The (Potential) Risks of Urban Farming

Nicole Penichet, PhD
Geosyntec Consultants
Urban Agriculture

- Community gardens
- Backyards and balconies
- School gardens
- Educational farms
- Recreational farms
- Peri-urban
Sources of Contamination

- Previous industrial use
- Paint particles
- Storm water runoff
- Atmospheric deposition
- Wood preservatives (CCA treated lumber)
- Contaminated fill/composts
- Waste disposal
- Bonfires
- Pet feces
- Sewage sludge
- Asbestos
### Contaminated Media

- **Heavy metals**
  - Lead
  - Arsenic
  - Zinc
  - Mercury
  - Copper
  - Cadmium

- **Organic compounds**
  - PAHs, PCBs, pesticides

- **Pathogens**

- **Asbestos fibers**
Pathways of Exposure

- Incidental ingestion of soil from surface of produce or from hand-mouth activities
- Dermal contact
- Irrigation water is likely very minor

Wash your fruits/veggies!
Pathways of Exposure

- Consumption of soil by animals used for food (milk, eggs)
- Consumption of contaminated grass or vegetation by livestock
- Contaminated feed

High Lead Found in City-Sourced Eggs

By JULIE SCELFO   OCT. 8, 2012
Bioavailability of chemicals depends on soil properties
- (soil pH, organic matter, clay content, plant species-specific)

Uptake through roots, but some root veggies do not (e.g., carrots)
- Even if the roots take up lead, translocation to fruit is very low
- Test soil and GW if possible
- Excavation & soil replacement (best, expensive)
- Install barrier fabric
- Raised beds
- Amend soil with compost from known source
- Plant “resistant” crops
- Follow labels for pests/fertilizers
- Gloves, protective clothing
- Wash hands
- Wash produce
So...what are the risks??

- The risks, if any, primarily come from the actual farming, not the ingestion of produce
- Poor plant uptake of Most chemicals/metals
- Chemical residues are generally very low
- City water used for Irrigation purposes
- Limited exposure
Thank You!

Questions/Comments

Nicole Penichet
npenichet@geosyntec.com