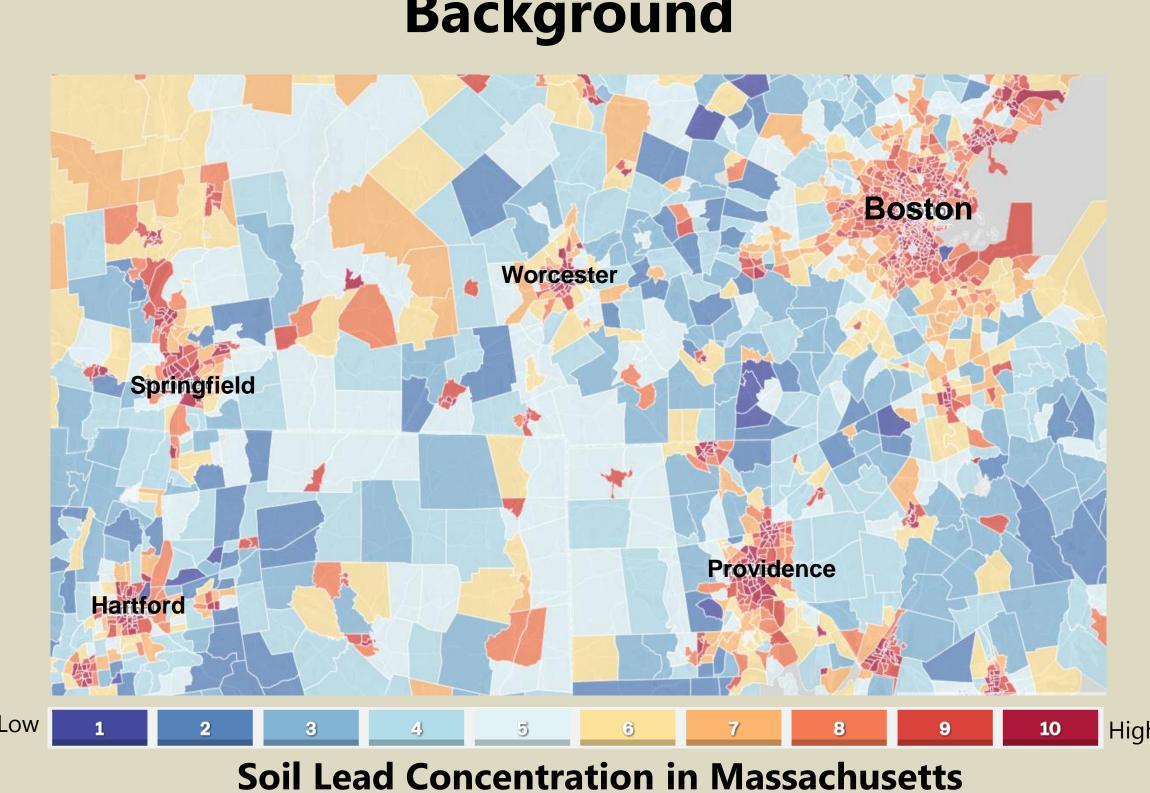


Project Goal

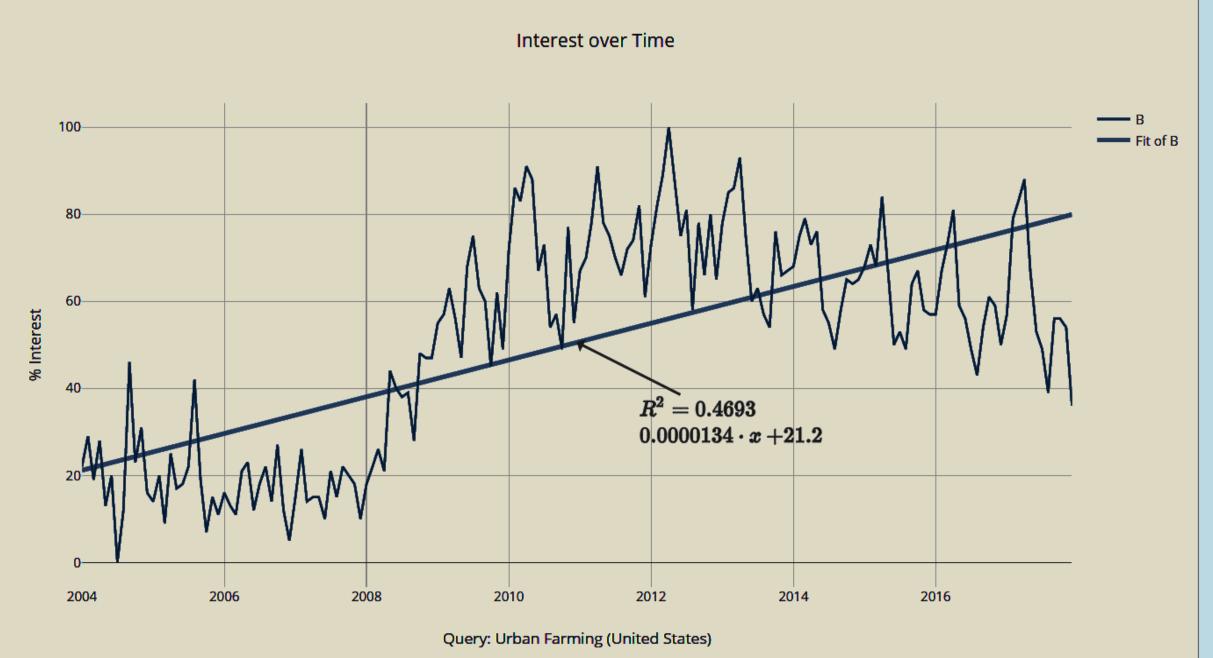
Our goal is to provide an easily accessible tool for urban farmers to learn about remediating lead contaminated soil.

Introduction To Issue

The soil in urban areas is often heavily contaminated with heavy metals, such as lead. These metals come from a variety of sources, such as car exhaust and old paint chips. Urban farms must take steps to make sure that food grown on these lands do not contribute to lead poisoning. Background

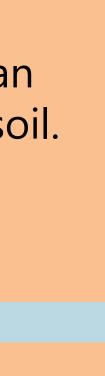


Urban farming is becoming more and more popular in the US.



Lead in the home garden and urban soil environment. (n.d.). Retrieved November 05, 2017, from https://www.extension.umn.edu/garden/yard-garden/soils/lead-in-home-garden/ Forte, J., & Mutiti, S. (2017). Phytoremediation Potential of Helianthus annuus and Hydrangea paniculata in Copper and Lead-Contaminated Soil. Water, Air, & Soil Pollution, 228(2). doi:10.1007/s11270-017-3249-0 Alpaslan, B., & Yukselen, M. A. (2002). Remediation of Lead Contaminated Soils by Stabilization/Solidification. Water, Air, and Soil Pollution, 133(1-4), 253-263. doi: https://doi.org/10.1023/A:1012977829536 Jawad, I. T., Taha, M. R., Majeed, Z. H., & Khan, T. A. (2014). Soil Stabilization Using Lime: Advantages and Proposing a Potential Alternative. Research Journal of Applied Sciences, Engineering and Technology, 8(4), 510-520. doi:10.19026/rjaset.8.1000 O'Day, P. A., & Vlassopoulos, D. (2010). Mineral-Based Amendments for Remediation. *Elements (Quebec, Quebec)*, 6(6), 375–381. http://doi.org/10.2113/gselements.6.6.375 Voglar, D., & Lestan, D. (2012). Electrochemical treatment of spent solution after EDTA-based soil washing. Water Research, 46(6), 1999-2008. doi:10.1016/j.watres.2012.01.018 Lead in Residential Soils: Sources, Testing, and Reducing Exposure. (n.d.). Retrieved November 06, 2017, from https://extension.psu.edu/lead-in-residential-soils-sources-testing-and-reducing-exposure Understand the News. (n.d.). Retrieved December 05, 2017, from https://www.vox.com/

Leading the Way to Safer Urban Farms Harrison March, Max Frohlich, Alexis Boyle **Advisors: Professor Kristin Wobbe, Professor Elisabeth Stoddard**





Solution Legend

EDTA – A chemical used to treat lead poisoning.

Soil Dilution – Mixing contaminated soil with clean soil.

Sunflowers – A hyperaccumulator that absorbs lead.

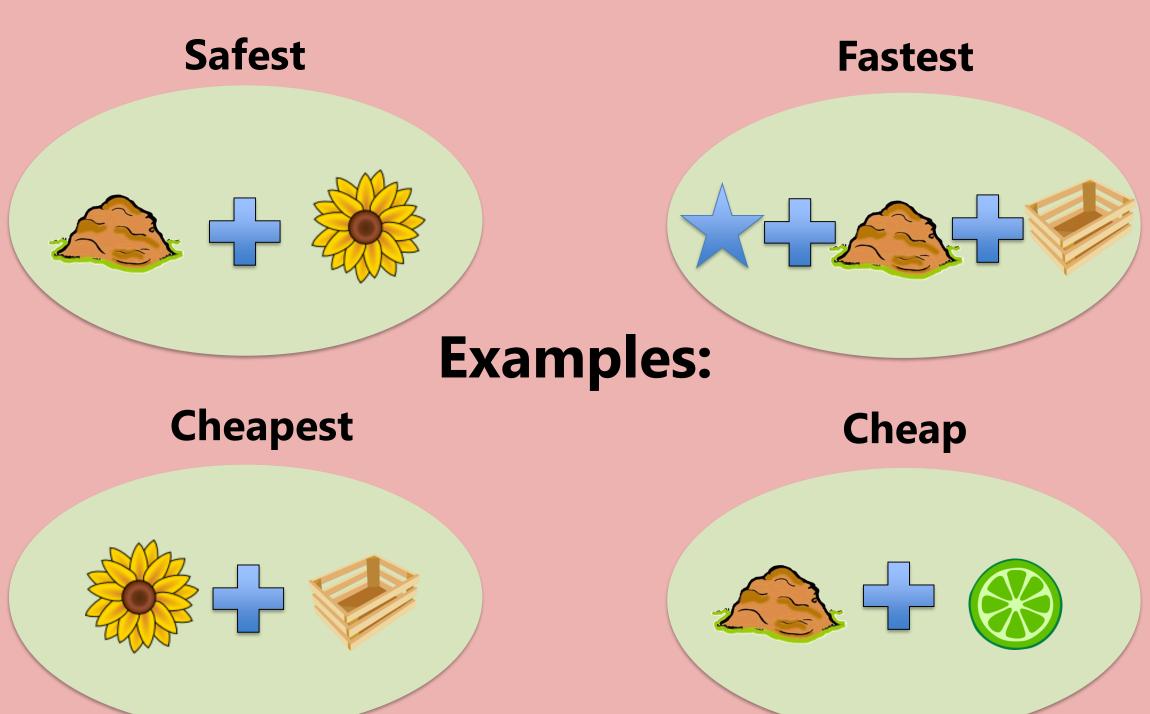
- **Lime** Keeps lead in the soil, not in the plants.
- Raised Beds An insulated bed of soil.

Benefits and Drawbacks of Solutions For more details, visit our website.

- Very fast
- Expensive and hazardous
- Safe
- Labor intensive
- Easy, cheap, and sustainable Slow
- Easy and cheap
- Slow and hazardous
- Easy, cheap, and fast
- Doesn't remove lead from soil

Combining Treatment Methods

We recommend combining more than one of these methods for maximum efficacy.

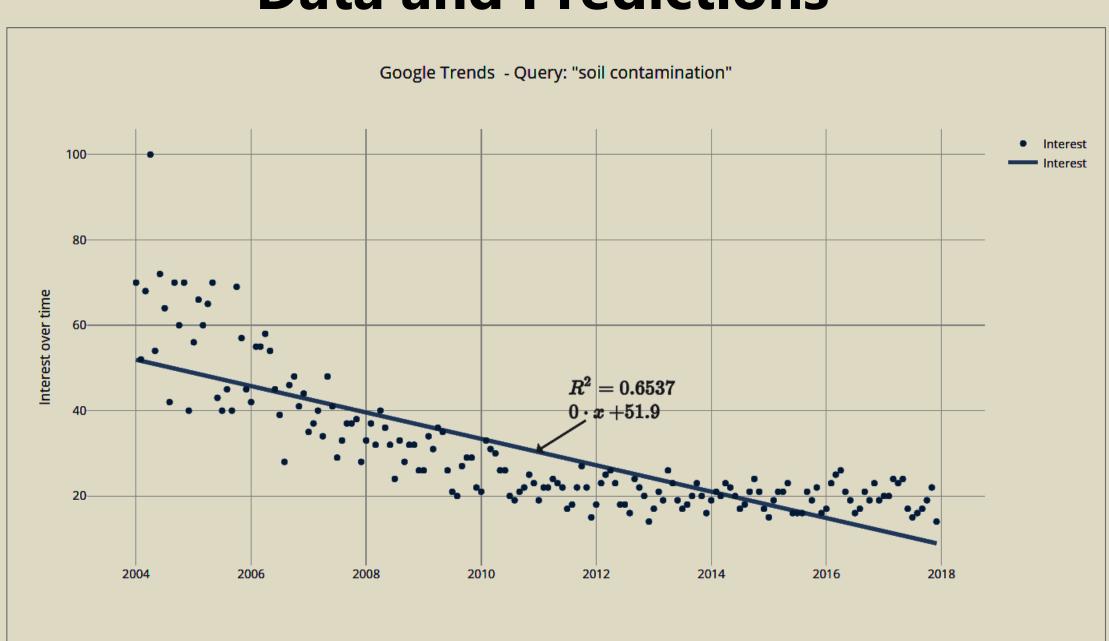


References





Information on remediating contaminated soil is often buried in technical documents or research papers and by compiling and simplifying this information, we hope to increase awareness of this issue. Along with this, the interactive tool on our website will assist any urban farmers looking for a solution to remediating lead contaminated soil.



Currently, public interest in soil contamination is lowering, but we hope that by bringing awareness to this issue, we can change that.

Home - Springer. (n.d.). Retrieved December 05, 2017, from https://link.springer.com/content/pdf/10.1023/A:1005032504487.pdf 62-33-9. (n.d.). Retrieved December 05, 2017, from https://pubchem.ncbi.nlm.nih.gov/compound/edetate%20calcium%20disodium#section=Information-Sources Lead in Residential Soils: Sources, Testing, and Reducing Exposure. (n.d.). Retrieved December 05, 2017, from https://extension.psu.edu/lead-in-residential-soils-sources-testing-and-reducing-exposure

QR Code for Web Tool

Urban farmers can use our web tool to decide which of these solutions to use based on their priorities.

Project Outcome

Data and Predictions