

A lush garden scene featuring a central pond surrounded by a variety of plants, including large white hydrangeas, pink azaleas, and green shrubs. The garden is bordered by a dense forest of tall trees, and a green tractor is visible on the right side. The foreground shows a well-maintained lawn with large rocks.

# Lawns and Lobsters

Falmouth, ME

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Natural (Organic) Lawn & Turf Management  
Homeowners  
Lawn Care Professionals  
Municipalities

Based on a Systems Approach



# What is Organic Land Care?

Adoption of a System's Based Approach vs. a Product Approach

Conceptually different

Problem solving not symptom treating

Creation of a healthy biologically active soil environment

Soil testing as a basis for inputs



# What is Organic Land Care?

Organic by neglect is sometimes the general public's perception

“I do nothing therefore I am organic”

Organic implies a proactive, thoughtful approach to management

A series of preventative steps is put in place to build a system



# Why go organic?

What is a pesticide?

What are synthetic fertilizers?

Does the law protect us?

What are the health risks?

How are children uniquely vulnerable?

What are the environmental risks?

What can we do to reduce & eliminate exposure in our lives?

**Because we want the landscape to get better**



# What is Driving This?

Of what are average citizens becoming aware?

Science is beginning to understand that LD50 and Risk Assessment as written are not aligned with newer research.

Science and Medicine:  
Newest Research

Very low, sub-lethal exposures are problematic

Public health  
Children's health  
Pollinator health  
Pet health  
Environmental health























# Why Go Organic

Human Health  
Environment



# Pesticide 101

What do you know?

How do you perceive pesticide use?

Are they safe when used as directed?

Have you been told they are no big deal?

Have you been told they are safe when they are dry to the touch?

Do you know what a half-life is?

# Federal law defines Pesticides as any of the following:

Herbicides post-emergence

Herbicides pre-emergence

Insecticides

Fungicides

Miticides

Anti-microbials

Rodenticides

Algicides

Weed and Feed

Crabgrass control

Dial soap

Swimming pools

Any compound designed to kill, repel, or mitigate a pest



# What's In A Pesticide?

**Active Ingredients** are by nature biologically and chemically active against the target pest, be it an insect or fungus. By definition, these materials kill living things.

**Inert Ingredients** are often as toxic as the active ingredient, although the law defines these materials as “secret business information.” Inerts, often petrochemicals, like benzene, toluene or xylene, generally make up the largest percentage of a pesticide formulation. Inerts are the solution, dust, or granule in which the active ingredient is mixed. Inerts generally make up the majority of the pesticide product formulation.

**Contaminants and impurities** are often a part of the pesticide product and are responsible for the product hazards. Dioxins are contaminants in pentachlorophenol, created as a function of the production process.

**Metabolites**, often more hazardous than the active ingredients, are breakdown products which form when the pesticide mixes with air, water, soil or living organisms.



A person wearing a full-body white protective suit, a respirator mask, and gloves is spraying a green lawn with a hose. The background shows a well-maintained garden with various plants and trees.

Current Testing

Risk Assessment

LD 50 Lethal Dose

Science and Medicine  
Newest Research

“The Dose Makes the Poison”





What if the Half-life is 30 days?



Does this do any good?

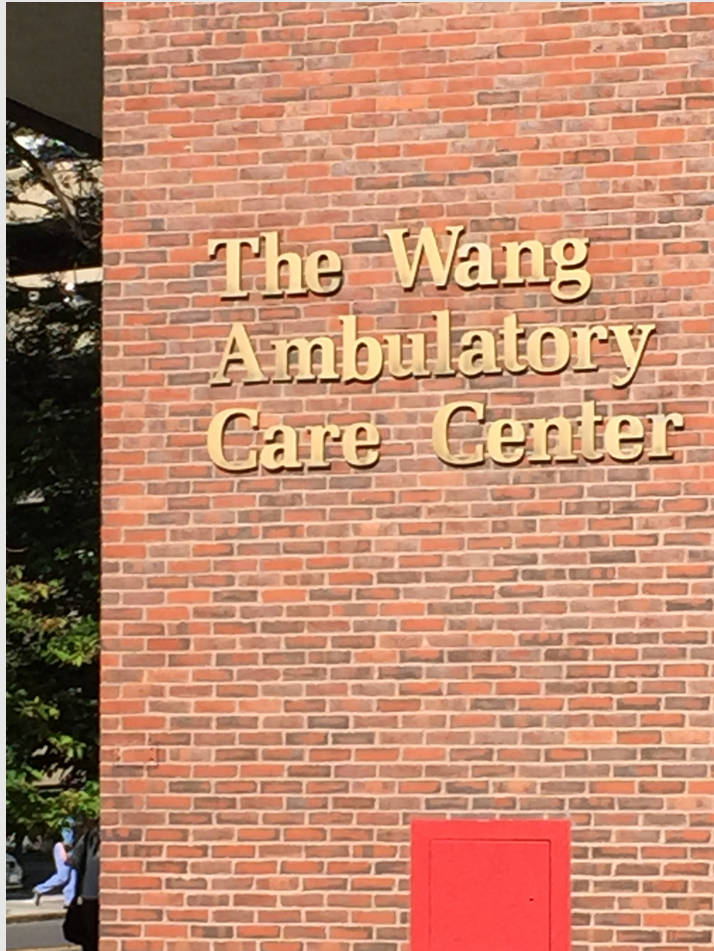








With what we know or suspect....



Does this make sense?

American  
homeowners,  
municipalities, and  
sports account for as  
much (or more)  
pesticide use than  
agriculture





# TOO MUCH GRASS in the world

We often put it where it  
doesn't belong

Some should go away  
Some must stay

Reasonable expectations

Non-chemical management





# Fertilizer 101

What is synthetic fertilizer?

What does it do?

Do you know how it works?

Can it have unintended consequences?

What is organic fertilizer?

Do you know how it works?

Can it have unintended consequences?



## **Organic**

Minerals, plants, animal by-products

## **Organic based**

Above plus bio-solids or urea

## **Synthetic**

Haber-Basch Process or acid reacted



Urea  
Ammonium Sulfate  
Potassium Nitrate  
Ammonium Nitrate



Commonly used synthetic, soluble sources of nitrogen



Following a SOLUBLE NITROGEN application to turf

Growth rate increases sharply 2 days after application

Peak growth rate 7-10 days after application

Tapers off to original growth rate in 4-6 weeks

PEAKS and VALLEYS



# Why not synthetic



Production consumes fossil fuels

Releases greenhouse gasses

Disturbs soil ecosystem

High salt

Upsets balance

Leaches



# Boulder, CO

## 2011-2014







2010 Before organic management

mid-August during growing season



First attempt at soil testing

Compaction





All thatch--unhealthy





A photograph of a lawn with sparse grass, showing significant bare soil and dead grass. The text "Minimal turf density" is overlaid in the center.

Minimal turf density





Unhealthy system





Weed pressures



A wide-angle photograph of a lush green lawn. In the background, there is a line of trees and a parking lot with several cars. A tall utility pole stands near the center of the background. The text "Transition complete" is overlaid in white on the lawn.

Transition complete












A high-resolution photograph of a lush, green lawn. The grass is dense and appears to be a mix of different species, with some blades showing signs of being cut or mowed. The overall color is a vibrant, healthy green, indicating a well-maintained and thriving lawn system.

Weeds replaced with grass  
Healthy system  
Expectations met





MA  
8 years organic

Softball, field hockey, phys ed classes





Close up  
No weeds-good density













*Why go organic on athletic fields?*

Because it can be done ~

~ and because our kids and athletes need protection from exposure to pesticides.



# History and Description of Conventional Turf grass Management



# Two Approaches to Natural Turf and Grounds Management

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Management using allowed pesticides

Management without pesticides



# If we Choose to Intervene with Allowed Materials

We embrace the concept of  
Organic IPM

US EPA 25b  
exempt materials,  
Bio-rational US EPA registered



We manage to communicate expectations

Lower expectations/low input/low cost  
not always bad

Higher expectations/higher input/higher cost  
not always good



Difference between  
Conventional and Natural  
Lawn and Turf  
Management



# Conventional / Synthetic

N=urea or other

**Water-soluble**

Fast green-up

Encapsulation

Multiple apps

Was inexpensive

Synthetic, Inorganic

Quick release

Rapid uptake

Feed the plant

Leaves soil quickly

Cost increases



# What do I do?

Communicate with your landscape contractor if you use one  
DIY homeowner change practices

Set personal expectations

Low cost = low product input

low expectations

Higher cost = higher product input

high expectations

Evaluate the site

Do a soil test

Implement a program



# How to take a soil test



1. Using a trowel dig down 3" to 4"
2. Collect a sample of soil
3. Place it in a clean container
4. Repeat several times collect about 2 cups
5. Mix together well
6. Let sit out overnight if very damp
7. Remove blades and roots
8. Place 1 cup in baggie
9. Download submittal form
10. UPS to lab



# Lime

Ideally, apply in Fall, but can be applied early Spring

50 lbs. per 1000 ft. maximum rate in 1 application...may have to do a split application.

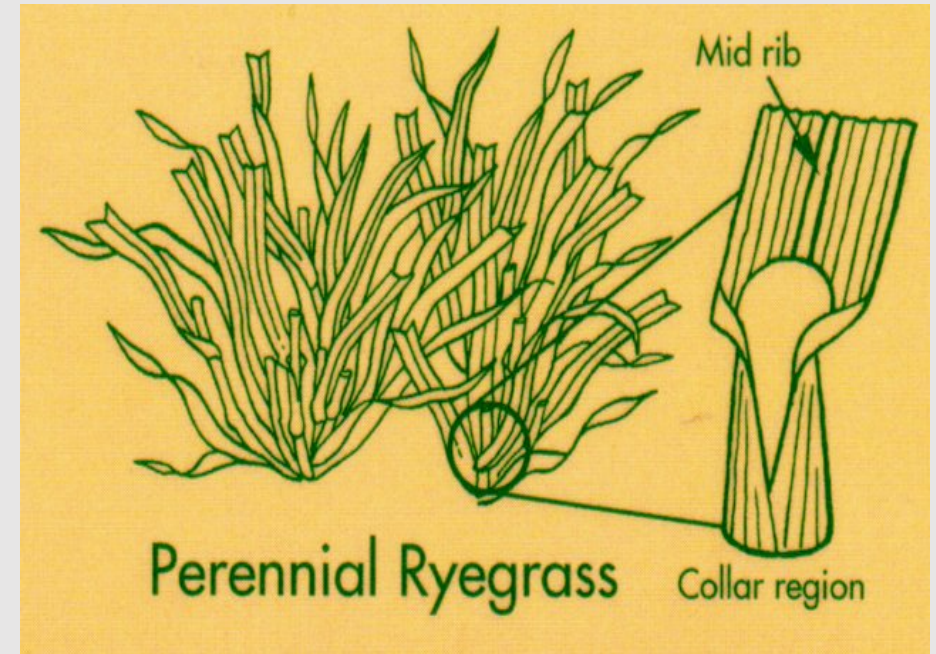
Lime can take 100 days to breakdown and effect a change in pH of soil.



# Do you think fertilizer is plant food?

We see products that say “plant food”, “lawn food”, “rose food”.  
There is no food for grass or any plant in fertilizer.  
Fertilizer is a raw material that acts as a catalyst.

**Photosynthesis makes  
the “food”**





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# Natural, Organic

Nutrients are  
Plant (grains), animal, or mineral based

WIN water-insoluble N

Broken down by microbes

Sustained benefit

Measured growth

Slow release

Feed the Soil

Organic N

Cost effective



# What is the difference?

**Fertilizer** has a guaranteed analysis

**Soil amendments and foods** primarily build, change, or adjust soils in relation to soil tests

Conventional management focuses primarily on fertilizer only

Organic focuses equally on fertilizer and amendments













3 Year organic trial  
Fall 2017



Top dress with a good quality compost









A photograph of a garden. In the foreground, there is a gravel path leading to a well-maintained lawn. To the left, a stone wall is partially covered in ivy. Behind the wall is a wooden fence. The garden is filled with various green plants and shrubs. In the background, there are several houses, including a prominent white house with a red roof and a porch. The scene is bright and sunny, with shadows cast across the lawn.

Cultural practices are important

Chemical management less so



# Mowing High – the best “Herbicide”

Mow high 3”

Think “lush”

Avoid “scalping” = major stress to grass plant

Longer grass blade = deeper root system & > photosynthesis

Deep roots = drought resistance





# Aerate

## Compaction

The greatest enemy of turf grass

With heavy use or traffic, air particles are squeezed out

Aeration introduces air back into turf system



# Spring patch seed to fill bare spots

Rake well, or aerate and de-thatch first if necessary.  
Spread ¼" of compost either mixed with or to lightly cover  
seed if possible

Apply seed by spreader or hand-broadcast

## SEED-TO-SOIL CONTACT

Water it in and keep moist, but not soaked.



# Seeding      Fall is best

Spring      Long, hot days = GOOD FOR WEEDS!  
Fall      Short, cool days = GOOD FOR GRASS SEED!

Mid-August to the end of September is best time for seeding a lawn

Should be the *only* time for new construction  
No weed pressure, days shorter and cooler



# Water Good or Bad?

A little is good

A lot is bad





# Why go organic?

“In our every deliberation, we should consider the impact of our decisions on the next seven generations.”

