Beyond Pesticides
National Pesticide Forum
May 19, 2006

Athletic Field Turf Management

The Why's and How's of a Natural Program

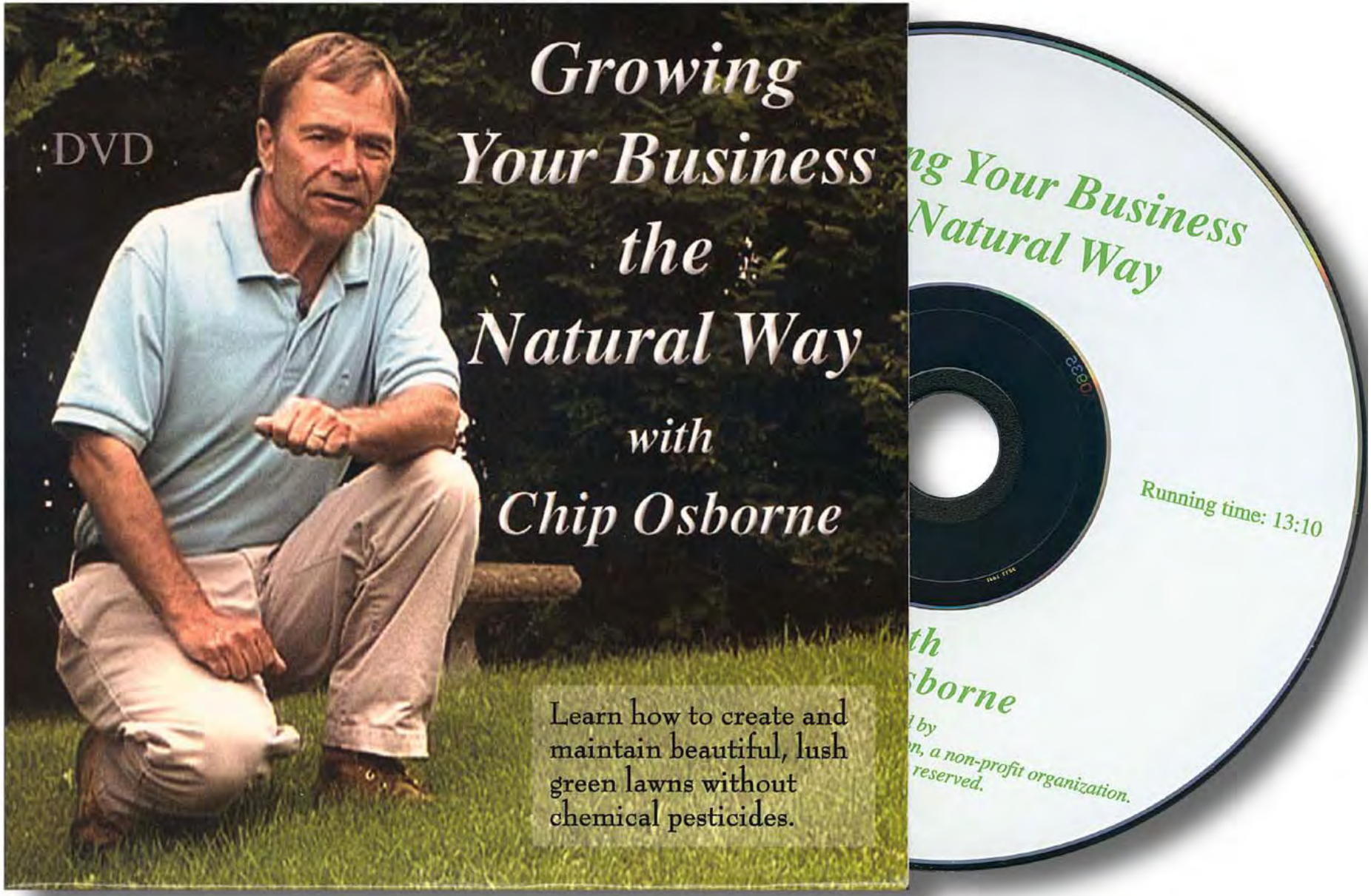
Chip Osborne

My background

- Professional horticulturist for over 30 years
- Chair, Town of Marblehead Recreation, Parks & Forestry Commission and Turf Manager
- Co-Chair, MPAC ~ Marblehead's Pesticide Awareness Committee;
- Co-Chair, The Living Lawn Project
- Held pesticide applicator's license for many years as a greenhouse grower
- And ~ a DAD

Organic Athletic Turf Management
~ Choices and Challenges ~


The Living Lawn Project
Marblehead, MA


DVD
Growing Your Business the Natural Way
with
Chip Osborne
Learn how to create and maintain beautiful, lush green lawns without chemical pesticides.
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Natural Way
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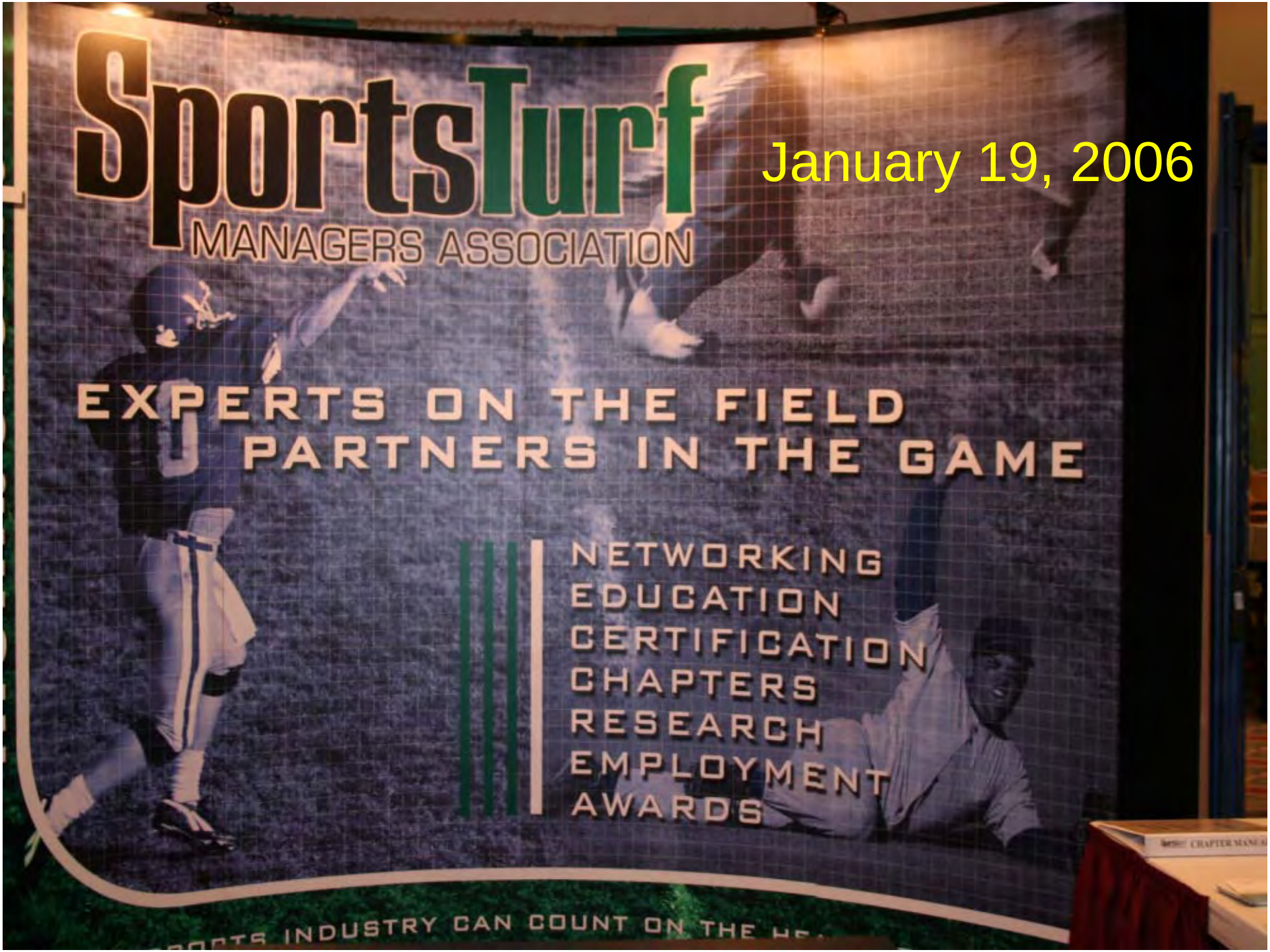

SportsTurf
MANAGERS ASSOCIATION
January 19, 2006
EXPERTS ON THE FIELD
PARTNERS IN THE GAME
NETWORKING
EDUCATION
CERTIFICATION
CHAPTERS
RESEARCH
EMPLOYMENT
AWARDS
INDUSTRY CAN COUNT ON THE


How I Ended Up
Addressing STMA
As An Organic Turf Manager

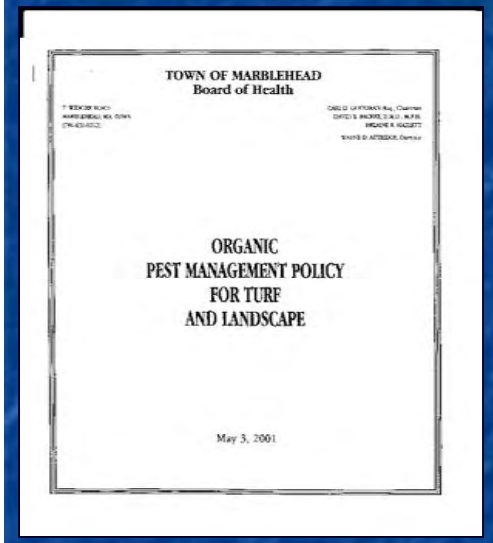
Marblehead…The Little Town that Could…
~ Go Organic ~!

MPAC's *Awareness through Education* campaign

- Partnerships with Town Departments
- Partnership with League of Women Voters
- Educational conferences for local landscapers
- Outreach to schools, garden clubs, homeowners & other communities
- ***"Living Lawn"*** Organic Demonstration Project
- Homeowner classes on organic lawn care

Town of Marblehead

Board of Health responds to citizens' concerns and declares


TOWN OF MARBLEHEAD
Board of Health

ORGANIC
PEST MANAGEMENT POLICY
FOR TURF
AND LANDSCAPE

May 3, 2001

Pesticides

a Public Health Issue

April 2000.

Copies of OPM Policy available to download on

www.livinglawn.org

A Living Lawn…
A Lawn for Living

Town of Marblehead
Board of Health

Adopts
Organic Pest
Management Policy
for all
Town-owned Land
(including
Athletic/Playing Fields)

May 2001

Town of Marblehead
Board of Health

Adopts
Organic Pest
Management
Regulation
for all
Town-owned Land
(including
Athletic/Playing Fields)
December 2005

Marblehead's OPM POLICY

- Mandates non-chemical approach
- IPM Policy as an addendum
- Advisory committee established to hear and decide on possible waivers of policy
  (WNV, Fields, Aquatic)

OPM in Marblehead

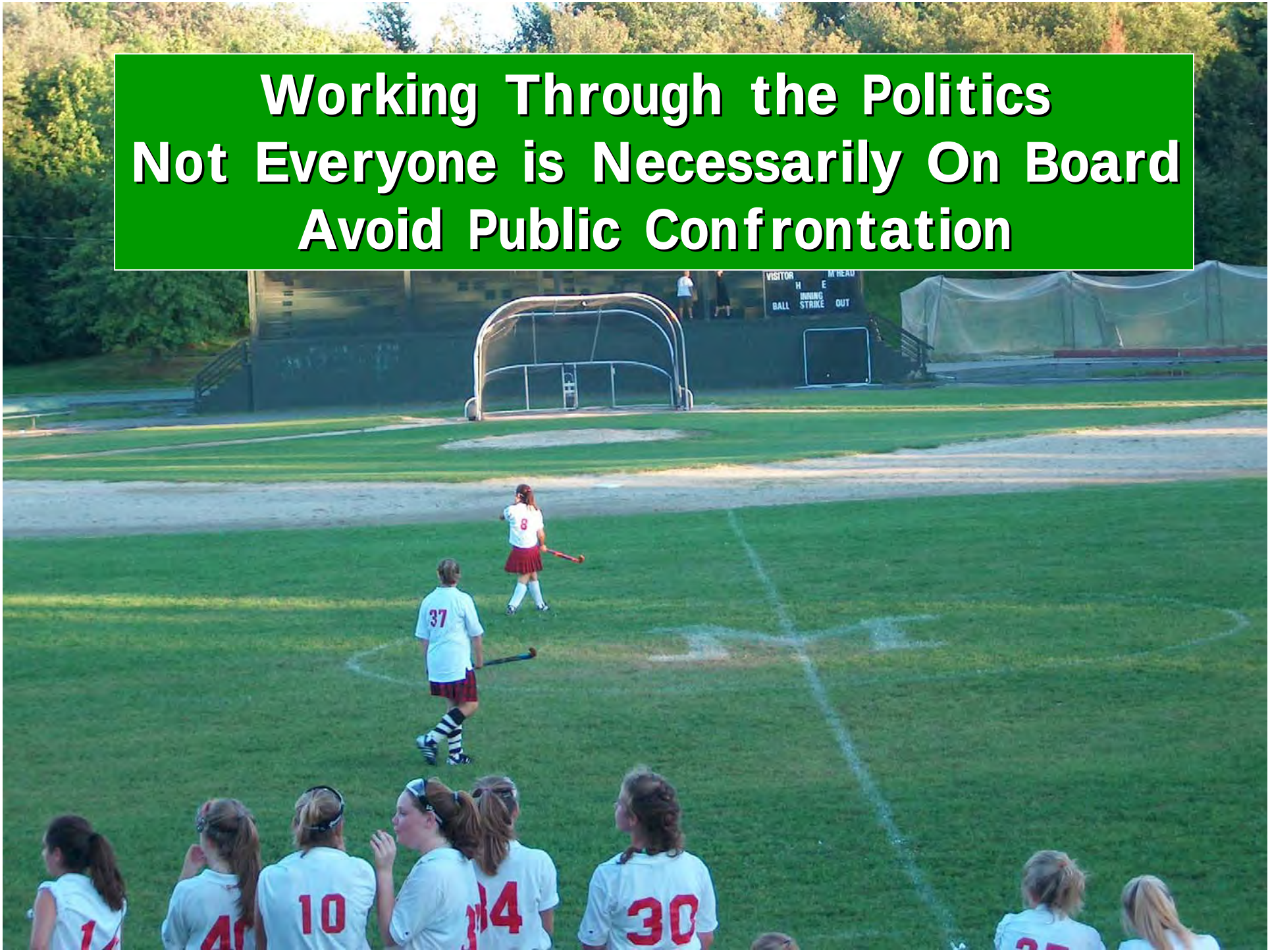
- A program based on prevention
- Create ideal soil profile for turf
- Weeds thrive where turf does not
- Weeds are indicators of what is wrong

- Marblehead was one of the first
- Many municipalities, school districts, and universities are having these discussions

Role of Recreation, Park, and Forestry Dept.

- Cuts all grass in town
- Responsible for compliance with Board of Health OPM Policy
- Needed to secure funding from FinCom
- Implement plan


Built Partnerships with
Youth Sports Groups
in Town, amongst others


Working Through the Politics
Not Everyone is Necessarily On Board
Avoid Public Confrontation

Developed Sound Chemical-Free Field Management Plan

Backed our Cultural Plan with Detailed Soil Biology and Proper Soil Profiles

Approached Fin-Com with Sound Biology and Good Numbers
Cost Reductions at Five Year Point

Challenges

- Communication and Education
- Pesticide awareness/organic turf management
- Fields are multi-use; parks as well as playing fields
- School Committee--Politics
- Youth Sports – Major users; keeping them happy
- Mythology around athletic fields and organic turf management

Initiating an Organic Turf Management Plan

- Plan based on building sustainability
- Plan based on a preventative approach to possible pest problems
- Held formal RPF Commission meeting on local cable TV to outline plan to town
- Involved my department employees and the community
- Build partnerships – citizen activists; Board of Health; Youth Sports; LWV

Myths about Organic Turf Management of Athletic Fields

- Organic fields need to be rested
- Not safe—more prone to injuries
- All organic fields have clover problems
- Organic athletic field management is prohibitively expensive
- Switching from chemical to organic puts your fields at risk

Myth 1:
Organic fields need to be rested

All fields ideally should be rested for recuperative growth.

This is not an organic vs. chemical issue

Myth 2: Organic athletic fields are not "safe"; cause more injuries.

- Safety issue not substantiated—*any* turf that has irregular surface can twist ankles—again not an organic issue vs. chemical
- Chemical turf generally hard and compacted (not much soil biology)—organic turf less compacted—softer, better playing surface

Myth 3: Organic fields always have clover problems.

- Excess clover is a soil indicator
- Clover is found in fields with low nitrogen, compaction issues, drought stress
- Fixes nitrogen in soil
- Proper horticultural steps to reduce
- Over-seed to reduce

Myth 4: Organic turf management is prohibitively expensive

- Initially can be slightly more expensive
- Don't forget to subtract cost of chemical program
- Becomes sustainable
- Inputs decrease
- Water savings
- Known and unknown health costs of a chemical program

Myth 5: Organic Turf Management puts fields "at risk."

- Cornell University study: chemically maintained fields, low in organic matter, are found to be more susceptible to disease.
- Depleted soil microbiology
- Turf Manager will find that he does not need pesticides during transition
- Fear of Failure
- Relatively easy to keep field in good shape

Our Story: Marblehead's Fields

- Roughly 500,000 square feet of existing athletic fields / parks
- 575,000 square feet of new athletic field construction and renovation done with building of new high school

Most of the existing fields were "Organic by Neglect"

$5,000 as line item in budget from

1974-2001

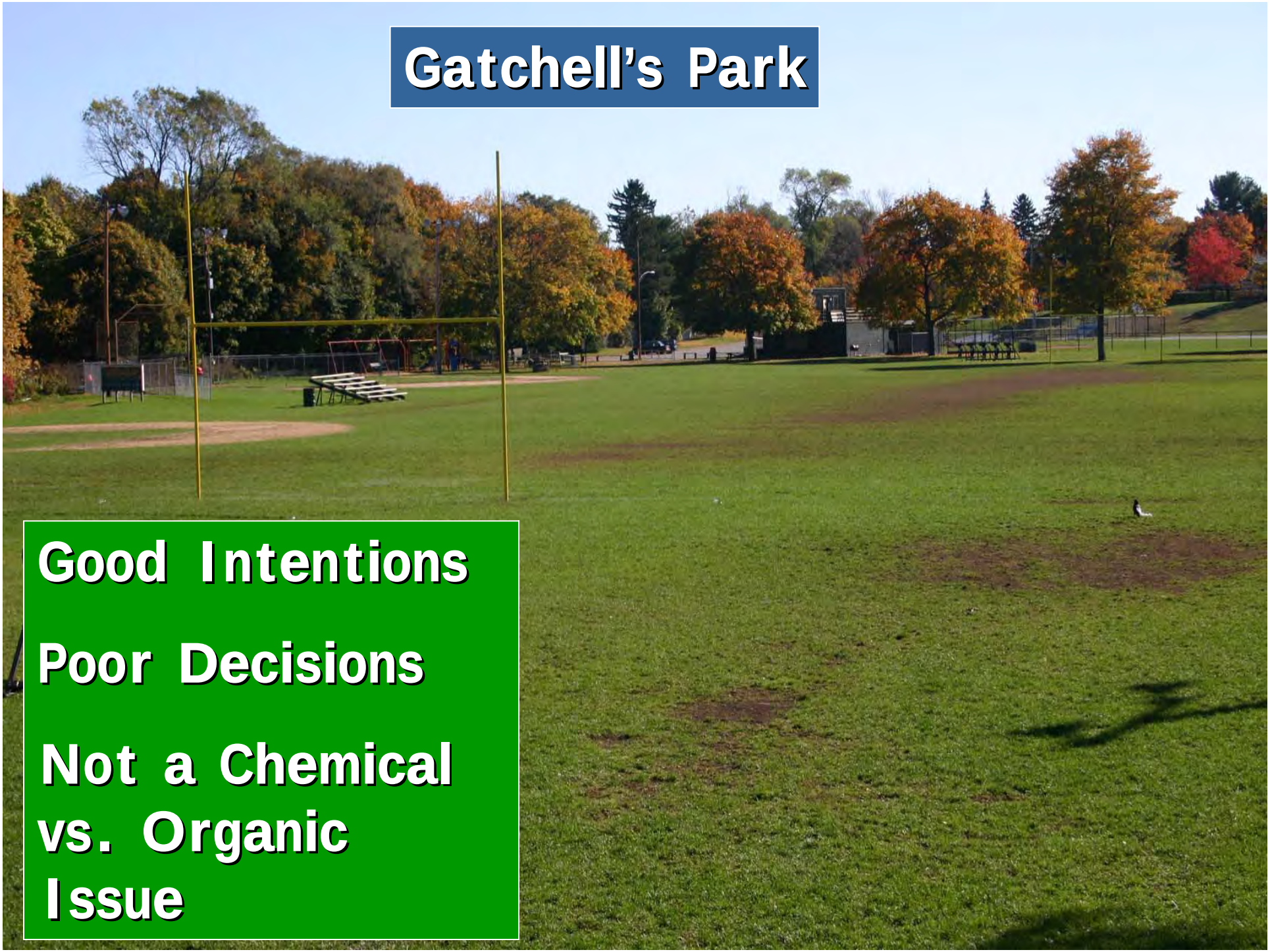
for chemicals & fertilizer

Problems with Existing Fields

- Not much done to them over the years
- They were not a priority of the town
- Baseball Field doubles for Field Hockey
- Private contractor allowed to do work on football field—done improperly


Gatchell's Field
New construction (1997)
poor soil
compacted
never aerated
never fertilized

Gatchell's Park



Good Intentions

Poor Decisions

Not a Chemical vs. Organic Issue

New School Construction

- Game Day Field-Football & Soccer
- Baseball Field
- Softball Field
- 50,000 sq ft Practice Field
- 200,000 sq ft multi-purpose fields

Inherited Problems

- No green professional on the Building Oversight Committee
- No Clerk of the Works for the field construction projects
- Poor construction from the beginning is impossible to correct in a timely manner in any type of program without a major re-build
- Initial construction process is the time to get it right

3.4% Organic Matter

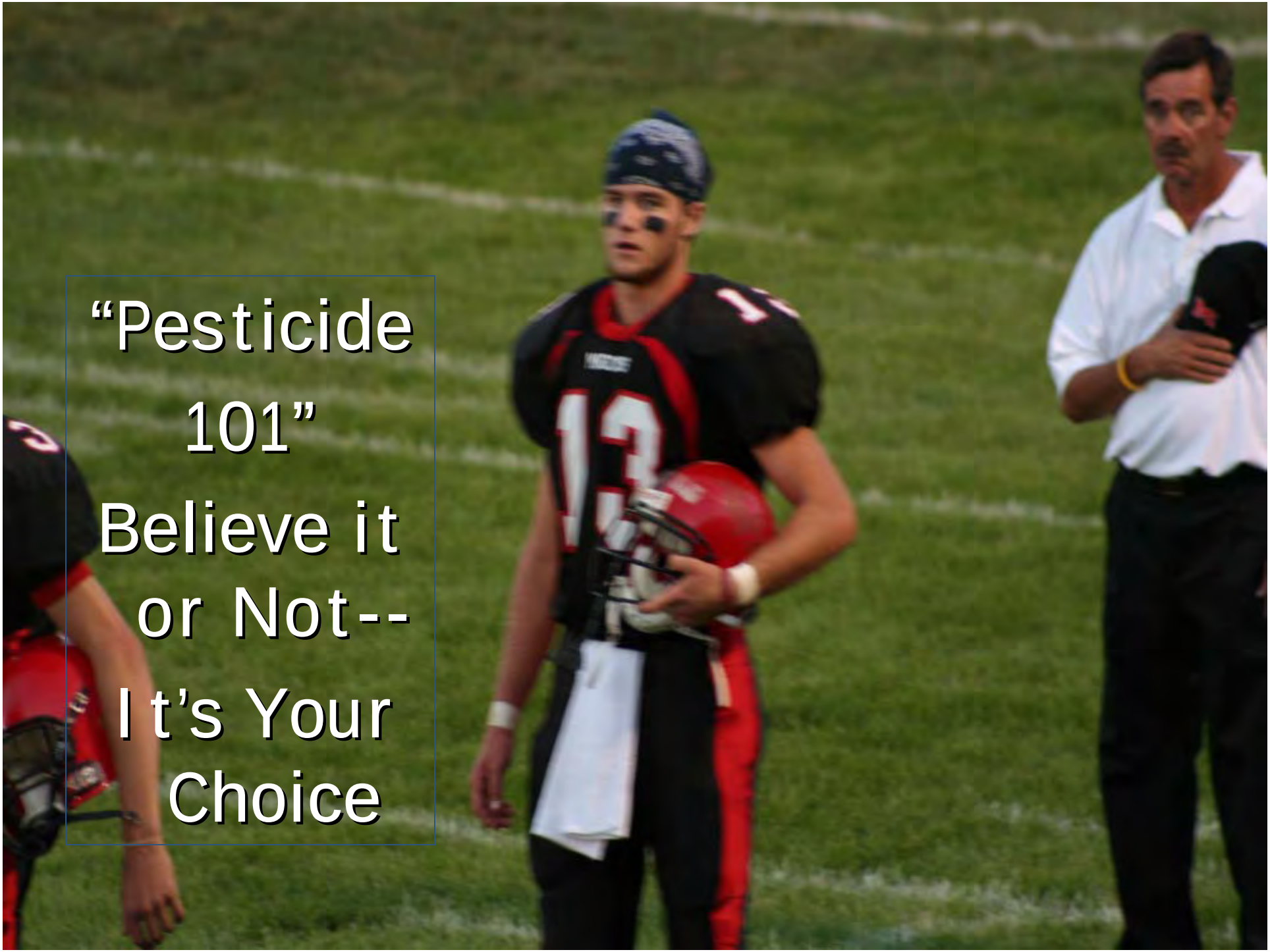
16% Gravel Content

Marblehead Middle School


An Organic Management Plan is one of prevention
We work with soil microbiology to create stress free system
Can be adapted to any type of field construction


Organic Turf Management
is designed to incorporate:
The use of natural,
organic products as needed;
A basic understanding of soil biology;
Sound cultural practices


As Turf Managers
we need to be aware that
things are changing---there
are viable alternatives to
conventional turf
management that work


"Pesticide 101"
Believe it or Not--
It's Your Choice

Why go organic?

- What is a pesticide?
- Doesn't 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?

What is a Pesticide?

CAUTION

Pesticide Application

Keep Off!

Pesticides are poisons.

Federal law defines pesticides as any of the following:

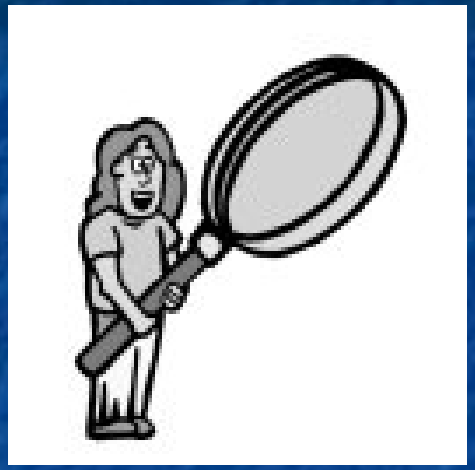
- Herbicides (Weed and Feed)
- Pre-emergents
- Insecticides
- Fungicides
- Miticides
- Anti-microbials
- Rodenticides
- Algicides
- Repellents
- Or any chemical designed to kill, repel or mitigate a pest

Read the Label

Read the Label

Read the Label

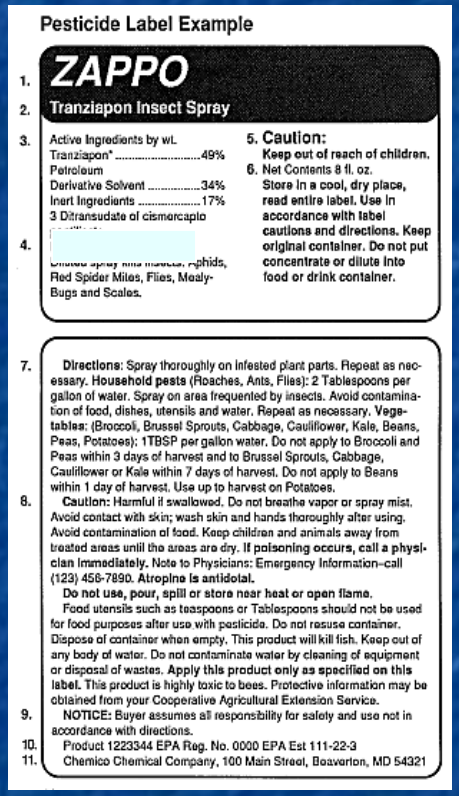
Read the Label



What *is* on the label?

- EPA registration number
- Active ingredients
- Inert ingredients
- Some acute health warnings

What is NOT on the label?



Pesticide Label Example

1. **ZAPPO**
2. **Tranziapon Insect Spray**
3. Active Ingredients by wt.
   Tranziapon* 49%
   Petroleum
   Derivative Solvent 34%
   Inert Ingredients 17%
   3 Ditransudate of cismercapto
4. [redacted]
   Red Spider Mites, Flies, Mealy-Bugs and Scales.
5. **Caution:**
   Keep out of reach of children.
6. Net Contents 8 fl. oz.
   Store in a cool, dry place, read entire label. Use in accordance with label cautions and directions. Keep original container. Do not put concentrate or dilute into food or drink container.
7. **Directions:** Spray thoroughly on infested plant parts. Repeat as necessary. **Household pests** (Roaches, Ants, Flies): 2 Tablespoons per gallon of water. Spray on area frequented by insects. Avoid contamination of food, dishes, utensils and water. Repeat as necessary. **Vegetables:** (Broccoli, Brussel Sprouts, Cabbage, Cauliflower, Kale, Beans, Peas, Potatoes): 1TBSP per gallon water. Do not apply to Broccoli and Peas within 3 days of harvest and to Brussel Sprouts, Cabbage, Cauliflower or Kale within 7 days of harvest. Do not apply to Beans within 1 day of harvest. Use up to harvest on Potatoes.
8. **Caution:** Harmful if swallowed. Do not breathe vapor or spray mist. Avoid contact with skin; wash skin and hands thoroughly after using. Avoid contamination of food. Keep children and animals away from treated areas until the areas are dry. **If poisoning occurs, call a physician immediately.** Note to Physicians: Emergency Information–call (123) 456-7890. **Atropine is antidotal.**
   Do not use, pour, spill or store near heat or open flame.
   Food utensils such as teaspoons or Tablespoons should not be used for food purposes after use with pesticide. Do not reuse container. Dispose of container when empty. This product will kill fish. Keep out of any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes. **Apply this product only as specified on this label.** This product is highly toxic to bees. Protective information may be obtained from your Cooperative Agricultural Extension Service.
9. **NOTICE:** Buyer assumes all responsibility for safety and use not in accordance with directions.
10. Product 1223344 EPA Reg. No. 0000 EPA Est 111-22-3
11. Chemico Chemical Company, 100 Main Street, Beaverton, MD 54321

- Inert ingredient name/toxicity
- Metabolites – breakdown by-product
- Impurities/Contaminants
- Combination chemical risk
- Known or suspected long-term effects; esp. on children/fetus

No Pesticide Can be Considered Safe

Federal law *prohibits* claims as to the safety of a pesticide or its ingredients, including:

- "safe when used as directed"
- "non-poisonous"
- "non-toxic to humans and pets"

What *are* the health risks?

- Many pesticides are known carcinogens, mutagens, neurotoxins, endocrine/hormone disruptors and teratogens (birth defects)
- Damage to reproductive, nervous, immune, endocrine, and metabolic systems
- Exposure in humans is widespread and involuntary
- Children are particularly vulnerable

Physicians and Scientists are speaking out

www.childenvironment.org

Stopping the use of pesticides IS the first step in an organic program – but it is NOT the only step!

The Simple Steps Turf Management Program is designed to result in self-sustaining turf.

It involves:

- **a basic understanding of soil biology**
- **proper horticultural practices**
- **use of natural, organic products as necessary.**

The Basics of an Organic Turf Management Program

- Soil Testing—Soil Biology
- Use of Compost Tea Sprays
- Top-dressing with Compost for OM
- Use of Natural, Organic Fertilizer
- Aggressive Seeding and Over-seeding
- Proper Aerating; De-thatching
- Proper Mowing, Irrigation

A Living Lawn…
A Lawn for Living

Initiating an Organic Turf Management Plan

- Plan based on building sustainability
- Plan based on a preventative approach to possible pest problems
- Take soil tests
- Establish beginning soil profile
- Identify Organic Matter % and soil composition (important for CEC)


Seaside Park
Top-dressed with Compost
We topdress with high quality,
well-aged compost, sand,
or a compost-sand mix


We address fertility with natural,
organic products

Compost Tea applications begin ---summer 2006---

Liquid extract of high-grade compost

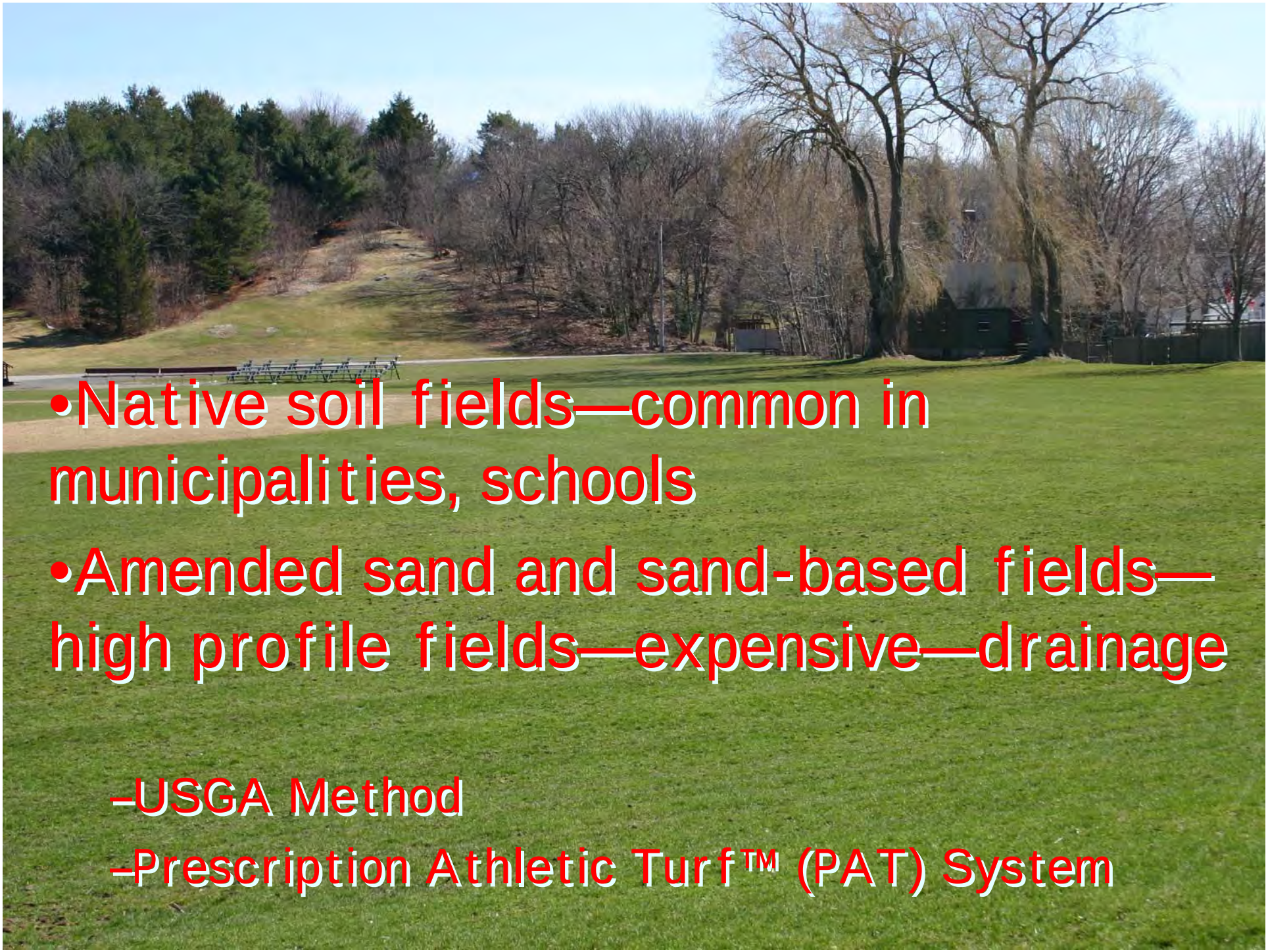
Extract and grow microbes in <u>aerobic</u>, nutrient-enriched, solution

Turf grass prefers:
3/4 : 1 Fungal to Bacteria Ratio

Directly Addresses Soil Biology


We practice proper cultural practices
Mowing
Irrigation
Aeration / De-thatching
Seeding and Over-seeding


Organic can work with different types of field construction


•Native soil fields—common in municipalities, schools
•Amended sand and sand-based fields—high profile fields—expensive—drainage
–USGA Method
–Prescription Athletic Turf™ (PAT) System


Functional Qualities
of
Sports Turf

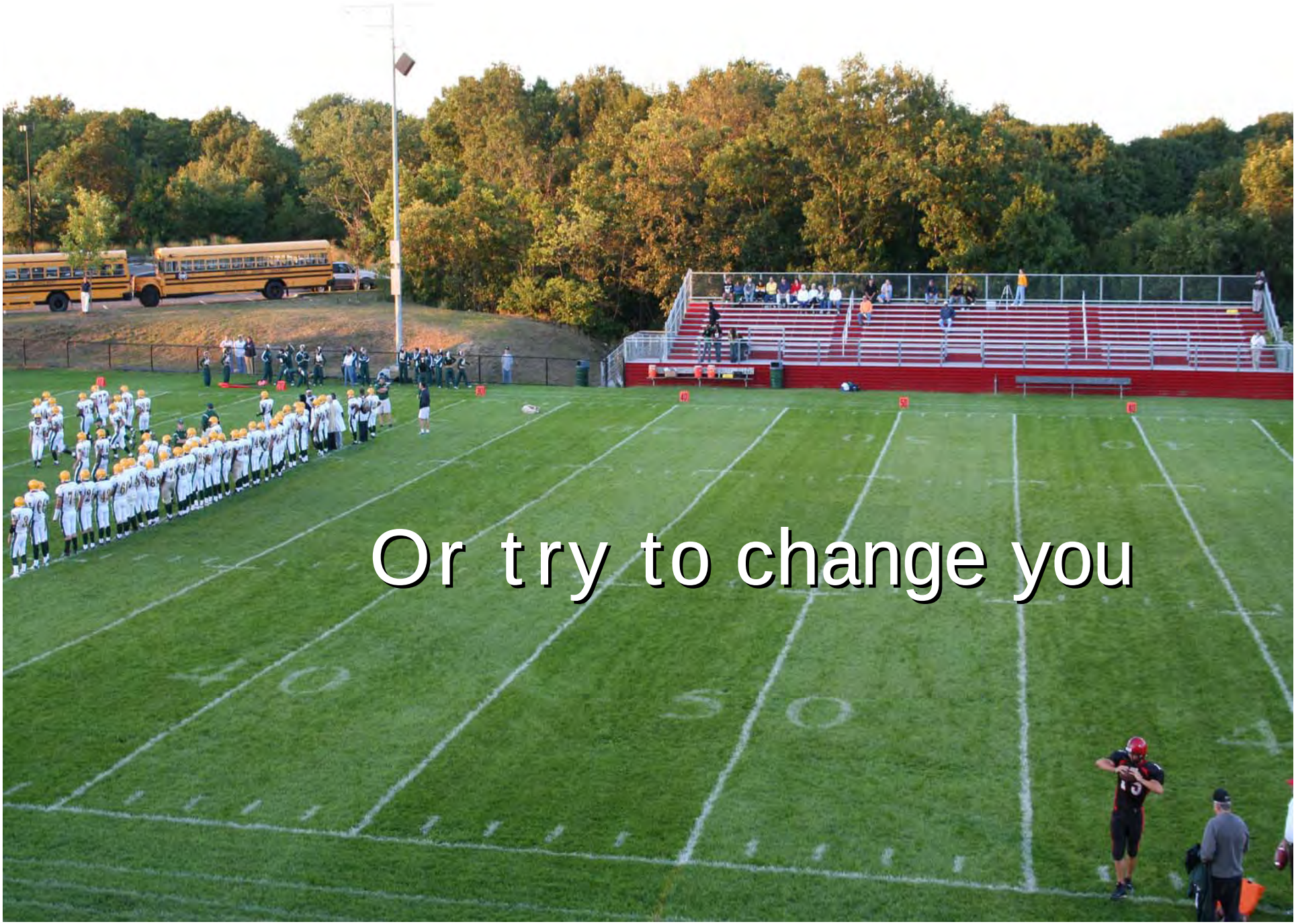

Density
Wear Tolerance
Recuperative Capacity
Resiliency
Rigidity
Uniformity
Color
Smoothness
Ball Roll
Elasticity


4 Types of Turf Management
&
Transition
Conventional
IPM
IPM with Gold Standard Protocol
Natural


Piper Field
Marblehead High School
Marblehead Massachusetts
2002-2005


My concluding remarks
to STMA members


I’m not here to preach to you


Or try to change you


I only ask that you be aware of
and accept the changing nature
of Turf Management
and
In some way practice
Toxic Use Reduction


For the health and safety of
our children and athletes

Why **go organic on athletic fields?**
Because <u>it can be done</u> ~
~ and because our kids and athletes need protection from exposure to pesticides.

Why go organic?

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