

Urban Agriculture is good



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Ecosystem Services

- Habitat
- Primary productivity
- Gas regulation
- Waste treatment



Sowing Seeds in the City, Ecosystem and Municipal Services,
Brown, MacIvor, and Hodges - Snyder

Urban farmers use
compost
If they can't get it,
they make it



Compost 101: Growing Power Style

Food Waste

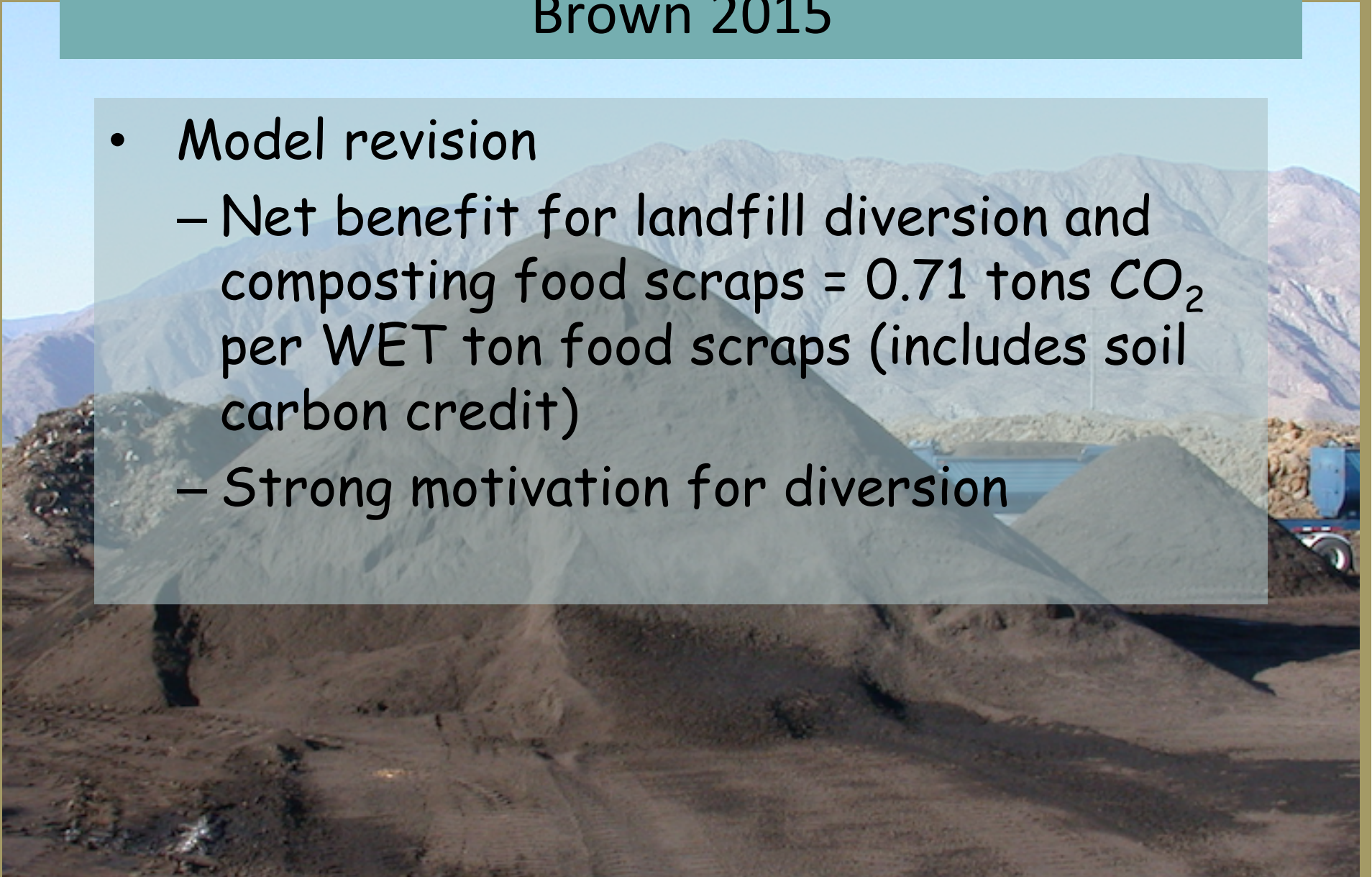
It all starts with food waste – food waste literally by the truck load. Not only does Growing Power compost all of our farm waste in Milwaukee, Merton, and Chicago, but we also pick-up food waste from Maglio's Produce, Beans and Barley, Garden Fresh, and Outpost Natural Foods Cooperative in Milwaukee, just to name a few.



EPA WASTE Reduction Model

Brown 2015

- Model revision
 - Net benefit for landfill diversion and composting food scraps = 0.71 tons CO_2 per WET ton food scraps (includes soil carbon credit)
 - Strong motivation for diversion



Human Health

Food Security

Increased physical activity

Improved diets

Community strength

Sowing Seeds in the City, Human Dimensions, Hodges - Snyder, MacIvor, and Brown



Food Security

- 49-93 million people are food insecure
 - 38% of public school students eligible free or reduced lunch 2000
 - 51% eligible in 2013



Lead is Bad

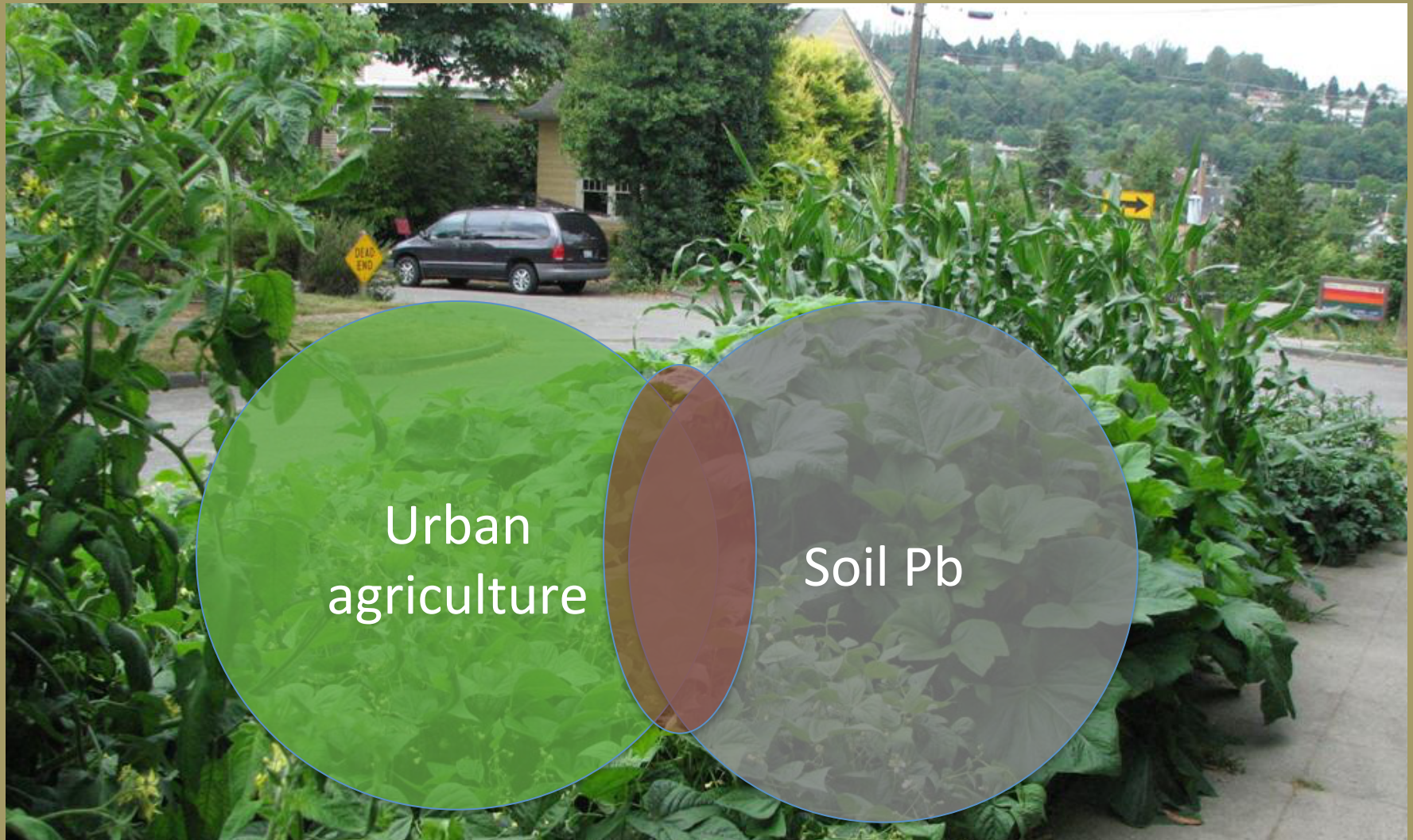


Human health

- 535,000 ($> 5 \mu\text{g dL}^{-1}$)
 - Number going down
 - Decrease of 9% in 10 years despite decrease in level of concern from 10 to $5 \mu\text{g dL}^{-1}$



What is the significance of the intersection?



Safety of urban soils

EXCLUSIVE METRO



Why NYC's toxic community gardens may give you cancer

By Gary Buiso

May 4, 2014 |



READ NEXT: [Baristas feeling the grind](#)

The New York Times

Dining & Wine

WORLD U.S. N.Y. / REGIO BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION
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High Lead Found in City-Sourced Eggs



Michelle V. Agna/The New York Times

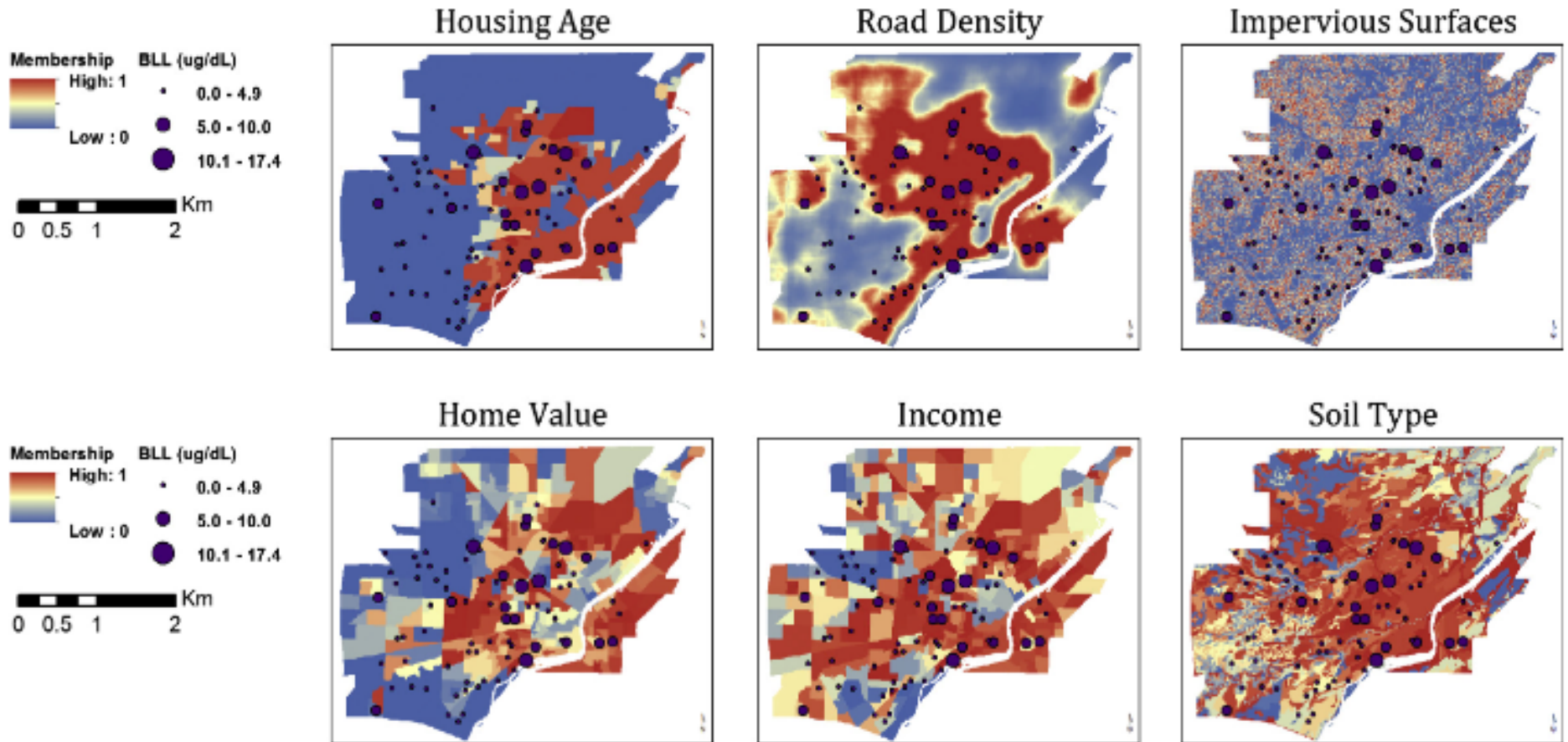
Homeowners who keep chickens in their backyards have little way of knowing whether their eggs might be contaminated unless they have them tested themselves.

General consensus: Direct ingestion



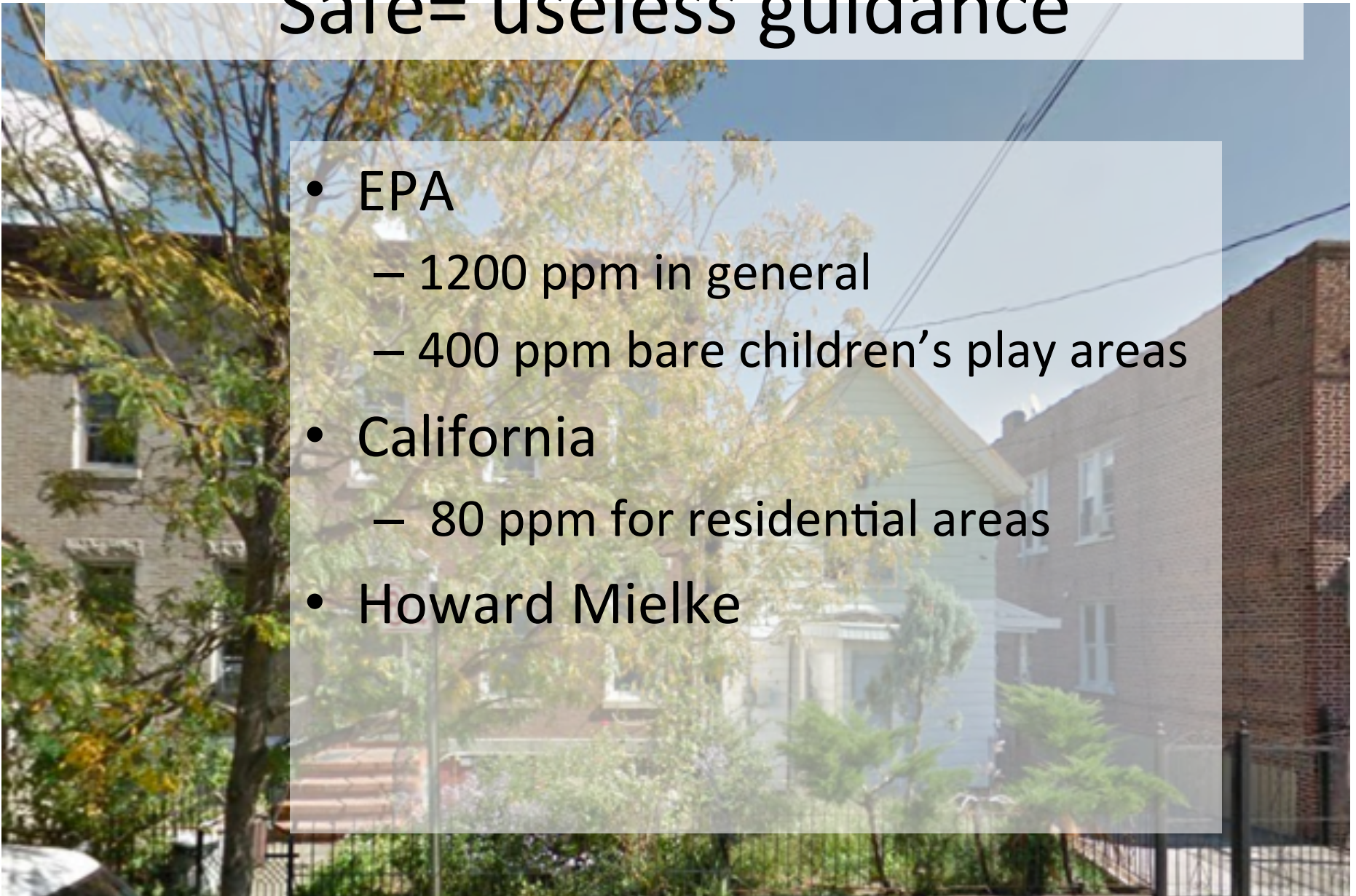
How is soil Pb related to blood Pb in urban areas?

- Stewart et al., 2014 – fuzzy sets



Safe= useless guidance

- EPA
 - 1200 ppm in general
 - 400 ppm bare children's play areas
- California
 - 80 ppm for residential areas
- Howard Mielke



Residuals based soil amendments
Obvious answer
Every city has the ingredients



Food Scraps

30-60 kg per person

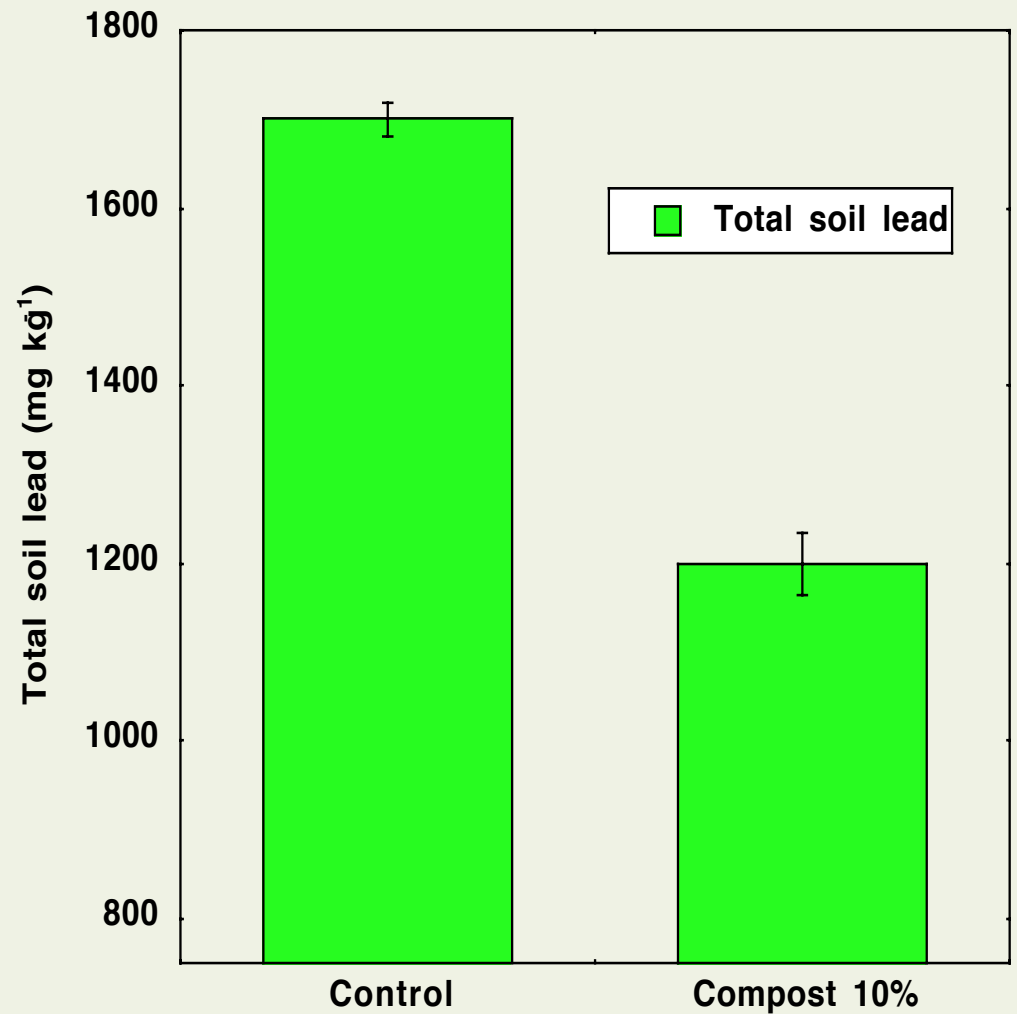


Municipal biosolids 30 kg per person



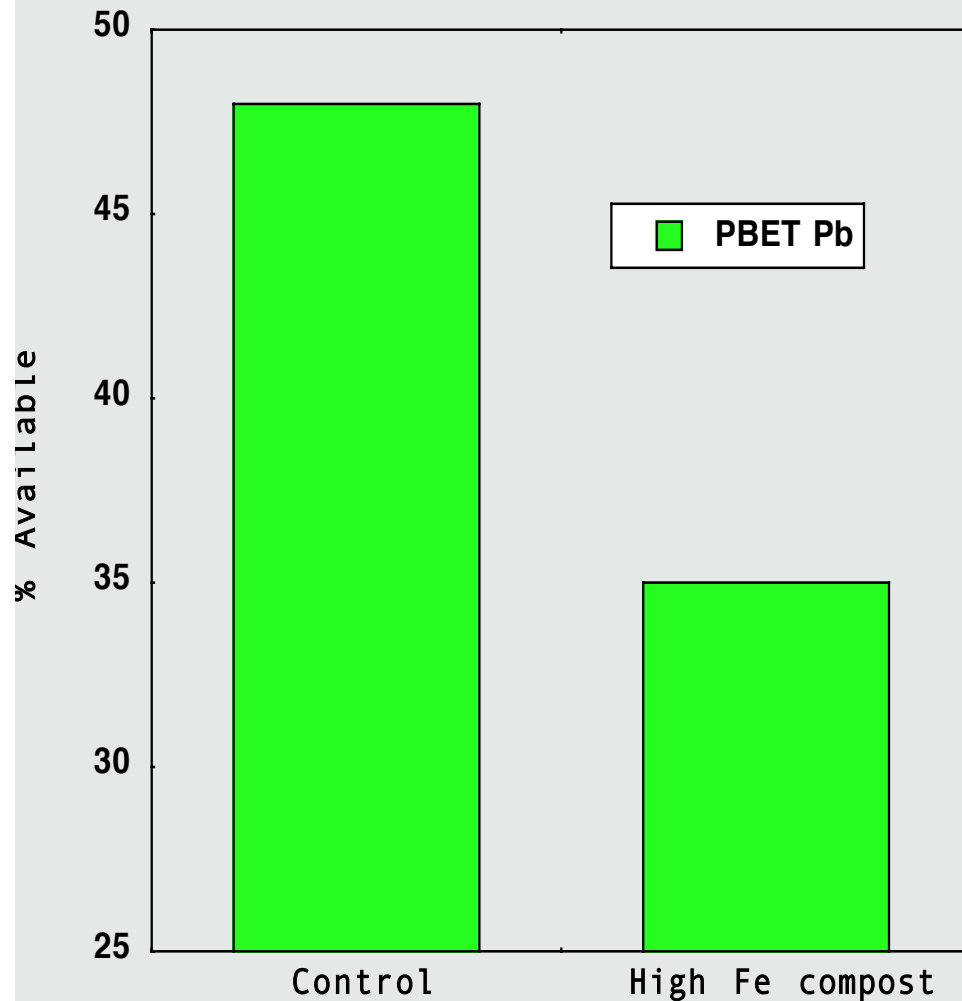
Compost dilutes soil Pb concentrations

Brown et al., 2012

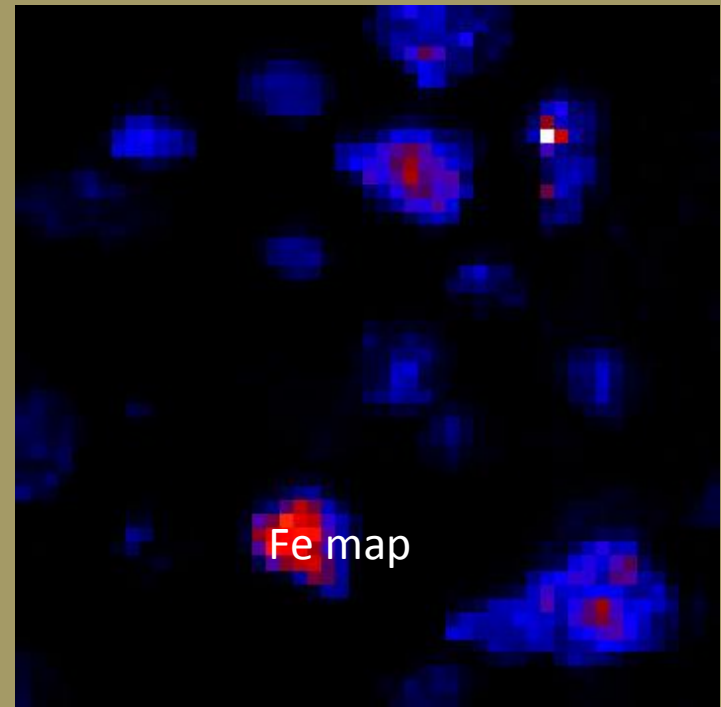
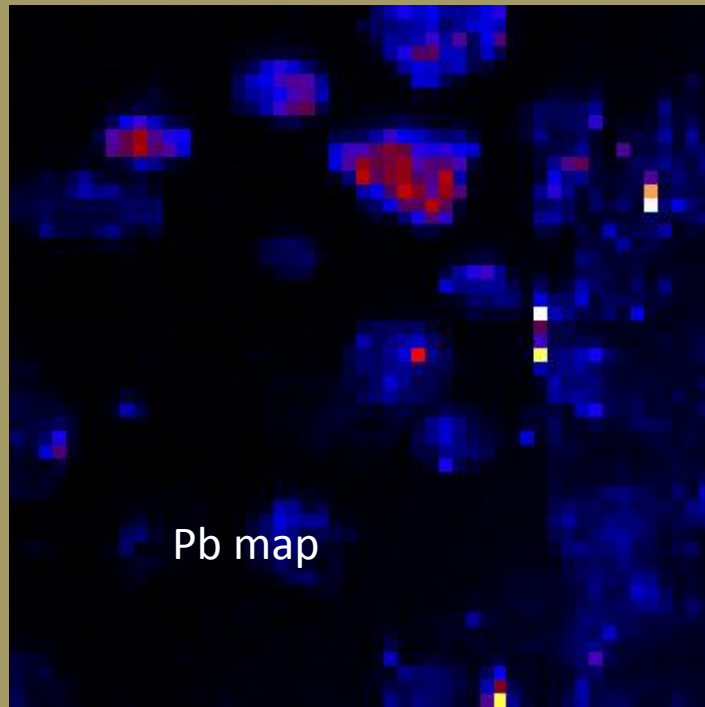


In certain cases, compost can also reduce absolute availability Pb

Brown et al., 2012



High Fe compost FROM PHILADELPHIA showed significant conversion (up to 100%) to sorbed Pb



XAS- x-ray absorption spectroscopy

Bulk spectra of control showed a mix of anglesite, cerrusite and leadhillite

Pb

- Will be present whether or not you grow vegetables
- Is growing vegetables going to increase the hazards associated with this contaminant?



And what about those other benefits?



So rather than stop the shovel- Provide the tools

