



**Healthy Yards**

**A Presentation by [Green Team Urbana](#)**

**Adapted from Landscape for Life**

# OVERVIEW

- **Demonstrate why healthy yards are important**
- **Discuss the life in the soil**
- **Share how to care for your grass naturally**
- **Re-evaluate perfect monoculture of grass**

**Sustainable landscaping maximizes environmental and human health benefits for current and future generations.**



# What is the ultimate objective of a sustainable yard?

**A beautiful yard that protects or restores the benefits nature provides to humans that are essential to our everyday life.**



# Provide Clean Air and Clean Water



# Build Healthy and Fertile Soil



# Control Erosion and Sediment Runoff



# Provide Habitat





# Support Human Health and Well-Being





**Our interactions with nature and the benefits it provides most often occur in small-scale sites and residential settings.**



*[Map underwritten by plantinseeds.org](http://plantinseeds.org)*

GET ON THE MAP!



# How sustainable are our Urbana landscapes?

**1/4 of Frederick County is covered in turf grass, which is not natural**



# How sustainable are our Urbana landscapes?

**Pesticides cause harm to people, pets and wildlife directly and indirectly.**

**Fertilizer can damage the life in our waterways.**



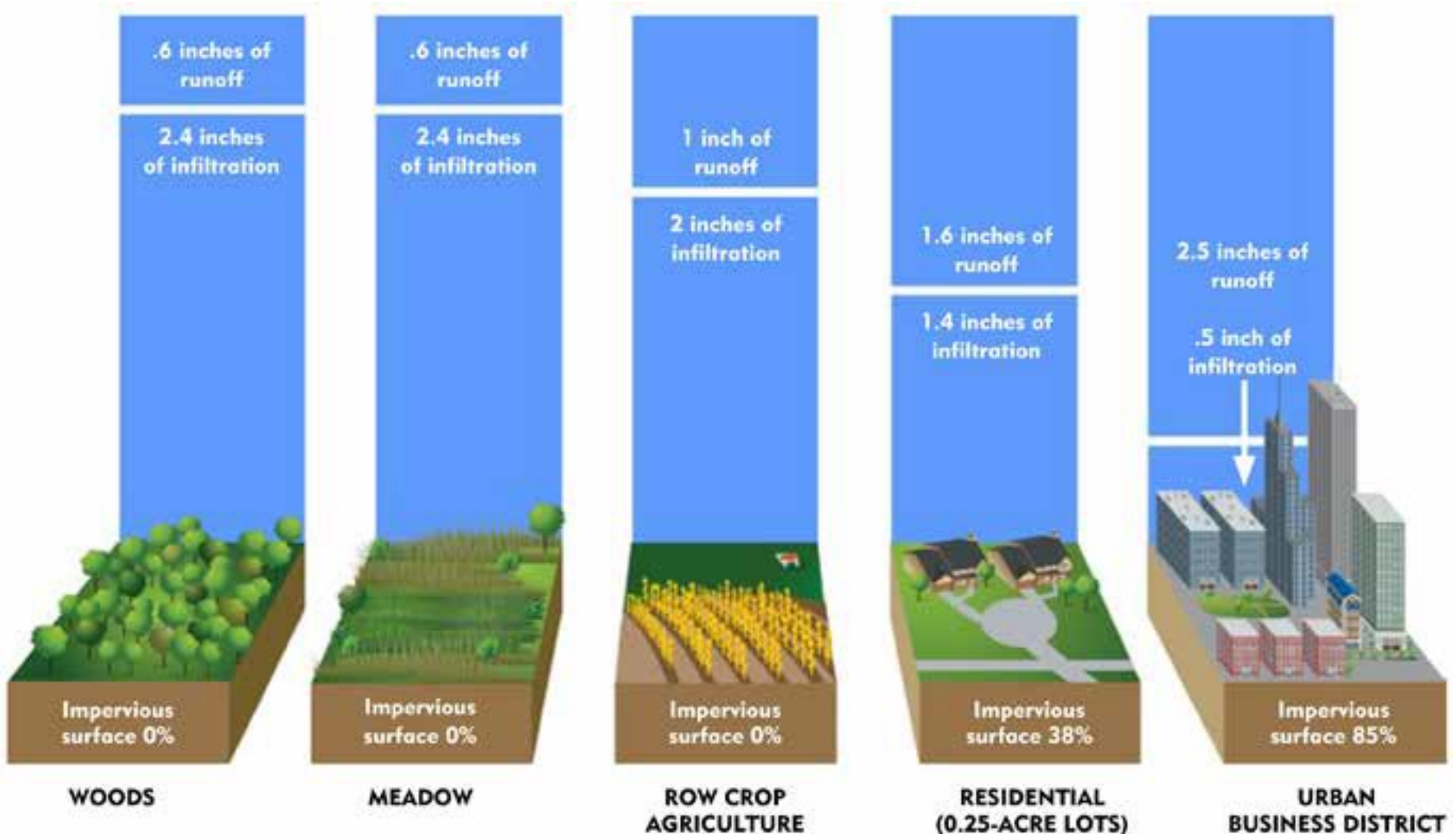
# How sustainable are our Urbana landscapes?

**Water runs off turf and takes the chemicals and soil with it.**

**Stormwater runoff can also lead to flooding.**



# Different Levels of Runoff following a 3 inch Rainstorm







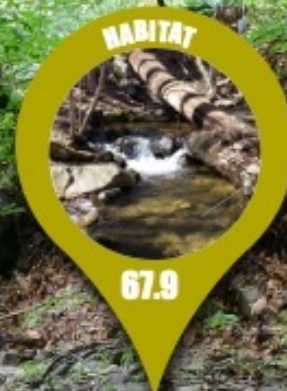
A WATERSHED FACT SHEET  
& HEALTH SCORES  
FOR THE

# Lower Bush Creek Watershed



The Frederick County Stream Survey (FCSS) was developed to help determine the health of our streams and watersheds. Streams are chosen at random, sampled, and scored based on the amount of forest along the banks, aquatic bug populations, stream bank erosion, and levels of pollutants in the water. The stream scores within a watershed are averaged across four years to give an overall watershed health score. Each metric is explained in further detail on the back of this fact sheet.

The map above shows the points on a stream in the watershed that were sampled, with the BIBI (right) and the PHI (left) scores illustrated according to the color scale.



# How sustainable are our Urbana landscapes?

**Mowing, chemicals  
poor soils & fertilizer  
also have negative  
impacts on our climate**

**Our home lawns have  
the capacity to sink 20  
times as much carbon  
in the soil if we practice  
natural methods.**



By beautyredefined

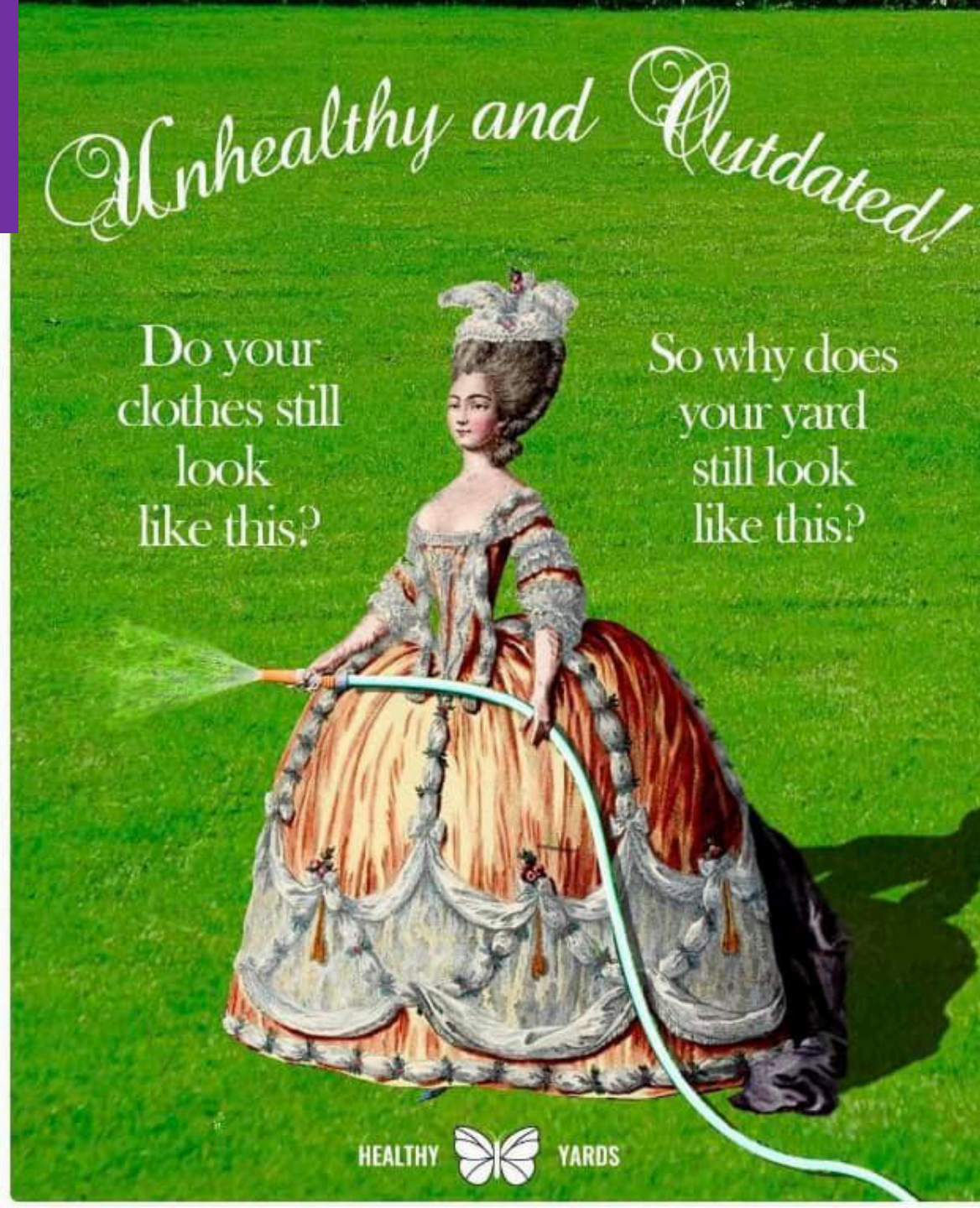
# Why do we stick to lawns?

**Status Quo**

**Status Symbol**

**Weed averse**

**HOAs require it**



# Maryland passes Low-Impact Landscaping Law 2021

**More freedom to  
create sustainable  
and healthy yards in  
HOAs**

**Need to apply with  
your HOA for design  
changes**

**There are some  
limitations**





**HOAs can no longer  
require turf/grass lawns**

**Law encourages:**

**Bio-Habitats**

**Pollinator Gardens**

**Rain Gardens**

**Xeriscaping**



**...and there is still room for:**

**HEALTHY LAWNS**



**Life of the Soil**

# What is Soil?

- Weathered rock
- Mineral particles
  - sand
  - silt
  - clay
- Organic matter
  - living
  - previously living





# Common Soil Characteristics of Yards in Urbana

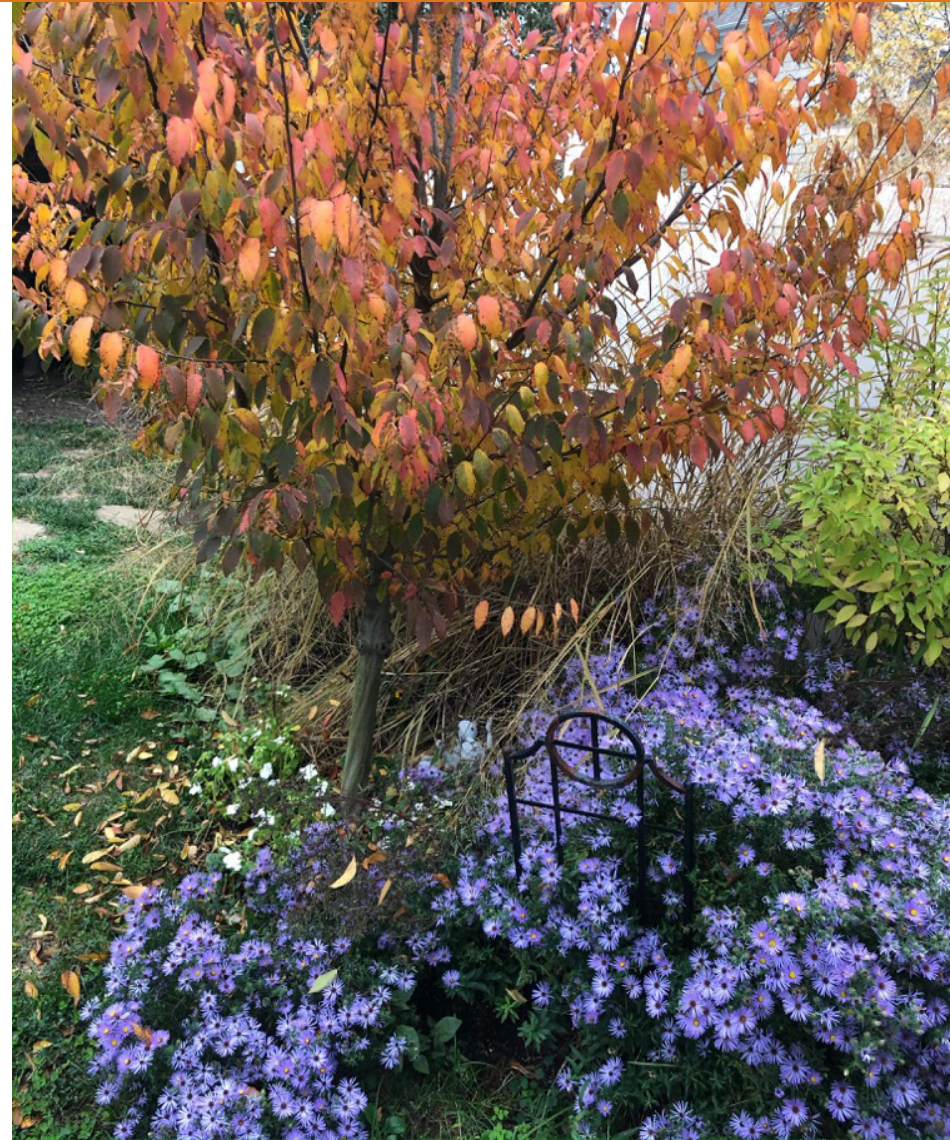
- **Clay**
- **High nutrient content**
- **Minimal organic content**
- **Can lead to standing water in low areas; if exposed, dries quickly and cracks; if wet, it's sticky**
- **pH (neutral)**



# Primary Macronutrients

Nitrogen (N), Phosphorus (P), and Potassium (K)

**Nitrogen (N) – Stimulates plant root growth and the uptake of other nutrients.**



# Primary Macronutrients

## Nitrogen (N), Phosphorus (P), and Potassium (K)

**Phosphorous (P) – Enhances flowering, fruiting and seed production. Encourages root development.**



# Primary Macronutrients

## Nitrogen (N), Phosphorus (P), and Potassium (K)

**Potassium (K) –  
Activates enzymes  
responsible for basic plant  
processes .**



# Other Nutrients



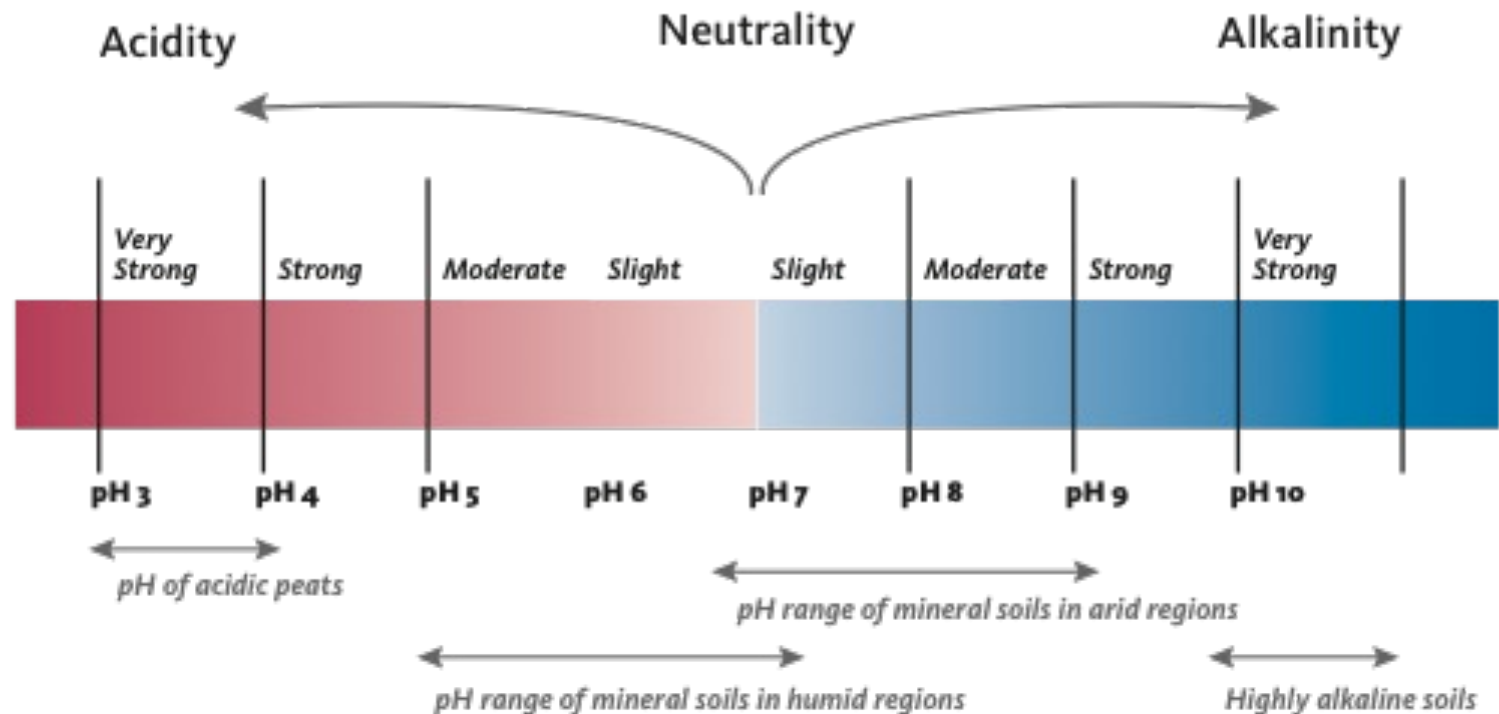
- **Calcium**
- **Magnesium**
- **Boron**
- **Manganese**
- **Zinc, etc.**
  
- **Compost can be added to keep balance**

# Soil pH

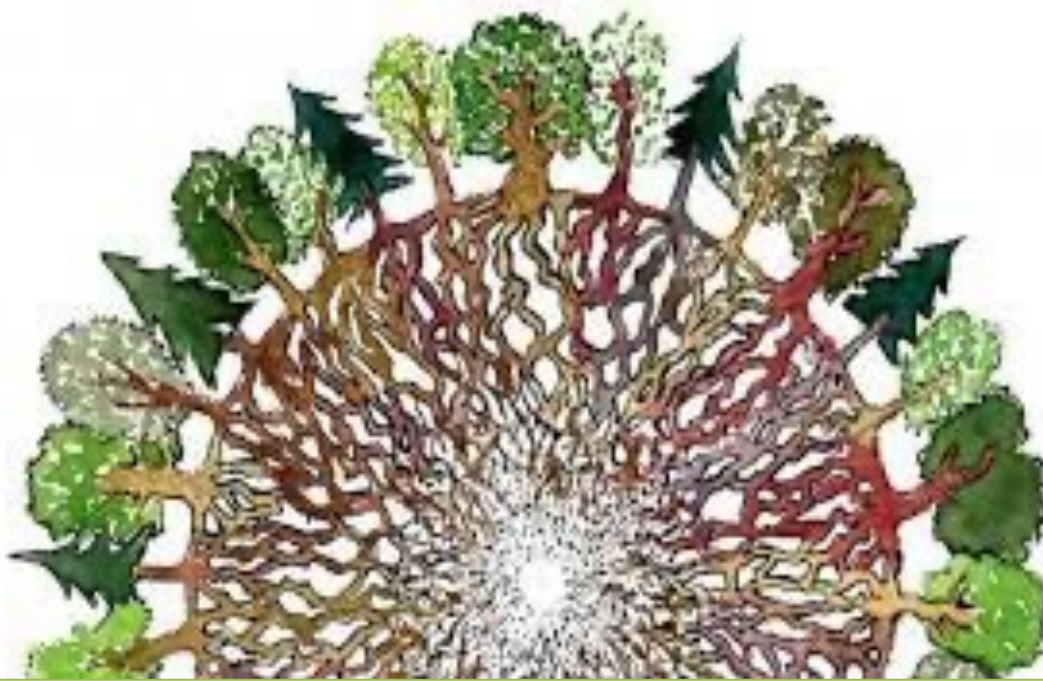
Measure of the acidity or alkalinity of the soil

## Soil pH affects:

- How plants absorb nutrients and minerals
- Activity of soil microorganisms



# Fungal Network: The Wood-Wide Web



Fungi form networks among plants providing

- nutrients
- defense
- recycling
- new adaptations

# MICROORGANISMS

## Microscopic-organisms

✿ **Single or multi-cell organisms and include all the bacteria, archaea, protozoa on the planet plus many types of fungi and algae.**

✿ **Part of every ecosystem on Earth including on the ocean floor and high up in the atmosphere.**



# MICROORGANISMS

**In a Pinch of Healthy Soil There are...**

- **3,000,000 - 500,000,000 bacteria**
- **1,00,000 - 20,000,000 actinomycetes**
- **5,000 - 1,000,000 fungi**
- **1,000 - 500,000 protozoa**
- **1,000 - 500,000 algae**
- **10 to 5,000 nematodes**



Lisa Fotios by Pexels

# Big Picture

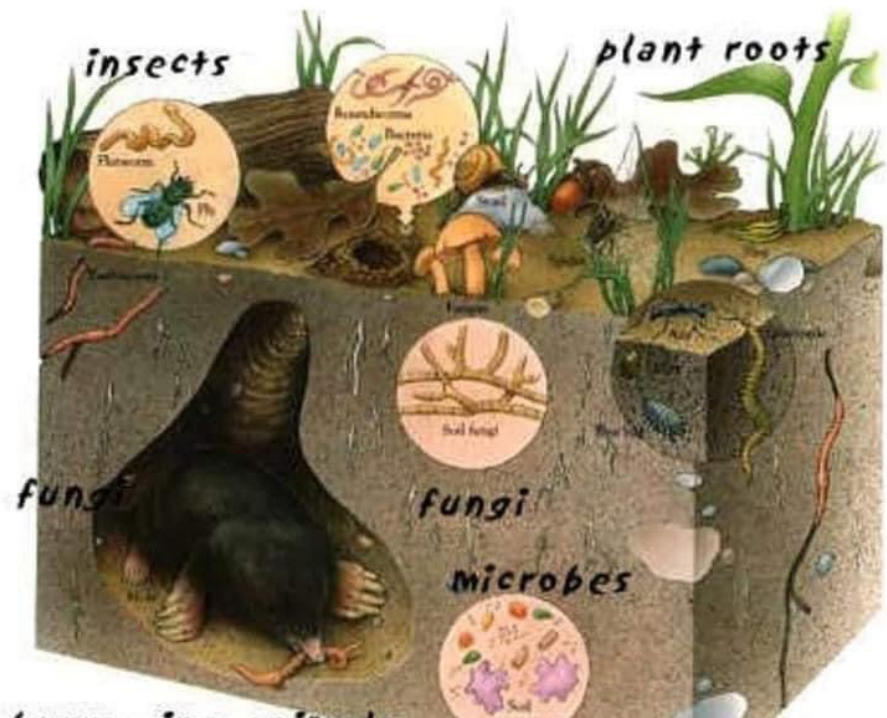


THERE CAN BE  
**NO LIFE WITHOUT SOIL**  
AND **NO SOIL WITHOUT LIFE**

**Understanding  
the Soil**

is the key to

**Understanding  
Sustainability**

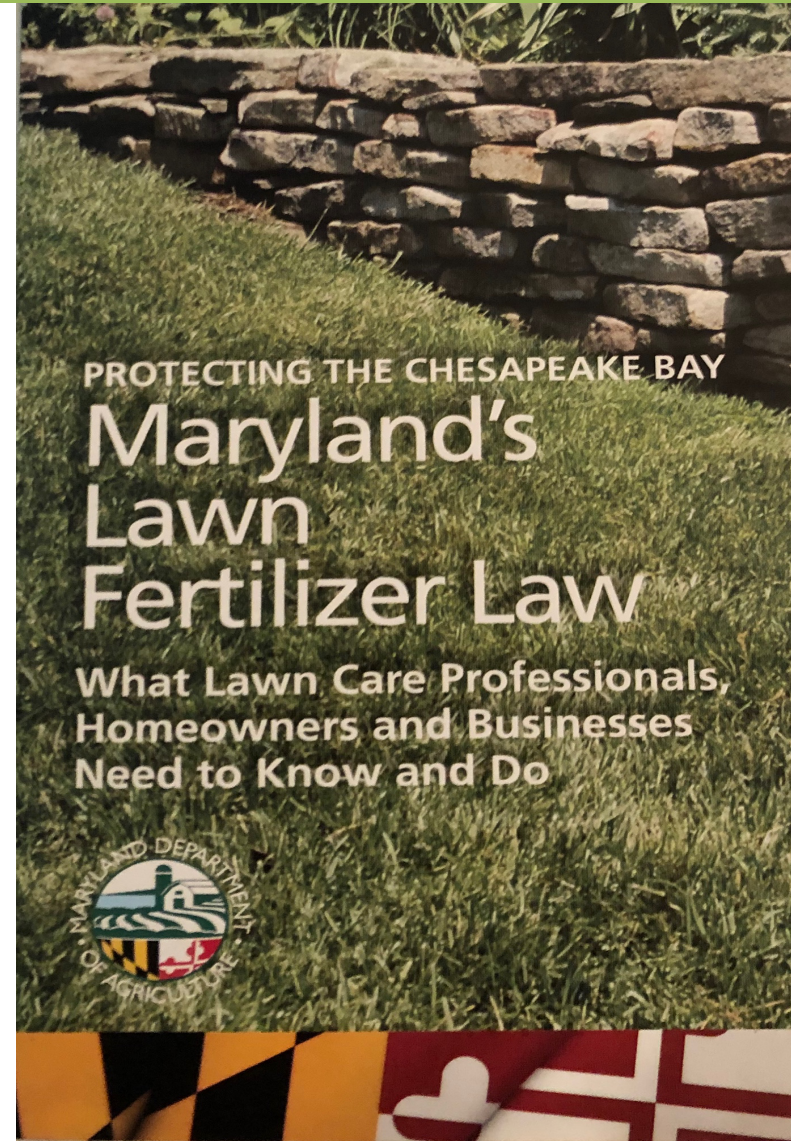




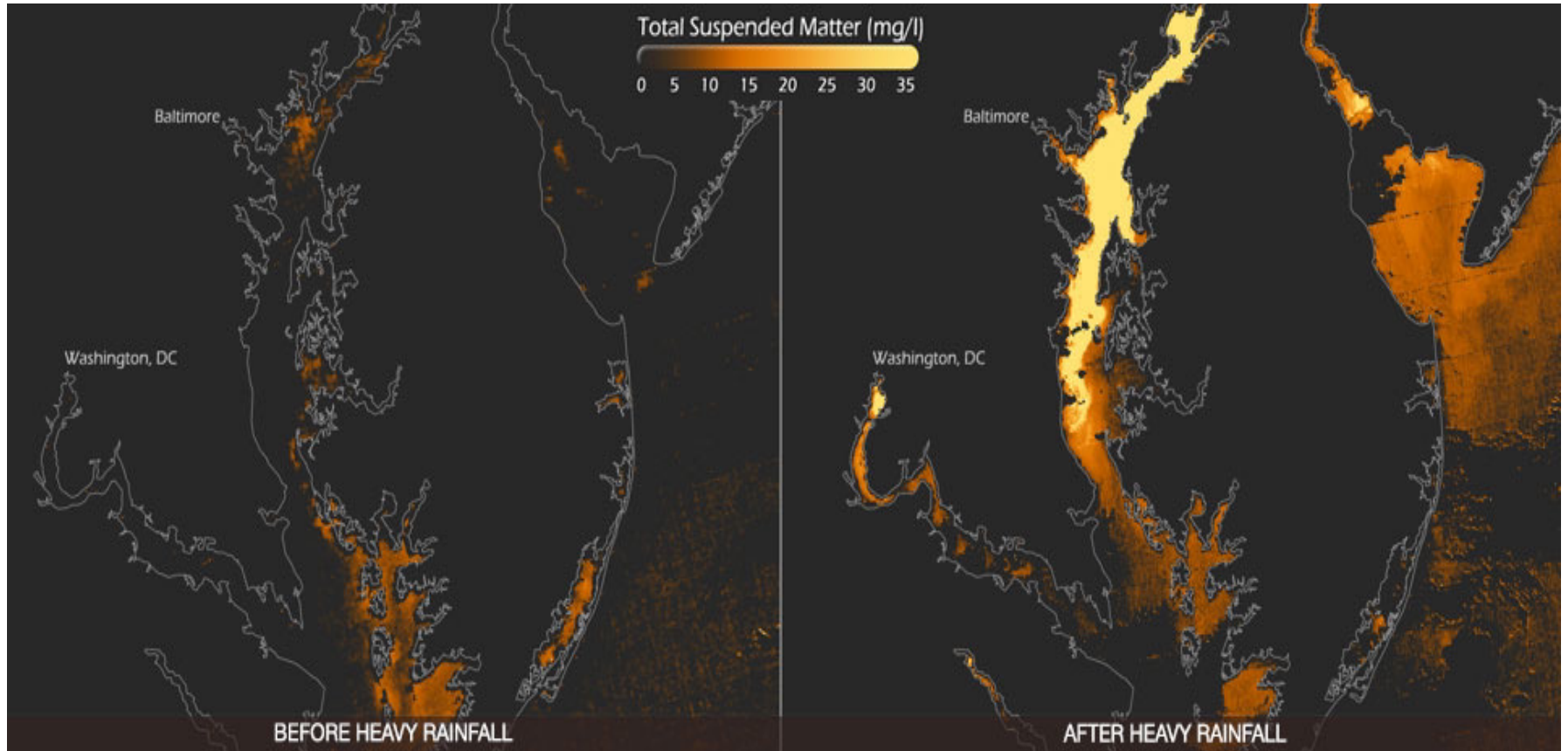
**How to Care for your Grass...  
Naturally**

# MD Fertilizer Law – effective since 2013

- **Fertilizer provides nutrients that can help a lawn and garden grow**
- **Lawn fertilizer accounts for 44% of fertilizer sold in MD (Over 215 million pounds sold in Bay area)**
- **Need to limit nutrients that end up in our waterways and Bay**



# Nutrient Pollution in the Chesapeake Bay



**Leads to algae, kills aquatic grasses**

## How to Read a Fertilizer Label

All fertilizer products are labeled with three numbers separated by dashes that represent the percent by weight of the three most important plant nutrients:

**Nitrogen (N)** — Promotes green, leafy growth

**Phosphorus (P)** — Promotes root, fruit and flower development

**Potassium (K)** — Promotes disease and drought tolerance

These numbers are always displayed in the same order. A 17 lb bag of 27-0-5 fertilizer contains 27 percent N, 0 percent P (as required by Maryland law) and 5 percent K. The weight of the fertilizer bag and the amount of area covered by the product are listed on the fertilizer label. Look for this information so that you will know how much fertilizer to buy.



*Read the fertilizer label for important information about the contents of the bag.*

# Appropriate Fertilizer Use

- **Conduct a soil test first**
- **Use only when needed, add what is recommended**
- **Choose renewable, natural fertilizers (better for soil)**
- **Avoid areas near streams or drainage ways**



# Standard Soil Chemistry Test



7621 Whitepine Road, Richmond, VA 23237  
 Main 804-743-9401 ° Fax 804-271-6446  
 www.waypointanalytical.com

## SOIL ANALYSIS

|   |   |  |
|---|---|--|
| Client :<br>Glenstone Foundation<br>12002 Glen Road<br>Potomac MD 20854 | Grower :<br>Mark Malovich<br>12002 Glen Rd<br>Potomac, MD 20854 | Report No: 16-259-0542<br>Cust No: 01201<br>Date Printed: 09/16/2016<br>Date Received: 09/15/2016<br>Date Analysis : 09/16/2016<br>Page : 1 of 6 |
| PO:   |   |  |

Lab Number : 17796

Field Id :

Sample Id : Museum

| Test             | Results       | SOIL TEST RATINGS                 |     |        |         |           | Calculated Cation Exchange Capacity |
|------------------|---------------|-----------------------------------|-----|--------|---------|-----------|-------------------------------------|
|                  |               | Very Low                          | Low | Medium | Optimum | Very High |                                     |
| Soil pH          | 7.3           |                                   |     |        |         |           | 9.9 meq/100g                        |
| Buffer pH        |               |                                   |     |        |         |           | Calculated Cation Saturation        |
| Phosphorus (P)   | 19 ppm        | [Bar chart: Low to Medium]        |     |        |         |           | %K 4.5                              |
| Potassium (K)    | 172 ppm       | [Bar chart: Optimum to Very High] |     |        |         |           | %Ca 78.1                            |
| Calcium (Ca)     | 1546 ppm      | [Bar chart: Optimum to Very High] |     |        |         |           | %Mg 17.2                            |
| Magnesium (Mg)   | 204 ppm       | [Bar chart: Low to Medium]        |     |        |         |           | %H 0.0                              |
| Sulfur (S)       | 12 ppm        | [Bar chart: Low to Medium]        |     |        |         |           | Hmeq 0.0                            |
| Boron (B)        | 0.6 ppm       | [Bar chart: Low to Medium]        |     |        |         |           | %Na 0.7                             |
| Copper (Cu)      | 2.6 ppm       | [Bar chart: Optimum to Very High] |     |        |         |           |                                     |
| Iron (Fe)        | 211 ppm       | [Bar chart: Optimum to Very High] |     |        |         |           |                                     |
| Manganese (Mn)   | 95 ppm        | [Bar chart: Optimum to Very High] |     |        |         |           |                                     |
| Zinc (Zn)        | 3.7 ppm       | [Bar chart: Optimum to Very High] |     |        |         |           | K : Mg Ratio                        |
| Sodium (Na)      | 15 ppm        | [Bar chart: Very Low]             |     |        |         |           | 0.24                                |
| Soluble Salts    |               |                                   |     |        |         |           | Ca : Mg Ratio                       |
| Organic Matter   | 6.4 % ENR 150 | [Bar chart: Optimum to Very High] |     |        |         |           | 4.54                                |
| Nitrate Nitrogen |               |                                   |     |        |         |           |                                     |

## SOIL FERTILITY GUIDELINES

|                   |                       |                               |                  |    |      |   |    |    |    |    |
|-------------------|-----------------------|-------------------------------|------------------|----|------|---|----|----|----|----|
| Crop : Lawn       | Rec Units: LB/1000 SF |                               |                  |    |      |   |    |    |    |    |
| (lbs) LIME (tons) | N                     | P <sub>2</sub> O <sub>5</sub> | K <sub>2</sub> O | Mg | S    | B | Cu | Mn | Zn | Fe |
| 0                 | 3.5                   | 3.0                           | 0                | 0  | 0.53 | 0 | 0  | 0  | 0  | 0  |
| Crop :            | Rec Units:            |                               |                  |    |      |   |    |    |    |    |

Comment :

Paul Tukey/Glenstone Museum in Potomac, MD



# Ideal Soil Test Results based on Paul Tukey's practices

- **PH: Lawns grow best in soil that is neutral to slightly acidic (between 6.0-6.8)**
- **Organic Matter content 5-8%**
- **Calcium to Magnesium content ratio is 7 to 1**
- **Cation Exchange Capacity is 10 to 25**



# But what if your results are less than ideal?

- **Compost can increase organic matter, add nitrogen and increase cation exchange capacity**
- **Amendments can change the pH**
- **Amendments can increase calcium content**

# Montgomery County BANS PESTICIDES in 2020



- **2, 4-D ubiquitous, kills weeds not grass**
- **Volatilizes in air, smells really bad**
- **Can affect people with respiratory problems**
- **Listed as a possible human carcinogen; endocrine disruptor; higher rates of dogs with lymphoma**

# THIS IS A FRENCH LAWN IN SPRING



FRANCE BANS GARDENING PESTICIDES  
TO SAVE THEIR POLLINATORS  
**FLOWERING LAWNS HELP POLLINATORS**

pollinator friendly yards on facebook  
Photo by Brianda Domecq

# Making the Switch: Expectations

- Likely some weeds in the beginning
- Hand pull weeds when possible
- Spot treat weeds you can't live with with Fiesta (a natural, iron-based herbicide)



# Clover: Is it really a “weed”?

- **Presence indicates nitrogen deficiency**
- **Fixes nitrogen**
- **Shows up in compacted clay soils**
- **Food source for pollinators**
- **Can be used as a lawn substitute: HB 322**



# Other Beneficial “Weeds”

- **Dandelions are early food source for pollinators**
- **Deep taproots pull up nutrients from deep in the soil**
- **Violets are native and serve as host plants for many caterpillars**



# Best Cultural Practices for Healthy Lawns

- **Mow high – 3.5-4 inches with a mulching mower**
- **Leave lawn clippings on lawn (but no more than 1/3 of height)**
- **Aerate, topdress with compost, overseed in spring or fall**
- **Tall fescue is best; fine fescue for shady areas**
- **Best time to fertilize is fall to support roots**
- **Don't sweat the small stuff**



# Shrink the lawn



# Add native plants



# Resources

- Handouts and brochures
- [www.greenteamurbana.com](http://www.greenteamurbana.com)
- Questions:  
[greenteamurbana@gmail.com](mailto:greenteamurbana@gmail.com)
- Thank you for coming!

# HEALTHY YARDS FOR US and FUTURE GENERATIONS



**Q&A Wrap-Up**  
Closing questions or comments