

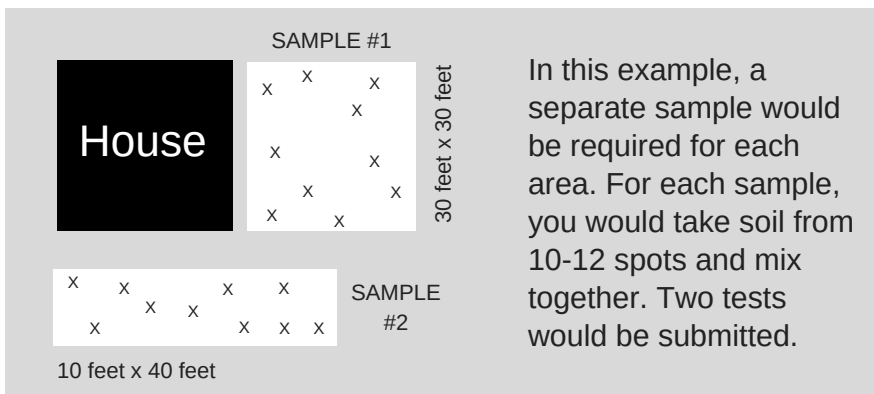
# TESTING GARDEN SOIL

To ensure that your garden is productive as well as safe for growing food, we encourage you to have a soil test done. A soil test will inform you not only of any hazards in the soil, but also will provide information on the general health of your soil (pH, organic matter) and how to improve it.

## LEAD IN THE GARDEN

When growing gardens in urban environments, it is important to consider that soil could contain dangerous contaminants before you begin growing. One dangerous contaminant found in soil is lead, which was commonly used in paint and gasoline until the mid-1970s. When gardening, the most serious source of exposure to soil lead is through direct ingestion (eating or breathing in dust) of contaminated soil or dust, although plants may absorb or take up lead as well.

Generally, it has been considered safe to use garden produce grown in soils with total lead levels less than 320 parts per million. The risk of lead poisoning through the food chain increases as the soil lead level rises above this concentration. Studies have shown that lead is not taken up as much into the fruiting parts of vegetable (like corn, beans, squash, tomatoes, strawberries, apples). Higher concentrations are more likely to be found in leafy vegetables (like lettuce) and on the surface of root crops (like carrots), where contaminated soil makes contact (for example crops low to the ground which are splashed with water containing contaminated soil). It is also important to be aware of the risk of direct exposure from soil tracked into the house through shoes or through ingestion, especially with young children who might put their hands in their mouths. Because most of the risk of lead contaminated soil is from dust on the plants or soil that you are exposed to rather than from uptake of lead by the plant, a soil test is recommended even if you plan to use raised beds.



In this example, a separate sample would be required for each area. For each sample, you would take soil from 10-12 spots and mix together. Two tests would be submitted.

**SOIL SAMPLE: Be sure to label with contact information and where you took sample.**

## TAKING A SOIL TEST

A soil test can be taken at any time, but ideally in early spring or late fall before any compost or soil amendments are added. Avoid sampling wet soil.

### Follow these instructions:

- Choose the area you would like to test, no larger than 30 x 30 feet and visually uniform in appearance (for example barren areas vs. weedy areas). If you have multiple garden areas, take a separate test for each. Measure and document where you took samples.
- Using a clean shovel take a slice of soil from the surface to 10 inches deep. Repeat 10-12 times in scattered spots.
- Place each of the samples in a clean container and mix. Take a four-cup sample to dry and discard the rest.
- Spread the sample out on a clean paper to air-dry (do not place in oven).
- Place 2 cups of dried soil in a small zip-lock bag and label the outside of the bag clearly with your name, address, name of your garden and a brief description of the area where you took the soil test.
- For drop off info: Contact us at 313-656-4769 or [info@keepgrowingdetroit.org](mailto:info@keepgrowingdetroit.org)
- If you are an “active” participant in the Garden Resource Program (active means you have participated in at least one class or community event), you are eligible for one free soil test a year to start or expand your garden (we do not pay to re-test the same area every year). Otherwise, the cost is \$30. Contact us for recommendations for soil laboratories if you want to send on your own.



# INTERPRETING A SOIL TEST

This guide will help you understand your soil test results from the laboratory. It provides general guidelines to understand the quality of your soil, including pH and percentage organic matter, and instructions on how to interpret the lead levels. See laboratory results for more information on other heavy metals. Whatever your results show, we encourage you to follow the “Good Gardening Practices” listed in the sidebar to ensure a healthy and safe garden!

## SOIL pH LEVEL

Soil pH is a measure of the acidity of soil, measured on a scale of 0 (acidic) to 14 (alkaline). Generally, vegetable crops like a neutral soil level (7) for best growing results. If your pH is high (above 8) you may want to work on lowering the levels. A simple way to improve soil pH is by adding organic material.

## PERCENTAGE ORGANIC MATERIAL

Organic material, made up of decomposed plants, is the part of your soil that provides nutrients for your plants to grow. A low percentage (below 4%) indicates that there are very few nutrients in your soil. You can work to increase organic material by adding compost on a regular basis. You can also work in other organic materials, such as composted manure, leaves, straw or grass. These materials need time to break down before you are able to plant in that area, especially direct sowing seeds. Ideally, add in the fall as you put your garden to bed and then turn broken down materials in as you prepare your spring garden using a shovel or garden fork.

## UNDERSTANDING LEAD LEVELS

It is generally considered safe to use garden produce grown in soils with total lead levels less than 400 parts per million. Below are our recommended guidelines for interpreting estimated total lead level (measured in parts per million or PPM). If your levels are:

### **Less than 25 (extracted) = Less than 400 (estimated)**

These levels mean there is little or no lead in the soil, however we still recommended that you use “Good Gardening Practices” listed on the right.

- Improve your soil by mixing in organic material with compost and/or other materials when preparing beds and putting the garden to bed for the winter.
- Take extra precaution when gardening with children who are at higher risk to lead exposure.

### **Above 26 (Extracted) = Greater than 400 PPM (Estimated)**

There is an elevated level of lead in your soil. The concern is not only what the plants take up directly from your soil, but also the dust in and around your garden that you could expose yourself or others to. Over time, there also is a concern that even raised beds filled with clean soil could be re-contaminated through wind-blown soil. KGD does not recommend planting a vegetable garden in this area (and limits KGD resources and program activities at these sites, like selling with Grown in Detroit) unless Good Gardening Practices are fully implemented by the gardener to reduce risk of exposure to leaded soils.

### **Recommendations:**

- Fully cover area with wood chips or grass so no soil is exposed.
- Consider testing blood levels of people in contact with this site, especially children.
- If this is your home or a place regularly visited in your community, ask us about community resources to help make your home and lots safe.
- If you choose to start a garden in this area, we suggest that you share our Good Gardening Practices with everyone that interacts with your garden and require that they follow these practices.

## GOOD GARDENING PRACTICES

The main objective is to avoid breathing and or eating dust that may contain contaminants such as lead.

- **Test soil across entire garden (all areas in cultivation and other bare soil).**
- **Utilize raised beds, at least 10 inches tall, where possible and amend soil.**
- **Cover all bare soil with mulch or vegetation.**
- **Wash or peel produce before it's eaten**
- **Remove dirty shoes and clothing as soon as entering house and wear gloves.**
- **Retest soil every three years.**