

HEALTHY SOILS: Urban Gardening and Air Toxics in North Portland, Oregon

The Oregon Health Authority (OHA) has received several questions from private citizens, daycares, schools and neighborhood gardeners about gardening and eating foods grown within gardens one half mile away from Uroboros Glass in north Portland. This factsheet provides answers to common questions. A technical brief is also available for more information.

There are three things to know:

1. There are many health benefits to eating fresh fruits and vegetables from your garden.
2. In all urban areas, it is important to consider past and present uses of, and around, your garden site and test your soil accordingly.
3. All urban gardeners should adopt best practices for healthy gardening referenced in this document and the Healthy Gardening Factsheet. Washing hands and garden grown food is one of the most important things that all gardeners can do to prevent and lower risks.

Is it safe to eat fruits, vegetables and herbs grown within one half mile of Uroboros Glass?

Yes. In general, vegetables should be washed or peeled before eating them, and anyone working or playing in soil should wash their hands before eating or drinking. The main risks from your garden are through eating the soil.

Is the soil within one half mile from Uroboros Glass contaminated?

Based on the soil data collected by the Department of Environment Quality (DEQ) in late February 2016, OHA concludes that the levels of metals in soil around Uroboros Glass are *too low to harm the health of people in the surrounding community*. OHA analyzed 27 soil samples collected by DEQ, east of the Uroboros Glass facility. Sampling was limited to this area because of limited availability of soil nearer the facility. OHA focused on samples that were collected at shallow depth (0-6 inches) because they represent what people in the area would likely be exposed to. The samples were collected from public spaces. Samples were also collected from the Albina Community Garden. It did not include testing of garden grown food or plants. DEQ has maps that show where samples were collected.

All soils contain some levels of metals, minerals and microorganisms. Arsenic, lead, cadmium and other metals occur naturally in soils. In Oregon, some metals occur in the soil at higher levels because of volcanic activity in the state's landscape. It is also common for soil in city neighborhoods to have contaminants that come from past and current uses of the land. A few examples of where contaminants can come from include: building materials, vehicles and roadways, pesticides/herbicides, and industrial and commercial uses nearby.

Is the soil in my yard or garden safe?

Gardens tend to be a mixture of soil, compost, and other amendments. This makes garden soil very different from soil found in parks or your lawn. Garden soils that are amended with compost create healthier plants and make it harder for contaminants to get absorbed. The only way to know what is in your garden soil is to test for the contaminants of concern.

A person must come into contact with, or be exposed to, a high enough level of contamination in soil for it to cause harm to their health. To be exposed to metals in soil, a person must swallow the contaminated soil. This is of most concern for young children who play on the ground, in dirt, and frequently put their hands in their mouths. Children and adults should wash their hands before eating and after playing outdoors.

Are my pets at risk (chickens, goats, dogs, etc.)? How can I keep them safe?

Like people, animals may be exposed to metals in soil through eating contaminated soil. Talk to your veterinarian if you have questions or concerns.

I want my soil tested. Where, how and what should I test for?

There are [laboratories serving Oregon](#) that will test soil for heavy metals. They will provide you with best practices for sampling your soil. It is common for soil in urban areas to have contamination from heavy metals, petroleum products, pesticides and other pollutants. OHA's [Healthy Gardening Factsheet](#) and [website](#) provide additional information.

How do plants get contaminated?

Water splashing onto plants ("soil splash") can move soil onto plant surfaces. Most garden plants do not absorb metals at levels that are harmful to health. There are many factors that can influence a plant's ability to absorb heavy metals. Plant species, soil properties, climate and plant management practices all play a part. Using compost and organic matter (amendments) can help to lower the ability for plants to take up contaminants at levels that are harmful to health. Washing plants and peeling produce is always recommended to remove soil and other contaminants that can settle on plants from soil splash or the air.

How can I reduce exposures to metals in my garden?

There are steps you can take to help reduce metal contamination in your soils. You can:

- 1- Use clean soil and compost.
- 2- Maintain soil nutrients and neutral pH.
- 3- Cover (or mulch) bare ground where soil is exposed.
- 4- Test your soil and add the right amendments.
- 5- If contamination is a concern, build raised garden beds (avoid treated wood).

To reduce soil ingestion exposure:

- 1- Do not eat soil.
- 2- Avoid overhead watering. Water plants near the soil to avoid soil splash.
- 3- Take off shoes and do not track soil into your home.
- 4- Wash your hands.
- 5- Wash and/or peel garden grown foods.

For additional guidance, reference OHA's [Healthy Gardening Factsheet](#) and [website](#).