp.

Antibiotic Resistance	Kurenbach, B., et al. (2015). Sublethal Exposure to Commercial Formulations of the Herbicides Dicamba, 2,4-Dichlorophenoxyacetic Acid, and Glyphosate Cause Changes in Antibiotic Susceptibility in Escherichia coli and Salmonella enterica serovar Typhimurium. *mBio* 6(2):e00009-15. http://mbio.asm.org/content/6/2/e00009-15
Birth Defects	Kruger, M., et al. (2014). Detection of Glyphosate in Malformed Piglets. *Environmental & Analytical Toxicology* 2014, 4:5. https://www.omicsonline.org/open-access/detection-of-glyphosate-in-malformed-piglets-2161-0525.1000230.pdf
Birth Defects	Antoniou, M., et al. (2011). Roundup and birth defects: Is the public being kept in the dark? *Earth Open Source*. http://earthopensource.org/wp-content/uploads/RoundupandBirthDefectsv5.pdf
Birth Defects	Antoniou M., et al. (2012). Teratogenic Effects of Glyphosate-Based Herbicides: Divergence of Regulatory Decisions from Scientific Evidence. *Journal of Environmental & Analytical Toxicology* S4:006. https://www.omicsonline.org/teratogenic-effects-of-glyphosate-based-herbicides-divergence-of-regulatory-decisions-from-scientific-evidence-2161-0525.S4-006.pdf
Cancer	World Health Organization, International Agency for Research on Cancer (IARC), (2015). IARC Monographs Volume 112: evaluation of five organophosphate insecticides and herbicides. http://monographs.iarc.fr/ENG/Monographs/vol112/mono112-10.pdf
Cancer	Thongprakaisang, S., et al. (2013). Glyphosate induces human breast cancer cells growth via estrogen receptors. *Food and Chemical Toxicology* 59 (2013) 129-136/ https://www.ncbi.nlm.nih.gov/pubmed/23756170
Damage to Gut Microbiome	Samsel, A. & Seneff, S. (2013). Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases. *Entropy* ISSN 1099-4300. http://www.mdpi.com/1099-4300/15/4/1416
Endocrine Disruption	Young, F. Ho, D., Glynn, D., & Edwards, V., (2015). Endocrine disruption and cytotoxicity of glyphosate and roundup in human JAr cells in vitro. *Integrative Pharmacology, Toxicology and Genotoxicology*. https://www.researchgate.net/publication/291719160_Integrative_Pharmacology_Toxicology_and_Genotoxicology

Infertility	Romano, M., et al. (2011). Glyphosate impairs male offspring reproductive development by disrupting gonadotropin expression. *Reproductive Toxicology*. https://www.ncbi.nlm.nih.gov/pubmed/22120950
Kidney Disease	Jayasumana, C., Gunatilake, S., & Senanayake, P. (2014). Glyphosate, Hard Water and Nephrotoxic Metals: Are They the Culprits Behind the Epidemic of Chronic Kidney Disease of Unknown Etiology in Sri Lanka? *International Journal of Environmental Research and Public Health* ISSN 1660-4601. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945589/
Neurodegenerative Disease (e.g. Alzheimer's, Parkinson's)	Cattani, D., et al. (2014). Mechanisms underlying the neurotoxicity induced by glyphosate-based herbicide in immature rat hippocampus: Involvement of glutamate excitotoxicity. *Toxicology* 320 (2014) 34-45. https://www.ncbi.nlm.nih.gov/pubmed/24636977

Glyphosate / Roundup: NOT SAFE

The existing approval of glyphosate and Roundup is out of date. New research and the conclusions of an international team of reviewers have established ample reason to immediately discontinue use of Roundup and other herbicide formulations that contain glyphosate.

- Most recently the World Health Organization's cancer research agency announced that glyphosate is "probably carcinogenic"[i] to humans. The UN agency based its decision on human, animal, and cell studies.

- Other independent research has linked glyphosate to a long list of serious health conditions and chronic diseases, including breast cancer,[ii] birth defects,[iii] kidney disease,[iv] and endocrine disruption.[v]

- It was recently determined that glyphosate may in fact bio-accumulate, resulting in a concentration in our bodies that is greater than what may be excreted. This was shown in a sample testing of mothers' breast milk and urine.[vi]

- Further, a 2014 study[vii] showed that the so-called "inert" ingredients or adjuvants used in the formulation of Roundup made it more toxic than glyphosate alone.

Small children with their higher respiratory rates, tendency to sit on the ground, and place their hands in their mouths, are especially vulnerable to exposure. Sharp increases in child disease including a 20% rise in childhood leukemia and brain tumors since 1975[viii] as well as higher rates of allergies, asthma, autism, and birth defects have all been linked to environmental factors such as pesticides (including herbicides). Pets too, are at higher risk of being sickened.

While manufacturers continue to insist that glyphosate is safe to use as directed, the uncomfortable fact is that very little is known about the effects of long-term, low level exposure. What is known, is that an extraordinary amount of glyphosate is being released into the environment: an estimated 300 million pounds per year in the U.S.

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[i] International Agency for Research on Cancer (2015). IARC Monographs Volume 112: evaluation of five organophosphate insecticides and herbicides. Lyon, France.
[ii] Thongprakaisang, S. et al. (2013). Glyphosate induces human breast cancer cells growth via estrogen receptors. *Food and Chemical Toxicology* 59 (2013) 129-136.
[iii] Antoniou, M. et al. (2011). Roundup and birth defects: Is the public being kept in the dark? Earth Open Source.
[iv] Jayasumana, C. et al. (2014). Glyphosate, Hard Water and Nephrotoxic Metals: Are They the Culprits Behind the Epidemic of Chronic Kidney Disease of Unknown Etiology in Sri Lanka? *International Journal of Environmental Research and Public Health*, 2014, 11, 2125-2147.
[v] Young, F. et al. (2015). Endocrine disruption and cytotoxicity of glyphosate and Roundup in human Jar cells in vitro.

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Integrative Pharmacology, Toxicology and Genotoxicology. Open Access Text.
[vi] http://www.momsacrossamerica.com/glyphosate_testing_results
[vii] Mesnage, R. et al. (2014). Major Pesticides Are More Toxic to Human Cells than Their Declared Active Principles. *BioMed Research International*. National Institutes of Health.
[viii] Watts, M., 2013. *World Without Poisons*. Pesticide Action Network Asia and the Pacific.