Weeds: IPM Strategies for Long-Term Prevention of Weeds

July 11th, 2017

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IPM for Long-Term Weed Management

**Cultural control**
- Repetitive over-seeding in schools playing fields
- Organic amendments in lawns

**Mechanical control**
- Thermal weeding project with Dr. Andy Senesac (LIHREC)

**Chemical control**
- Soft chemistries (minimal and reduced risk)
- Microbial-derived compounds for weed control

**Biological control**
- Microbial communities that modulate plant traits
- Commercial bioherbicides in turf landscapes
Investing in Safe Sports Fields

Children, youth and adults use school grounds and community parks for recreation and other health-improving outdoor activities. New York State alone has more 40,000 acres devoted to these uses.

The challenge for sports turf managers is to provide safe, functional and aesthetically pleasing fields.

This website brings you the latest best management practices for managing sports fields and resources for all who care for and use sports fields.

Learn more.

Manage for safety

Explore how you can manage your fields for maximum safety:

- Managing soils
- Choosing grasses
- Routine care
- Managing pests
- Synthetic turf
- Management schedules
Cultural Control: Optimizing grass density

Repetitive seeding can improve grass competition against weeds

Add grass seeds at various rates of 2 to 6 lbs/1,000 ft\(^2\)
Repetitively seed with perennial ryegrass starting early Fall
(late August to early September)

David Chinery and Frank Rossi (CCE Rensselaer County)
Repetitive Over-Seeding in Schools & Institutions (ROSSI) in K-12 school playing fields

Project Leaders and Collaborators:

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- Marty Petrovic

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State of Maine
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Scotts Miracle-Gro Company
- Mark Slavens, VP

Cornell Cooperative Extension
- Jennifer Stengle (CCE Putnam County)
- Tamson Yeh (CCE Suffolk County)

North Syracuse Central Schools
- Ike Hunter

Baldwinsville soccer field, Summer 2015
Use appropriate grass species and varieties

<table>
<thead>
<tr>
<th></th>
<th>Kentucky Bluegrass</th>
<th>Perennial Ryegrass</th>
<th>Tall Fescue</th>
<th>Fine Fescue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shade tolerance</strong></td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td><strong>Drought tolerance</strong></td>
<td>Poor</td>
<td>Poor</td>
<td>Some</td>
<td>Some</td>
</tr>
<tr>
<td><strong>Wear tolerance</strong></td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td><strong>Growth habit</strong></td>
<td>Rhizomatous</td>
<td>Bunch</td>
<td>Bunch</td>
<td>Bunch</td>
</tr>
<tr>
<td><strong>Leaf texture</strong></td>
<td>Medium-Fine</td>
<td>Medium</td>
<td>Coarse</td>
<td>Very fine</td>
</tr>
<tr>
<td><strong>Seeding rate</strong></td>
<td>1 to 2</td>
<td>5 to 9</td>
<td>5 to 9</td>
<td>3 to 5</td>
</tr>
<tr>
<td><strong>Nitrogen fertilizer</strong></td>
<td>3 to 4</td>
<td>2 to 6</td>
<td>2 to 4</td>
<td>1 to 2</td>
</tr>
</tbody>
</table>

Table: www.gardening.cornell.edu
Pest suppressive tall fescues

Several tall fescue varieties with endophytic fungi show suppression of grub and plant pathogenic nematode damage.

Alkaloid compounds are produced by endophytic fungi and released from the roots of tall fescue to influence pest resistance.
Several fine fescue varieties exude m-tyrosine from roots (Intrigue and Columbra II available through John Deere)
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Mechanical weed control: Flame weeding

Flame weeding eliminates weeds with intense heat

- Effective control of young weeds (1” to 4”)
- Best at eliminating annual weeds and depletes the weed seedbank
Baseball in-fields and no herbicides

Flame weeding torches are available in 4- or 5-torch systems

Rascal Pro Blade with finishing rake for baseball diamond in-fields
Mechanical Weed Control: Brush Cutters vs. Fence Line Trimmers?

- Brush cutters can be used on any fence line
- Fence line trimmers work best with 3 inch raised fences
- Both require continued maintenance—perennials will regenerate
Mechanical weed control: Install Weed Suppressive Fencelines

Place weed barrier fabric, rubber lining, plastic lining, or mulch against fence lines
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Chemical control:
Minimal and reduced risk herbicides
Strategic use of chemical control to manage weeds

Chemical control includes softer chemistries
Biological control: Bioherbicides for weeds in turf

Commercial name: Sarritor
Organism: *Sclerotinia minor* (fungus native to N. America)

- Controls broadleaf weeds (dandelions, plantains, and clover)
- Needs moisture and 64-75° F temperatures
- Fungus grows from granules and infects weed
Identify Weeds using the Internet

http://turfweeds.cals.cornell.edu/

Cornell has a new Weed ID Tool specific to NYS
Check off boxes to narrow down selection

http://turfweeds.cals.cornell.edu/

Click on “stature”
Continue to narrow down your choices

http://turfweeds.cals.cornell.edu/

The “stature” feature then provides several options
Continue to narrow down your choices

Clicking on “spreading” stature and “white” flowers gives you nine plant species

http://turfweeds.cals.cornell.edu/
Example: Mouse chickweed control

http://turfweeds.cals.cornell.edu/

If your mystery weed is a chickweed, click on the red button to learn about control options.
Example: Mouse chickweed control

http://turfweeds.cals.cornell.edu/

Cerastium vulgatum
Category: Leaf, Stem
Photo credit: Theodore Webster, USDA ARS

**Conventional**
- Carfentrazone + MCPA + MCPP + dicamba (POST)
- Clopyralid (POST) Label
- Clopyralid + Triclopyr (POST)
- Fluroxypyr (POST) Label
- Iron HEDTA (POST) Label
- Mesotrine** (PRE, POST) Label
- Sulfentrazone** (POST) Label

**Reduced Risk**
- Acetic acid (POST) Label
- Citrus oil (d-limonene) (POST) Label
- Iron HEDTA (POST) Label
- Pelargonic acid (POST)
- Potassium salts of fatty acids (POST)

**Child Safe**
- 2-Phenethyl propionate (POST)
- Cinnamon (POST) Label
- Cinnamon oil (POST)
- Citric acid (POST)
- Citric acid, malic acid, and clove oil (POST)
- Cloves and clove oil (POST)
- Corn gluten meal (PRE)
- Eugenol (POST)
- Lemongrass oil (POST) Label

*Click on stars if present for additional notes*

The control options are displayed at the bottom. Click to obtain specific herbicide labels.
**Example: Mouse chickweed control**

Selection of an herbicide takes you to the PIMS website for pesticides registered in NYS.
Example: Mouse chickweed control

Selection of a product gives you the product information and a link to the NYS label.
Example: Mouse chickweed control

The product labels are listed with different dates of acceptance by the NYS DEC.
Example: Mouse chickweed control

The product label is provided as a pdf file for your use