

Hanno A. Fenech

Project Researcher: Pesticide-Loading in the Suburban Environment -- *Center for Energy and Environmental Education*

The Wellman Hill Political Science Grant enabled me to accept an internship with Green-Iowa AmeriCorps at the Center for Energy and Environmental Education (CEEE). The project, designed and executed by our team, identified the developmental health risks¹ posed by common lawn pesticides as the impetus to design a public action campaign to raise awareness about their damaging effects and to work towards excluding them from our communities. Pesticide use in agriculture, and its effects on human beings, has been closely scrutinized, yet almost no work has emerged measuring pesticide application in urban/suburban areas. Therefore, as a crucial first step, we collected data within our specified research area, CEEE's home town of Cedar Falls, to establish a baseline estimate of the average fluid ounces of pesticide applied yearly. From this data, we would then be able to build our public action campaign. Thus, a two-step project emerged; (1) formulate a research design which would enable us to measure local levels of pesticide use, and (2) use our findings as the statistical baseline for a public action campaign highlighting the detrimental health consequences this usage entails.

Using the ArcGIS geographic information system software we formulated a geodatabase. A geodatabase is defined as a "database of geographic data, meaning data with X and Y coordinates and where every file will have spatial representation somewhere on the plane."² Simply put, this was the city grid which we put into the software and parceled into neighborhood zones. It was then possible to create a feature class using specific-point data relating to those areas of pesticide application in the city. To collect this point data, the four members of our team divided-up the city zones and walked between individual lots, entering the data into ArcGIS via our smart phones. To ascertain whether or not a property had been sprayed with pesticide, we looked for uniformity in the grass growing on the property's lawn. Variance in grass leaf size, the presence of clover and other broad-leaf strains, and color variance across the lawn were all indicators that lawn pesticide or herbicide was not used. Recording each property's status as "very likely sprayed, likely sprayed, unlikely sprayed, and very unlikely sprayed" we created a city-wide representative map of the properties which used pesticides. From this map, we estimated the number of fluid ounces used in Cedar Falls. Our findings indicated that 2-4 fluid ounces per 1000ft² (of active pesticide ingredients, not total fluid ounces applied) were used yearly on those properties which had clear grass uniformity. Those neighborhood zones with a concentration of high property value, high square footage homes coincided with the highest number of "very likely" pesticide points. We calculated these zones as having 92.4% of properties using pesticides. In neighborhoods with smaller property sizes and values, we still found 62.7%. Our findings indicate that pesticide-loading (the heavy application of lawn chemicals) is common in the urban/suburban environment.

Equipped with the geographic analysis needed, our team turned to the public action campaign. A previous but far-less in-depth pesticide reduction program by the CEEE had been titled "Yards for Kids." While this project was ten years old, we felt that the project's name recognition was still a useful starting point for our new campaign. During the data collection stage we had been referring to the

¹ See *Kids on the Frontline* from the Pesticide Action Network for the most comprehensive compilation of the research on health risks. <http://www.panna.org/sites/default/files/KOF-report-final.pdf>

² Montibeller, Athila Gevaerd. "ArcGIS-Lawn Assessment Report"

project internally as “Lawn Assessment” but now we drafted an official name for the campaign. I came up with “Yards for Kids: Pledge to be Pesticide-Free,” rejuvenating the recognizable title with a new descriptive subtitle and catchy alliteration. The team approved and we moved forward drafting documents and designing (and later printing) a series of window decals and lawn signs for distribution. While the goal of the project is to decrease pesticide use, the summer was drawing to a close. We thus focused less on convincing people *not* to use pesticides, and more on establishing a solid core of businesses and professionals who already did not spray (for health reasons or otherwise). After recruiting a team of pediatricians, biologists, city officials, and park rangers to be an advisory board, we reached out to local business that did not use pesticide on their lawns. We spoke to many businesses, distributed our information and findings, and built the foundation of a much stronger push toward pesticide-free living.

In conclusion, I am eternally grateful to the Wellman Hill Political Science Internship Grant for enabling me to be a part of such a worthwhile project. This internship allowed me to work at the intersection of my two academic disciplines and personal passions; the environment and politics. While this campaign is by no means complete, I know my personal contribution to its foundation was a crucial first step and, I hope, leads to a decrease in the developmental health problems caused by pesticides.

Project Team

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Further Readings

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