Managing and Preventing Weeds and Other Outdoor Pests

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Maine School IPM Program

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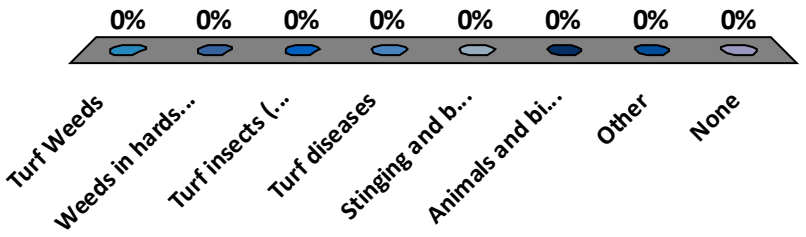
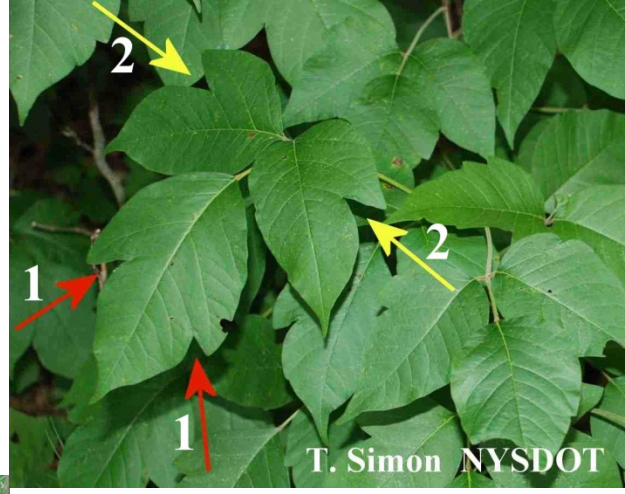
Which are Your Top 3 Most Problematic Pests Outdoors

1. Turf Weeds
2. Weeds in hardscapes
3. Turf insects (grubs, chinch bugs)
4. Turf diseases
5. Stinging and biting insects (mosquitoes, bees/wasps) & ticks
6. Animals and birds (skunks, snakes, mice, crows etc.)
7. Other
8. None



Pests Come in All Forms!

Vole Damage



Poisonous Plants

Turf Weeds

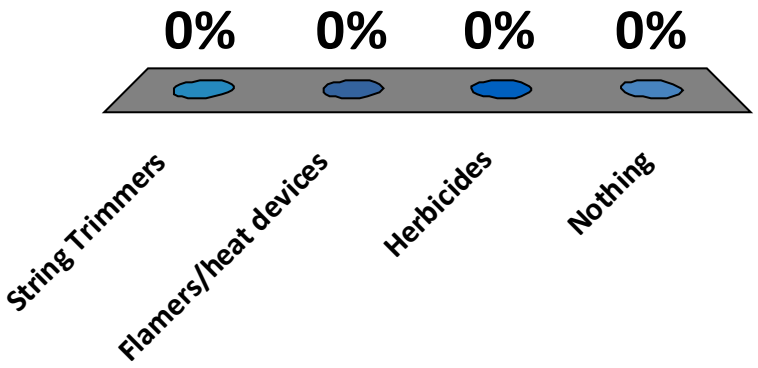
Grubs and Chinch Bugs

Stinging Insects

Disease Carriers

What Weed Management Methods are Used at Your School(s)?

1. String Trimmers
2. Flamers/heat devices
3. Herbicides
4. Nothing



Getting Started with IPM

- Identify Responsibilities
- Map Grounds
- Assess Field Condition
- Inventory & Assess Equipment
- Review Maintenance Records
    - Soil Test Results (pH and fertility)
    - Fertilizers (what, where, when, amounts)
    - Pesticide Applications (what, where, when, rates)
    - Aeration
    - Seeding
    - Irrigation
    - Renovation, etc

Best Management Practices (BMP) for School Grounds and Fields

Adopted by BPC 2/24/2012

Best Management Practices for Athletic Fields & School Grounds

#1 Goal—Reduce human pesticide exposure!

- Minimize pesticide use
- Maintain healthy plants
- Choose pest resistant plant varieties
- Apply spot treatments whenever possible
- Choose products proven to be effective at low application rates
- Choose products that leave little or no residue
- Apply when school is not in session or over extended vacations
- Keep people off treated areas for as long as possible
- Check product label for minimum reentry time

Introduction

In 2011, The Maine Legislature directed the Board of Pesticides Control to evaluate the use of pesticides on school grounds and to develop Best Management Practices (BMPs) for pesticide use with a goal of minimizing human exposure to pesticides. This brochure explains how schools should implement these BMPs. Applying these recommendations should also help schools keep maintenance costs down while improving the safety and appearance of school grounds.

Getting Started

Schools should identify the employees who are involved in school grounds maintenance decisions, including the IPM coordinator, the facilities manager, the athletic director and varsity coaches. The IPM coordinator must be included so that management decisions involving pesticides will be consistent with state law and all notification requirements will be followed.

These grounds maintenance decision makers should assign a Grounds Maintenance Priority Level to all school grounds.* How fields are classified will vary by school and by district, based on use, priorities and available funds.

Assigning Grounds Maintenance Priority Levels

The grounds care BMPs are separated into four levels that roughly correspond to the intensity of use and aesthetic importance of each area. High impact varsity athletic fields may be Level 1 or Level 2. Due to the intensity of use, practice fields that need a high level of maintenance are usually designated Level 2 or 3. Lawn areas and playgrounds generally won't warrant a high level of maintenance and will be assigned to Level 3 or 4. Making a simple map of the maintenance levels for future reference will be helpful to both maintenance personnel and the decision makers (*see map example on opposite side and attached Level-Specific BMPs*).

Other Key Points for Maintaining Quality Grounds and Reducing Risks

- Maintain good communication between staff and contractors involved in grounds maintenance and the IPM coordinator
- Emphasize practices that improve turf density and help minimize need for pesticides
- Identify pests specifically and confirm a pest exceeds threshold levels before authorizing any treatments
- Make sure all pest control products (weed, insect, rodent or plant disease controls) are labeled for use on school grounds and applied by licensed commercial pesticide applicators
- Confirm that all contracts for grounds maintenance services follow these BMPs and the guidelines shown on the opposite side of this bulletin
- Develop a maintenance schedule for the more intensively managed areas so that key steps aren't missed
- Keep detailed records of soil tests, aeration, seeding, top dressing, nutrients and pesticides applied for at least two years

**School grounds means: land associated with a school building including playgrounds, athletic fields and agricultural fields used by students or staff of a school and any other outdoor area used by students or staff including property owned by a municipality or a private entity that is regularly utilized for school activities.*

Adopted by BPC 2/24/2012

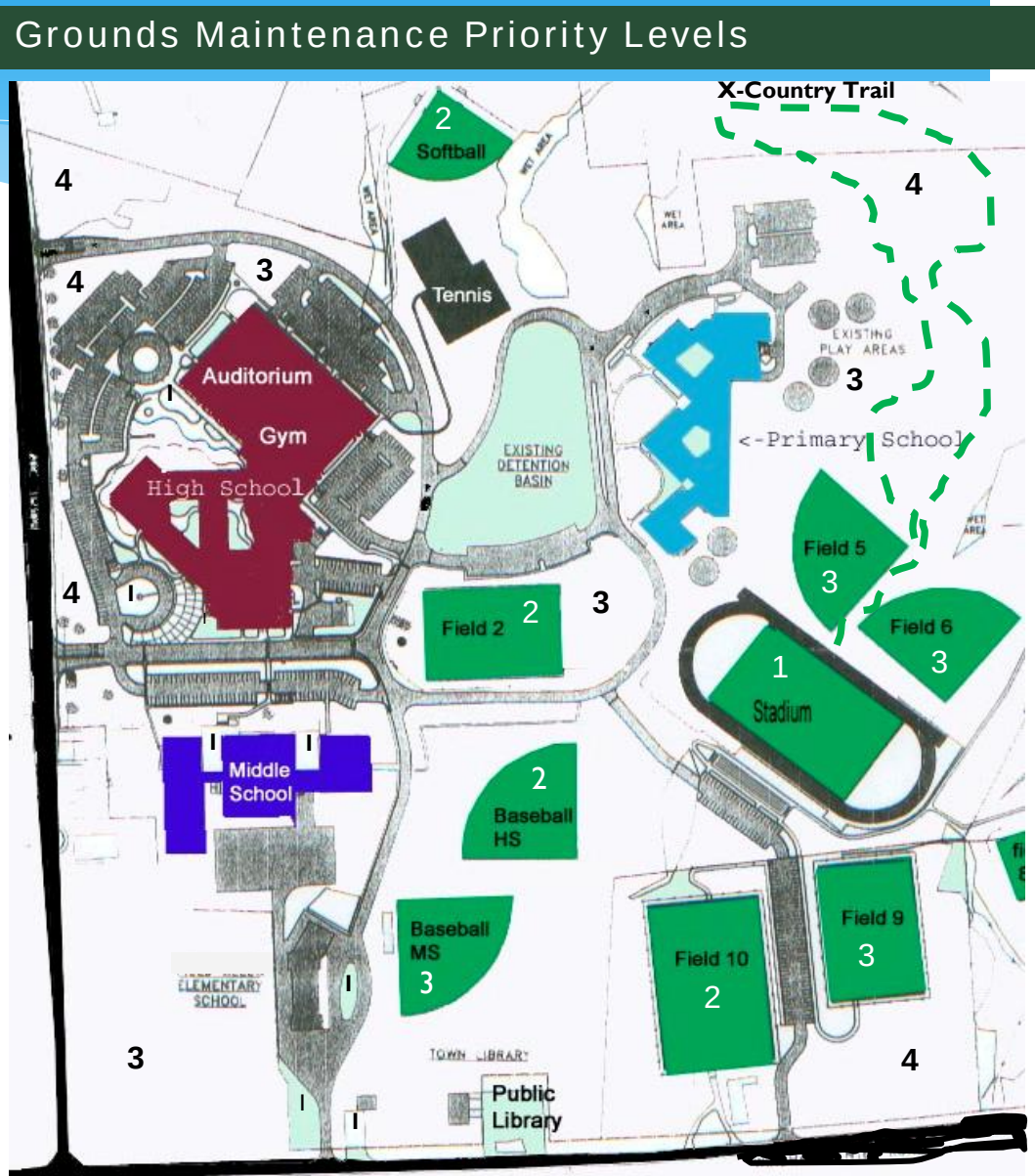
Level Specific BMPs for Athletic Fields and School Grounds

	Level 1 – Highest Care	Level 2 – High Care	Level 3 – Moderate Care	Level 4 – Lowest Care
	High impact athletic game fields, e.g. varsity football, soccer, field hockey fields	• Low impact athletic game fields, e.g. baseball, softball • Multipurpose fields • Athletic practice fields	• High visibility lawns • Moderate use areas • Playground fields	• Utility areas, slopes, ditches • Natural areas • Fence lines/property edges • Lawns
Field Use Restrictions	• Whenever possible restrict field use when soils are saturated and surface water is present • If field size allows, move goal areas regularly			
Soil Test	At establishment and before renovation and every 1-3 years when pH needs to be adjusted Every 2 – 5 years otherwise Soil test should determine: • Nutrient levels • pH • Level of compaction • Soil texture and structure (Level 1 only) • Percent organic matter • Thatch depth • Rooting depth		At establishment and before renovation or repair and every 1-3 years when pH needs to be adjusted Every 3 – 5 years other wise • test for nutrient levels and pH	At establishment and before renovation test for nutrient levels and pH
Irrigation for Maintenance of Established Turf	• Supplement rainfall when needed to provide a total of 1" of water per week when grass is actively growing (April – November) • Water turf early in the morning	• As needed to promote active turf growth and prevent summer dormancy • Water turf early in the morning	Only required during renovation or repair, otherwise allow summer dormancy	
Aeration	• 2-8 times/year at a depth of 3-12 inches using a combination of hollow core, solid tine, or shatter aeration • At least one of the aerations should be deep tine or shatter to a depth of at least 8 inches • Intense use areas require the most aeration • Avoid spring aeration when seeding of crabgrass or other summer annuals is a threat	• 1-2 times/year as needed • Use a combination of hollow core, solid tine, or shatter aeration at a depth of 3 – 8 inches • Avoid spring aeration when seeding of crabgrass or other summer annuals is a threat	• Once every two years or as needed • Avoid spring aeration when seeding of crabgrass or other summer annuals is a threat	Never

www.maine.gov/schoolipm

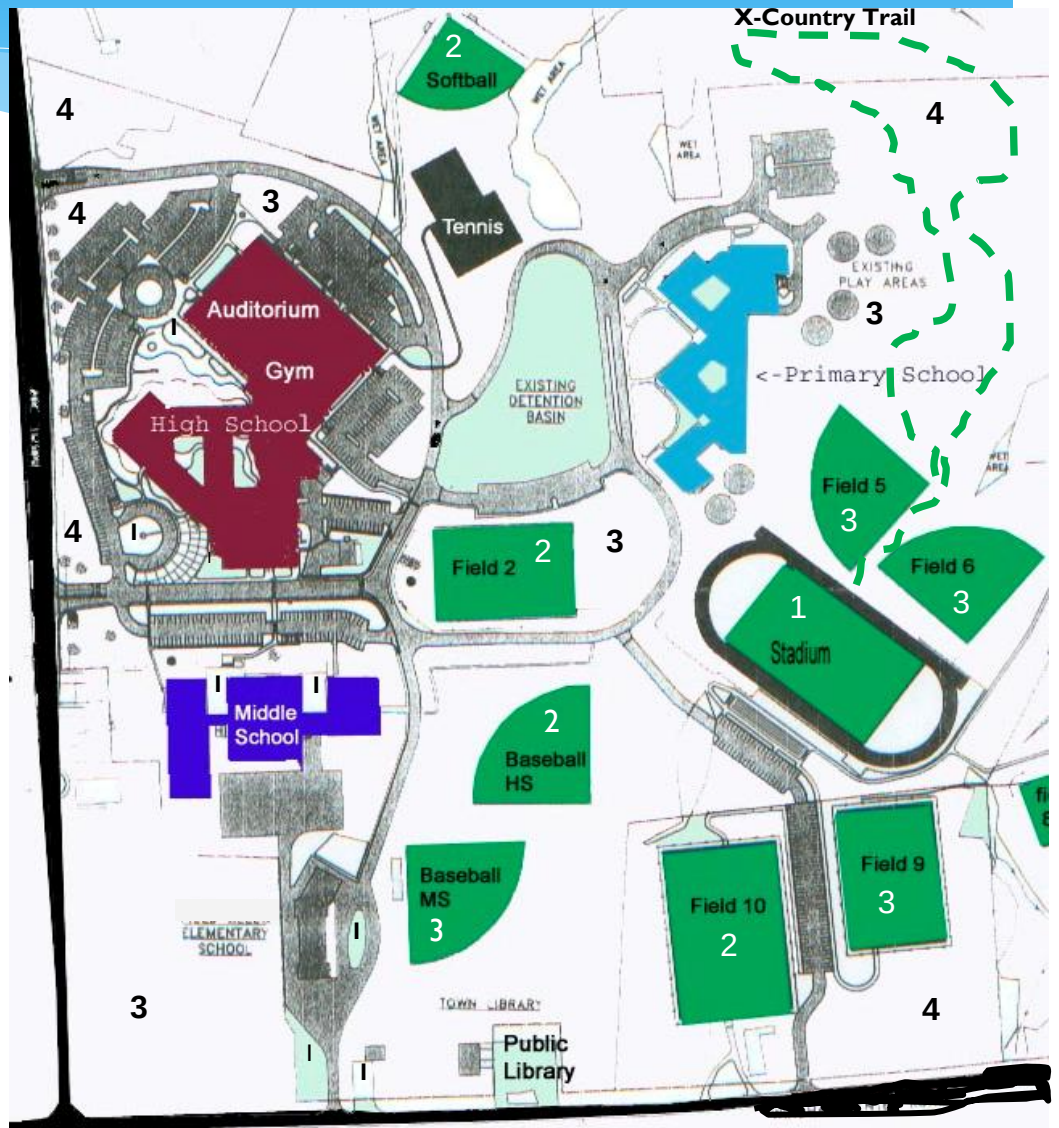
Assign Maintenance Priority Levels

- **Level 1—Highest care**
  - some varsity playing fields
- **Level 2—High care**
  - practice fields
  - multipurpose fields
  - May include varsity fields or high visibility lawn areas



Grounds Maintenance Priority Levels

- **Level 3—Moderate care**
  - playgrounds,
  - low-use areas,
  - common areas
  - May include practice fields & lawns depending on school
- **Level 4—Lowest care**
  - most lawn areas,
  - natural areas,
  - fence lines,
  - trails
  - property edges, slopes, utility areas, ditches



Assess Condition of Properties

* Turf Quality Assessment Checklists: Soil Tests (pH, fertility, soil compaction) (UMaine Soil Testing Lab or independent lab)
* Mark problem areas (weeds, insect damage, bare soil, etc) on maps

Develop a Comprehensive Turf Management Plan

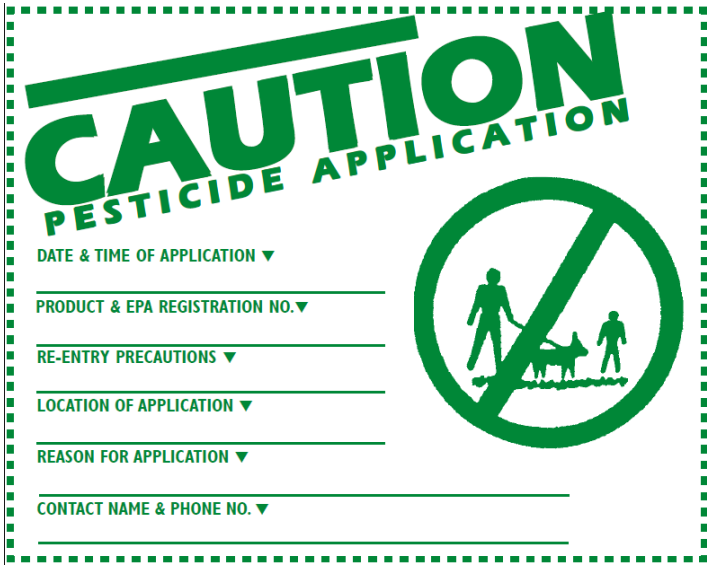
- **Write it! Don't wing it!**
- Develop a **maintenance schedule** for each field/area
- **Monitor (systematically look for) and identify pests.** Confirm pest exceeds threshold levels before authorizing pesticide treatment.
- Keep detailed **records** of soil tests, aeration, seeding, top dressing, nutrients and pesticides applied for at least two years
- Write BMPs into **service contracts** and verify that service providers follow them

Grounds maintenance contracts should clearly establish:

* The goals of the IPM program
* Schedule of services provided & how they are implemented
* Posting and notification responsibilities
* No pesticide (herbicide, insecticide, fungicide or other pesticide) without written prior authorization by IPM coordinator
* The population levels of specific pests that can be tolerated without treatment

Grounds maintenance contracts should clearly establish:

* Appropriate least-risk procedures to correct pest problems
* The restrictions on pesticide use: types of applications, timing of applications, restricted locations, materials that can be used
* The pest management actions that are the responsibility of the school district
* Who will do the posted notices



Soil Fertility & pH

- Test soil every 1-3 yrs
- Fertilize (slow release N) according to test results
- Amend soil to adjust pH if needed

Aeration

Aerate sports fields 2-5x/year

Moderate Care Fields: 1x/2yrs

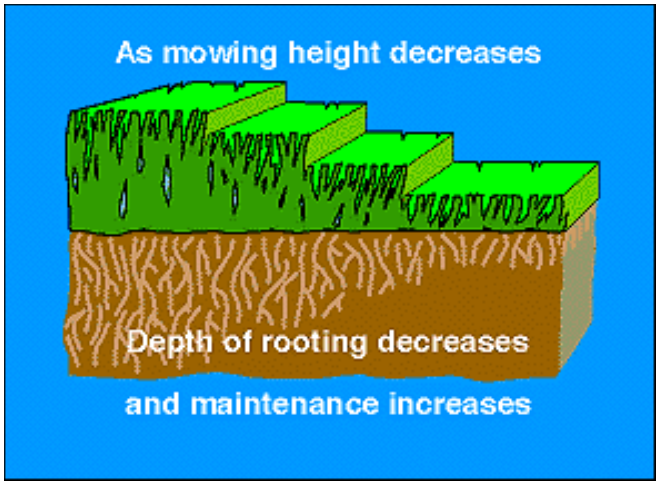
Avoid spring aeration if weed seeding is a threat

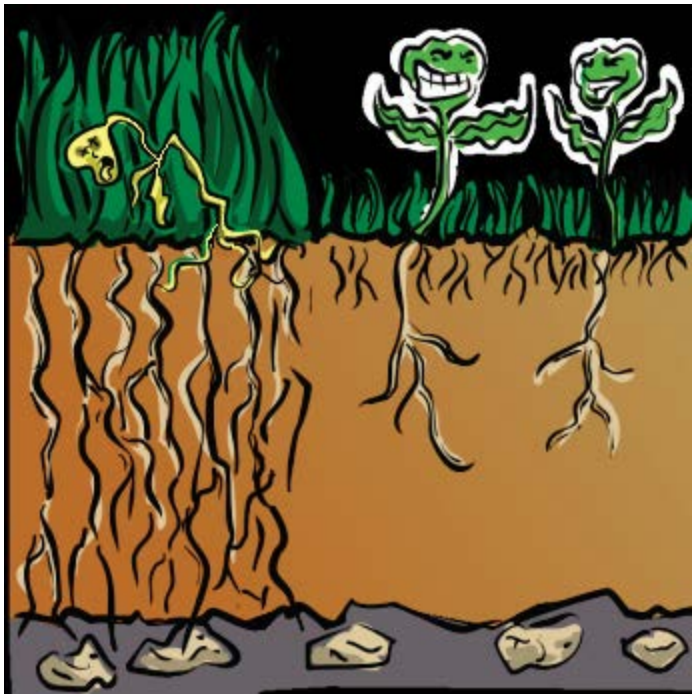
Irrigation

Supplement rainfall to provide 1” water/week during growing season

Mowing

- Mow at highest cut allowed for the sport; (3” - 4”) for lawns.
- Cut no more than 1/3 of grass height at once.
- Keep mower blades sharp





Overseeding

- Aggressively overseed sports fields
- Repair bare spots immediately with good quality perennial ryegrass
- Promotes thick turf
- Prevents weed growth

Restrict Field Use Whenever Possible

- No use when soils are saturated and surface water is present
- Move goal areas regularly

Scout for weeds, insects, turf diseases, bare spots regularly. Create a field map to show where problems are found.

Level 1 – Highest Care	Level 2 – High Care
• Depending on weed species present, accept up to 15 - 20% weeds	• Depending on weed species present, accept up to 20 - 30% weeds

Weed Control

- Baseball infields: periodic shallow cultivation with nail drag, rotary hoe or power rake.
- Fencelines and Hardscapes: hand weeding, string trimmers and ‘mow strips’.
- **Overseeding** regularly keeps turf dense to prevent weeds

Power Rake

Infield Drag


Mow Strip

Monitoring & Managing Grubs

* Turn over 1x1 ft patches of turf (or use golf course cup cutter = 1/10 sq. ft.)
* Identify & count grubs
* Treatment thresholds: adjust published thresholds according to your situation
* Insecticide treatments: Timing is most critical. Spot treat early morning or evening. Follow recommendations for target species. Follow label exactly.
* Biological Control: Beneficial nematodes. Handle as living organisms & water in. Must apply on cloudy day or in the dark. Follow published guidelines.

White grub thresholds

Action Thresholds for non-irrigated turf (grubs/sq.ft.)

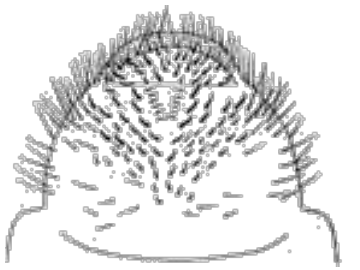
thresholds may be increased 30% with irrigation

- **European chafer: 4 to 6/sq.ft.**
- **Japanese beetle: 6 to 12/sq.ft.**
- **Oriental beetle: 6 to 12/sq.ft.**
- **Asiatic garden beetle: 10 to 20/sq.ft.**

May-June Beetle | Green June Beetle | Masked Chafer | European Chafer | Japanese Beetle | Oriental Beetle | Asiatic Garden Beetle

Pest Identification is crucial

White grub rastral patterns



Japanese beetle

European chafer

May/June beetle

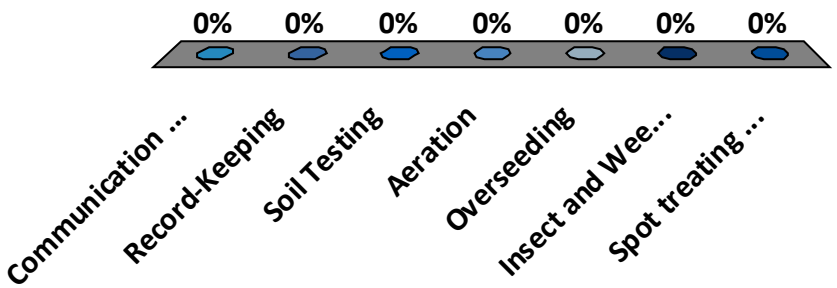
Asiatic garden beetle

BMPs for athletic fields and school grounds

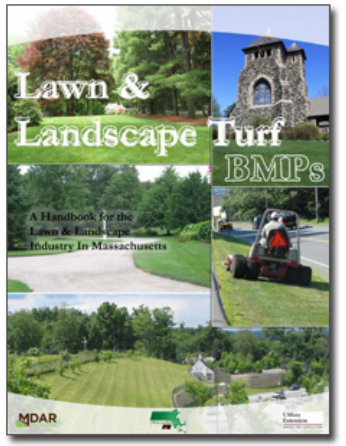
* Apply spot treatments whenever possible
* Choose products that leave little or no residue on surfaces students may touch

Which IPM Practices Need Improvement at Your School(s)?

1. **Communication** (between contractor, IPM Coordinator, athletic staff, community, etc)
2. **Record-Keeping**
3. **Soil Testing**
4. **Aeration**
5. **Overseeding**
6. **Insect and Weed ID & Monitoring**
7. **Spot treating** (vs whole field pesticide application)



Resources



- School Turf BMPs
  - Maine School IPM Program
    www.maine.gov/schoolipm
  - Yardscaping.org

- UMASS Turfgrass Program
  - http://extension.umass.edu/turf/
  - Integrated Pest Management Protocols for Turf on School Properties and Sports Fields
  - Lawn&Landscape BMPs

- Lawn care guidelines, videos, fact sheets
  - http://growinggreenlawns.org