

Anne Johnson: Welcome to Environmental Health Chat, a podcast about how the environment affects our health, from the National Institute of Environmental Health Sciences. I'm your Host, Anne Johnson, and today's topic is backyard gardening.

There are huge benefits to going outside, getting your hands dirty, and enjoying your own homegrown vegetables, but there are a few safety considerations you need to be aware of, particularly if you're gardening in an urban area. That's because the soil in some places can harbor potentially harmful contaminants. In this podcast we'll talk about how to tell if your soil is safe for gardening and what you can do to reduce your risk of exposure.

My guests are Dr. Murray McBride, Professor of Soil Chemistry at Cornell University, and Hannah Shayler, an Extension Associate at the Cornell Waste Management Institute. They recently surveyed soil in New York City gardens through a grant from NIEHS and the National Institutes of Health. Murray told me a bit about what they found.

Murray McBride: It turns out for historical reasons that urban areas have a lot of potential sources of contamination. Many cities, for example, have an industrial history, much of that we don't see now and so we tend not to think much about it, but unfortunately some of the metals that were released into the environment are still there in the urban soils.

Our preliminary survey of gardens and areas around gardens in the city have shown that lead is probably the most significant contaminant, and that lead has come historically from industries, processes like incineration from coal burning, but in the last 100 years from burning of leaded gasoline and the use of lead containing paint in homes.

Anne Johnson: The good news is that 70% of the gardens they sampled had lead levels that are considered safe, but soil that contains higher levels of lead can pose a health risk, especially for children.

Murray McBride: Lead affects neurological development. Any exposure to lead above the background exposure is considered inadvisable. In a garden there is the concern that the very young children are likely to be playing in the soil and some of them might actually eat soil, that that is a major pathway of exposure.

Anne Johnson: A lesser concern is that eating vegetables grown in soil high in lead can potentially carry that lead into your body, but the risk depends on the type of vegetable. Testing in Cornell labs and greenhouses shows vegetables don't readily take-up lead from soil. Simply washing your vegetables before eating them can eliminate most of the risk for fruit in crops with smooth skin, like peppers, tomatoes, and eggplant. It can be more difficult to wash all the dirt off of root vegetables, like carrots and beets, or leafy vegetables, like lettuce and spinach. So this may factor into your decisions about what to grow in your garden if you're concerned about lead contamination.

But how do you know if your soil has lead or other contaminants? Hannah said looking into the history of your land is one place to start.

Hannah Shayler: It can benefit people to do some detective work beforehand, especially if they're starting up a new garden, to try to understand as much as they can about what has gone on in the past and is currently going on near their site so that they can try to pinpoint problems.

Anne Johnson: Another option is to get your soil tested, but the test can be expensive and the results are often hard to interpret.

Hannah Shayler: Ideally we'd like to see everyone test their soils and get some results, but the costs can really be prohibitive for many gardeners and sometimes a little information isn't that helpful because levels of lead and other contaminants can be so variable.

Anne Johnson: Luckily, Hannah said there are lots of simple things you can do to protect your family even if you don't know for sure whether your soil contains lead or other contaminants. Often these things can be cheaper than getting your soil tested.

Hannah Shayler: In urban areas it's good practice to use raised beds. You want to be adding clean soil and compost, and when we say clean we mean that we want gardeners to be confident that the materials they're bringing into the site are not contributing to a contamination problem. It's helpful to maintain a neutral PH. Using mulches can help to keep dust down and minimize that exposure pathway where people are accidentally breathing in or swallowing dust from working in the garden. Keeping the dust outside. Keeping the soil outside in the garden. Washing all your fruits and vegetables very thoroughly before you eat them.

Anne Johnson: To protect children Hannah advises keeping kids from putting dirt in their mouths. It's also a good idea to make a designated play area where you've covered up any potentially contaminated soil, but Hannah and Murray emphasize that the potential for lead contamination should not deter people from gardening or from letting children play outside.

Hannah Shayler: When we're considering the possibility of soil contamination and the risks that may result from that we really do need to remember to keep the many benefits of gardening in mind.

Murray McBride: And the problem is we don't have a good way to quantify what those beneficial effects are, but they're clearly very important. If we do all the science on the contaminant side, we have tools of quantifying concentrations and so on, but on the benefit side, which is huge, we don't have numbers so we can't put this in a nice balance and say, okay, what is what.

Hannah Shayler: Sure. Many benefits of gardening, being outdoors, and consuming fresh vegetables, but may, in fact, may outweigh possible risks from contamination.

Anne Johnson: For gardening tips and more information visit Cornell's Health Soils, Healthy Communities website. You'll find the link on our website.

Thanks, again, to Murray McBride and Hannah Shayler of Cornell University.

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