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Date: October 19, 2015

From: Jan Goodman & Jerry Manpearl

Subject: Limiting or eliminating the use of Glyphosate.

Please stop the use of glyphosate (roundup, etc) on the use of food crops of any kind (whether round-up ready or not, because glyphosate has been proven to be cancer causing.

Also please require glyphosate to be labeled as, and treated as other cancer causing chemicals, and limit the use of glyphosate, so that it cannot be used within 500 feet of schools and residences.

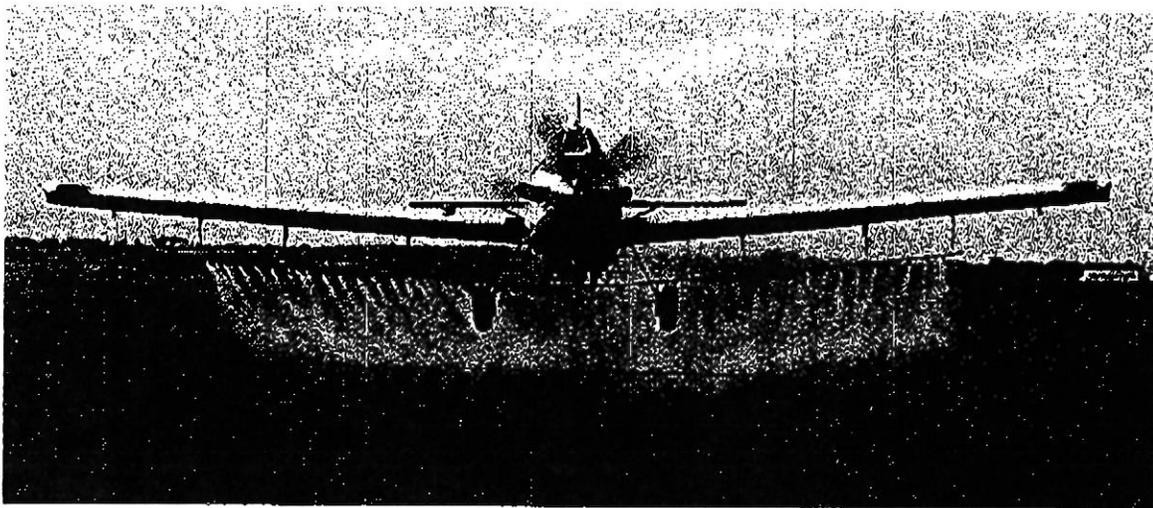
Lastly, we have attached an article about glyphosate, written by Dr. Stephen Frantz, which I request that you read and consider.

Respectfully, Jan Goodman and Jerry Manpearl

I. Herbicide Glyphosate, Toxic to Ecosystems, Carcinogenic to You

The Outpost

*Monsanto's multi-billion dollar GMO herbicide is one of the most toxic substances ever launched on the public, responsible for cancers and other diseases, and has significant negative effects on ecosystems across the world. California has agreed to add glyphosate, the main ingredient of Monsanto's Roundup, to the list of known carcinogens. **SIGN PETITION TO SUPPORT THIS EFFORT!** To write your own letter, see below.*



In an unprecedented move, the California Environmental Protection Agency (Cal/EPA) will soon start labeling the common herbicide ingredient glyphosate a "probable carcinogenic," stepping up efforts to protect health and wildlife in the agriculture-heavy state even as use of weed killers that include such toxins hits an all-time high. Photo from Traudt Aerial Services.

II. *Glyphosate...Misery in a Bottle!*

By Stephen C. Frantz, Published in LA Progressive

Glyphosate is the primary active ingredient in the ever popular Roundup® herbicide, a chemical used on *food and non-food crops*, as well as non-crop areas such as lawns, gardens, playgrounds, rights-of-way, etc. It kills nearly any plant life it contacts above ground and under water. Glyphosate (GLY) is widely sold by garden shops, hardware stores, and agricultural suppliers; it is the most widely used herbicide the world. And its residues are found everywhere: in your food, in your water, in your air, and in you, your children, pets and other animals.

There has been a long debate on the toxicity and health relevance of GLY, but that is now over. Fortunately, Dr. Anthony Samsel (Union of Concerned Scientists) and Dr. Stephanie Seneff

(MIT) have recently procured a hoard of scientific documents covering decades of Monsanto's sealed GLY research (Gale & Null 2015). We've been misled by industry, university, and government scientists and officials who told us that GLY did not present an unreasonable risk of adverse effects to humans, animals, or the environment. In fact, Samsel and Seneff conclude that GLY is undoubtedly one of the most toxic substances ever launched on the public, and which adversely affects almost every tissue and cell in a mammal's body. This is also backed-up by years of peer-reviewed research by others (Anon 2014), some of which is included herein.

GLY and its formulations are responsible for a large variety of cancers and organ failures in humans and other animals. It harms or kills honey bees (Balbuena, et al. 2015; Morandi, et al. 2005), monarch butterflies (Landrigan & Benbrook 2015; Pleasants & Oberhauser 2012), amphibians (Annett, et al. 2014; Quarles 2015a; Székács & Darvas 2011), fish, crustaceans, eels, caiman, snails, mice, rats, rabbits, dogs, pigs (Carman, et al. 2013), poultry and cattle (Samsel & Seneff 2013), various microorganisms, and other life (Gale & Null 2015; Quarles 2014; Quarles 2015b; Seralini et al. 2014; Székács & Darvas 2011). Indirectly, GLY applications have also reduced populations of beneficial insects, birds and small mammals by destroying the vegetation on which they depend for food and shelter (Cox 2000). The magnitude of these toxic revelations equals or exceeds the decades-long "Big Tobacco" cover-up. The question is, how will regulatory agencies manage GLY production and usage that insidiously harm humans, animals, and the environment everywhere?

III. Everyone is encouraged to submit comments to OEHHA via e-mail. Such email comments should be addressed to P65Public.Comments@oehha.ca.gov. In the subject line, put "Glyphosate", "Malathion" and/or "Parathion." Comments must be received by 5:00pm, October 20, 2015.

Hard copy (paper form) comments may be mailed, faxed, or delivered in person to the mailing address below:

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IV. Multi-Billion Dollar Product, Darling of GMO Agribusiness

GLY formulations are made for lawns, gardens, agriculture, forestry, industrial areas, and to kill aquatic plants. It was the "first billion dollar product" of the pesticide industry (Franz et al. 1997), and more than 280 million pounds of GLY are used every year (Kustin 2015) on more than a billion acres of U.S. crops (Cherry 2010).

The estimated global production of GLY in 2012 was 1.6 billion pounds (Transparency Market Research 2014). About 45% of the total usage was for genetically modified, GLY-tolerant crops (GMOs*), a significant concomitant problem. The global GLY market is expected to be \$8.79 billion by 2019 (Transparency Market Research 2014). It's easy to understand why agribusiness is opposed to having GLY products sensibly regulated which, at present, *they are not*.

V. * **GMO = a genetically modified organism (or transgenic organism) is any organism whose genetic material has been altered using genetic engineering (aka “genetic tinkering”) techniques.**

In California in 2013, more than 10 million pounds of glyphosate products were applied on agricultural crops alone (CA-DPR 2015). Non-crop usage was not reported; however, in a 2013 survey of 246 Northern California households, 14% were found to possess at least one glyphosate-containing product (Guha, et al. 2013). The CA-DPR data also show that almost 194 million pounds of pesticide (all) active ingredients (*excluding* adjuvants, carriers, etc.) were used throughout CA croplands in 2013 (CA-DPR 2015). Los Angeles County ranked 20th with a mere 2½ million pounds of pesticides applied.

Not only are the sheer volumes of reported pesticide application remarkable, but we also know little regarding the toxic cocktails’ ingredients and the pesticide interactions to which we are unwittingly exposed every day. If this is not alarming enough, please read on...



Large-scale use: Roundup weed killer, whose main ingredient is glyphosate, is sprayed over millions of acres of crops. Photo: Alamy

VI. **GLY Found Everywhere, Exposure Through Food, Water, Air**

GLY and AMPA (its major metabolite) are found in: air, surface water, groundwater, rainfall, soil, dust, plants, animals, people, etc. (Gillam 2011; Grossman 2015; Honeycutt, et al. 2015; IARC 2015; Pala 2015; Scribner, et al. 2003). Most people get exposed through contaminated

food because our entire diet (excluding organics) is thoroughly contaminated with industrial agriculture's pesticide residues (Samsel & Seneff 2013). In addition, in large-scale industrial farming: cows, pigs, sheep, goats, chickens and even farm-raised fish and shrimp are fed a diet primarily of GM grains and forage materials laced with herbicide (GLY is the primary herbicide used on GM crops). As a consequence, animal products, including meats, eggs, butter, cheese and milk, are contaminated with GLY and other pesticide residues that we then consume. Curiously, the legally "acceptable" level of glyphosate contamination in foods and feeds has been steadily increasing *not due to scientific evidence*, but based on the simple fact that the residue levels are increasing because so much GLY is being used (Bøhn & Cuhra.2014; Cherry 2010; Samsel & Seneff 2013; Seneff 2015).

VII. Adding insult to injury, GLY-exposed and GM crops have been found to be nutritionally inferior to conventional crops and even more so to organic crops (Bøhn, et al. 2013; Bøhn & Cuhra 2014; Halweil 2006; Holderbaum, et al. 2015; Samsel & Seneff 2013). GM crops also take up much higher levels of GLY into their leaves; hence, they yield higher GLY concentrations in derived foods compared to non-GMO counterparts (Bøhn, et al. 2013; Samsel & Seneff 2013).

VIII. Intense and continuous use of glyphosate has resulted in the emergence of GLY-resistant weeds, or "superweeds" (Knezevic 2007; Shaner, et al. 2012) that are now found on nearly 100 million acres in 36 states (Landrigan & Benbrook 2015). Farmers respond by treating fields with higher doses and more applications and/or with multiple herbicides and/or with more toxic herbicides. And the number of resistant species keeps increasing, as does the overall cost of weed control. Consequently, this leads to higher levels of GLY residue in foods and feeds.

Eschewing the "pesticide treadmill" *in favor of* organic agricultural methods, with proper integrated pest management (IPM), offer the most viable alternative for low-toxic ecological sustainability and less pesticide contamination of the food chain (Anon 2015; Druker 2015; Goodall 2005; Halweil 2006; IPMP 2015; Lopez 2012; Pollan 2008; Seneff 2015). And, yes, organic methods of agriculture with a consciousness and responsibility towards the environment *can feed the world without* social, economic or other disadvantages.

You, your children, and your pets can be exposed to GLY when touching plants that have wet or freshly dried spray. Residue can be ingested on/in food, in contaminated water, or from contaminated hands or clothing, and via inhalation (Cox 2000; Gillam 2011) and dermal absorption (IARC 2015). Pets (e.g., dogs, cats) are likely exposed to residues from several sources (e.g., air, dust, plants, and soil), through several pathways and routes, after lawn applications. Pets can become a pathway for the transfer and translocation of pesticide residues inside the home where occupants are exposed through contact (Lu 2014).

In humans, only small amounts of GLY are metabolized to AMPA; the rest enters the bloodstream to be excreted in the urine, and/or eliminated in feces (Samsel & Seneff 2013; IARC 2015); and we now know that it bioaccumulates in lungs, lymph, blood, urine, bone and bone marrow (Gale & Null 2015), and breast milk too (Honeycutt et al. 2015). While Monsanto has consistently denied GLY bioaccumulation, their own studies found it in red cells, thyroid, uterus, colon, testes and ovaries, shoulder muscle, nasal mucosa, heart, lung, small intestine, abdominal

muscle and the eyes. An insidious matter with GLY in mammals is that it manifests slowly over time as inflammation damages cellular systems throughout the body. Bringing this concern closer to home, is GLY used at your residence, in your neighborhood, or workplace? How exposed are you to GLY in your daily life?

IX. STORY: Soil and Nutrition: No-Till Organics and Carbon Sequestration

Stephanie Seneff, PhD, MIT CSAIL presents "The 'SAFE' Herbicide that's making us all Sick!" Seneff's three decades of scientific rigor is added to a growing body of independent research that exposes the toxic reality of the U.S.'s favorite weed killer and biocide; Monsanto's RoundUp.

X. Ever-present Eco-Toxic Contaminant

GLY is found in soil to which it adsorbs strongly (Xu, et al. 2011); however, its immobility therein depends on soil characteristics, bacterial content, soil thickness, moisture content, and sunlight intensity. GLY is broken down by soil microbes primarily to AMPA that can accumulate in the environment and is more mobile than glyphosate (IARC 2015). If GLY reaches surface water, it is not broken down readily by water or sunlight. In field studies, the half-life of GLY ranged between a few days to several months, or even more than a year as discovered in high glyphosate contamination levels in Scandinavian surface waters (Ludvigsen & Lode 2001).

GLY is a surface water contaminant due to both its aquatic usage, and through erosion as it adsorbs to soil particles suspended in runoff. The U.S. Geological Survey found GLY contamination in the majority of rivers, streams, ditches, and wastewater treatment plant outfalls tested in 38 states (Goldman, et al. 2015; Kolpin, et al. 2006; Scribner, et al. 2003). A Swiss study revealed that water contamination was not limited to agricultural runoff; in some areas, more than half of the contamination comes from urban drainage systems (Hanke, et al. 2010).

GLY and AMPA have become ubiquitous ecotoxic contaminants in freshwater ecosystems, including sediments, worldwide. They accumulate in bodies of water and sediments where they harm non-target microorganisms, invertebrates, amphibians and fish (Abdel-Mallek et al. 1994; Annett, et al. 2014; Quarles 2015a; Tanney & Hutchison 2010).

Substances occurring in surface waters deserve extra scrutiny because they enter a matrix that is the habitat of numerous aquatic organisms and the basis of our drinking water reserves (Székács and Darvas, 2011). Drinking water is an irreplaceable essential part of our diet, and is a potential vehicle for chronic exposure (the basis of chronic diseases) in daily contact and consumption.

Thus, both agricultural and non-agricultural applications of GLY are of significant concern, and both contribute to general pollution of the biosphere. Obviously, it is all interconnected and we are all exposed. Environmental architect William McDonough has wisely cautioned that, "*We must not toxify the mass assets (the earth's soil, air, water, and vegetation) that we all need to survive.*" Complacency with this state of affairs is not recommended and should not be tolerated.

XI. Effects = “Who’s Who Tour of a Medical Dictionary”

Glyphosate may be the most important factor in the development of multiple chronic diseases and conditions prevalent in Westernized societies (Barrett 2014; IARC 2015; Samsel & Seneff 2013; Seneff 2015; Székács and Darvas 2011; Thongprakaisang, et al. 2013; Vazquez 2014; Walia 2014a). These include: autism spectrum disorder (ASD); ADHD; gastrointestinal issues such as inflammatory bowel disease, chronic diarrhea, colitis and Crohn’s disease; obesity; cardiovascular disease; depression; sleep disorders; cancers, including non-Hodgkins lymphoma and breast; cachexia; Alzheimer’s disease; Parkinson’s disease; multiple sclerosis (MS); Lou Gehrig’s disease or amyotrophic lateral sclerosis (ALS); developmental malformations; infertility; antisocial & aggressive behaviors; among others.

As incredible as this list appears, the GLY-maligned biological/cellular processes can logically explain the features that are characteristic of the diseased states mentioned (IARC 2015; Samsel & Seneff, 2013). Key pathological effects (that accumulate over time) of GLY include:

- Kills/disrupts gut bacteria that depend on the shikimate pathway thus reducing the production of essential amino acids
- Disrupts the balance of microbiota in the gut allowing pathogens to dominate
- Impairs sulfate and phosphate transport
- Interferes with Cytochrome P450 enzyme activity (CYP enzymes have been identified in all domains of life; and play many important roles in the mammalian liver)
- Chelates important minerals (iron, cobalt, manganese, etc.)
- Interferes with synthesis of aromatic amino acids and methionine, leading to shortages in critical neurotransmitters and folate

It’s additionally unsettling that GLY, its additives, and AMPA induce oxidative stress that disrupts the body’s ability to detoxify other environmental toxins and leads to synergistic enhancement of toxicity (IARC 2015; Samsel & Seneff, 2013). Note that Monsanto found some of the same diseases and conditions given herein, but such data were misrepresented or hidden in order to promote corporate economic interests (Gale and Null. 2015; Seneff, 2014, 2015). Clearly, other environmental toxins, and genetics, also contribute to these diseases and conditions. However, GLY may be the most significant environmental toxin, mainly because it is used everywhere and often handled carelessly due to its perceived, industry-touted “benign” chemistry. Seneff (2014) has suggested that if the current trend of increasing GLY usage continues, by 2025 half the children born in the U.S. will be diagnosed with autism.

While Monsanto continued to deny the malign effects of GLY (and before the recent mega-procurement of Monsanto’s data), 17 experts from 11 countries met at WHO’s International Agency for Research on Cancer (IARC, Lyon, France) in March 2015 to assess the carcinogenicity of glyphosate and some other pesticides, including the herbicide 2,4-D. The IARC review committee found glyphosate in farmworkers’ blood and urine, chromosomal damage in cells, increased risks of non-Hodgkin lymphoma in people exposed, and tumor formation in animal studies. Both glyphosate and 2,4-D were ultimately classified as “probably carcinogenic to humans”, especially with chronic exposures (Guyton 2015). This is significant because at nearly the same time, the U.S. EPA approved the registration of *Enlist Duo*, a new

herbicide from Dow AgroSciences that combines the two carcinogens, GLY and 2,4-D (US-EPA 2015). Basically, this product's registration was an egregious irresponsible act by the U.S. EPA that ignores the plethora of well-known toxicity problems regarding GLY, and capitulates to the wishes of agribusiness (Salvador 2014; Seneff 2015).

XII. STORY: Vandana Shiva: Maintaining Biodiversity and the Seeds of Freedom

XIII. Alliances with Government and Academic Institutions

Through deceit and institutionalized greed, data has been misrepresented, masked, or falsified to win regulatory and public approval in order to bring GLY to market, and all at a cost to human, animal, and environmental health. There is active collusion between the agribusiness and chemical industries, journal editorial boards, government agencies, numerous and often prominent academics, PR companies, and key administrators of land grant universities for the purpose of promoting GM crops and associated pesticides (BfR 2015; Druker 2015; Gale & Null 2015; Goldman, et al. 2015; Goodall 2005; IARC 2015; Lopez 2012; Pala 2015; Quarles 2015b; Salvador 2014; Seneff 2014; Seralini, et al. 2014; Székács and Darvas 2011; Testbiotech 2015; UCS 2014; Vallianatos 2014; Vazquez 2014; Walia 2014b).

XIV. “Get your facts first, then you can distort them as you please.” —Mark Twain

In the U.S., the alliances with industry (e.g., BASF; Monsanto; Pioneer; Syngenta; the American Chemistry Council; the Biotechnology Industry Organization; the Council for Biotechnology Information; the Grocery Manufacturer's Association; and the Information Technology & Innovation Foundation) have included: the EPA; FDA; USAID; USDA/APHIS; Cornell University; Cornell Alliance for Science; Harvard University; Mississippi State University; Pennsylvania State University; Tuskegee University; University of California, Riverside; University of Florida; University of Illinois; and Yale Law School (Landrigan and Benbrook 2015; Latham 2015; Lipton 2015; Mesnage, et al. 2014; Simon 2012).

Where is the virtue in this scenario? We need to question regulatory agencies (e.g., EPA, FDA, USDA) that allow sequestering of data that have implications for public and environmental health (Druker 2015; Quarles, 2015b; Seralini, et al. 2014; Vallianatos 2014). The value and credibility of science is undermined without transparency of, and access to, all raw data obtained by companies and accepted by regulatory agencies as *proof of safety* for products. Having unsavory corrupt scientists and officials within an organization tends to further discredit said organization and leaves all of their work open to question. Considering the extensive degree of deception and the innumerable adverse health and environmental consequences regarding GLY, should not some of these players be charged with at least crimes of omission and/or challenged with toxic tort lawsuits?



An Integrated Pest Management (IPM) program village in China's Yunnan province which conducted an integrated approach (including rice ducks, light traps, rice bio-diversity) resulted in a 30% reduction in pesticide use, and an increase in crop yield by 6%. Photo from Greenpeace.

XV. Take Action

We live in a society that becomes upset when learning of an automobile manufacturer that hid evidence of faulty mechanicals resulting in the injury or death of numerous people; or of one that manipulated engine software to give false data regarding air pollution that had adverse effects on many people and the environment. Such concern is totally warranted. But, oddly, we seem almost inured to the consequences of all-pervasive pesticides such as GLY that have resulted in a far greater loss of life and quality of life on a global scale — whether it be human, animal, microbe, or the environment, all suffer.

Balancing industry-backed *propaganda* against *vettted science* on GLY-based products (and GLY-tolerant crops and GMOs) results in a sum total that equals "misery." It is the appalling interconnected health- and environmental-related findings reviewed here that are causing governments and organizations around the world to limit GLY products or ban them altogether, including: Columbia; Costa Rica, El Salvador, England, France, Germany, Mexico, Netherlands, Russia, Sri Lanka, and Tasmania (Anon 2009; Appleby 2015; Barrett 2014; Cassidy 2015; CentralAmericaData.com. 2013; Druker 2015; IARC 2015; Jayasumana, et al. 2014; Lopez 2012). Similar actions should now be taken by the U.S. EPA, allowing the U.S. *to follow* the sound environmental policies of governments that are not overtly vested in agribusiness's bottom line.

To be responsible to California's populace, the CA-EPA:

- *First*, needs to enforce California's Safe Drinking Water and Toxic Enforcement Act of 1986 – Prop. 65 (OEHHA, 2015) – see sidebar *NOTICE*. This would result in *accurately labeling herbicide products* on store shelves, but, unfortunately, would not give us a clue if GLY is in our food.
- *Second*, since GLY products are much more toxic than we originally thought is an unambiguous reason to *require labeling of GM foods* because they *do* contain GLY residues, and they end up on our tables to be unintentionally ingested by our most sensitive individuals: babies, children, pregnant women, and the elderly.
- *Third*, knowing that glyphosate is *a probable carcinogen (and is used all around us everyday)* should be more than enough reason for the CA-EPA and our "conscientious" legislators to *initiate measures to ban* the use of all glyphosate products in order to best protect human, animal, and environmental health. But don't hold your breath...corporate interests have been known to take precedence over public and environmental health.

XVI. Everyone is encouraged to submit comments to OEHHA via e-mail. Such email comments should be addressed to P65Public.Comments@oehha.ca.gov. In the subject line, put "Glyphosate," "Malathion" and/or "Parathion." Comments must be received by 5:00pm, October 20, 2015.

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Meanwhile, do you know what's used on your lawn, garden, school playgrounds, athletic fields, parks, golf courses, and along your roads? Ignorance can be *misery*, not bliss.

XVII. *NOTICE*: The California Environmental Protection Agency's (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA) has published a notice in the California Regulatory Notice Register (Register 2015, No. 36-Z) announcing its intent to list parathion, malathion and glyphosate as known to the State to cause cancer under the Safe Drinking Water and Toxic Enforcement Act of 1986. Obviously, all three should be listed as carcinogens; but Monsanto knows no shame and is contesting this effort to protect the public and environment. SIGN THIS PETITION!

Stephen C. Frantz

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