September 3, 2019

OPP Docket
Environmental Protection Agency Docket Center (EPA/DC), (28221T)
1200 Pennsylvania Ave. NW, Washington, DC 20460-0001

Re: Glyphosate Proposed Interim Registration Review Decision
Docket Number EPA-HQ-OPP-209-0361

The Organic & Natural Health Association is a unique national trade organization representing
the interests of the dietary supplement supply chain; from raw ingredients, to manufacturers,
distributors and brands, retailers and consumers. Our tenets are rooted in the consumer’s
demands for transparency, traceability, continual quality improvement and accessibility to the
highest quality products available. Demands that have driven our industry to voluntarily strive
for higher quality, environmental responsibility, and innovation.

There is no disputing the increased prevalence of glyphosate exposure in the United States. In
October of 2017, the Journal of the American Medical Association published research entitled,
Excretion of the Herbicide Glyphosate in Older Adults Between 1993 and 2016.¹ According to
the report, the prevalence rates of glyphosate samples above the LOD increased significantly
over time, from 0.120 (95% CI, 0.064-0.200) in 1993-1996 to 0.700 (95% CI, 0.600-0.788) in
2014-2016 (Wald statistic = 80.5; P < .001) (Table 2). The prevalence of AMPA samples above
the LOD increased significantly from 0.050 (95% CI, 0.016-0.113) in 1993-1996 to 0.710 (95% CI,
0.611-0.796) in 2014-2016 (Wald statistic = 103; P < .001).

In short, the research determined a significant increase in the number of study participants
whose exposure to glyphosate exceed the detection limit, increasing from 12% of the
participants in the early 1990s to 70% by the 2010s. In addition, the levels of glyphosate
detected increased thirteen fold between the two collection periods. The report discussion
asserts, “The values observed in this study fall within this range and were higher than in
European adults. Animal and human studies suggest that chronic exposure to glyphosate-based

¹ https://jamanetwork.com/journals/jama/fullarticle/2658306
herbicides can induce adverse health outcomes. Dr. Paul J. Mills, Ph.D., a professor at the UC San Diego School of Medicine and the study’s lead author is quoted as saying, "We're being exposed to more and more of this chemical...Most people don't even realize that they are consuming it through their diet."

![Glyphosate Exposure Over Time](chart.jpg)

*Chart courtesy of HRI Labs*

Awareness of glyphosate exposure continues to rise, a result of legal proceedings and consumer settlements, and increased access to improved detection through tests of water, urine, and now hair.

Hair testing results for long-term exposure of a variety of pesticides, including glyphosate, were released in August, 2019 for 23 members of the Japanese Parliament. Of the 28 hair samples taken, 75% of them tested positive for long-term pesticide exposure, with a total of 14 pesticides being detected. Recorded levels for Glyphosate and AMPA, the main metabolite of Glyphosate, were as high as 791 ppb for and 1205 ppb respectfully.

In a parallel evaluation of foods, the vast majority of samples tested positive for glyphosate residue. According to the Japanese Ministry of Agriculture, Forestry and Fisheries, 90% of U.S. wheat imports contain glyphosate residues. There is now growing interest by the Japanese Diet to increase food security and decrease pesticide use. Only 37% of food consumed in Japan is grown in-country.

---

O&N is actively engaged in glyphosate testing, in partnership with HRI Labs, as part of our ongoing effort to support access to a supply chain that is as clean as possible. HRI Labs is an independent, non-profit laboratory and science organization, providing accredited testing services, custom research and scientific guidance to businesses, scientists, farmers, non-profits and individuals to achieve healthier food, nutrition, and agriculture. HRI also conducts an ongoing studies for humans and pets, measuring glyphosate residue in urine, and also tests for residue levels in water.

According to HRI, 86% of their study participants have demonstrated detectable levels in urine averaging 0.52ppb for men and 0.45ppb for women. People who consumed oats regularly had two times higher glyphosate levels. Family pets tested for levels that were 40 times higher than humans. And, despite the fact EPA has established glyphosate residue tolerance to range from 0.1 to 310 ppm, there is scientific evidence in a peer-reviewed study that lab rats with glyphosate levels of 0.1 ppb show signs of fatty liver disease. When the FDA recently tested for glyphosate in 760 samples of grain corn, soybean, milk, and egg samples, it found no residues in milk or eggs, but 63.1% of corn and 67% of soybean samples tested at, or above the prescribed standards. And, far above the 0.1 ppb that research is showing as symptomatic of fatty liver disease.

There is a silver lining in the food chain that can support consumers’ growing demand to eliminate pesticides from their diets, and that lies in relying on organic. HRI reports only 20% of those who consumed at least 75% organic foods tested positive for glyphosate and reported lower average levels. In addition, a recent study entitled “Organic diet intervention significantly reduces urinary pesticide levels in U.S. children and adults,” determined that an organic diet can rapidly and dramatically reduce exposure to pesticides in just one week. The peer-reviewed study compared pesticide levels for the members of of four American families who consumed a non-organic diet for six days, and ate a completely organic diet for six days. On average, testing levels for all pesticides decreased 60.5%.

Clearly what’s safe and what is a concern when it comes to consumption of glyphosate is a matter of debate in public opinion and scientific circles. But, the body of evidence is growing internationally and the courts are ruling consistently on the behalf of consumers. Despite scientific consensus, EPA holds firm in its proposed registration review to its commitment that glyphosate is “not likely to be carcinogenic to humans.” This, in sharp contrast to the 2015 World Health Organization International Agency for Research on Cancer (IARC) which found glyphosate to be a probable human carcinogen. And, the body of research showing linkage of glyphosate residue to other life-threatening conditions is growing.

3 [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5220358/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5220358/)

Washington State University has published three recent research reports linking glyphosate to

1) as much as a 41 percent increase in the risk of non-Hodgkin lymphoma,
2) Washington-state residents, who living in close proximity to areas treated with glyphosate, were one-third more likely to die an early death from Parkinson’s disease, and
3) the development of prostate, kidney and ovarian diseases, obesity and birth abnormalities in the descendants of rats exposed to glyphosate.

Even more disturbing is the Ramazzini Institute’s 5 13-week pilot study on glyphosate and Roundup administered at human-equivalent dose to Sprague Dawley rats, to measure the effects on the microbiome. The study results revealed “that low-dose exposure to Roundup and glyphosate resulted in significant and distinctive changes in overall bacterial composition in F1 pups only. Specifically, at PND31, corresponding to pre-pubertal age in humans, relative abundance for Bacteroidetes (Prevotella) was increased while the Firmicutes (Lactobacillus) was reduced in both Roundup and glyphosate exposed F1 pups compared to controls.”

This study provides initial evidence “that exposures to commonly used GBHs [Glyphosate-based herbicides], at doses considered safe, are capable of modifying the gut microbiota in early development, particularly before the onset of puberty. These findings warrant future studies on potential health effects of GBHs in early development such as childhood.”

Agriculture pesticides are antibiotics. They kill nontarget microbial, viral and fungal populations, which leads to dysbiosis. The mechanistic response to a pesticide is like that of any other toxin in the gut. In the past ten years, the body of research to demonstrate the ill effect of glyphosate and other toxins has grown in depth and complexity. Over the next ten years, we will continue to learn how toxins are impacting the long-term health of the population at large. Yet, EPA continues to rely and regulate based on the science of the 1970’s.

The Organic & Natural Health Association remains steadfast in its work to establish a transparent supply chain that respects the wishes of consumers, and serves the long-term health of the population and the planet. The proposed Glyphosate Interim Registration Review fails the EPA’s mission to protect human and environmental health.