Public Works Department
Environmental Services Division

Integrated Pest Management

April 8, 2013

~Providing services that bring our City to life!
What is Integrated Pest Management (IPM)?

• Integrated Pest Management (IPM) is an approach to planning and managing turf that uses a combination of methods to reduce pest and weed populations to safe and acceptable levels.

• IPM includes biological and cultural controls, forecasting, sampling, and establishing thresholds for pests and weeds to define when corrective action is necessary.
What is IPM?

- Stresses a multi disciplinary approach to pest management
- Entomology & Nematology
- Plant Pathology
- Weed Science & Plant Science
- Soil Science
- Ecology
- Manipulate the environment to the desired plant’s advantage and to the detriment of the pest.
Strategies

• IPM strategies are tailored to the needs and requirements of the local situation. They involve using materials and methods that are:
  – least disruptive of natural controls;
  – least hazardous to human health;
  – least toxic to non-target organisms;
  – least damaging to the general environment;
  – most likely to produce permanent reduction in the pest;
  – easiest to carry out effectively; and
  – most cost-effective in the short-and long-term.
Why IPM programs are important
Techniques

- Pesticides (Herbicides, larvacides, insecticides)
- Cultural (fertilizing, topdressing)
- Mechanical (aerating, dethatching)
- Natural
- Biological
- Host Plant Resistance (endophytic turf)
Implementing IPM

• To use IPM properly, you first need to correctly identify the pest/weed and understand its life cycle:

• Knowing when and how a pest/weed is most susceptible to control measures is important when making decisions on when to take action.
Implementing IPM

• Any Chemical Control requires a licensed applicator, even Natural/Organic Products.

• IPM emphasizes pest/weed prevention, the use of reduced risk products, and the application of pesticides only when necessary.

• Create unfavourable conditions for the pest.

• Much like a healthy person, healthy turf is much less likely to be prone to illness or disease.
Implementing IPM

- IPM is very labour intensive:
  - staff must monitor pest/weed populations in the field.
  - Identify the pest/weed

- Each Pest/Weed Control Technique Must be Environmentally Sound, Financially reasonable, mindful of public perception.
Who created IPM guidelines?

The IPM frequencies are derived from the Turf IPM Manual that is published by the Ministry of Agriculture and Food.
What is the City doing currently?

- Staff has been inspecting/tracking pests/weeds since 2003
- Using a Contracted Agronomist to monitor soil fertility since 2006
- Using various fertilizers, composts, and topdress materials
- Switching to Endophytic Rye Grass
City Wide Infestation Levels
(Sports Fields + General Parkland) 2003 to 2012

Environmental Services Division
Sports Field Infestation Levels
2003 to 2012
Impact of Sports Tourism in Hamilton

- # of sport related events = 163 events that directly worked with City Staff
- Estimated Economic Impact = $15M (this does not include the 2012 RBC Canadian Open)
- Estimated Hotel Room Nights = 23,000
Current Practice vs. Turf IPM Manual Recommendations

<table>
<thead>
<tr>
<th>Current Practice</th>
<th>Turf IPM Manual</th>
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<tbody>
<tr>
<td>1 or 2 Fertilizer Applications</td>
<td>4 Fertilizer Applications</td>
</tr>
<tr>
<td>1 Overseeding Application</td>
<td>3 Overseeding Applications</td>
</tr>
<tr>
<td>2 Aeration Applications</td>
<td>4 Aeration Applications</td>
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<tr>
<td>1 Topdress Application</td>
<td>3 Topdress Applications</td>
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Current Practice vs. Turf IPM Manual Recommendations

Current Cost per sports field for annual maintenance in the City of Hamilton:

- Class A Soccer: $3,489.39
- Class B Soccer: $2,699.60
- Class C Soccer: $1,608.06
- Baseball Diamond: $1,510.90

Turf IPM Manual:
Cost for IPM level maintenance per average sports field or diamond: $7,117.97
Summary of IPM Principles

- Thorough understanding of the plant, pest, and the environment and their interrelationships
- Requires advanced planning
- Balances cost/benefits of all control practices
- Requires routine monitoring of plant and pest conditions (very time consuming)
Benefits and Disadvantages

Benefits of an IPM Program
• Protects environment through elimination of unnecessary pesticide applications
• Reduces risk of Plant Damage by a pest
• Positive Public Perception when presented properly

Disadvantages of an IPM Program
• Requires a higher degree of management
• More labour intensive
In Conclusion

- Current practices on fields are delaying the inevitable.
- 449 Turf Playing Surfaces
- Average renovation cost per field $50,000
- Graphs show the trend of Weed Infestation Levels over the last 10 years.
Thank you

For Further information:

Tennessee Propedo
Manager – Parks & Cemeteries
Tennessee.Propedo@hamilton.ca
(905) 546-2424 ext 4334