THE UNIVERSITY OF CHICAGO
DATA SCIENCE INSTITUTE

Pesticide Action Network (PAN): California Pesticide Usage Analysis

Currently, California accounts for ~20% of national pesticide use (Californians for Pesticide Reform, n.d.), with many of these pesticides classified as high-risk. This raises public health concerns, compounded by research indicating ethnic and geographical disparities in pesticide exposure across the state (Cox and London 2025). Additionally, children's increased vulnerability to the negative effects of pesticides underscores the importance of studying pesticide use near schools (US Environmental Protection Agency 2015).

We analyzed data from the California Pesticide Use Report, US Census Bureau, and California State Geoportal to identify high-risk communities and school districts, alongside five year trends within districts.

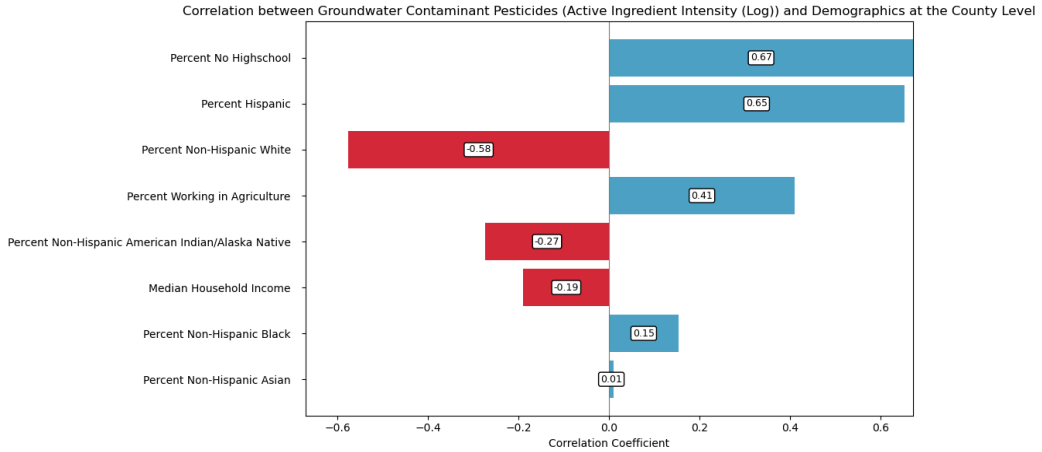

Figure 1: Correlation between Groundwater Contaminant Pesticides and Demographics at the County Level (2022)

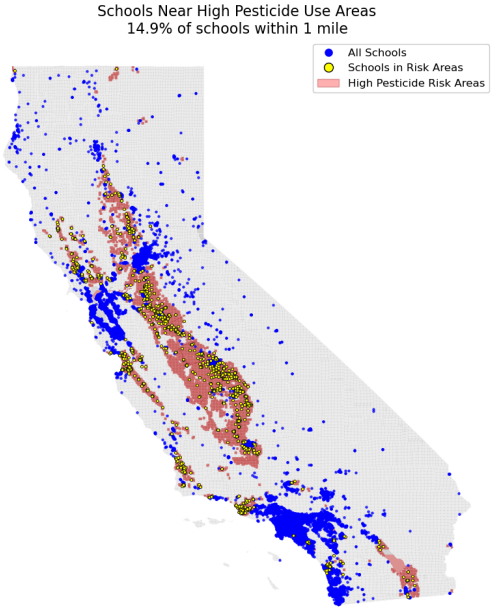

Figure 2: Schools Near High Pesticide Use Areas, 2022

We discovered that demographic groups living in counties most affected by high-risk pesticides were Hispanic populations, those without high school degrees, and those employed in agriculture; the converse was found for non-Hispanic white populations. (Figure 1).

Further, school districts around the Central Valley region experienced the most intense exposure, and 14.9% of California public schools were found to be located within a mile of intense pesticide application areas (Figure 2).

Lastly, although pesticide use declined steadily from 2017 to 2022, exposure disparities persist, highlighting the need for further research. Our results are accessible through our visualizations dashboard, which will be available to PAN for use.