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Public Works Committee

April 8, 2013



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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.



- Community
- People
- Processes
- Finance



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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.

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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.

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Why IPM programs are important

- Community
- People
- Processes
- Finance



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Techniques

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

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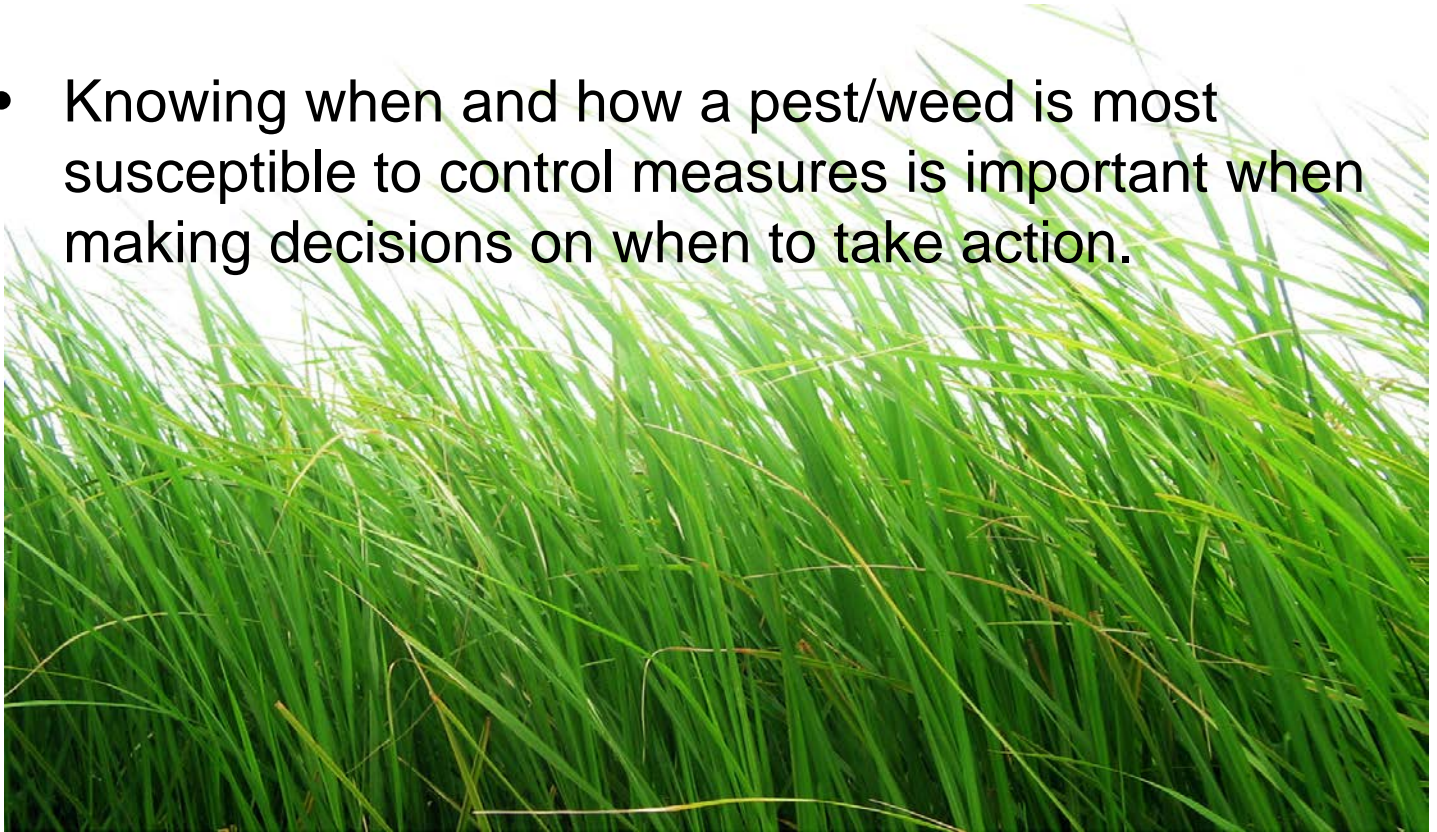


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Implementing IPM

- 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.



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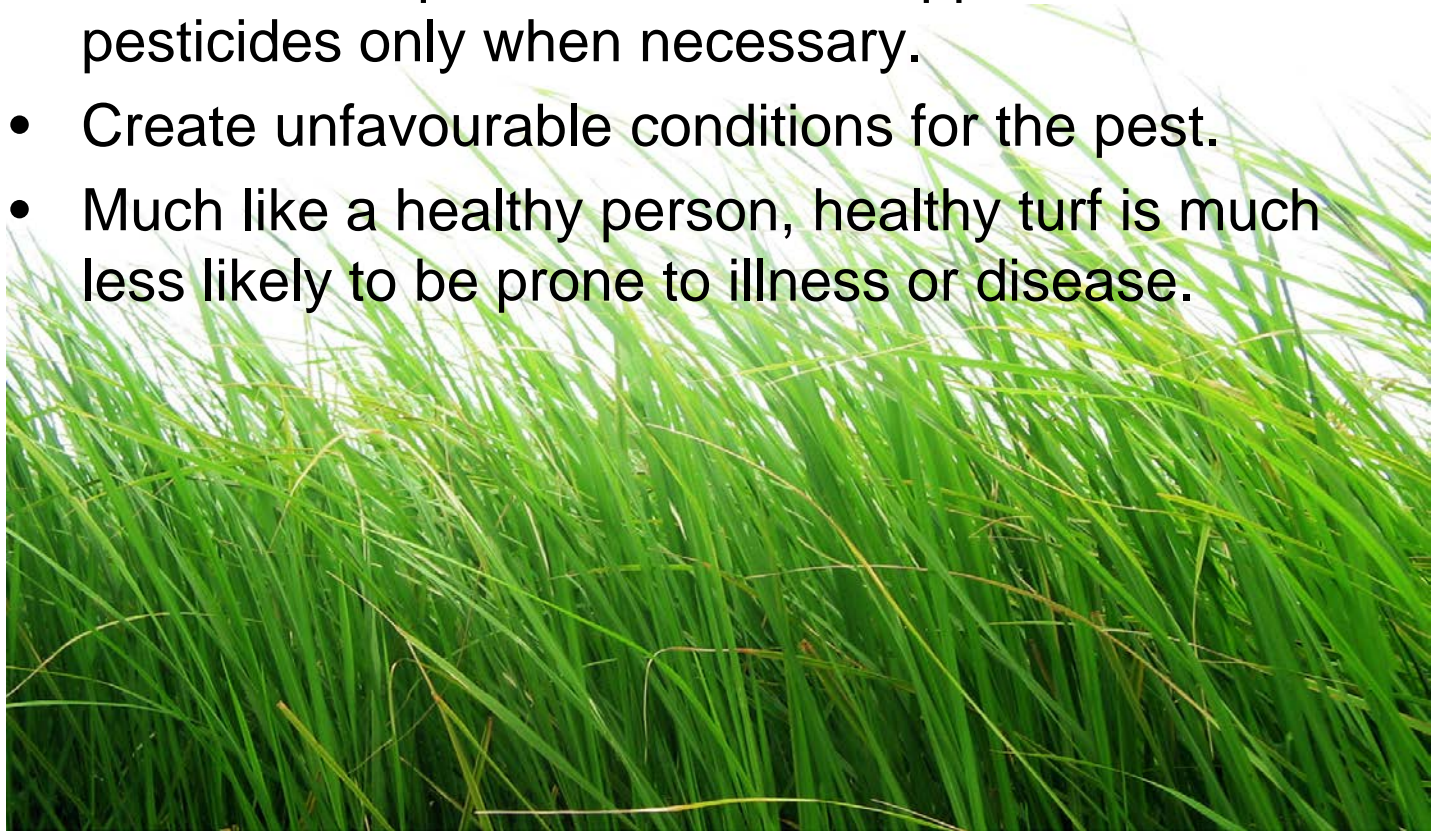
Implementing IPM

- 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.

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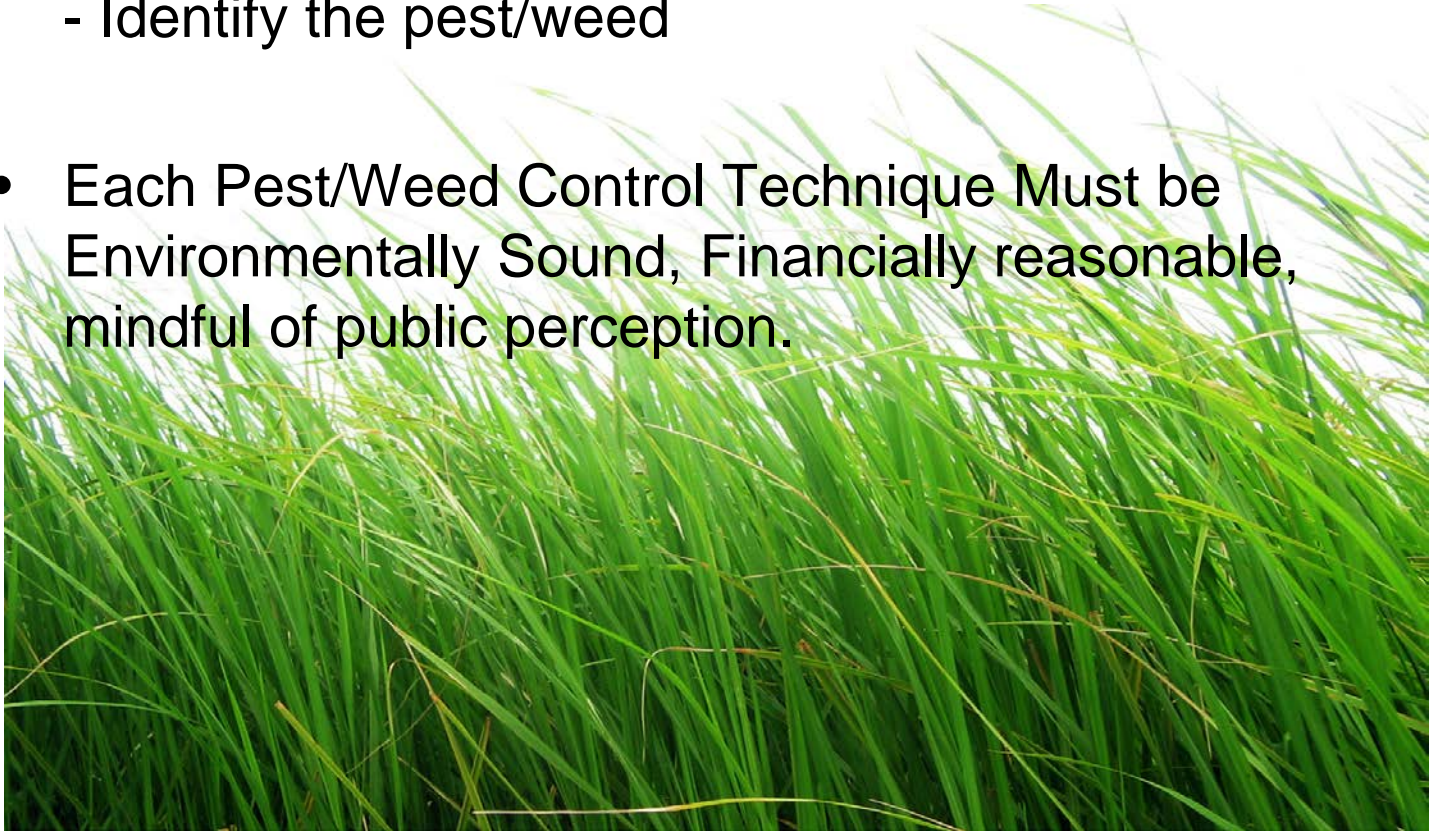
Implementing IPM

- 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.

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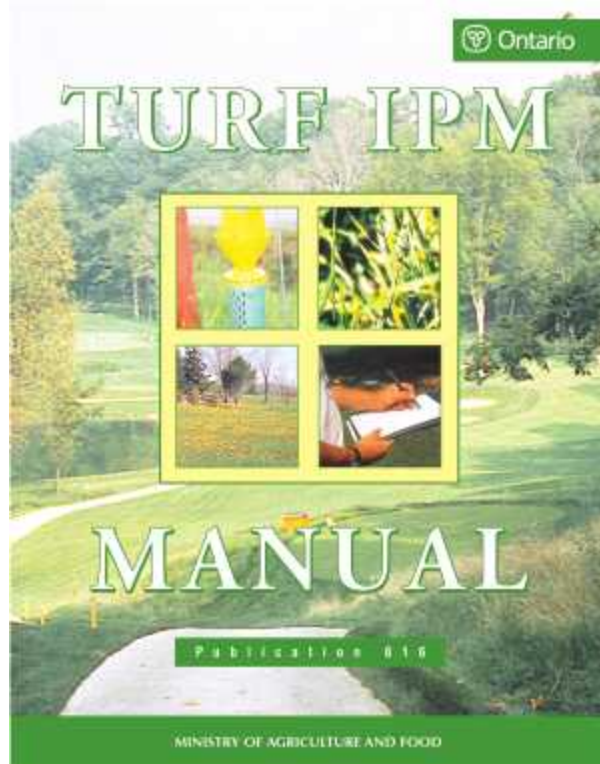


Who created IPM guidelines?

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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

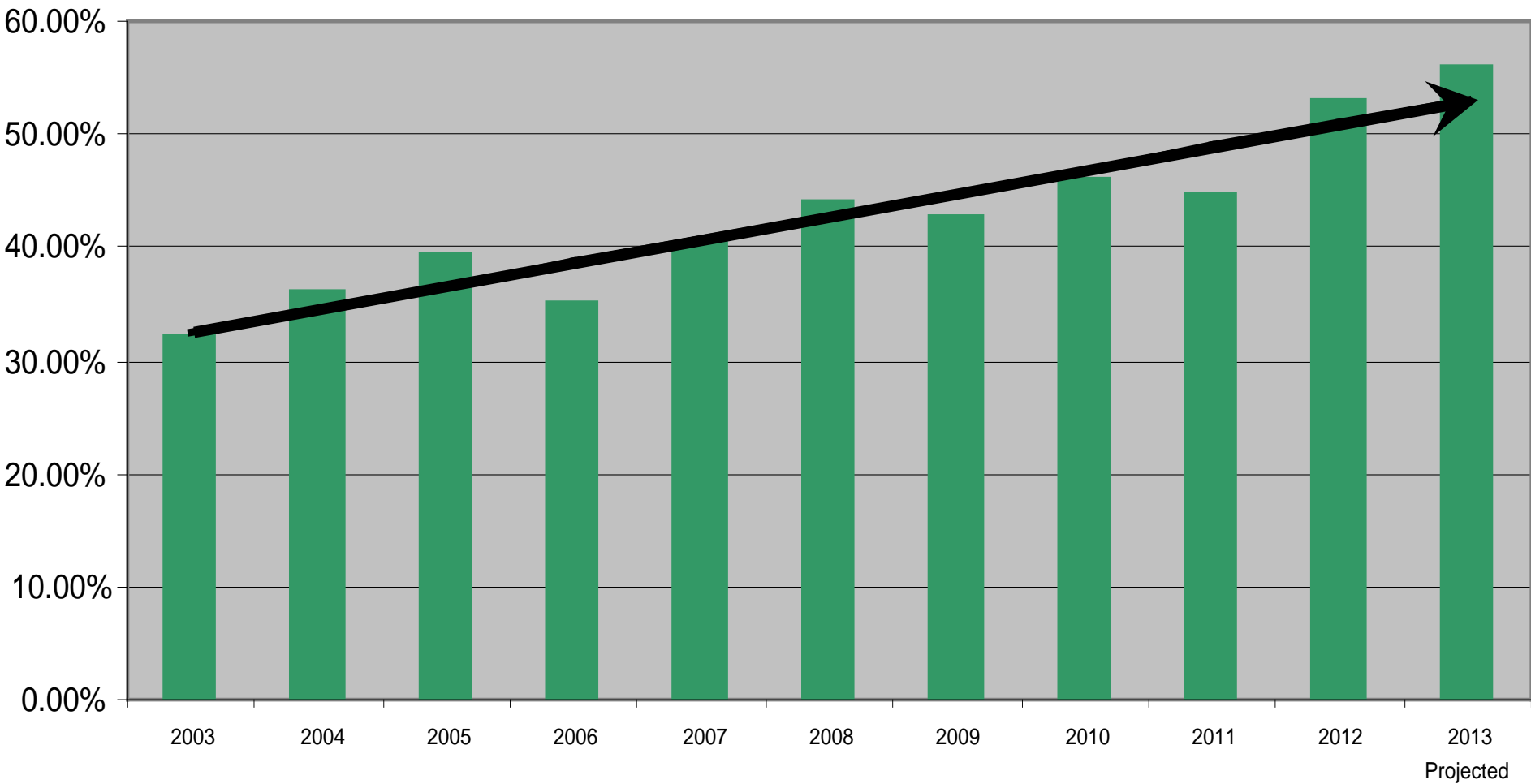
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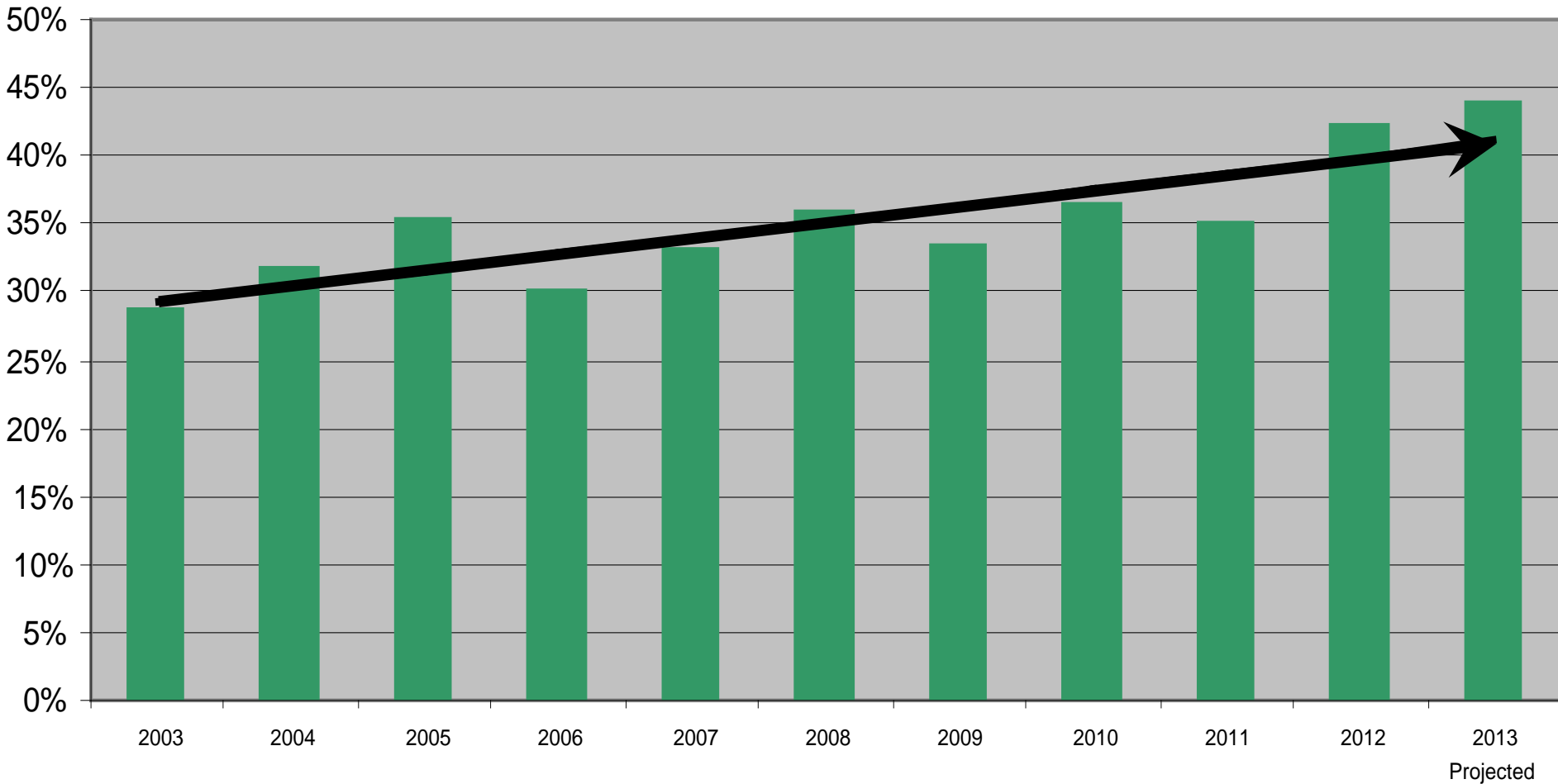
City Wide Infestation Levels

(Sports Fields + General Parkland) 2003 to 2012



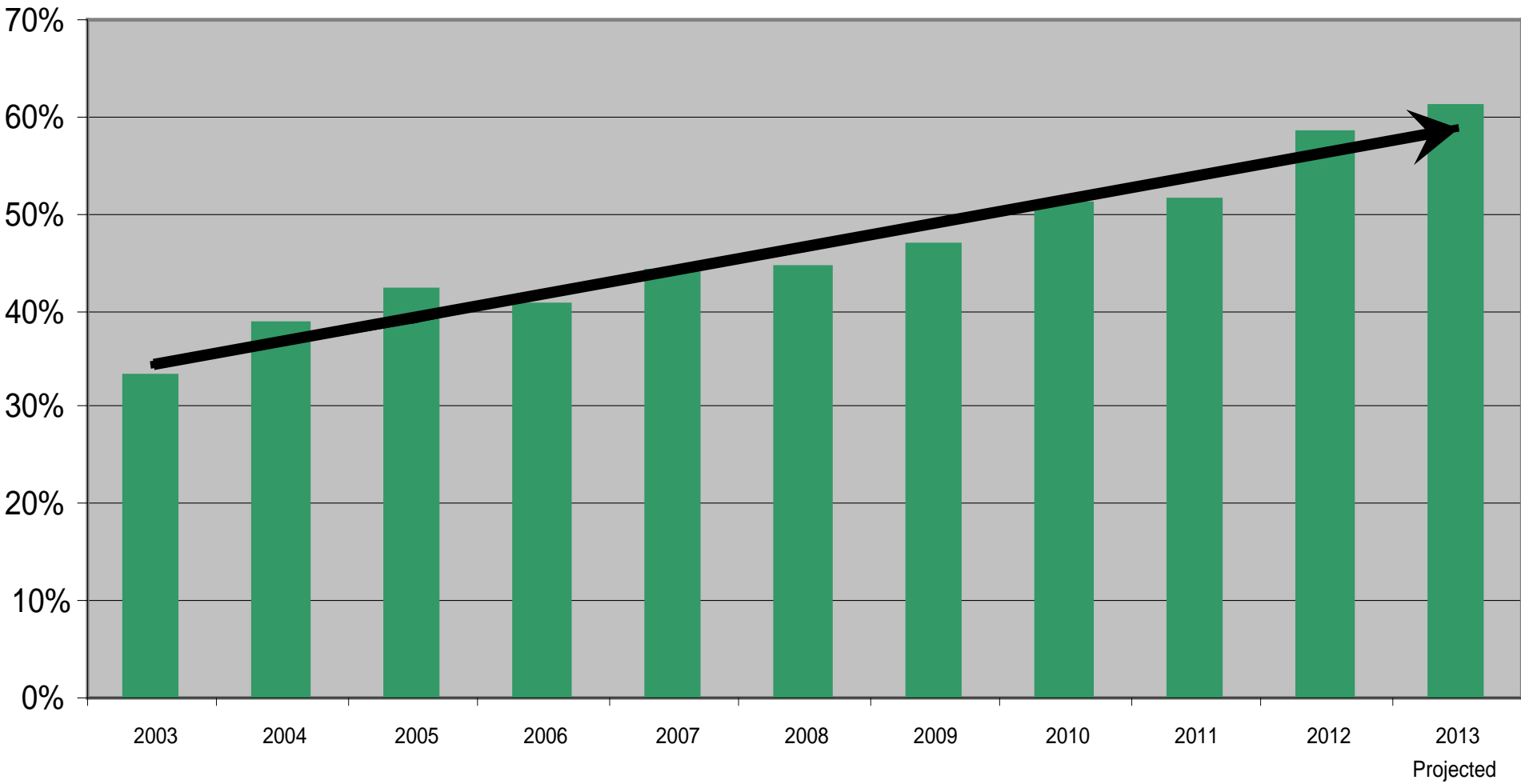
Sports Field Infestation Levels

2003 to 2012



General Parkland 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

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Current Practice vs. Turf IPM Manual Recommendations

1 or 2 Fertilizer Applications	4 Fertilizer Applications
1 Overseeding Application	3 Overseeding Applications
2 Aeration Applications	4 Aeration Applications
1 Topdress Application	3 Topdress Applications

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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

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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)

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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

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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.

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Thank you

For Further information:

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