



# Growing garden edibles in urban and industrial areas: a guide

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## Soil conditions

Soil in some communities naturally contains different levels of metals and chemical compounds. Urban areas, in particular, may contain higher levels of soil pollutants due to heavy traffic and other sources of environmental pollutants such as local industrial activities.

There are two main ways in which humans can be exposed to soil pollutants.

- The first way is when someone eats or breathes in small amounts of soil.
- In addition, some plants may absorb contaminants from the soil or pollutants can deposit on leaves and other surfaces of plants which can then be ingested.

Despite possible soil pollution, growing an edible garden in urban areas is still possible. This factsheet will give you tips to reduce contact with pollutants in soil and on the produce grown in your garden.

## Starting an edible garden

- Locate your garden away from old painted buildings, fences, areas where water runoffs may pool, and heavy traffic areas.
- In industrial areas, consider growing produce in raised garden beds built with untreated lumber.
- Use a layer of landscape fabric or organic matter on the bottom of the raised bed to create a barrier between the roots and existing native soil.
- Fill the raised beds with high-quality “clean” commercial (brought-in) soil.
- Add commercial or store bought manure, compost, fertilizers or other amendments to improve the quality of the soil.





## Harvesting the produce

- Wear gloves to maintain a barrier between your hands and soil or wash your hands well after gardening and before eating.
- Use clean containers for harvesting. Clean the soil out of the containers and wash them with warm soapy water between uses.
- Avoid bringing soil indoors by cleaning your gardening tools, removing gloves, outer clothing and shoes before going inside.
- Wash dirty gardening clothes separate from regular laundry.
- Be mindful of children helping in the garden who could potentially ingest unwashed produce and soil.



## Post-harvest

- Use running potable (drinking quality) water to thoroughly wash all produce before eating.
- Remove soil from all produce, especially root vegetables, which are in direct contact with the soil.
- Peel root vegetables and remove the outer leaves of leafy plants.



## Choosing crops

Plants that bear fruit (for example: tomatoes, apples, squash, berries) are the most appropriate for planting in potentially polluted soil, as the edible part of these plants are less likely to have direct contact with the soil. The fruit will also be the last part of the plant to absorb pollutants from the soil.

Root vegetables, onions, and garlic are the least appropriate for planting in potentially polluted soil, as the edible part of these plants has direct contact with the soil.

Leafy greens require careful washing after outer leaves are removed due to potential for dust and soil to get trapped in the leaves.

## **SOIL TESTING**

Research shows that when proper steps are taken, there is little health risk from eating plants grown in potentially polluted soil unless levels are extremely high. If you think there are high levels of pollutants in your soil, you can have the soil tested by a certified laboratory. The lab will need to know which chemicals you are concerned about so they can do the right testing. Each laboratory may have different requirements for collecting and receiving soil samples, so it is best to contact them before collecting your sample. Once the testing is complete, you will need to have a third-party consultant interpret the results to determine if the levels are above the limit that is safe for growing produce. This type of soil testing is expensive and not usually needed when you are following best practices for growing edible gardens.

Whether you establish a new edible garden or prefer to continue growing your produce in existing gardens, it will be beneficial to add to your soil the appropriate amendments. Healthy and rich soils can improve crop yield and bind to pollutants making them less available for crop uptake. To find out what type of amendments you may need, you can request a typical agriculture soil test for nutrients, pH, and organic matter. This type of soil testing is less expensive than testing for pollutants.

## **LABORATORIES FOR SOIL CONTAMINATION TESTING**

Research and Productivity Council (RPC)  
Fredericton, NB  
(506) 452-1212  
info@rpc.ca

Saint John Laboratory Services Ltd  
Saint John, NB  
(506) 635-4938  
sjls@nb.aibn.com

## **LABORATORIES FOR TYPICAL AGRICULTURE SOIL TESTING**

PEI Analytical Laboratories (PEIAL)  
Charlottetown, PE  
(902) 620-3300

Nova Scotia Analytical Laboratory  
Bible Hill, NS  
(902) 893-7444

*Note: There may be other laboratories in your area able to offer soil testing.*

# Additional resources

## GARDENING GUIDES

Manitoba Public Health- Gardening and Soil Contaminants:

[https://www.gov.mb.ca/health/publichealth/environmentalhealth/docs/gardening\\_soil\\_contaminants.pdf](https://www.gov.mb.ca/health/publichealth/environmentalhealth/docs/gardening_soil_contaminants.pdf)

Vancouver Coastal Health- Guide for Planting, Growing and Harvesting Fresh Produce to Reduce Health Risk

<https://vancouver.ca/files/cov/guide-to-reduce-health-risks-urban-farming.pdf>

US Environmental Protection Agency - Reusing Potentially Contaminated Landscapes :

Growing Gardens in Urban Soils [https://www.epa.gov/sites/default/files/2014-03/documents/urban\\_gardening\\_fina\\_fact\\_sheet.pdf](https://www.epa.gov/sites/default/files/2014-03/documents/urban_gardening_fina_fact_sheet.pdf)

Minnesota Institute for Sustainable Agriculture (MISA)- Urban Gardens and Soil Contaminants

[https://misadocuments.info/Urban\\_Soil\\_Contaminants.pdf](https://misadocuments.info/Urban_Soil_Contaminants.pdf)

## SOIL QUALITY AND TESTING

New Brunswick Department of Agriculture, Aquaculture and Fisheries- Soil Sampling – The Key to Effective Nutrient Management Planning <https://www2.gnb.ca/content/dam/gnb/Departments/10/pdf/Agriculture/SoilSampling.pdf>

Nova Scotia Department of Agriculture - Analytical Lab Resources

<https://novascotia.ca/agri/programs-and-services/lab-services/analytical-lab/>

PEI Department of Agriculture- Analytical Laboratories

<https://www.princeedwardisland.ca/en/information/agriculture/pei-analytical-laboratories-peial>

Cornell University of Agriculture and Life Sciences Sources and Types of Contaminants

<https://blogs.cornell.edu/healthysouls/soil-contaminants/sources-and-types-of-contaminants/>

Understanding Results

[https://blogs.cornell.edu/healthysouls/soil-contaminants/understanding-results/Soil testing](https://blogs.cornell.edu/healthysouls/soil-contaminants/understanding-results/Soil%20testing)

<https://blogs.cornell.edu/healthysouls/soil-contaminants/soil-testing/>

Cornell Waste Management Institute- Guide to Soil Testing and Interpreting Results

<https://ecommons.cornell.edu/server/api/core/bitstreams/6a66536e-72db-48cb-a856-08aef644617b/content>