When it comes to lawn pests, pest damage is in the eyes of the beholder.

Integrated Pest Management

Pests are often a good indication of mismanagement, which can often be corrected.

The best pest control is prevention using smart management.

Pest Prevention

- A good turf-growing medium
  - Good drainage with good topsoil
- Proper turf species and cultivars
  - High quality, weed-free seed
  - Pest and stress resistance
  - Endophyte enhanced
- Proper management
  - Mowing and watering
  - Lime and fertilization

Approach to Turf IPM

- Set goals for turf quality
- Develop strategies to prevent pest problems
- Identify and monitor pest(s) correctly
- Assess relationship of pest and management
- Assess control strategies for each pest
  - Cultural/mechanical
  - Biological
  - Chemical
- Initiate and evaluate each control strategy
- Initiate cultural practices that prevent problems
Turf Problem Identification

Describe the Symptoms of the Problem

- Is there a pattern in the general turf area?
  - Regular pattern: spots, circles, rings, patches
  - No pattern or irregular pattern
- What are the symptoms of individual plants?
  - Spots (vary in size, color, pattern)
  - Blight (leaf rot with a definite form)
  - Wilting, stunting, yellowing
  - Discoloration or rotting of roots
  - Feeding of leaves or roots

Describe the Turf Environment

- Soil conditions
  - Compaction
  - Thatch
  - Drainage
- Pets (especially dogs)?

Turf Pest Identification

Describe the Turf Environment

- Aerial environment
  - Temperature range during onset of symptoms
  - Precipitation/moisture conditions
  - Sunny or shady area? Open or near a wall?

Describe the Turf Management

- Mowing practices
  - How often? Cutting height? 1/3 rule?
  - How often are blades sharpened
- Fertilization and liming
  - How many times is fertilizer applied per year? How much?
  - Nitrogen: Between 2 and 4 lbs. per 1000 sq. ft.
  - Soil test? What’s the soil pH?
  - When and how much lime is applied?
Turf Problem Identification

Describe the Turf Management

• Irrigation
  – Infrequent/deep or frequent/shallow watering?
  – What time of day?
• Recent applications of any insecticides or herbicides
• Aeration/dethatching

Communicate With Others in Your Area

• Vermont Master Gardener’s Program
  – Hotline: 1-800-639-2230
  – Email: master.gardener@uvm.edu
  – Website: http://pss.uvm.edu/mg/mg/
• Garden News Reporter for local newspaper
• Email lists other dealers, garden clubs, etc.
  – Keep it local

Lawn/Turf Resources

NRAES (Natural Resources, Agriculture and Engineering Service)
Cooperative Extension
152 Riley-Robb Hall
Ithaca, New York 14853-5701
Phone: (607) 255-7654
Fax: (607) 254-8770
E-mail: nraes@cornell.edu
Web site: www.nraes.org

Weeds of the Northeast

Softcover: $30.00
Cornell University Press
Sage House
512 East State Street
Ithaca, NY 14850
Phone: 607-277-2211
http://www.cornellpress.cornell.edu

Turf IPM Web Sites

Vermont Master Gardener Website
http://pss.uvm.edu/mg/mg/
UVM Extension Publications on the Web
http://ctr.uvm.edu/ctr/elecpubs.htm
VT Dept. of Agriculture, Food and Markets
http://www.state.vt.us/agric/pid.htm
University of Connecticut IPM Information
http://www.hort.uconn.edu/ipm/

Penn State University Turf Articles
http://www.agronomy.psu.edu/extension/Turf/TurfExt.html
University of New Hampshire Pest Articles
http://ceinfo.unh.edu/turfpubs.htm
University of Massachusetts Turf Program
http://www.umass turf.org/
University of Nebraska
www.ianr.unl.edu/pubs/plantdisease/index.htm
**Approach to Turf IPM**

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**Turf Pests and Management**

**Mowing Too Close**
- Predisposes turf to many diseases
  - Helminthosporium leaf spot
  - Rust, Powdery mildew
  - Brown patch
  - Dollar spot
- **Weeds tolerant of close mowing**
  - Annual bluegrass, chickweeds, speedwell, moss, creeping bentgrass

**Drought Conditions**
- Diseases prone during dry periods
  - Helminthosporium leaf spot and melting out, Stripe smut, Powdery mildew, Summer patch, dollar spot, Fairy rings
- **Weeds tolerant of drought conditions**
  - Crabgrass, pigweed, speedwell, leafy spurge, prostrate spurge, yarrow, yellow wood sorrel, goose grass, curly dock
- **Insects**
  - Chinchbug

**Watering At Night**
- Predisposes turf to diseases
  - Pithium blight
  - Brown Patch

**Over Watering**
- Predisposes to many diseases
- Algae and Moss problems

**Excessive Nitrogen**
- Predisposes turf to many diseases
  - Helminthosporium leaf spot
  - Brown patch
  - Summer patch
  - Pythium blight
  - Powdery mildew

**Too Low of Nitrogen**
- Predisposes turf to many diseases
  - Dollar spot
  - Red thread
  - Rust diseases
- **Weeds tolerant of low N**
  - Clover species, birdsfoot trefoil, black medic, vetch species
Managing Turf Weeds

Three general rules:
- Most weeds are opportunistic.
- The best weed control is the competition from vigorously growing turf.

Managing Turf Weeds

Three general rules:
- Even when weeds are controlled, if the underlying problem is not "fixed", they will "be back".

Managing Turf Weeds

Using weeds as “Indicators” for diagnosing soil and turf problems

General guidelines when using indicator plants
- Many weeds have a wide range of adaptation - these are not reliable
- Do not judge a condition on a single plant - use plant communities
- Rely on healthy growing weeds
- Perennials are more reliable than annuals

Weed Control on Turf

Prevention Practices
- Seed selection (use “clean seed”)
- Avoid weedy mulch
- Topsoil selection
- Good compost
- P management
- Timing of cultivation/aeration/verticuting
**Weed Control on Turf**

**Cultural Practices**
- Proper selection and establishment of turfgrasses
- Adequate liming and fertilization
- Proper mowing practices
- Judicious watering
- Insect and disease control

**Weed Control on Turf**

**Chemical Weed Control**
- Synthetic herbicides
- “Natural” products
  - Corn gluten products
  - Borax
  - Fatty acid products
  - Vinegar

**Corn Gluten**

Discovered by Nick Christians, Turf Specialist, Iowa State Un.

Corn gluten acts as a natural pre-emergence herbicide but also provides a form of slow release nitrogen

![](image)

% Reduction in Crabgrass

Year