

# Project Description: Reducing Toxic Exposures in Community Gardens in North Carolina

This project will be in collaboration the Research Translation Core of [Duke's Superfund Research Center \(SRC\)](#). We are initiating a long term project to help participants in community gardens in North Carolina understand and reduce their potential exposure to pesticides and soil contaminants. In a growing trend across the United States, community, school, faith-based, and food pantry gardens are being developed in urbanized areas, often on abandoned industrial or residential sites or lots used previously for dumping. These urban and rural spaces carry with them histories of contamination from heavy metals, poly-cyclic aromatic hydrocarbons, and other contaminants. While these gardens have the potential to provide people with food and a direct connection to the natural world, exposure to soil contaminants through uptake in food plants or direct ingestion of soil particles can be of concern. There is also concern about potential health effects from exposure to pesticides that may be used in these gardens to control weeds, insects, and nematode pests.

This summer internship will support the development of the Duke Superfund Center's community garden engagement project through conducting literature reviews, helping to define the geographic extent of these issues in NC, and creating a resource inventory for community gardeners and other stakeholders. Specifically, the position will support:

- Literature reviews related to community and school gardens evaluating:
  - o linkages between previous uses of sites and contaminants expected at the sites;
  - o common pesticides used in school and community gardens;
  - o The health impacts of the most common soil contaminants and pesticides and how those may vary amongst adults, children and fetuses.
  - o Most common pathways to exposure to both soil contaminants and pesticides.
- Working to define the extent of these issues in community garden sites throughout North Carolina and the range of contaminants that are involved (GIS mapping of sites overlaid with maps of contaminants; key actor interviews, etc.);
- Conducting an inventory of the existing resources that communities might access to better understand the contaminants that are present in their garden soils. This includes resources on potential health impacts and how to minimize exposure. We plan to make recommendations about potential gaps in these resources that the Duke Superfund Center could fill using information gained from literature review, key actor interviews, or other methods.

## Student Skills Desired

Some or all of the following skills or experience are desired: agricultural or community garden experience, geospatial analysis (e.g., ArcGIS), statistical analysis, ecotoxicology or toxicology, and public and/or environmental health.

Interested? Contact: [Elizabeth Shapiro-Garza](#) or [Bryan Luukinen](#)