



How to Garden Safely When You Are Concerned About Lead in the Soil

It is normal for soil to have some lead, but it can reach harmful levels when it is contaminated by other sources of lead. Extra care to avoid lead should be taken if your home:

- Was painted with **lead-based paint**. If your home was built before 1978, it may have been painted with paint that has lead in it. Lead paint may have chipped off and landed in the soil next to the house.
- Is near a **historically busy roadway**. Until the mid-1980s, car exhaust released lead into the air, which settled onto the soil around heavily traveled roadways.
- Is near **factories or businesses that use lead**. Lead can be released into the air through different industrial activities, such as the production of iron and steel; lead-acid battery manufacturing; or the burning of solid waste. When lead is released into the air, it may travel long distances before settling onto the soil.
- Is **built on an area that was formerly a fruit orchard**. Pesticides that contained lead were commonly used in orchards to control insects from the late 1800s through the 1950s. Lead can remain in the soil if the soil was not removed.

How lead from garden soil can get into your body

- Lead can get into your body when you breathe in or swallow soil that has been contaminated with lead from paint chips, dust, or air pollution.
- Children can get soil in their mouth and swallow it when playing outdoors.
- People and pets can track lead-contaminated soil into your home.
- People can also be exposed to lead in the soil through fruits and vegetables grown in lead-contaminated soils.
 - Some plants may take in some of the lead from the soil as they grow.
 - It is sometimes difficult to wash fruits and vegetables well enough to be sure you've removed all the contaminated soil.



Gardening practices that can help you avoid exposure to lead

You can take steps to protect yourself and those in your household from lead in soil.

1.



Locate gardens away from heavily traveled streets and painted houses where lead may have chipped off and landed in the soil.

2.



Use mulch in your garden beds to reduce dust and soil from getting on fruits and vegetables.

3.



Cover walkways with grass, mulch, landscape fabric, stones, or bricks to help keep soil off your shoes so that you do not accidentally bring soil into your house or car.

4.



Build raised beds or container gardens and fill them with purchased soil. If you make a raised bed, use a liner to separate the existing soil from the new soil that you put into your bed.

5.



Wear gloves when gardening. Wash hands after gardening and before eating and drinking.

6.



To avoid bringing soil from the garden into the house, take off shoes at the door and leave gloves and gardening tools outside. Store unwashed gardening clothes separately (in a bag, for example) or wash gardening clothes by themselves in a separate load of laundry after each use.

Choosing crops when you are concerned about lead



You are more likely to accidentally swallow small amounts of soil when you eat root crops such as carrots, beets, and potatoes.

- Grow more fruiting vegetables such as tomatoes, peppers, okra, and eggplant.
- Plant vegetables that grow on vines such as peas and beans.
- Grow fruit trees and berries that grow on bushes, such as blueberries and raspberries.

Protect yourself from lead by:

- Washing fruits and vegetables before eating them.
- Getting rid of outer leaves of leafy vegetables like cabbage and lettuce.
- Peeling root vegetables such as carrots, potatoes, and beets.

Raised bed and container gardening

If you want to garden but are concerned about lead in soil, you can build raised beds to reduce the risk that you and your family could be exposed to lead. Building a raised bed can be expensive, but you can use inexpensive materials instead. Use untreated wood, stone, concrete blocks, or bricks. You can even use smaller containers like plastic pots and make a container garden.



If you have questions about lead in soil or how to safely garden, please call 800-648-6942 to talk to an MDHHS staff person.

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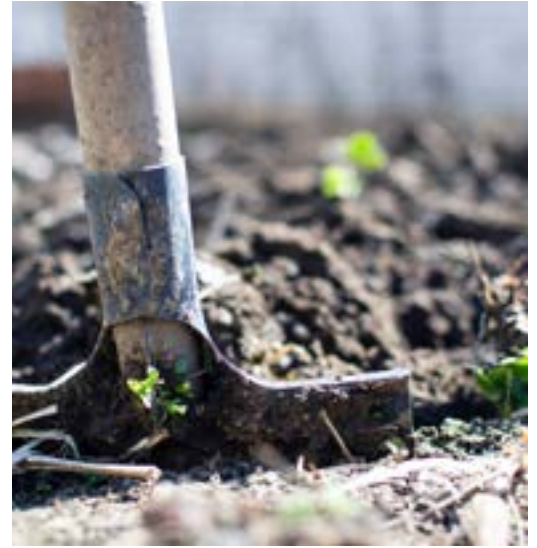


Your Health and Soil Lead Testing

This fact sheet provides information about how you could be exposed to lead in soil, soil lead testing and what to do to limit your exposure.

When soil lead levels are higher, the possibility that you will be exposed to lead is higher, too.

When you garden, you can accidentally swallow soil. Most often, this can happen because you accidentally swallow lead that is in the soil that gets on your hands or homegrown fruits and vegetables. In general, the more lead there is in soil or the more often people contact that soil through activities such as gardening, the more lead they can swallow, and their blood lead levels may increase.



Why do soil lead levels matter to health?

Swallowing lead can cause health problems and can be a serious issue for children because their bodies and nervous systems are still developing. Too much lead can cause problems with:

- Learning
- Behavior
- Speech
- Hearing

For a more complete list about possible health effects of lead exposure, visit MDHHS's webpage, "[Lead and Your Health](https://bit.ly/lead-and-health)" (URL: bit.ly/lead-and-health).

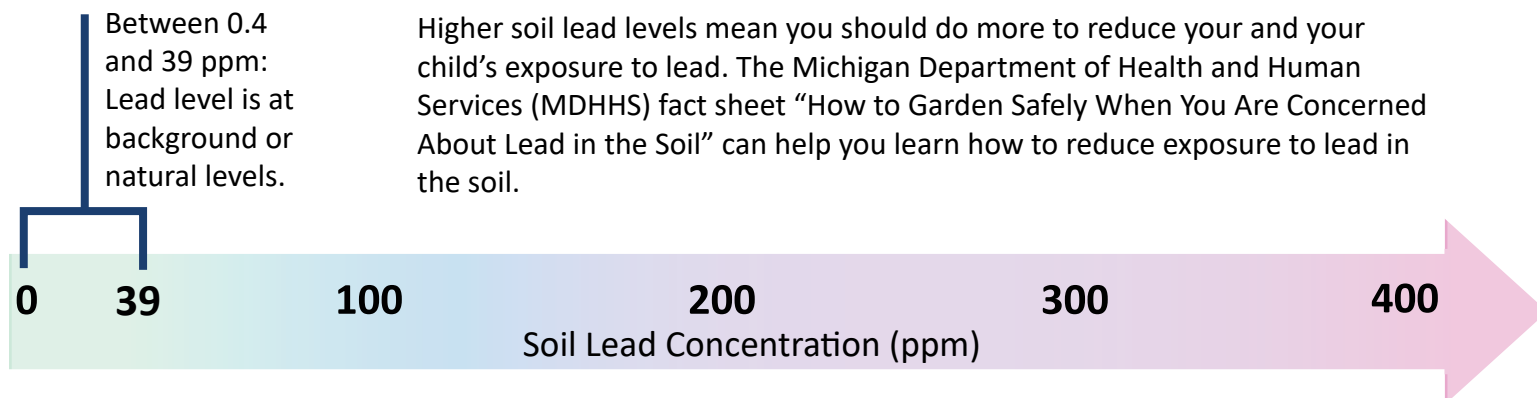
To limit the amount of lead getting into your body or your child's body, **MDHHS recommends you always use gardening practices that help limit contact with the soil.** The MDHHS fact sheet, "[How to Garden Safely When You Are Concerned About Lead in the Soil](https://bit.ly/Soil-lead-garden)" (URL: bit.ly/Soil-lead-garden) provides suggested practices for keeping lead out of your body. Those practices include wearing gloves while gardening, mulching to reduce soil and dust getting on fruits and vegetables, locating gardens away from heavily traveled streets and avoiding tracking soil into the house.



Soil test results and lead exposure

Here are some things to keep in mind about your soil test result:

- Lead is naturally present in soil. In Michigan, a naturally occurring level (also called the background level) is commonly between 0.4 ppm and 39 ppm.
- A test result that is higher than 39 ppm does not necessarily mean there has been contamination or that there is a risk to your health.
- You could see a range of results for different samples, or even from one sample, because the samples were taken from different depths. Amounts of lead can be different at the surface than deeper in the ground.



More resources

Urban Gardening

For more information about lead in soil, visit the following websites:

- Environmental Protection Agency. 2011. [Reusing Potentially Contaminated Landscapes: Growing Gardens in Urban Soils](https://www.epa.gov/urban-soils) (URL: bit.ly/EPAUrbanSoils)
- Michigan State University Extension. 2022. [Lead Concerns for Gardeners: Mitigating Risk](https://www.maes.msu.edu/lead-concerns-for-gardeners) (URL: bit.ly/MSULeadandGardening)

Lead Exposure and Children

For more information on blood lead levels visit the Center for Disease Control and Prevention's webpage on [Blood Levels in Children](https://www.cdc.gov/bloodlead/) (URL: bit.ly/Child-Lead-Blood).

For more Michigan-specific information about lead testing, lead exposure and blood lead testing, visit these MDHHS websites:

- For information about [blood lead tests](https://michigan.gov/mileadsafe/learn/blood-lead-testing) (URL: michigan.gov/mileadsafe/learn/blood-lead-testing).
- For information about [lead exposure and abatement](https://michigan.gov/mileadsafe/learn/lead-exposure-and-abatement) (URL: [michigan.gov/mileadsafe](https://michigan.gov/mileadsafe/learn/lead-exposure-and-abatement)).

If you have any questions about lead in the soil around your home, please call the MDHHS Environmental Health Hotline at 800-648-6942.

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Frequently Asked Questions About Lead and Garden Soil

1. How can I tell if there is lead in my soil?

All soil contains some level of lead, which is called the background level. The only way to tell if the lead level is above background amounts is to test for it. Because all soil contains some lead, it is important to avoid accidentally swallowing it.

2. What might cause soil lead levels to be higher than the background level?

There are a few situations that might cause higher soil lead levels:

- If you live in an area close to a street that had a lot of traffic on it when gas had lead in it. Most gas was unleaded by the mid-1980s.
- If you live in an urban or industrial area. These areas are more likely to have soil lead levels that can be a health concern.
- If you live in an older house built before 1978. Lead was taken out of paint in 1978, but lead is still present in the paint that remains on many homes, though it may be under several coats of newer lead-free paint. Outside, the concern is the older paint may have chipped off the house and landed in the soil close to the house.
- You live on land that was formerly a fruit orchard. Pesticides that contained lead were commonly used in orchards to control insects from the late 1800s through the 1950s. Lead can remain in the soil if the soil was not removed.

3. If I want to purchase 'clean soil' for raised beds or container gardening, how do I know it does not contain lead?

To know for sure, the soil would have to be tested by a lab. One organization that provides soil lead testing is Pennsylvania State University. You can find the fee schedule and contact information on the [PSU Environmental Soil Testing website](https://agsci.psu.edu/aasl/soil-testing/environmental) (URL: agsci.psu.edu/aasl/soil-testing/environmental). (There may be other labs that offer soil testing. MDHHS does not endorse this lab or any other.)

4. Should I water my garden with water that has tested positive for lead?

Irrigating (watering) your garden with lead-contaminated water does not significantly increase soil lead levels. If you are concerned about watering with lead-contaminated water, you can purchase a lead filter that attaches to your garden hose or purchase a rain barrel to make a rainwater catchment system.

5. What ways can my family and I be exposed through gardening and the soil around my house?

- Children can be exposed to lead in soil by swallowing or breathing in lead-contaminated soil while playing.
- Lead-contaminated soil particles can also be brought inside as lead dust on shoes, clothing, or pets.
- You can accidentally swallow lead when you eat unwashed fruits and vegetables grown in or near lead-contaminated soil.

- Outside water faucets are not designed to deliver safe drinking water. Drinking from an outside faucet or hose can have high amounts of lead or other contaminants.

6. Who is most at risk from lead in soil?

- People who live in homes built before 1978, especially children.
- Children are more at risk because they:
 - Eat and drink more based on their body size than compared to adults.
 - Breathe faster than adults and, as a result, breathe in more lead dust particles than adults.
 - Absorb four to five times more of the lead they swallow than adults.
 - May be missing key nutrients in their body, such as calcium and iron. The body mistakes lead for nutrients and holds onto it.
 - Often put their hands, which may have lead from soil, in their mouths.
- Fetuses and breastfeeding babies can be exposed to lead during pregnancy or through breastmilk. See this fact sheet to learn more about lead, pregnancy and breastfeeding: [Protecting You and Your Child From the Harmful Effects of Lead](https://bit.ly/Lead-and-breastfeeding-pregnancy) (URL: bit.ly/Lead-and-breastfeeding-pregnancy).
- People with pica. Pica is the craving to eat nonfood items such as dirt, paint chips, and clay. Pica is most common in 1- and 2-year-old children and usually goes away as they get older. Pica has also been observed in adults, especially pregnant women. Pica is sometimes a result of a nutritional shortage, such as iron-deficiency anemia.
- Read more about health and lead at MDHHS's webpage, [Lead and Your Health](https://michigan.gov/mileadsafe/learn/lead-and-your-health) (URL: michigan.gov/mileadsafe/learn/lead-and-your-health).




7. Is it okay for my child to garden with me?

Small children are more likely than older children to accidentally swallow soil. Depending on the level of lead in your soil, you may want to wait until your child is older to invite them into the garden. Model safe gardening practices, like using gloves, washing hands after gardening, and taking off shoes before walking into the living area of the home.

8. What precautions can I take to prevent my pet from tracking soil and lead into the house?

If your soil is covered with grass or mulch, pets are not likely to get lead on their paws. Keeping pets away from bare soil is a good way to ensure that they do not track it into the house.

 **Call us with your other questions about lead in soil at 800-648-6942.**

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