

Know Your Soil: **Lead in the Soil**

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Lead is a poisonous element that is especially hazardous to young children. It is present in the environment in many forms. Much of the lead that we might come in contact with is in the soil, which increases the risk of lead exposure during activities such as gardening and playing outside.

Lead is present in all soils at a normal level. At normal levels, it doesn't cause health problems. Soil is considered uncontaminated if it has less than 50 parts per million (ppm) total lead content. Areas with soils at a lead level of 200 to 400 ppm are considered moderately contaminated and should not be used for children's play areas, but are okay for gardens. **Soils with levels above 400 ppm should not be used for gardening at all.** The soil should be removed, or isolated with a permanent grass cover or mulch.

Lead gathers near buildings painted with lead-based paint that has been weathered, or have been scraped, sanded, or sandblasted. Vacant lots where a building once stood may also contain lead. Airborne lead from industrial emissions and auto exhaust can also collect in the soil. Even though unleaded gasoline is used exclusively today, lead can still be found in the soil. You should pay particular attention to lead contamination at sites near roads, highways, and older buildings.

Plants grown on soil with high lead levels may have high lead contents. Leaded dust and airborne lead may collect on leafy greens or other vegetables and will add to a person's lead intake. Daily exposure to lead from soil, dust, air, food, and other sources can cause chronic low-level lead poisoning in children without causing obvious symptoms. If gardeners work with soil with a

high lead content or children play in it, they may breathe in or swallow contaminated soil or dust.

The only way to know the lead content of your soil is to test it!

The test results will include information telling you what to do about low, medium, high, or very high levels of soil lead. Test your soil for lead content and pH every one to two years. **Contact your University of Maine Cooperative Extension County Office** for soil testing information and sampling kits.

Once soil is contaminated with lead, the lead will remain there for over 1,000 years, unless the soil is dug up and safely disposed of. Generally, most of the lead is in the top 6 inches of soil, depending on whether or not the soil has been mixed by gardening. Removing that layer and replacing it with uncontaminated topsoil will probably get rid of the lead hazard – test your soil again afterward to be sure.

Where soil removal is not possible or practical, there are still precautions that you can take to make sure that you and your children can garden and play safely. Follow these recommendations to prevent undue lead intake.

Ways to reduce lead in your yard and garden

Your yard and garden can become contaminated from lead within the soil and airborne sources of lead. Here are some ways to minimize lead in your soil and in your produce.

- **Locate gardens away from roads and old painted structures** if possible, and lay out gardens to keep leafy greens and other hard-to-wash vegetables far from the street, 50 away from heavily traveled streets.
- **Test your soil routinely** (every one to two years) to screen for possible lead contamination.
- **Give planting preference to fruiting crops** (tomatoes, squash, peppers, cucumbers, peas, beans, corn, sunflowers, etc.) over root crops (carrots, turnips, parsnips, radishes, etc.) and leafy green crops that can accumulate airborne lead on leaf surfaces (spinach, loose-leaf lettuce, herbs, beet greens, collards, etc.).
- **Add organic material** (composted kitchen vegetable waste, manure, leaves, grass clippings, peat, etc.) to your garden in the fall.
- **Add lime to soils that are too acid**, using your soil test results as a guide to bring the pH close to the range of 6.5 to 7.0 as possible. Keeping pH in this optimum range will minimize your plants' lead uptake.
- **Lay down mulch to prevent airborne lead from settling on soil.** Discard old mulch rather than plowing it in.
- **Discard outer leaves of vegetables and peel root crops before eating.**
- **Wash all produce thoroughly.** Do not use bleach or detergents, but rub produce briskly under clean, potable (drinkable) running water. You can use a brush to scrub hard fruits and vegetables (carrots, potatoes, melons, etc.). Make sure that your hands are clean before washing produce – wash hands for 20 seconds in hot, soapy water.
- **Use the above gardening practices as recommended.**
- **Test play area soil for lead.** Children should not play in areas with soils at a total lead content of 300 ppm or more. Locate play areas away from painted buildings.
- **Build a sandbox with a bottom** so that children can play safely in clean sand.
- **When eating outdoors, eat at a table.** Avoid contact of food with soil or dust.
- **Check the grounds around buildings for paint chips.** Throw them away where children can't get them. Always use a drop cloth when removing leaded paint so that all debris can be disposed of properly.
- **Keep dust down.** Plant a tough grass such as fescue. Cover scuffed spots under swings and slides with mats or an old carpet. Dampen exposed dusty areas or cover with a thick layer of gravel, bark mulch, or other ground covers.
- **Plant hedges or bushes around your home** so that children will not play where lead accumulation is often greatest.
- **Feed children a diet high in calcium and iron and low in fat.** This type of diet can help reduce the absorption of lead. Contact your UMaine Extension County Office for nutrition information.
- **Keep your home free of dust and soil** by vacuuming and wet mopping.
- **Provide clean teething toys.**
- **Keep your hands and your child's hands washed,** especially before eating and preparing food. Wash with hot, soapy water for 20 seconds.
- **Avoid lead exposure if you're pregnant or nursing.**

Steps to protect your children

Keep young children away from lead-contaminated areas around your home.

- **Take special care with children under six years of age!** If you suspect your children have been potentially exposed to lead, have their blood tested regularly – talk to your pediatrician. For more information, visit the Health and Environmental Testing Laboratory page on the Maine.gov Division of Public Health System website, or call 207-287-2727.

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