

Healthy Gardening in Urban Soils

Some Rain Check activities may expose soil that has been previously covered by concrete, asphalt, or grass. Please review this information to help reduce/avoid unhealthy exposures to potential toxic contaminants in soil.

Urban Soil

- Gardening in cities often means working on land that had been an industrial site or close enough to be contaminated by a former industrial site. Many urban areas are also adjacent to high traffic roadways where lead may be present in the surface soils due to historic leaded-gasoline use.
- Urban soils may be contaminated with toxic contaminants at levels that pose health risks from exposure. Common urban soils contaminants may include heavy metals (e.g., lead, arsenic, cadmium, chromium, copper, zinc), organic compounds (e.g., polycyclic aromatic hydrocarbons, chlorinated solvents, gasoline/oil constituents), and pesticides.
- Children, due to their smaller size, hand-to-mouth and play habits, and their closer proximity to surface soils (than adults), are most at risk for unhealthy exposures to soil contaminants, particularly lead.
- When Rain Check contractors uncover previously covered soils (e.g., with cement or asphalt or other impermeable layer), they add compost to existing soils which is good for your plants and good for you. The compost reduces the mobility of toxic contaminants and makes the contaminants less available for both people to take up into their bodies, and plants to absorb.

There are easy steps to take to reduce your exposure to potential soil contaminants and allow for healthy gardening in cities. Follow these Best Practices for Healthy Gardening in Urban Soils:

General Best Practices

- Avoid bringing contaminated soil into the home. Before going indoors, take some time to clean tools, clothing and shoes (or use shoes specific for gardening left near the door). If clothes are excessively soiled wash them promptly in a separate load. No need to be extreme but take precautions.
- Wash hands immediately after gardening and before eating to avoid accidentally eating soil.
- Don't let children play in exposed soil. Watch children and stop them from eating soil through hand-to-mouth play.
- Keep pets from tracking urban soils into the home.
- Avoid growing food crops close to the road or along the drip lines of buildings where higher levels of contaminants are expected to be present in the soil.
- Keep soil pH at near neutral levels.
- Wear gloves as a barrier between your hands and the soil.
- Throw away the outer leaves of greens, especially from the bottom of plants, before washing.
- Peel vegetables, especially root vegetables, which are in direct contact with soil.
- Wash off excess dirt from crops.
- Wash produce using running water.
- Test your soil (see reverse).

Urban Gardening Best Practices

- Grow edibles in raised beds with compost. If you cannot use raised beds, add a thick layer of organic

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How To Test Your Soil

Test your soil to be informed about the risks that soil contaminants may pose to you and your family's health. It's easy! The instructions below are focused on collecting samples for lead analyses but are applicable should you want analyses for other contaminants (e.g. arsenic, zinc). You can also have your soil tested for nutrient levels and soil acidity.

1. Identify sample collection areas (draw a property map for future reference!).

Some examples of where to collect soil for sampling include

- A. Where you plan to grow food crops,
- B. High traffic areas,
- C. Areas with no vegetative (i.e., grass) cover, and
- D. Areas where children play

2. Collect a few scoops of dry soil (3-6 ounces) and place it in a foil pan, plastic bag, or similar container. Remove any rocks and pebbles and any non-soil debris (e.g., grass clippings, worms). Mix well. Label the bag for reference with location, sample collection time/date, a unique sample identifier, and the name or initials of who collected the sample. Mark the location on your site map for future reference.
3. For urban gardening purposes, take soil samples from roughly the root depth of the vegetable or plant. For exposure to surface soils (children's play area, bare soils), collect samples from top 1-2 inches.
4. Take discrete samples from individual locations on your property to understand where differing levels of contamination exist. To understand the average levels of contaminants in soil at your property, collect a scoop of soil from multiple locations, then vigorously mix all scoops of soil together in one container. After mixing, collect about 3-6 ounces from the homogenized soil into one sample container and label the sample as a composite sample for the area sampled. Mark on your map where each scoop was collected. The illustration below provides an example of a composite sampling procedure.
5. Print and complete the Soil Sample Submission Form – Individual Analysis found in <https://agsci.psu.edu/aasl/soil-testing/environmental> from Penn State Extension and check off the analysis requested.
6. Mail soil sample, payment and completed submission form to Penn State Extension at address on the form.

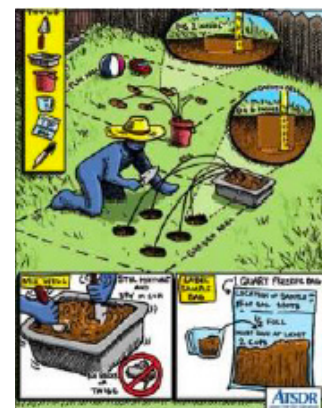


Figure 1: Soil sampling cartoon

For more information, visit these sites:

- <https://www.phila.gov/guides/lead-guide/>
- https://clu-in.org/download/misc/urban_gardening_fact_sheet.pdf
- <http://blogs.cornell.edu/healthysouils/>

If you still have any concerns regarding toxins in your soil, we recommend you choose another Rain Check option.

Note that you may also purchase a soil fertility testing kit from Penn State's Philadelphia County Soil Extension Service (see <https://extension.psu.edu/soil-testing#section-1>) and follow the sampling instructions in the kit.