

## **Using a community science participation program (VegeSafe) to measure, evaluate risk and provide advice on metal contamination in Sydney backyards.**

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This study evaluates the extent of metal contamination in Sydney residential gardens using data collated from a university community-science program: VegeSafe. Despite knowledge of industrial contamination amongst scientists, the general public remains under informed about the potential risks of exposure from legacy pollution and the former use of leaded petrol and paints. Over 1000 samples were collected from front yards, drip line areas (adjacent to the house), back yards and vegetable gardens.

As anticipated, the primary metal of concern was lead. Mean soil lead concentrations were 413 mg/kg (front garden), 707 mg/kg (drip line), 266 mg/kg (back garden) and 301 mg/kg (vegetable garden). Forty percent of residences exceeded the Australian soil health investigation level (NEPM 2013) of 300 mg/kg for lead in one or more garden areas, while more importantly, acute lead contamination (>1000 mg/kg) was identified in 15 % of Sydney residences. The incidence of highest soil lead contamination was typically, though not exclusively, greatest in the inner city with concentrations moving towards known background values of 20-30 mg/kg at 30-40 km from the city.

Public engagement with the VegeSafe community science program resulted in useful outcomes—we were able to disseminate environmental health messages and in numerous cases owners replacing contaminated soil, building raised beds containing clean soil.