



Deb Hamilton – *edible flint* Garden Starters
Program Coordinator

Terry McLean– MSUE Community Food
Systems Educator, *edible flint* Point of
Contact

Dr. Rick Sadler - Assistant Professor, MSU
College of Human Medicine

Lead Safety for
Food Gardeners

**Flint Water Inner
Agency
Coordinating
Committee**

4.8.16

Why *edible flint*?

- Productive Land Use
- Access to Fresh Healthy Food
- Economic Development/Jobs
- Building a Healthy Community
- Training classes/Technical expertise
- Resources, Services
- Began in 2009

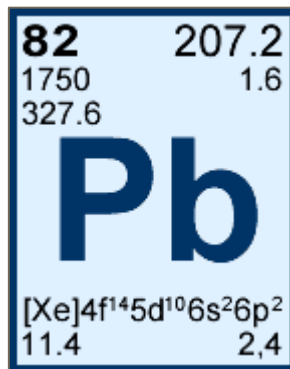
edible flint supports Flint residents in growing and accessing healthy food in order to reconnect with the land and each other





- Outreach to 4,626 residents in 2015

Lead



Lead exposure

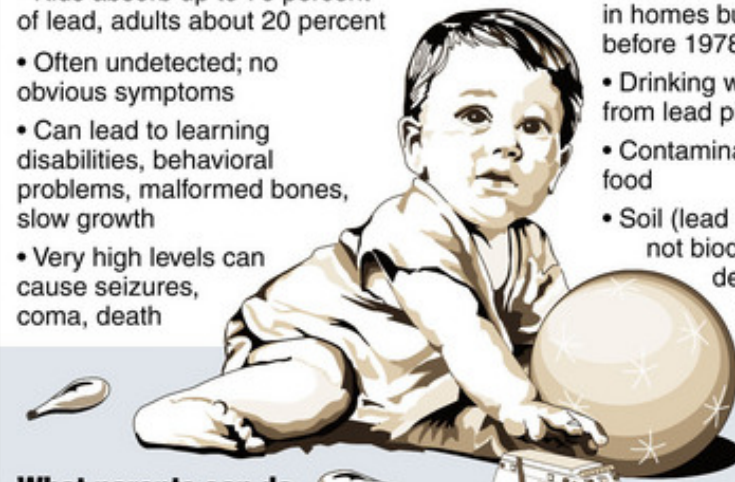
About 310,000 U.S. children ages 1 to 5 have elevated blood lead levels, which can accumulate over months and years and cause serious health problems.

Effects on children

- Kids absorb up to 70 percent of lead, adults about 20 percent
- Often undetected; no obvious symptoms
- Can lead to learning disabilities, behavioral problems, malformed bones, slow growth
- Very high levels can cause seizures, coma, death

Sources

- Lead-based paint, contaminated dust in homes built before 1978
- Drinking water from lead pipes
- Contaminated food
- Soil (lead does not biodegrade, decay)
- Toys*



What parents can do

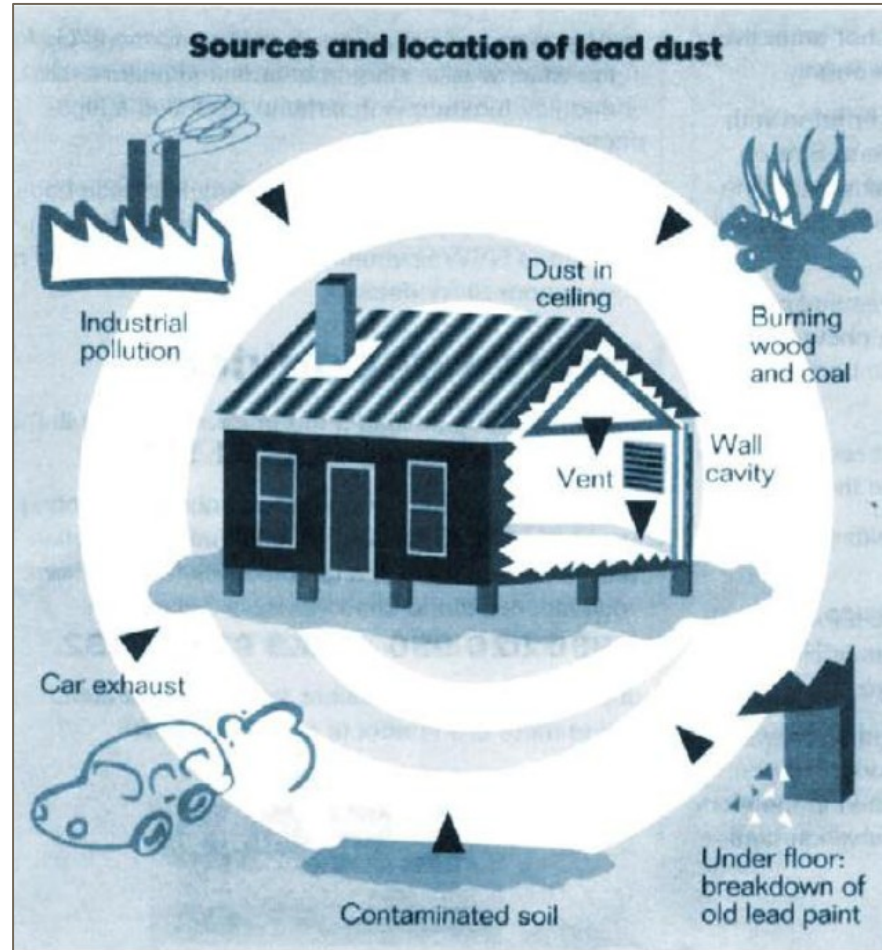
- Have child screened if there is concern of lead exposure
- Frequently wash child's hands, toys, pacifiers
- Only use cold tap water for drinking, cooking
- Test paint, dust in home if it was built before 1978

*Old toys with lead paint a known risk, but new toys from China now have come under scrutiny

Source: U.S. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services

© 2007 MCT

Where does it come from?



How did it get there?

- Leaded Gasoline
- Lead Based Paints
- Other Lead Products
- Industrial Wastes...



What can I do? Soil test first!



<http://www.msusoiltest.com>

Include testing for environmental contaminants such as lead

For food gardens within the City of Flint, the *edible flint* Garden Starters program offers soil testing, which includes screening for lead in April & May, must preorder
<http://www.edibleflint.org/>

GROW A FOOD GARDEN IN FLINT THIS SUMMER

Order your Garden Starters KITS and SERVICES!

Garden Starters KITS

- 19 kinds of organic seeds
 - 40 transplants - 11 types
- \$15.00 per kit**

Lead fighting vegetables included: spinach; kale; collards; mustard & turnip greens; peppers; tomatoes; potatoes (w/skin); broccoli; parsley; cilantro.

Available county wide while supplies last.

A \$85 value!!!



Applications available by contacting Deb Hamilton at 810.244.8547, email gardenstarters@edibleflint.org, or visit www.edibleflint.org.

Returned forms with payment by **Friday, April 15, 2016.**

edible flint supports Flint residents in growing and accessing healthy food, in order to reconnect with the land and each other.

Garden Starters SERVICES

- Tilling
 - Compost delivery
- \$15.00 per service**

Soil testing - \$5.00

Up to 250 - first come, first served basis

Garden hose filters - \$5.00

One per application - 180 first come, first served basis. Additional units at retail cost call Deb.

edible flint's food garden programming:

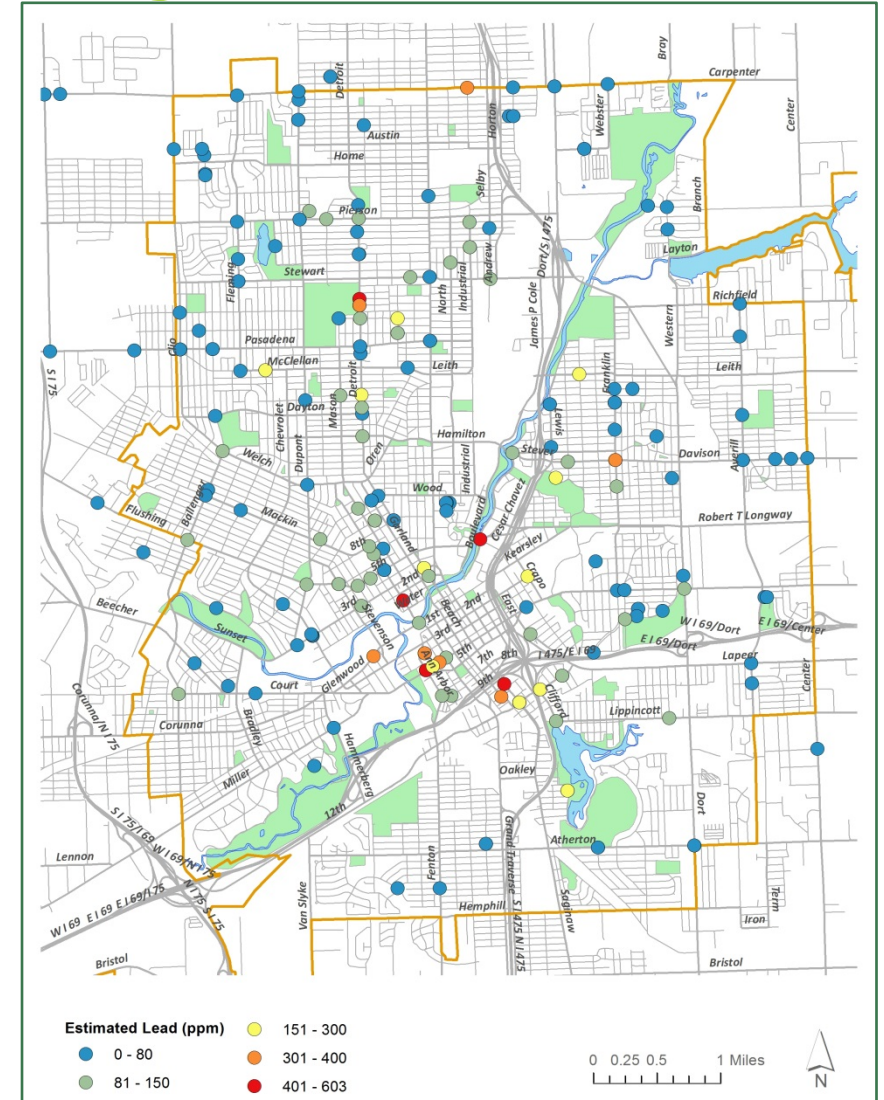
- ◉ **11 weeks of Training classes**; workshops during the season in the garden
- ◉ **Garden Starters kits** – seeds & transplants; plants a 1500 square foot garden; grows enough produce for a family of 4 (offered countywide)
- ◉ **Garden services** include soil testing (includes **lead** screening), tilling and compost delivery (gardens in Flint)
- ◉ **Supporting** 826 food gardens in Flint past 5 years
 - ◉ Includes 92 community gardens
 - ◉ 4 urban farms producing for sales
 - ◉ 7 elementary schools (FoodCorps National Service program)

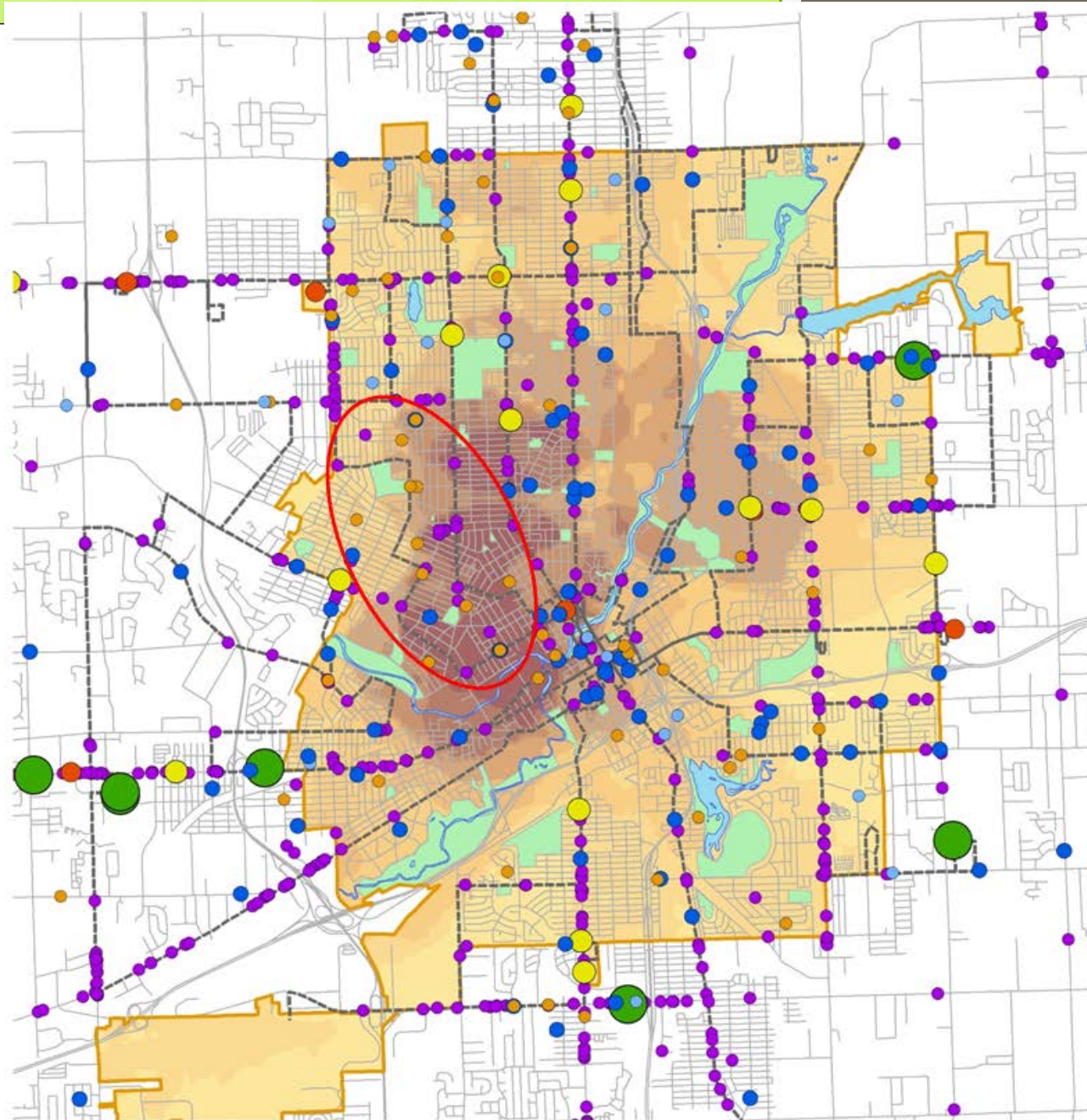


edible flint Garden Starters Program – soil lead testing

- Within the City of Flint
- 5 years of data/250 gardens
- 2011-2015
- Most of the lead levels are well below 300ppm
*only 7% above

Map by Dr. Rick Sadler, MSU Public Health





Food Bank Distribution Sites

- Active
- Hold
- Inactive

Food Retail Sites

- Chain Grocery Store
- Small Grocery Store
- Closed Grocery Store
- Junk Food

--- Bus Routes

Flint City Limits

Predicted BLL

- 0.7 - 0.75
- 0.76 - 1
- 1.01 - 1.25
- 1.26 - 1.5
- 1.51 - 1.75
- 1.76 - 2
- 2.01 - 2.25
- 2.26 - 2.5
- 2.51 - 2.75
- 2.76 - 3.36



Risk reduction practices - 150 to 400 ppm (Low Soil Lead Levels):

- Add organic matter
- Increase soil pH
- Mulch soil to decrease soil splash/dust
- Do not grow leafy or root vegetables
in the 300-400 ppm range
- Wash produce thoroughly; use filtered water
- Keep hands clean; wear gloves, boots



For a Food Garden

- Depending on your soil test results, choose suitable vegetables to grow



- Fruiting crops are low risk vegetables for soils with elevated lead levels

For a Food Garden

- Vegetables do not readily uptake lead from water or soil *
- Soil particles/dust on the surface of leafy & root veggies is the concern when grown in lead contaminated soil



*Brown et al-2016-Urban Garden -Soils in the City- metal issues-JEQ

What about Flint Water?

- Irrigation with Flint water in the ***edible flint*** community food garden across from Hurley Hospital in 2015 did not show a significant increase in soil lead*

* **How might Flint's water contamination affect garden soils? Part 2**

With the news of lead contamination in the City of Flint's water supply, people who farm and garden in the city are questioning the safety of growing in soil that has been irrigated with contaminated water.

Posted on **January 26, 2016** by [Terry McLean](#), Michigan State University Extension



For a Food Garden

- Do not grow if soil lead levels exceed recommended guidelines (above 400ppm)



> 400 ppm

Consider Containers or Raised Beds!



Peel Vegetables, Remove Outer Leaves



Do not compost peelings

For a Food or Ornamental Garden

- If lead levels in your soil are above 300 ppm: prevent children's access to bare soil – cover it!
 - Why?
 - Young kids love to play in it - and can eat it



Mulch, Stone, Pavement, Turf...



Other General Guidelines

- Keep soil pH to a level between 6.5 and 7.5; minimizes lead availability



Other General Guidelines

- Add organic matter, like compost



- Avoid bare soil – cover with mulch, minimizes soil splash/dust on the plants



Other General Guidelines

- Wear gloves while gardening
- Take necessary precautions – best management practices minimize potential exposure in urban gardens



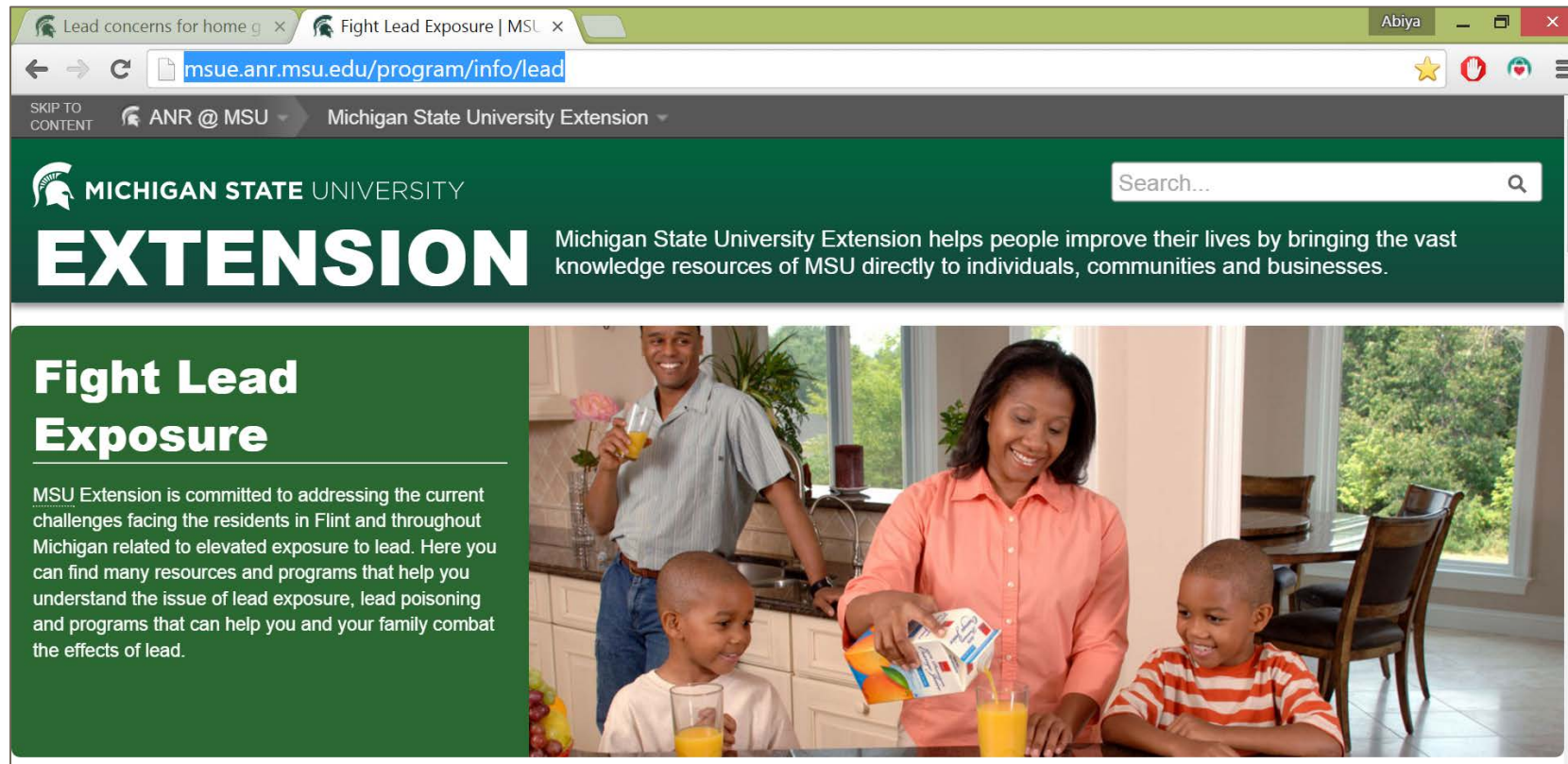
Put gardening footwear away



Avoid tracking soil into your home

New MSU Extension Resources

- <http://msue.anr.msu.edu/program/info/lead>



For More Information:

- <http://msue.anr.msu.edu/program/info/lead>

FIGHT LEAD WITH NUTRITION

The foods we prepare and serve to our families can help limit the effects of our kids' exposure to lead! Three steps you can take in choosing and preparing food can make a difference:

1. When preparing food, be sure to wash and cook it with filtered water.
2. Serve your kids small, healthy snacks between meals.
3. Serve foods that are high in a few really important nutrients: iron, calcium and vitamin C!



LEAD FACTS
Lead isn't good for anyone's



LEAD-FIGHTING NUTRIENTS

CALCIUM

Calcium keeps your bones strong and the lead out! Calcium-rich foods include:

- Milk and milk products, like cheese and yogurt
- Green leafy vegetables, such as spinach, kale, and collard greens
- Calcium-enriched orange juice
- Tofu
- Canned salmon and sardines (both with the bones in)

IRON

VITAMIN C

Vitamin C works with iron to keep too much lead from getting into your body. Good sources of vitamin C include:

- Citrus fruits, like oranges and grapefruit and their juices
- Tomatoes and tomato juice
- Peppers
- Other fruits like kiwi, strawberries and melons

The screenshot shows a web browser window with the address bar displaying msue.anr.msu.edu/program/info/lead. The page features a navigation bar with social media icons (Facebook, Google+, Twitter, YouTube) and a "Related News" section. The news section contains three articles:

- Lead concerns for home gardeners: Mitigating risk**
January 29, 2016 | Abiya (Abi) Saeed | Gardeners concerned with lead contamination in their soil can minimize the risk of exposure and be safe while enjoying their landscape.
- How might Flint's water contamination affect garden soils? Part 2**
January 26, 2016 | Terry McLean | With the news of lead contamination in the City of Flint's water supply, people who farm and garden in the city are questioning the safety of growing in soil that has been irrigated with contaminated water.
- How might Flint's water contamination affect garden soils? Part 1**
January 26, 2016 | Terry McLean | With the news of lead contamination in the City of Flint's water supply, people who farm and garden in the city are questioning the safety of growing in soil that has been irrigated with contaminated water.

On the right side of the page, there is a sidebar with the heading "Nutrition & Lead Cooking Demos" and three entries:

- Nutrition & Lead Cooking Demos**
Feb 23, 2016 | Flint Farmers Market, 300 E. 1st St., Flint, MI 48502
- Nutrition & Lead Cooking Demos**
Mar 1, 2016 | Flint Farmers Market, 300 E. 1st St., Flint, MI 48502
- Nutrition & Lead Cooking Demos**
Mar 3, 2016 | Flint Farmers Market, 300 E. 1st St., Flint, MI 48502

The browser's taskbar at the bottom shows various application icons and the system clock indicating 11:32 AM on 2/11/2016.

Flint Water Crisis – *edible flint* response:

- Create an educational program and risk reduction flyer
- Increase the number of soil tests (**250+**) with lead screening by seeking additional funding (***MDARD-MIFFS-Edible Flint grant**)
- Offer irrigation hose filters that remove lead
- Adjust the veggie kits to add extra vegetables high in lead fighting nutrients – iron, calcium and vitamin C
 - **Spinach; kale; tomatoes; peppers; collards; mustard & turnip greens; potatoes (w/skin); broccoli; parsley; cilantro**



Flint Water Crisis – our response:

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LEAD FACTS

Lead isn't good for anyone's health and is especially bad for small children. Keep your family lead-safe by avoiding contact with it. If you live in the city of Flint, or get water from the city's water system, be sure to use an NSF-certified filter for drinking, cooking and mixing baby formula. Make sure to change the filter cartridge by the date printed on the package. Remember that you and your children can also be exposed to lead from old paint, dust, dirt, pottery, make-up, toys and some home remedies.

If you have any concerns about lead or your child's diet, talk with your doctor.



LEAD RESOURCES

- Genesee County Health Department Lead Program: www.gchd.net; phone: 810-225-3023
- Michigan Department of Environmental Quality (DEQ): www.mdeq.state.mi.us/Flint
- Michigan Department of Health and Human Services (DHHS) Childhood Lead Poisoning Prevention Program: www.michigan.gov/lead; phone: 888-322-4452
- U.S. Centers for Disease Control and Prevention (CDC): www.cdc.gov/lead
- U.S. Environmental Protection Agency (EPA): www.epa.gov/lead

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Lead Safety for the Home Gardener

Soils



Lead naturally occurs in soils but large quantities can be detrimental to your health.



Previous land use can be a contributing factor to elevated soil lead levels, often from the past use of lead in gasoline and lead paint in homes.



Before growing a vegetable garden, get your soil tested if you are unsure of your soil lead levels.



If soil lead levels exceed 300 ppm, prevent children from contact with soil (to minimize risk of eating it) by applying mulch, or planting ground covers, turf.



If gardening in low lead soils (100 - 400 ppm US EPA low range), improve soil health by adding organic matter like compost, and maintaining soil pH between 6.5 and 7.5.

Vegetables



Do not plant a vegetable garden if soil lead levels exceed 400 ppm; generally, it is considered safe to use garden produce grown in soils with lead levels less than 300 ppm.

If elevated soil lead >300ppm is a concern, use raised beds or containers, fill with fresh, non-contaminated soil; select low risk crops.

Vegetables do not readily uptake lead from the soil or water.

Water

Irrigation 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.



Purchase a rain barrel or make a rainwater catchment system that is best for your garden.



Work with Flint's OASIS TEAM to get water pumped from the Flint river delivered to your garden.



Growing Flint:

What the Flint Water Crisis Means for Your Garden

Tuesday, March 1, 2016

Neighborhood Engagement Hub

3216 M.L. King Ave

Open House, 9a - 7p

Speaker Schedule:

Soils - 9:30a

Vegetable - 12:30p

Open Forum - 3p

Water in the Garden - 5:30p

Available March 1, Garden Starter Kit and Service Applications

edibleflint.org • info@edibleflint.org • (810) 244-8547