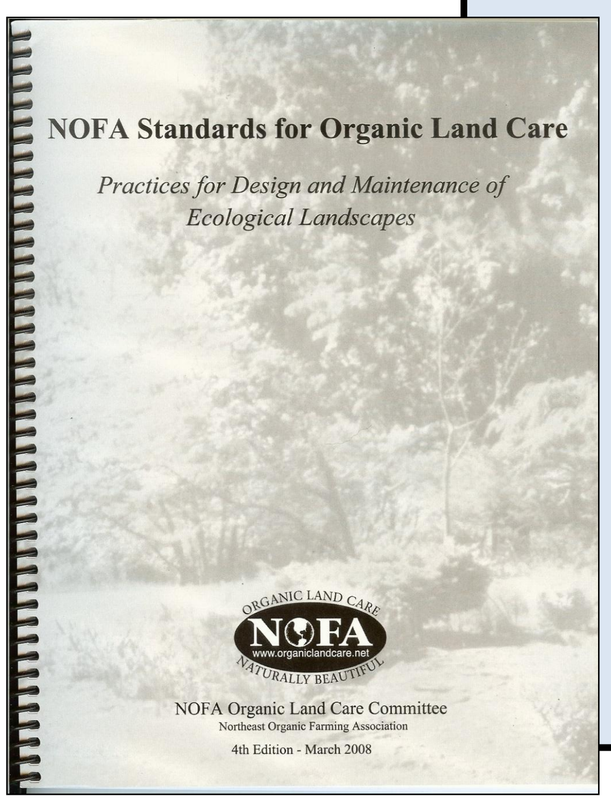
Moving from Conventional to Organic Turf Management

CT DEP Pilot Projects
2007-2009

Why Go Organic?

- *"…the more we know about chemicals, the more we don't want exposures to toxics at any levels, particularly for our children."*
  DEP Commissioner, 2007
- State law passed in 2006 prohibited pesticide use on school grounds. Now scheduled to go into effect July 1, 2010.
- Reduced nutrient runoff into Long Island Sound and other water bodies.
- Supported by the 2005 CT Climate Change Action Plan to reduce non-farm fertilizer use by 15% in 2020.



Objective: Document experience of towns going organic on athletic fields—the most highly managed and overused turf

- Changes in pesticide use
- Changes in fertilizer use
- Resource challenges

Method: Conduct pilot projects with two towns over 3 years

1. Manchester Soccer Field—1.6 acres
2. Watertown Baseball Field—3.5 acres

Different types of management
— municipal crew vs. private contractor

Different types of opportunities
— town compost, equipment

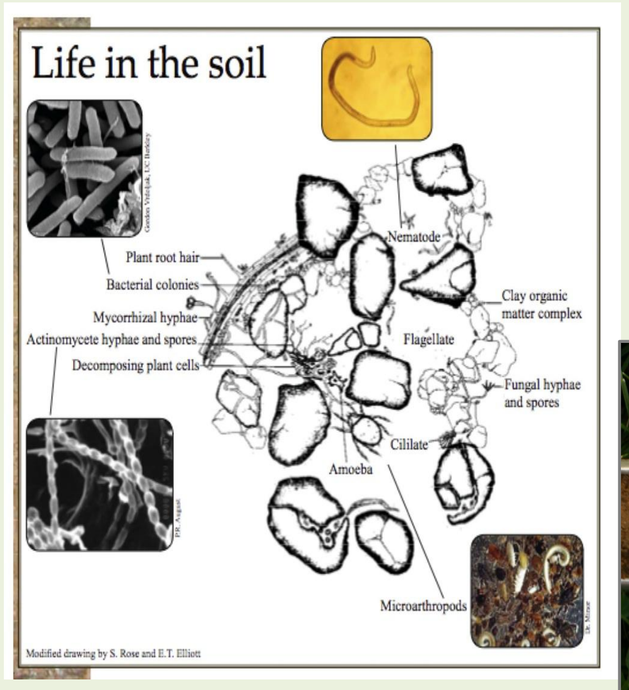
Step 1: Test Soil for biology and chemistry

Biological testing:

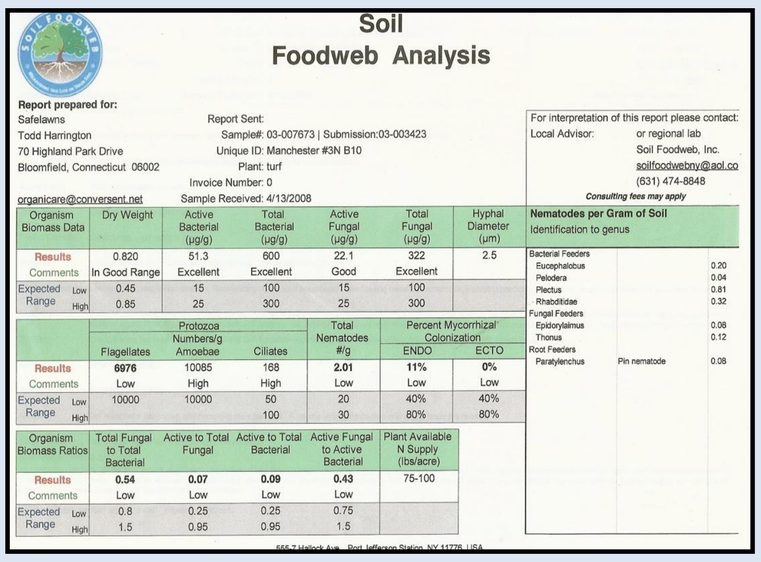
Soil Food Web Laboratory

Chemical testing:

UConn; UMass; A & L Lab



Step 2: Develop Organic Land Care Plan using soil test results, recommendations



Soil Foodweb Analysis

Report prepared for:
Safelawns
Todd Harrington
70 Highland Park Drive
Bloomfield, Connecticut 06002
organicare@conversent.net

Report Sent:
Sample#: 03-007673 | Submission:03-003423
Unique ID: Manchester #3N B10
Plant: turf
Invoice Number: 0
Sample Received: 4/13/2008

For interpretation of this report please contact:
Local Advisor: or regional lab
Soil Foodweb, Inc.
soilfoodwebny@aol.co
(631) 474-8848
Consulting fees may apply

Organism Biomass Data	Dry Weight	Active Bacterial (µg/g)	Total Bacterial (µg/g)	Active Fungal (µg/g)	Total Fungal (µg/g)	Hyphal Diameter (µm)
Results	0.820	51.3	600	22.1	322	2.5
Comments	In Good Range	Excellent	Excellent	Good	Excellent	
Expected Range Low	0.45	15	100	15	100	
Expected Range High	0.85	25	300	25	300	

	Protozoa Numbers/g Flagellates	Protozoa Numbers/g Amoebae	Protozoa Numbers/g Ciliates	Total Nematodes #/g	Percent Mycorrhizal Colonization ENDO	Percent Mycorrhizal Colonization ECTO
Results	6976	10085	168	2.01	11%	0%
Comments	Low	High	High	Low	Low	Low
Expected Range Low	10000	10000	50	20	40%	40%
Expected Range High			100	30	80%	80%

Organism Biomass Ratios	Total Fungal to Total Bacterial	Active to Total Fungal	Active to Total Bacterial	Active Fungal to Active Bacterial	Plant Available N Supply (lbs/acre)
Results	0.54	0.07	0.09	0.43	75-100
Comments	Low	Low	Low	Low	
Expected Range Low	0.8	0.25	0.25	0.75	
Expected Range High	1.5	0.95	0.95	1.5	

Nematodes per Gram of Soil
Identification to genus

Bacterial Feeders		
Eucephalobus		0.20
Pelodera		0.04
Plectus		0.81
Rhabditidae		0.32
Fungal Feeders		
Epidorylaimus		0.08
Thonus		0.12
Root Feeders		
Paratylenchus	Pin nematode	0.08

555-7 Hallock Ave., Port Jefferson Station, NY 11776, USA

Manchester Plan 2007
Recommended Practices by Season

Early Spring

Apply corn gluten as a fertilizer, inoculated with both nitrifying bacteria and pseudomonas (Organica PGA Plus 8-1-1)
- **Leave turf at a height of 3-1/2 inches for one month.**
- **Apply dolomitic lime to field 1 southside only**

Late Spring

Apply Actively Aerated Liquid Compost Tea (AALCT) after the organic fertilizer application (corn gluten)

Summer

Apply Organic Fish and/or Organic Soy Fertilizer, 3-4 weeks after the compost tea

WATERTOWN: DELAND FIELD TIME LINE
DESCRIPTION
SPRING
Core Aeration-before seeding, then as needed
Spring Seeding-May, then as needed
Inoculate-Mycorrhizea and/or Rhizobial Bacteria, in conjunction with seeding
Compost Spreading-to coincide with seeding or when soil temp is 55 degrees
Corn Gluten-by 3rd week of April except when seeding (see program details)
Fertilization-Starter formulation (2-4-2) during seeding; follow up June (4-2-4) if necessary

Step 3: Evaluate resources and modify plan as needed

Manchester

- Modified Equipment to Apply Compost Teas
- Used Town Leaf Compost—conducted pilot project to try out various recipes to increase biology in soil and not overload with nutrients

Watertown

- Struggled with budget constraints throughout the project—vendor budget was reduced 31% the first year and 100% by second year end.

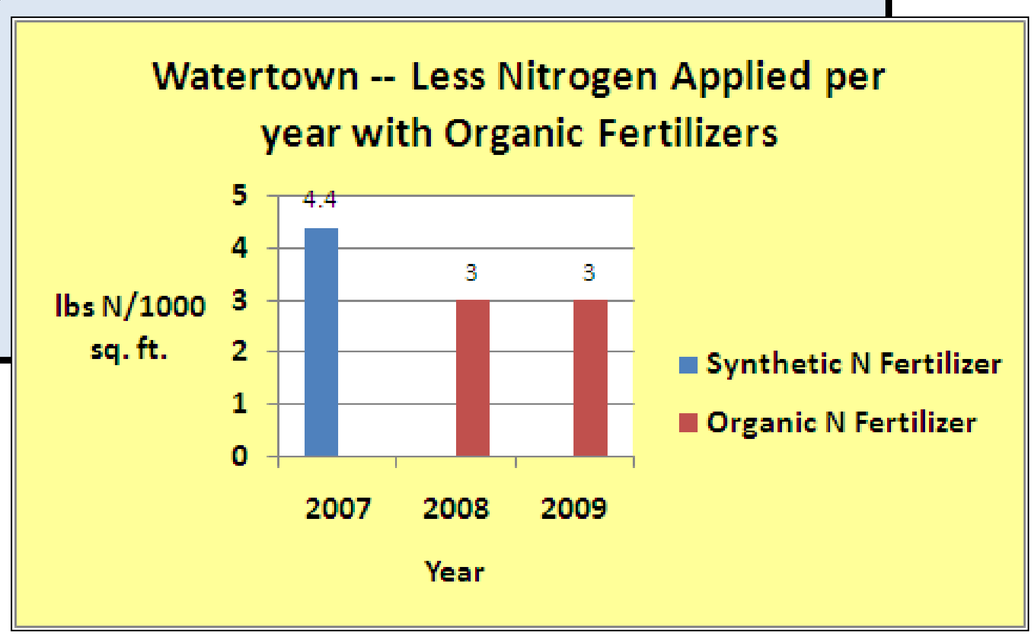
Successes: Manchester Uses its Leaf Compost on Soccer Field—starting in 2008

- Annual Production of Leaf Compost by Manchester: 3,550 T
- Cost quote for commercial leaf compost in CT: $29/T
- Manchester spreads leaf compost on pilot soccer field
  - 2008: 35 T leaf-manure compost mix
  - 2009: 20 T leaf compost

Successes: Watertown Eliminates Pesticides

- Dimension, a pre-emergent for crabgrass, mixed with 13-2-5 fertilizer, previously applied on annual basis
- Merit, an insecticide for grubs, mixed with 24-5-11 fertilizer, previously applied on annual basis
- Watertown discontinued pesticides on Deland Field in 2008

…and reduces nitrogen



Next Challenges:

- Budget limitations on testing, product, equipment and labor
- More research needed to validate organic recommendations
- Improvements in making and using municipal compost
- Strategies to improve N testing and reduce over-fertilization
- Future of pesticide prohibitions law on school grounds?