Tragedy of the Lawns: How Lawn Pesticides Poison Watersheds

"Screw the fine print."

–Resident of Brady, Texas, after learning state officials failed to fully disclose to her community that for years their drinking water had been contaminated by dangerous levels of toxins

Americans rely on water: to drink, to wash, to live. We drink more than 1 billion glasses of tap water per day; we depend on being able to trust our taps. Why shouldn't we? After all, the Federal Safe Drinking Water Act (SDWA) demands that companies run a gauntlet of safety tests before selling what we cannot live without: drinking water. But America's water supply is in danger. And the source of the problem is close to home; in fact, it is in our own front yards.

Americans spend over $40 billion annually on lawn treatment. Over 90 percent of these lawn treatments use pesticides and herbicides, resulting in nearly 80 million pounds of poison being used on US lawns annually. A 2010 US Fish and Wildlife Service report stated that homeowners use up to 10 times more chemical pesticides per acre on their lawns than farmers use on crops. These pesticides are toxic, and intentionally so. The impact chemical lawn treatments have on a neighborhood's water supply can be devastating. Yet the SWDA regulates only two of the over 200 top-selling lawn-care pesticides.

In her article, *Lawns and the Watershed Law*, Asmara Tekle takes issue with what she labels the Lawn Industry. She paints a thought-provoking picture of suburban America's collectively irrational escalation in gardening standards, and proposes that household pesticides should be seriously regulated. According to Tekle, Americans are obsessed with their lawns, all for the sake of maintaining nothing more than the status quo. What's missing from her research, though, is what Americans forsake when they join the Cult of the Lawn. Tekle fails to explain how lawn treatments that leak into watersheds affect the health of homeowners who use them.

A. Big Business: The Pesticide Scandal

Lawn pesticides and fertilizers contribute significantly to drinking water contamination. This is because sprinkler systems and heavy rain sweep pesticide chemicals off the grass and into storm drains, where the runoff often remains untreated before ending up in the waterway or local ponds. When the water left on the lawn evaporates, pesticides remain and continue to release odorless, invisible toxic vapors. These chemicals get carried into homes on shoes, paws, and air currents. They linger on carpets, dust, toys, and in the air. While UV rays of sunlight normally break down outdoor lawn chemicals over time, they persist indoors for months. Many pesticides are least safe when dry. Homeowners who use pesticides unwittingly inhale, expose their skin to, and ingest them every day. According to the May 2008 issue of *Heath Magazine*, having a chemically-maintained lawn is "the single most toxic thing inside or outside your home,"

Contaminated waterways are ubiquitous. One IEHH report found that 100 percent of all surface water in our nation's major rivers and streams contains one or more pesticides. But most states conduct neither routine groundwater nor surface water monitoring to detect contamination. The Federal government, too, is lax on lawns. Although the SDWA requires the EPA to set standards that control the level of contaminants in the nation's drinking water, the EPA only regulates two of the over 200 top-selling lawn-care pesticides, 2,4-D and glyphosate. Despite governmental acknowledgement of the harmful effects of pesticide release on the environment, and their proclivity to leach into groundwater supplies, the other 198 lawn-care pesticides need not be tested for chronic health effects unless they are also licensed for food uses. This is a problematic loophole. Many top-selling lawn pesticides and herbicides are not used on gardens or farms. Pesticide companies take full advantage.

B. Monsanto Company's Contribution

One such company is the infamous Monsanto Company. Monsanto controls 74 percent of the global pesticide and herbicide market. The most commonly used herbicide in the US is Monsanto's Round Up.® Round Up's® formula includes glyphosate, but because Round Up® is intended for lawn use alone, it has never been fully tested by the EPA for chronic health effects. An EPA factsheet, readily available online, considers Round Up® to be relatively low in toxicity, and without carcinogenic or teratagenic effects. As of 2009, sales of Roundup® herbicides represent approximately 10% of Monsanto's annual revenue.

Scientific evidence indicates that the EPA's approval of Roundup is deeply flawed and unreliable. A 2008 study published in *Chemical Research in Toxicology* found that the toxins in Round-Up® are prone to damaging or terminating the life of unborn human fetuses. This study reports that the patented Roundup® formula caused the death of human embryonic, placental, and umbilical cells in vitro, even at low concentrations. A 2011 report by Earth Open Source asserts that the Roundup's® active ingredient, glyphosate, caused birth defects in laboratory animal tests. The *Huffington Post* reported in June, 2011, that regulators have been aware of these studies since 1980.

A popular documentary available on You Tube, *The World According to Monsato*, points out that a gentleman named Michael Taylor worked for Monsanto as an attorney before being appointed as deputy commissioner of the FDA in 1991. The FDA approved Round-Up® under Taylor's leadership. When Taylor returned to Monsanto, he became the company's vice president for public policy. Three years later, *Women's Day Magazine* reported that pesticides appeared in higher rates in women's breast milk than the government permits in cow's milk.

Today, Monsanto's Roundup® is used by gardeners and local authorities, in farmers' fields, and on school grounds. In response to the Earth Open Report, Monsanto published a statement on its website, claiming, "Regulatory authorities and independent experts around the world agree that glyphosate does not cause adverse reproductive effects . . . or birth defects." Both the pesticide industry and regulators repeatedly claim that chemicals such as glyphosate are safe in clear contradiction to the scientific evidence before them.

Lenient pesticide warning label regulations add to the problem. Pesticide companies need only print active ingredients on their warning labels. But inert ingredients often comprise 90 to 95 percent of lawn care products, and they may be more toxic than active ingredients. Some inert ingredients are suspected carcinogens, while others have been linked to central nervous system disorders, liver and kidney damage, birth defects, and some short-term health effects. The labels need not make mention of this.

Even if regulations required warnings about inert ingredients, regulators only require pesticide companies like Monsanto to print summaries of acute toxicity on their product labels. This would exclude the risks of long-term health effects such as cancer and neurotoxicity. Pesticide labels boast product benefits in large multicolored letters while already-inadequate warning information is often hidden in minute type on the underside of 25-pound packages.

C. Children are the Most Vulnerable

According to the EPA, 95% of the pesticides used on residential lawns are possible or probable carcinogens. Children, infants, and fetuses appear especially vulnerable to the carcinogenic effects of pesticides. In one IEHH study, by-products of insecticides were found in 93 percent of urine samples taken from children ages three to thirteen. In a separate study, 99 percent of children aged two to five had detectable levels of pesticide residues in their urine.

The National Cancer Institute reported that children develop leukemia six times more often when pesticides are used around their homes. The *American Journal of Epidemiology* found that more children with brain tumors and other cancers had been exposed to insecticides than children without. Studies by the National Cancer Society discovered a definite link between fatal non-Hodgkins Lymphoma (NHL) and exposure to lawn chemicals found in popular herbicides, insecticides, fungicides, and fumigants. This study found pesticides a contributing factor to the 50% rise in NHL in children over the past ten years. Other childhood malignancies associated with pesticide exposures include neuroblastoma, Wilms' tumor, Ewing's sarcoma, Gastroschisis, and cancers of the brain, colorectum, and testes. All for the sake of a green lawn.

Conclusion

Tekle's interest-piquing introduction to the Cult of the Lawn illustrates how American homeowners drive the Lawn Industry. She weaves throughout her first few pages of critique allusions to broader questions about the consequences of our nation's bazaar obsession with hedges and herbicides. The title and introduction promise that her work will be about an important, emerging issue. But after page after page of peculiar lawn-maintenance anecdotes, the readers wonders what Tekle is getting at. Brief remarks about "Brown regimes" and public law are interrupted by talk of yard art and social norms. Eventual mention of lawn jockeys hints that Tekle's concern may lie more with what a person puts on their lawn than how lawns pollute our nation's watersheds. The paper ends by concluding that "society can change . . . when the cultural and normative environment demands it." But having never made clear a connection between polluted watersheds and public health, one wonders if the kind of change Tekle wants is for her neighbors to take down the pink, plastic flamingos from their front yard.