Steps to Sustainable Grounds Policy

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PRACTICE Greenhealth

Safeground ORGANIC LANDCARE

Do No Harm

- **The Physicians for Social Responsibility, state that Americans use over 4.5 billion pounds of pesticides. "Every day, we are unknowingly exposed to a variety of pesticides in our food, drinking water, homes, schools and offices.**

- Beyond Pesticides, *Taking Toxics out of Maryland's Health Care Sector* (2008)

Health Care Without Harm

COOLEY DICKINSON HOSPITAL

Member of DARTMOUTH-HITCHCOCK ALLIANCE

Baystate Health

- Bay State Grounds Crew during green job training sessions to transition the Campus

Why organic?

BEYOND PESTICIDES

Children & Pesticides Don't Mix

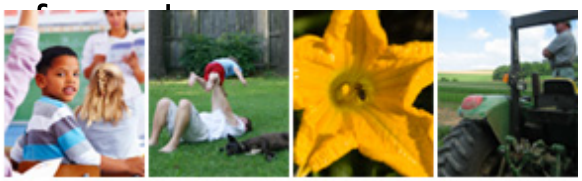
- When it comes to pesticides, children are among the most vulnerable -- pound for pound, they drink 2.5X more water, eat 3-4X more food, and breathe 2X more air.

- They also face exposure in the womb and via breast milk.

- A University of Southern California study showed that children whose parents used garden pesticides were 6.5 times more likely to develop leukemia.
- A recent study out of Harvard linked low-level, dietary exposure to organophosphate pesticides (OP's) with increased prevalence of ADHD in kids. It was all over

BEYOND PESTICIDES

Protecting Health and the Environment with Science, Policy and Action



Pioneer Valley Planning Commission

Fertilizer, Pesticides and Herbicides

- Synthetic fertilizers cause excessive algal growth in waterways, reducing oxygen available to aquatic life.

- Pesticides and herbicides accumulate in the food chain, contaminating shellfish and marine mammals.

- Lawn Chemicals that run of during a rain storm are carried into storm drains that flow into rivers, bays and oceans.

Regional Community Grants

TURI
TOXICS USE REDUCTION INSTITUTE
UMASS LOWELL

TURI REGIONAL GRANT PROJECT *Creating Safeground: Transitioning 5 Parks in Western Mass To a 100% Pesticide and Synthetic Free Organic Land Care*

School Street Park Agawam, MA

Wistariahurst Museum Holyoke, MA

Greenwood Park Longmeadow, MA

Memorial Park Ludlow, MA

Creative Park Ludlow, MA

Look Park Northampton, MA

L

State & Local Policy Initiatives

- Approximately 30 individual Pesticide Free Parks
- Approximately 35 Towns, Cities and Counties in the US have Pesticide Reduction Policy
- CT & NY have state policy banning use on school grounds
- Proposed MA Safe & Sustainable Bill in the House
- Proposed NJ Safe Playing Fields Bill in the House

Efficacy vs. Safety

- New Herbicide linked to significant tree deaths
- EPA Orders Recall of DuPont's Imprelis Herbicide
- **Monsanto's GMO Corn Linked To Organ Failure, Study Reveals**
- Monsanto has immediately responded to the study, stating that the research is "based on faulty analytical methods and reasoning and do not call into question the safety findings for these products."

Canadian Bylaws Banning Pesticide Use

- Ontario Pesticides Act - Bans the use of cosmetic pesticides since April 2009
- Toronto
- Québec
- Halifax
- Chelsea
- Hudson
- Shediac
- The Archipelago, an Ontario municipality

France

- A new study by French scientists demonstrates that **pesticide use can be dramatically reduced** — maybe even by half — without impacting crop yields or farm income.
- And the French government is acting on the findings, pledging to cut chemical inputs in the country's agricultural fields in half by 2018. Why not, if it means spending less while maintaining yields and reducing risks of exposure to hazardous pesticides?

HISTORY OF LAWNS IN AMERICA

Jeffersonian America

Lawn in America=State of Nebraska

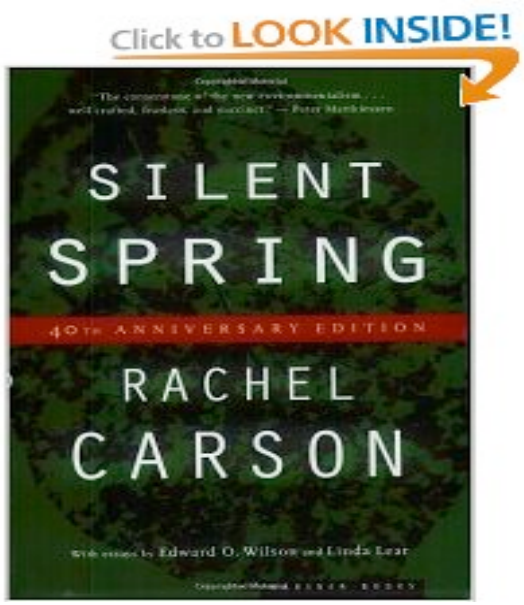
Sustainable Sites

Vegetation helps reduce the amount of carbon dioxide, a greenhouse gas, in the atmosphere by capturing and storing it for use in producing roots, leaves and bark. In the United States, urban trees capture up to 25 million tons of carbon each year.

LEED 2009

Learn More

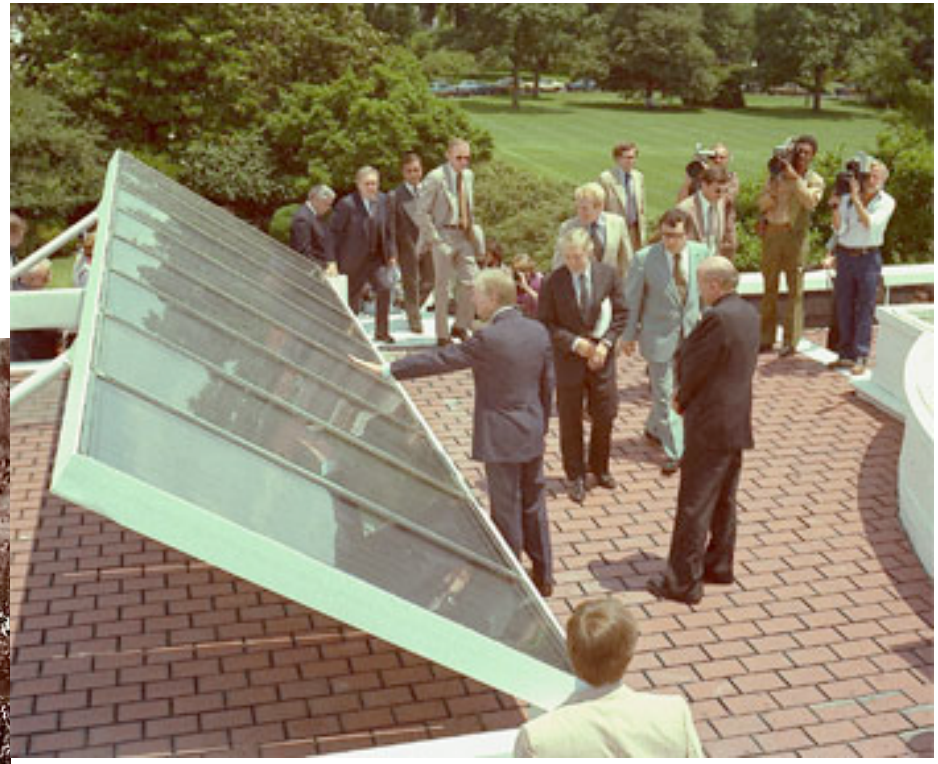
60's Rock



- 50th Anniversary of *Silent Spring* sounded the alarm of this movement with pesticides/herbicides

70's Energy & Environment

- Birth of Renewable Energy Efficiency in US
- Organics, Communes, Composting



Efficacy vs. Environmental Health

Roundup

- Glyphosate promotes soil pathogens and is already implicated with the increase of more than 40 plant diseases..."

Feb 2012, Huffington Post

What is organic?

- Safe
- Cost Effective
- Efficient
- Good for Workers Healthy
- Health of the Green Local Economy

STEP 1: Transition grounds to an organic land care program

Organic Land Care Plan

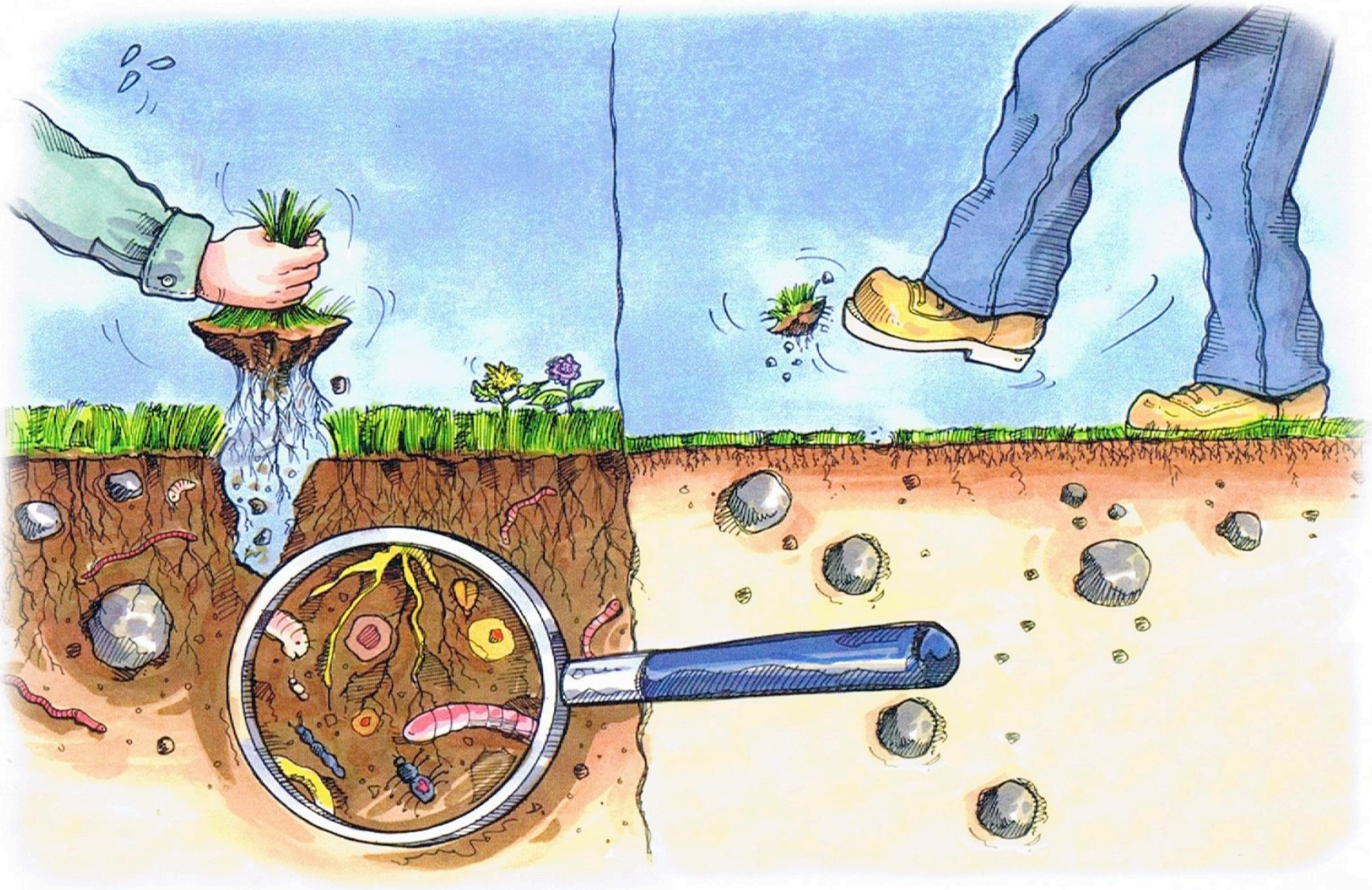
- Puts preventative steps in place to never let a problem get out of control.
- Not organic by neglect
- I don't kill anything just grow way more grass

Soil "The stomach of the plant" Real Food Conference

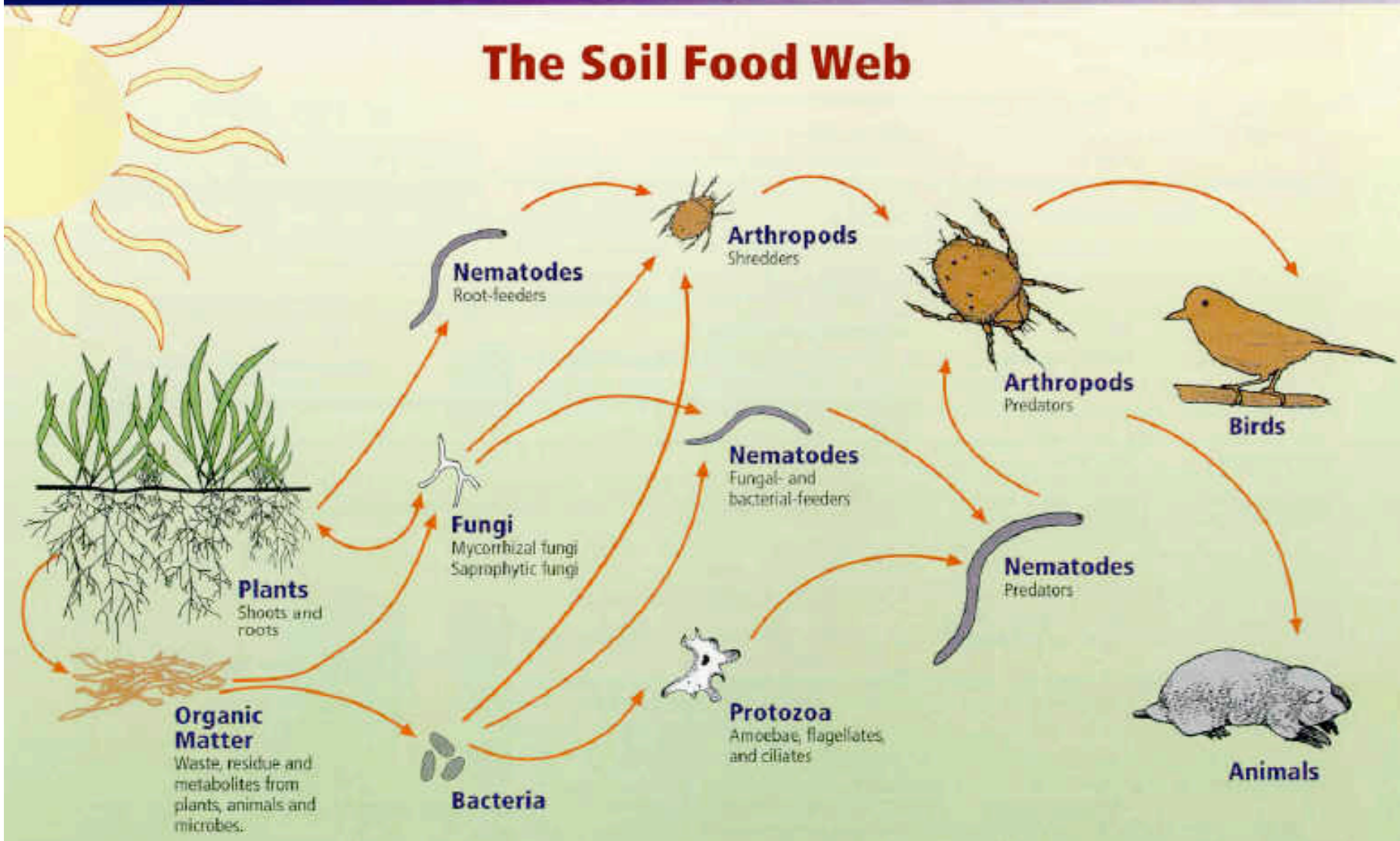
- Important to address the soil and the biomass
- Adopt products and cultural practices that support biomass and turf
- Biggest issue to move fertility from a conventional program to a natural approach that addresses soil and microbial health

CLOSE-UP OF ORGANICALLY TREATED LAWN

CLOSE-UP OF CHEMICALLY TREATED LAWN



The Soil Food Web



First trophic level:
Photosynthesizers

Second trophic level:
Decomposers
Mutualists
Pathogens, parasites
Root-feeders

Third trophic level:
Shredders
Predators
Grazers

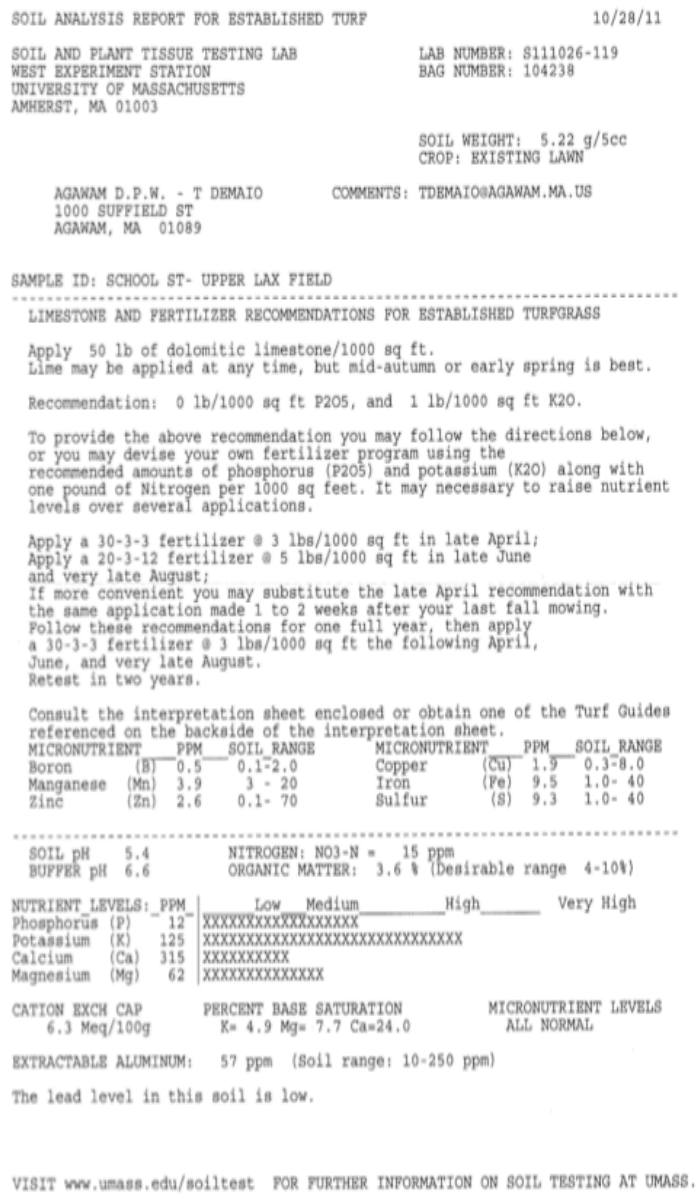
Fourth trophic level:
Higher level predators

Fifth and higher trophic levels:
Higher level predators

Work With Nature Not Against It

Always Begin with Soil Testing

Determine pH & Organic Matter



SOIL ANALYSIS REPORT FOR ESTABLISHED TURF 10/28/11

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S111026-119
BAG NUMBER: 104238

SOIL WEIGHT: 5.22 g/5cc
CROP: EXISTING LAWN

AGAWAM D.P.W. - T DEMAIO
1000 SUFFIELD ST
AGAWAM, MA 01089

COMMENTS: TDEMAIO@AGAWAM.MA.US

SAMPLE ID: SCHOOL ST- UPPER LAX FIELD

LIMESTONE AND FERTILIZER RECOMMENDATIONS FOR ESTABLISHED TURFGRASS

Apply 50 lb of dolomitic limestone/1000 sq ft.
Lime may be applied at any time, but mid-autumn or early spring is best.

Recommendation: 0 lb/1000 sq ft P_2O_5, and 1 lb/1000 sq ft K_2O.

To provide the above recommendation you may follow the directions below, or you may devise your own fertilizer program using the recommended amounts of phosphorus (P_2O_5) and potassium (K_2O) along with one pound of Nitrogen per 1000 sq feet. It may necessary to raise nutrient levels over several applications.

Apply a 30-3-3 fertilizer @ 3 lbs/1000 sq ft in late April;
Apply a 20-3-12 fertilizer @ 5 lbs/1000 sq ft in late June and very late August;
If more convenient you may substitute the late April recommendation with the same application made 1 to 2 weeks after your last fall mowing.
Follow these recommendations for one full year, then apply a 30-3-3 fertilizer @ 3 lbs/1000 sq ft the following April, June, and very late August.
Retest in two years.

Consult the interpretation sheet enclosed or obtain one of the Turf Guides referenced on the backside of the interpretation sheet.

MICRONUTRIENT		PPM	SOIL RANGE	MICRONUTRIENT		PPM	SOIL RANGE
Boron	(B)	0.5	0.1-2.0	Copper	(Cu)	1.9	0.3-8.0
Manganese	(Mn)	3.9	3 - 20	Iron	(Fe)	9.5	1.0- 40
Zinc	(Zn)	2.6	0.1- 70	Sulfur	(S)	9.3	1.0- 40

SOIL pH 5.4
BUFFER pH 6.6

NITROGEN: NO_3-N = 15 ppm
ORGANIC MATTER: 3.6 % (Desirable range 4-10%)

NUTRIENT LEVELS:		PPM	Low Medium High Very High
Phosphorus	(P)	12	XXXXXXXXXXXXXXXXX
Potassium	(K)	125	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Calcium	(Ca)	315	XXXXXXXXXX
Magnesium	(Mg)	62	XXXXXXXXXXXXX

CATION EXCH CAP
6.3 Meq/100g

PERCENT BASE SATURATION
K= 4.9 Mg= 7.7 Ca=24.0

MICRONUTRIENT LEVELS
ALL NORMAL

EXTRACTABLE ALUMINUM: 57 ppm (Soil range: 10-250 ppm)

The lead level in this soil is low.

VISIT www.umass.edu/soiltest FOR FURTHER INFORMATION ON SOIL TESTING AT UMASS.

SILLY LAWN PRACTICES

Best Practices Overview

- Site Assessment
- Test the Soil
- Apply lime and slow release organic fertilizers
- Mow High & NEVER REMOVE Clippings
- Scout for pests
- Avoid over watering

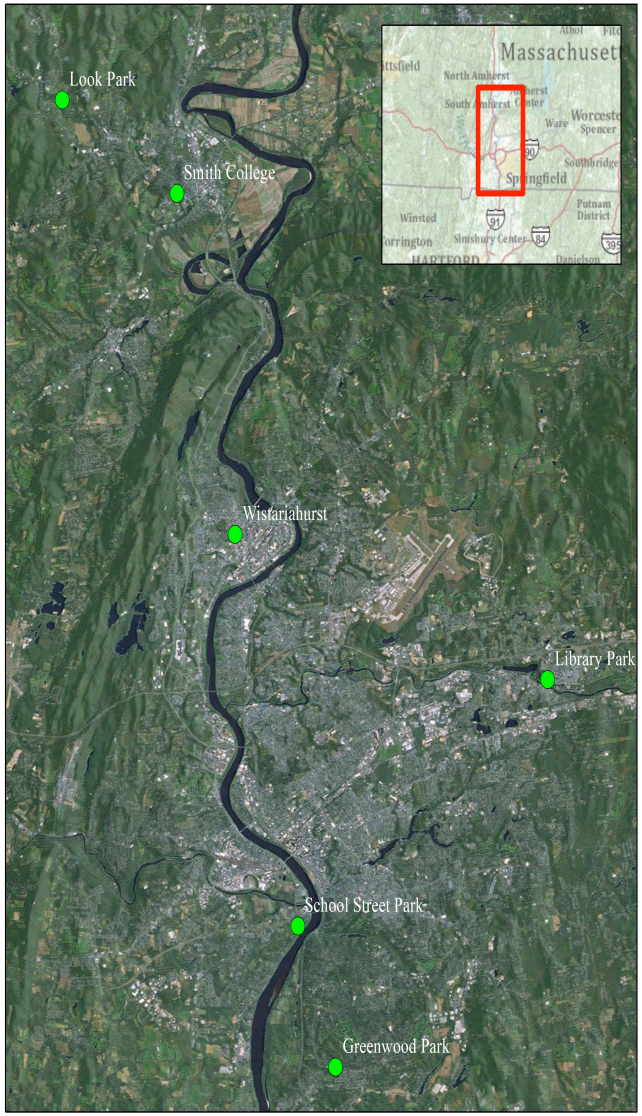
EPA WaterSense

- Become a grower not an applicator of weed killer
- Work with the Soil Food Web to restore health

ENVIRONMENTALLY PREFERRED PURCHASING

- PHASE Out Synthetics & Pesticides
- Use OMRI CERTIFIED or (NOP) NATIONAL ORGANIC PROGRAM listed products
- Renewable Regional Recycled
- Non Water Soluble
- Calcium Mineralization
- Biological Controls

GIS Case Study



IR Technology Use

- We will also use Infrared to view non source point pollution?
- •Vegetation and permeable surfaces reflect near infrared energy.
- •Water and impermeable surfaces absorb near infrared energy.
- •Infrared imagery distinguishes between different levels of vegetative health:
- –Healthy grass gives a strong signal
- –Dead grass gives a very low or no signal

Image detection of non source point pollution

IR tracking non source point pollution

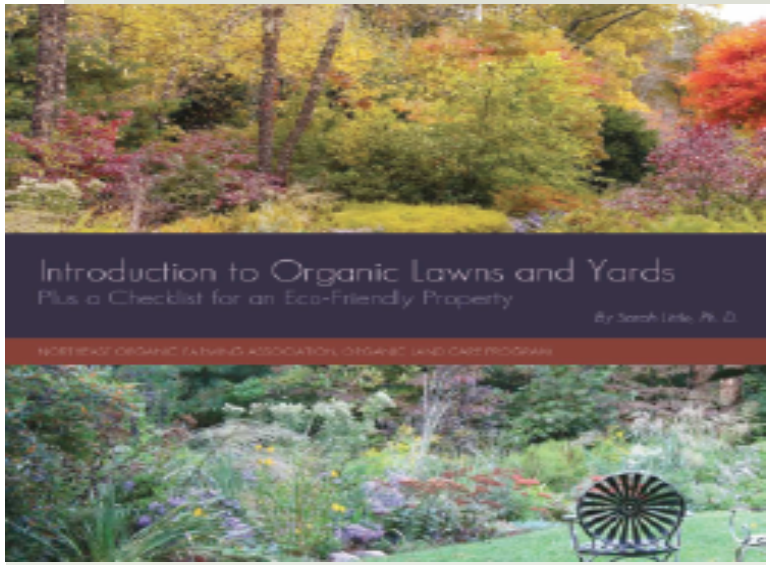
Cultivate an Organic Program?

- Be A Part of the Solution
- Create a new sustainability campaign
- Protect Worker's Health
- Protect People & Planet
- Stay Informed
- Raise Awareness

ORGANIC LAND CARE
NOFA
organiclandcare.net
NATURALLY BEAUTIFUL

Organic Yards and Lawns

Information and resources you need to cultivate a healthy, sustainable yard using natural processes and leaving out harmful chemicals.



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- Training
- Consulting
- Grant writing
- Project Management

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