

TABLE OF CONTENTS

Preamble.....	Page 1
1.0 Goal of Pesticide Reduction Guidelines for Lands Owned by the Regional Municipality of York	Page 1
2.0 Definitions	Page 2
3.0 Purpose	Page 4
4.0 Guideline Exceptions.....	Page 6
5.0 Planning and Designing Lands Owned by the Region of York Prevention.....	Page 7
6.0 Plant Health Care and Integrated Pest Management: (Steps to Implementing a Site Specific Integrated Pest Management Program	Page 8
7.0 Managing Existing Lands Owned by the Region of York (An Integrated Pest Management Program to Treat an Existing Pest Problem).....	Page 10
8.0 Plant Health Care and Integrated Pest Management for Urban Landscapes.....	Page 12
9.0 Plant Health Care and Integrated Pest Management for Turf.....	Page 14

APPENDIX “A” - Reduced Risk Products

APPENDIX “B” - Examples of Guideline Exceptions

APPENDIX “C” - Sample Pest Identification Form

APPENDIX “D” - Pesticide Use Form

APPENDIX “E” - Acknowledgements

PESTICIDE REDUCTION GUIDELINES FOR LANDS OWNED BY THE REGIONAL MUNICIPALITY OF YORK

PREAMBLE

Pesticide use on Lands Owned by the Regional Municipality of York, has been reduced over the last several years. Operationally, pesticide reduction practices have been instituted in the Region, however a need to ensure conformity and uniformity has led to the development of these Guidelines. A *Backgrounder* has been produced as a supporting document to complement the Guidelines and to assist in the understanding of the implementation phase of the Guidelines.

It is anticipated that Regional Council will adopt these Guidelines for use on Lands Owned by the Regional Municipality of York, and that they will serve as a model for use by stakeholders, including area municipalities and school boards.

1.0 GOAL

A restriction in the Non-Essential Use of Pesticides on Lands Owned by the Regional Municipality of York will be accomplished through the principles of Plant Health Care and Integrated Pest Management. Both Plant Health Care and Integrated Pest Management concentrate on preventative maintenance activities as their primary focus. Ensuring plant health and pest management will involve the use of biological, physical, mechanical or cultural controls as a substitute for chemicals, in order to reduce the potential impacts on human health and the environment. Reduced Risk Products, as approved by Regional staff, are to be used only as a last resort when chemical control treatments are necessary.

2.0 DEFINITIONS

For the purposes of the Pesticide Reduction Guidelines for Lands Owned by the Regional Municipality of York, the following definitions will apply:

- 2.1 Essential Use (of Pesticides)** – The use of Pesticides in situations where pests could adversely affect public health, food production, forestry uses and public safety or the use of Pesticides as mandated by federal or provincial legislation.
- 2.2 Guideline** – A standard of specific behaviour that one hopes will be followed voluntarily by stakeholders such as area municipalities. It is intended to be more a source of information and motivation from which stakeholders could depart to develop a plan suitable to their own needs and environment.
- 2.3 Integrated Pest Management** – A process for planning and managing sites to prevent Pest problems and for making decisions about when and how to intervene when Pest problems occur. It is a sustainable approach that substitutes biological, physical, mechanical or cultural controls for chemicals, to manage Pests so that the benefits of Pest control are maximized and the potential health and environmental risks are minimized. Reduced Risk Products, as approved by Regional staff, are to be used only as a last resort whenever chemical control treatments are necessary. (Adapted from the *Pest Management Regulatory Agency, 2001*).
- 2.4 Lands Owned by The Region of York** – These include sewage and water facilities such as water towers, administrative buildings, long term care facilities, district police, ambulance stations, transit facilities, Regional housing, road allowances and transportation corridors; but not the buildings or structures located on these properties.
- 2.5 Non-Essential Use (of Pesticides)** – The use of Pesticides in certain situations where the application is purely an ‘aesthetic pursuit’ (*Spraytech v. Hudson Town, [2001] S.J.C. No. 42*). It refers to situations on turf and urban landscapes where the application of Pesticides is deemed to be unnecessary as the Pest is not present in sufficient levels to cause unacceptable damage to a given area.
- 2.6 Noxious Weed** – A plant that is deemed to be a noxious weed as designated in O. Reg. 1096 of the *Weed Control Act, R.S.O., 1990, c.W.5*
- 2.7 Pest** - Any injurious, noxious or troublesome insect, fungus, bacterial organism, virus, weed, or other undesirable plant pest.
- 2.8 Pesticide** – Herbicides, insecticides, fungicides or other products used as a means of directly or indirectly controlling, destroying or preventing, any Pest associated with urban landscapes and turf management. These products are regulated and registered under the *Pest Control Products Act, R.S.C. 1985, c.P-9* and managed by the Pest Management Regulatory Agency.

- 2.9 Pest Management Regulatory Agency** – Administers the *Pest Control Products Act*, R.S.C. 1985, c.P-9 and was established by Health Canada in 1995 to consolidate the resources and responsibilities for Pest management regulation. It is responsible for providing safe access to Pest management tools, while minimizing risks to human health and the environment.
- 2.10 Pest Threshold Limit**- The number of Pests tolerated in a given area over which their presence results in unacceptable damage to a given area. It refers to the level of the Pest population when it is considered that controls should be initiated. (Adapted from the *Ontario Pesticide Training & Certification Manual, 1998*)
- 2.11 Plant Health Care** – Preventative maintenance activities that are designed to promote healthy and vigorous plant growth while reducing the need for Pesticides.
- 2.12 Policy** – A course or principle of action adopted by a government.
- 2.13 Precautionary Principle** – Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation (*Canadian Environmental Protection Act, 1999, S.C. 1999. c. 33*).
- 2.14 Reduced Risk Products** – A Pesticide product that presents a low risk to humans and the environment, as will be evaluated and approved by Regional staff.
- 2.15 Soil Audit and Recommendations Report for Regional Properties** – A comprehensive soil mineralogical and biotic audit outlining soil management recommendations to establish environmentally sound and sustainable management practices.
- 2.16 Urban Forest and Vegetation Management Plan for Regional Properties** – A twenty year phased-in plan for forest and vegetation management, as described in the Greening of York Region Initiative, which is currently in development.
- 2.17 Weed** – Any plant, for example, grasses, broadleaves and sedges that is not a Noxious Weed and grows where it is not wanted and hinders the growth of useful or desirable vegetation.

3.0 PURPOSE

These Guidelines have been developed to provide guidance and direction for the management of landscapes and vegetation on Lands Owned by the Region of York. It is hoped that stakeholders will adopt and implement these Guidelines in order to promote pesticide reduction.

The following statements form the scope of the design and implementation of the Guidelines:

- 3.1** The Guidelines are designed for implementation on Lands Owned by the Region of York.
- 3.2** These Guidelines are based on Plant Health Care and Integrated Pest Management principles and will form the basis of a public education campaign promoting pesticide reduction.
- 3.3** The Region of York, in its management of landscapes and vegetation, will incorporate strategies that include:
 - (a) Developing ecological approaches to Plant Health Care including managing vegetation and Pests and, planning the design and construction of new and renovated landscapes.
 - (b) Targeting the elimination of the Non-Essential Use of Pesticides.
 - (c) Minimizing potential risks to human health and the environment including protecting surface and groundwater quality and protecting natural environment areas.
 - (d) Promoting the use of Plant Health Care and Integrated Pest Management practices by the public in residential and commercial sectors.
 - (e) Determining the cost-effectiveness of vegetation management, through an overall ecological approach.
- 3.4** Implementation of the Guidelines will be co-ordinated by Regional staff as directed by Regional Council.
- 3.5** Subject to Regional Council approval, implementation of the Guidelines will be phased-in during 2002 with the goal of restricting the Non-Essential Use of Pesticides on Lands Owned by the Region of York by 2003.
- 3.6** Regional Departments and private contractors will adhere to the Guidelines while performing work on Lands Owned by the Region of York.
- 3.7** Selection of tenders for grounds maintenance and planning and designing of Lands Owned by the Region of York will include an evaluation of the contractor's Integrated Pest Management program by the Manager of Environmental Health, Health Services Department and the Regional Forester, Transportation and Works Department in conjunction with the Urban Forest and Vegetation Management Plan for Regional Properties.
- 3.8** Regional staff and private contractors will be required to complete a Pesticide Use Form upon application of a Pesticide product (Attached at Appendix D). Copies of this report will be forwarded to the Manager of Environmental Health, Health Services Department and to the Regional Forester, Transportation and Works Department.

- 3.9** Private contractors will be aware of and comply with all laws, regulations, by-laws, and policies that are directly or indirectly related to vegetation and Pest management operations.
- 3.10** The Region of York will ensure staff directly impacted by the Guidelines will continue to receive ongoing training on current Plant Health Care and Integrated Pest Management initiatives to assist in the implementation of these Guidelines.
- 3.11** The Region of York will continue to set an example, through its operations, and will continue to promote Plant Health Care and Integrated Pest Management strategies and public education programs through such vehicles as displays, brochures and promotions.
- 3.12** Regional Departments directly impacted by the Guidelines will evaluate the effectiveness of the implementation phase of the Guidelines through the Manager of Environmental Health, Health Services Department and the Regional Forester, Transportation and Works Department.

4.0 GUIDELINE EXCEPTIONS

- 4.1 The implementation of these Guidelines is NOT intended for situations where pests could adversely affect public health, food production, forestry uses and public safety or when the use of Pesticides is mandated by federal or provincial legislation. Examples of situations that could adversely affect public health, food production, forestry uses and public safety, or that are mandated by federal or provincial legislation are set out in Appendix B, and may be amended from time to time.
- 4.2 Reduced Risk Products are to be considered prior to use of any other chemical control treatment in situations that could adversely affect public health, food production, forestry uses or public safety (See Appendix A).

5.0 PLANNING AND DESIGNING LANDS OWNED BY THE REGION OF YORK: PREVENTION

The principles of Plant Health Care and Integrated Pest Management must be incorporated into the planning and design of Lands Owned by the Region of York, in order to prevent organisms from becoming Pests. This may comprise selecting the right plants for the site or designing a landscape for low maintenance purposes and reduced Pesticide usage. Growing Pest-resistant and disease-resistant plants that are suited to the climate and soil type can eliminate many Pest problems.

During construction and renovation of urban landscapes the following components will be considered:

- 5.1 **Soil conditions** – The Soil Audit and Recommendations Report describes soil structure as the key to a self-sustaining landscape or turf, for example, pH (acidity or alkalinity), nutrient and organic content, soil compaction, drainage and beneficial organisms. Practices that include the addition of natural reactive minerals, organic matter, granular additions and other cultural practices can address many soil deficiencies. A soil test might be necessary to determine the overall soil structure.
- 5.2 **Facility design** – Design walkways that prevent weed growth. Ensure there is proper grading and drainage to reduce the ability of Weeds to become established.
- 5.3 **Plant selection** – Select plants resistant to Pests and best suited to light, soil and climate conditions.
- 5.4 **Plant diversity** – Choose a variety of plants that are suitable to their environment.
- 5.5 **Plant Care** – Use a variety of practices conducive to Plant Health Care and Integrated Pest Management principles.
- 5.6 **Natural Landscape Design Techniques** – Choose sustainable landscape design methods that focus on restoration, regeneration and preservation of urban environments. This reduces maintenance requirements by creating and integrating naturally balanced landscapes. This may involve the designing of woodland gardens, building of small ponds and the cultivation of native species of wildflowers and shrubs.

6.0 PLANT HEALTH CARE AND INTEGRATED PEST MANAGEMENT: STEPS TO IMPLEMENTING A SITE SPECIFIC INTEGRATED PEST MANAGEMENT PROGRAM

All components of Plant Health Care and Integrated Pest Management are intended to enhance and complement the practices and initiatives of current and future Regional strategies. These include the York Region Official Plan, the Greening of York Region Initiative, Our Environment, Our Home York Region State of the Environment Report 2000 and the Regional Corporate Model for Clean Air.

Plant Health Care refers to urban landscapes and turf. The goal of this Integrated Pest Management program is to plan and manage Lands Owned by the Region of York, in order to prevent organisms from becoming Pests. For the purpose of these Guidelines, Lands Owned by the Region of York will be classified as:

- i Urban Landscapes (i.e. vegetation, trees and shrubs)
- ii Turf (i.e. lawns)

Certain Integrated Pest Management principles will apply at the planning, design and management stage. These principles are set out below, followed by specific procedures to consider in each stage.

In order to achieve a successful Integrated Pest Management program it is essential that the appropriate information is collected and analyzed. In implementing Integrated Pest Management principles Regional staff will:

6.1 Set Realistic Objectives.

6.2 Categorize the Site – Divide the landscape sites into categories according to the level of maintenance required. These landscape sites will be outlined in the Urban Forest and Vegetation Management Plan for Regional Properties. Categorizing these sites will provide clarity to determine where to concentrate resources. For example:

- Class A (High Level of Service) – These are high value, high visibility or high maintenance sites such as formal display beds in parks, municipal grounds, and sportsfields.
- Class B (Moderate Level of Service) – These are medium visibility or moderate maintenance sites, such as boulevards and medians, general park and playground areas, Long Term Care facilities and Regional Housing properties.
- Class C (Low Level of Service) – These include low profile or low maintenance sites, such as nature parks and recreation areas, picnic areas, hiking trails, works yards, road sides and ditches, industrial sites and transportation corridors.

6.3 Assemble Background Site Information – This includes information on historical data, past Pest problems, treatments available, resources available and regulatory requirements that may apply.

6.4 Conduct Site Assessment – include information on:

- Physical Characteristics – soil conditions, etc
- Plant Inventory – identify species of plants, record signs and locations of Pest infestations.
- Use Patterns – determine who uses the site and for what purpose. One site might include several areas with differing purposes.
- Environmental Concerns – inspect for conditions that should be considered.

6.5 Analyze the Site Assessment Information

- Identify key plants and Pest problems
- Make necessary changes

6.6 Draft a Site-Specific Integrated Pest Management Program.

6.7 Implement a Site Specific Integrated Pest Management Program.

6.8 Monitor, Evaluate and Revise the Integrated Pest Management Program through the Manager of Environmental Health, Health Services Department and the Regional Forester, Transportation and Works Department.

7.0 MANAGING EXISTING LANDS OWNED BY THE REGION OF YORK AN INTEGRATED PEST MANAGEMENT PROGRAM TO TREAT AN EXISTING PEST PROBLEM

Integrated Pest Management principles, specific to Urban Landscapes and to Turf, will be outlined following these general Pest management principles for treatment of existing Pest problems. In managing an existing Pest problem, and in accordance with the Urban Forest and Vegetation Management Plan for Regional properties, Regional staff will:

7.1 IDENTIFY THE PROBLEM

- Identify Pest and research information on its biology including life cycle, behaviour, preferred habitat and typical host.
- Be careful not to disturb beneficial organisms.
- Collect Pest for referencing purposes.

7.2 MONITOR

- Complete regular inspections or counts and record the results in order to decide whether treatments are necessary.
- Set frequency of inspections dependent on type of Pest and conditions.
- Monitor by visual or counting methods in order to estimate the Pest problem.

7.3 ESTABLISH PEST THRESHOLD LIMITS

- Determine the number of Pests tolerated over which their presence results in unacceptable damage in a given area.
- When to take action (some form of treatment) depends on factors such as:
 - ❖ How fast treatment works.
 - ❖ What growth stage of the target organism the treatment acts upon.
 - ❖ Time of the year or weather conditions that affect treatment.
 - ❖ Cost of negative side effects of treatment.

7.4 CHOOSE METHOD OF CONTROL

- Substitute biological, physical, mechanical or cultural controls for chemicals to reduce potential impacts on human health and the environment. Reduced Risk Products as approved and registered for use by the Pest Management Regulatory Agency are to be used only as a last resort when chemical control treatments are necessary. Reduced Risk Products are to be used in accordance with the following criteria (See Appendix A):

Criteria for Choosing Type of Treatment:

- Must be of low risk to human health and the environment.
- Must be least disruptive to the non-target organisms.
- Most likely to show long-term reductions in Pest populations.
- Must be operationally feasible, effective and cost-effective.

7.5 EVALUATE

- Determine successful methods through evaluation of the record keeping systems.
- Identify opportunities for improvement.
- Evaluate costs and benefits.
- Plan for the future and make appropriate changes, in consultation with the Manager of Environmental Health, Health Services Department and the Regional Forester, Transportation and Works Department.

8.0 PLANT HEALTH CARE AND INTEGRATED PEST MANAGEMENT FOR URBAN LANDSCAPES

In managing urban landscapes, and in accordance with the Urban Forest and Vegetation Management Plan for Regional Properties, Regional staff will apply the following principles:

8.1 PREVENT PEST PROBLEM

- Prevent undesirable organisms from becoming a problem in order to achieve long-term landscape and vegetation management.
- Design or modify sites to eliminate Pests.

8.1.1 Hard Surfaced Areas

Use the following examples of design changes to prevent Pest problems:

- Install a mulched mow strip under fence lines to block weed growth.
- Fill cracks in asphalt and concrete surfaces with a sealant to remove germination sites.
- Regularly clean hard surface areas to prevent build-up of organic material in cracks, which provides a growing medium for unwanted vegetation.

8.1.2 Planted Beds

- Avoid future Pest problems at the design and construction stage of shrub beds, borders and other planted sites and use weed free nursery stock and bedding plants to prevent import of Weed seeds.
- Prepare the soil to provide the best growing conditions for the desired plants.
- Apply organic or inorganic mulches to prevent Weeds from emerging or becoming established.
- Plant aggressive ground covers and massed plantings that rapidly cover the soil surface and reduce the space, nutrients and light available to Weeds.
- Plant shrubs and trees in early spring before new growth appears, or in fall, during their dormant period.

8.2 IDENTIFY PROBLEM

- Collect leaves or whole plants and identify them according to species, if possible. Determine whether they are annuals or perennials, grasses, broadleaf weeds or woody plants.
- Utilize all appropriate resources to assist with identification. Contact Ontario Ministry of Agriculture, Food and Rural Affairs to obtain these resources.
- See Appendix C: Sample Pest Identification Form.

8.3 MONITOR

- Carry out regular visual inspections or other methods to set Pest Threshold Limits. Examples include, number of plants in an area, percentage of coverage, species of plants present and stage/rate of growth.
- Set frequency of inspections (dependant on category of site, history of Pest problems and budget issues).
- Maintain vegetation records for each site.

8.4 ESTABLISH PEST THRESHOLD LIMIT

- Determine tolerance levels dependent on the type of urban landscapes. For example, Class A sites generally have very low tolerance levels for Pest populations before actions are initiated because plants are viewed at close range. Class B sites have moderate tolerance levels for Pest populations before actions are initiated. Class C sites have higher levels of tolerance before actions are initiated.
- Include factors such as number of Weeds or Pests per square metre of shrub bed, number of plants of problem species, presence of Noxious Weed, and percentage of leaves or plants damaged.

8.5 CHOOSE METHOD OF CONTROL

8.5.1 Physical, Mechanical, Cultural and Biological Controls

- Remove Weed seeds and organic material from cracks in hard surfaces by regular cleaning.
- Manually remove plants including roots.
- Use mechanical cultivation to prevent Weeds from becoming established.
- Use chainsaws, mowers, or brushsaws to control woody plants.
- Apply heat using flamers, hot water or steam applicators, or infrared generating equipment.
- Select biological controls that target a specific Pest problem, for example, predatory mites used to control some species of mites and predatory midges used to control various species of aphids.

8.5.2 Chemical Control

- Use Reduced Risk Products only as a last result if chemical control treatments are necessary (See Appendix A).
- Ensure product is effective and registered for specific Pest type, is applied as a spot treatment instead of broadcast application, and applied at a proper time (i.e. consider wind and climate conditions). Record all pertinent information on a Pesticide Use Form (See Appendix D)

8.6 EVALUATE

- Inspect treated areas at intervals appropriate to type of treatment.
- Set evaluation criteria and use all available information to assess effectiveness of the Integrated Pest Management program
- Make appropriate revisions in conjunction with the Manager of Environmental Health, Health Services Department and the Regional Forester, Transportation and Works Department.

9.0 PLANT HEALTH CARE AND INTEGRATED PEST MANAGEMENT FOR TURF

In managing Turf, and in accordance with the Urban Forest and Vegetation Management Plan for Regional Properties, Regional staff will apply the following principles:

9.1 PREVENTION OR CULTURAL CONTROLS

Prevention is key to managing turf Pests. To prevent Weed problems and other Pests from establishing in Class A or B sites follow these turf management practices to ensure healthy, vigorous turf:

- **Mowing** – Mow the turf when it has grown to one third past its desired height. Cut to 7cm – 7.5 cm (2 3/4”-3”). This promotes deep-rooted turf and taller mowing heights. Leave clippings on the turf.
- **Fertilizing** – Use a natural source of slow-release nitrogen fertilizer such as compost or a slow release inorganic nitrogen (most commonly applied in the spring and fall). Do not over fertilize.
- **Aerating** – Aerate to remedy soil compaction, usually in the spring, preferably with hollow core aerators.
- **Topdressing** – Apply 0.6 cm (1/4”) sifted compost of topsoil to existing turf.
- **Overseeding** – Overseed after topdressing to establish resistant turf with appropriate Pest resistant perennial ryegrasses, Tall Fescue, Fine Fescue or Kentucky Bluegrass seeds.
- **Irrigation** – Apply water only when required and long enough to allow deep soaking of roots (usually in the morning and usually for one hour). Watering too frequently can rob turf roots of much needed oxygen. Inadequate watering can cause restricted root growth.
- **Dethatching** – Remove excess thatch of decomposed organic matter as necessary, which causes compaction on the surface of the soil.
- **Monitoring** – Devise a monitoring system to determine the causes of problems and the effects of procedures.

9.2 IDENTIFY PROBLEM

(See Appendix C: Sample Pest Identification Form)

Weeds - Collect leaves or whole plants and identify if possible. Determine if plants are annuals or perennials, and whether they are grasses, broadleaf or Noxious Weeds. Identify plant species using guides or other resources. Contact the Ontario Ministry of Agriculture, Food and Rural Affairs to obtain these resources.

Insects –Carefully inspect the leaves and thatch for larvae, pupae and adult insects. Use a 10X hand lens for examination purposes. Collect insects and identify using guides or other resources. Check area for evidence of damage, which may show up as a wilting, yellow or bare area. Check for symptoms of chewing or sucking.

Diseases – Carefully collect affected turf roots, stems, leaves and crowns. The area of active infection is usually in the zone of turf between healthy and diseased plants, such as at the edges of patches, rings or spots. Separate individual plants and cautiously inspect

the roots to determine which part of the plant is affected (e.g. roots, crown, leaves). Compare diseased turf with photographs found in identification guides or other resources.

9.3 MONITOR

Establish frequency of inspections (dependant on category of service (A, B or C) and weather conditions).

Weeds – Monitor using counting methods for calculating Weed population in turf.

Insects – Determine stage of insect development, the base temperature (critical temperature below which no insect development takes place) and the number of degree-days necessary for the insect to reach a stage where monitoring should begin. Estimate insect population by visual inspections and use counting methods (e.g. soap drenching an area to count number of active larvae). Use trapping devices such as use of sticky traps to determine pest levels.

Diseases – Keep records of weather conditions such as temperature, rainfall, and relative humidity. These are important factors that can impact disease development. Use visual inspections and check for shape, colour and size of area and counting methods. Collect number of leaf blades and count number of blades with disease symptoms.

9.4 ESTABLISH PEST THRESHOLD LIMITS

Weeds –
Class A sites – Usually maintained Weed free. A common pest threshold for Weed cover is 10-15%.
Class B sites – Acceptable levels used by municipalities range from 20-50%
Class C sites –Acceptable levels are usually greater than 50%.

Insects –
Class A sites – Low tolerance because of the potential for deterioration of playing surfaces, public safety and economic value.
Class B sites – Higher insect counts are tolerable unless their presence is attracting secondary Pests.
Class C sites – Generally not a concern.

Diseases –
Class A sites – Usually a low tolerance for disease due to potential for rapid spread on highly managed turf. Class B sites – Some may be tolerable, especially if turf will recover with good management.
Class C sites – Generally, turf disease is not a concern.

9.5 CHOOSE METHOD OF CONTROL

Weeds

Physical and mechanical controls

- Hand pull small populations of Weeds.
- Use a hot water or low pressure steam applicator, hand held flamer, or infrared applicator with a probe tip.

Chemical controls

- Use Reduced Risk Products only as a last resort if chemical control treatment is necessary (See Appendix A).
- Ensure product is effective for Weed type, applied as a spot treatment and at proper time. Record all pertinent information on a Pesticide Use Form (See Appendix D).

Insects

Biological controls are biological agents, which attack turfgrass Pests.

- Consider use of predatory and beneficial organisms. Insect parasitic nematodes are available for use as a biological control. Depending on the species, they can be used to control white grubs, cutworms, and other turf Pests.

Chemical controls

- Use Reduced Risk Products only as a last resort if chemical control treatment is necessary (See Appendix A).
- Ensure product is effective for target insect, applied as a spot treatment and at the proper time. Record all pertinent information on a Pesticide Use Form (See Appendix D)

Diseases

Mechanical controls

- Regular mowing prevents and controls diseases from developing on leaves and clippings.

Biological controls

- Establish a beneficial fungus or use a natural product, which adds microbes.

Chemical controls

- Use Reduced Risk Products only as a last resort if chemical control treatment is necessary (See Appendix A). Select a fungicide that targets the specific pathogen, and apply it at the proper time and spot treat (See Appendix A). Record all pertinent information on a Pesticide Use Form (See Appendix D).

9.6 EVALUATE:

Weeds, Insects and Diseases

- Visually inspect area after treatment and use counting methods. Check for reduction or elimination of Pest and restoration of turf to normal vigour.
- Set evaluation criteria. Use information along with monitoring records, to assess effectiveness of the turf Integrated Pest Management program.
- Make appropriate revisions through Manager of Environmental Health, Health Services Department and the Regional Forester, Transportation and Works Department.

**APPENDIX “A”
TO THE
PESTICIDE REDUCTION GUIDELINES FOR LANDS
OWNED BY THE REGIONAL MUNICIPALITY OF YORK**

Reduced Risk Products

The Pest Management Regulatory Agency describes Reduced Risk Products in its *Action Plan on Urban Use of Pesticides*. At this time, a complete list of Reduced Risk Products is unavailable from the Pest Management Regulatory Agency.

In future, York Region staff will develop a comprehensive Reduced Risk Product list for use on urban landscapes and turf for Lands Owned by the Regional Municipality of York that may be amended from time to time. This list will be based on an overall evaluation of approved and registered pesticide products that are deemed to be of low toxicity and risk to humans and the environment.

During the implementation of the Guidelines-in period and until the Reduced Risk Product list is developed, any and all proposals for application of pesticides on Lands Owned by the Regional Municipality of York will be reviewed and evaluated on an individual basis. This will be done using current information on the product toxicity and associated risks to human health and the environment.

**APPENDIX “B”
TO THE
PESTICIDE REDUCTION GUIDELINES FOR LANDS OWNED BY
THE REGIONAL MUNICIPALITY OF YORK**

Examples of Guideline Exceptions

The use of pesticides in situations where pests could adversely affect public health, food production, forestry uses, public safety or as mandated by federal or provincial legislation would be permitted. Applications of Reduced Risk Products would be permitted if non-chemical control methods were exhausted.

Examples of Guideline exceptions would include, but are not limited to:

1. Elimination of vectors of disease (e.g. as per West Nile Virus Contingency Plan)
2. Elimination of a wasp’s nest near a location where the public has easy access.
3. Elimination of possible trip or slip hazards.
4. Removal of blocked sight lines on Regional roadways posed by weeds.
5. Removal of Noxious Weeds as determined by the Regional Forester, Transportation and Works Department.
6. Treatment of seriously infested and/or diseased trees as determined by the Regional Forester, Transportation and Works Department.
7. Elimination of a Critical Pest Introduction as legislated in the *Plant Protection Act*, R.S.C 1990, c.22.

APPENDIX "C"
PESTICIDE IDENTIFICATION FORM



APPENDIX "C"
TO THE PESTICIDE REDUCTION
GUIDELINES FOR LANDS OWNED BY
THE REGIONAL MUNICIPALITY OF YORK

PEST IDENTIFICATION FORM

Number: _____

Date Reported: _____

Reported By: _____

Address/Location of Site: _____

Initial Report Follow-up report 2nd Follow-up Report

Previous History: _____

PEST TYPE:

Insect Mite Fungi Weed

Virus Bacteria Physiological

Pest Life Cycle Stages Found: (Describe) _____

Pest Estimates: 1. Very few pests
 2. Pests present in moderate numbers
 3. Pests present in high numbers
 4. Pests present in very large numbers

Infestation: 1. Evenly distributed over entire plant
 2. Mainly on the newer growth
 3. Mainly on the older growth
 4. Trunk, stems or branches
 5. Roots

Plant Damages: 1. None
 2. Minimal
 3. Noticeable damage
 4. Damage affecting growth
 5. Causing plant death

Description of the damage/infestation: _____

Percentage of plants damaged/infested: _____

Predators/Parasites present: (Describe) _____

HOST PLANT:

Herbaceous Shrub Tree Deciduous

Evergreen Turf Grass

Host Plant Common Name: _____

Genus: _____ Species: _____

Growth Stage: _____ Samples Taken: Yes No

Regional Forester and Manager of Environmental Health comments: _____

PEST TREATMENT RECOMMENDATION: _____



APPENDIX D - PESTICIDE USE FORM

DATE: _____

SIGNS USED: Yes No COMMENTS: _____

Product Name	Pest Control Product # (PCP #)	Rate of Application	Machine Used
Active Ingredient	% In Product	Formulation	Capacity
Alternative Treatment	Method of Application	Physical Treatment	Materials Used

Park/Facility Address	Location	* Category	Plant(s) Treated	Pest(s) Treated	Type and Quantity of Prod. Used	Area Treated	Time Applied	Temperature	Wind Direction	Wind Velocity

- CATEGORIES: 1 GEN. PARKLAND 2 SPORTS FIELD 3 ROADSIDE/ALLOWANCE 4 TRANSPORTATION CORRIDOR 5 REGIONAL HOUSING
 (one per entry) 6 POLICE STATION 7 AMBULANCE STATION 8 WORKS YARD 9 LONG TERM CARE FACILITY 10 FORESTRY
 11 SEWAGE/WATER FACILITY 12 BED/GARDEN 13 ADMINISTRATIVE FACILITY

APPLICATOR (Please print) _____ LICENSE No: _____ SUPERVISOR (Please print): _____

THIS IS TO CERTIFY THAT: _____ IS AN EMPLOYEE FOR THE CONTRACTOR OR IS AN EMPLOYEE FOR THE REGIONAL MUNICIPALITY OF YORK, AND HAS BEEN TRAINED IN THE SAFE AND PROPER USE OF PESTICIDES

APPLICATOR SIGNATURE _____ SUPERVISOR SIGNATURE _____

Copy Disbursement: White - Applicator during treatment only Blue - Manager, Env. Pink - Applicators copy Canary - Supervisors Copy
 Forwarded to Regional Forester May/2002

APPENDIX "D"
PESTICIDE USE FORM

KEY TO PESTICIDE USE FORM

DATE	Date of Pesticide Application																																							
SIGN USED	YES – Large municipal signs, posted 24 hours before and retrieved up to 14 days after application NO – MOE allows for sign exemption if product(s) used are soap, Silicon Dioxide (Diatomaceous Earth) or oil																																							
COMMENTS	Indicate date – sign posted and retrieved OR specify exemption for not posting																																							
PRODUCT NAME	Trade Name – most prominent name on product label																																							
PCP Act. No.	Pest Control Product Number – listed on product label																																							
RATE OF APPLICATION	Amount of Product (concentrate) per unit area – ml, etc.																																							
MACHINE USED	Pesticide application equipment Unit No. OR if absent – make and model																																							
ACTIVE INGREDIENT	Stipulated as ‘Guarantee’ on product label																																							
% IN PRODUCT	Stipulated with Active Ingredient on product label																																							
FORMULATION	Stipulated on product label (Wettable Powder, Emulsifiable Concentrate/Granual, etc.)																																							
CAPACITY	Capacity of tank or equipment – volume in full (L or kg)																																							
METHOD OF APPLICATION	Banding, Foliar spray, soil soak, etc.																																							
PHYSICAL TREATMENT	Banding, shaking, water jet spray, etc.																																							
MATERIALS USED	Cloth, fibreglass, plastic, cellulose mulch, wire mesh, etc.																																							
PARK/FACILITY ADDRESS	Official Facility Name, and Address																																							
LOCATION	Specify area of application within the Facility, i.e. west yard																																							
CATEGORY	<table border="0"> <tr> <td>1</td> <td>General Parkland</td> <td>- open green-space, patios and other hard surfaces</td> </tr> <tr> <td>2</td> <td>Sportsfield</td> <td>- playing fields (baseball, football, etc.)</td> </tr> <tr> <td>3</td> <td>Road Side/Allowance</td> <td>- arterial road or highway right of way</td> </tr> <tr> <td>4</td> <td>Transportation Corridor</td> <td>- part of York Region road network</td> </tr> <tr> <td>5</td> <td>Regional Housing</td> <td>- property managed by Community Services and Housing</td> </tr> <tr> <td>6</td> <td>Police Station</td> <td>- district Police Station grounds</td> </tr> <tr> <td>7</td> <td>Ambulance Station</td> <td>- district ambulance station grounds</td> </tr> <tr> <td>8</td> <td>Works Yard</td> <td>- property managed by Transportation and Works Department</td> </tr> <tr> <td>9</td> <td>Long Term Care Facility</td> <td>- property managed by the Health Services Department</td> </tr> <tr> <td>10</td> <td>Forestry</td> <td>- trees only, York Region park or ravine (individual, multiple or forest)</td> </tr> <tr> <td>11</td> <td>Sewage/Water Facility</td> <td>- property managed by the Transportation and Works Department</td> </tr> <tr> <td>12</td> <td>Bed/Garden</td> <td>- flower beds, shrub beds, prominent display areas within a park</td> </tr> <tr> <td>13</td> <td>Administration Facility</td> <td>- Administrative Centre, South Service Centre, etc.</td> </tr> </table>	1	General Parkland	- open green-space, patios and other hard surfaces	2	Sportsfield	- playing fields (baseball, football, etc.)	3	Road Side/Allowance	- arterial road or highway right of way	4	Transportation Corridor	- part of York Region road network	5	Regional Housing	- property managed by Community Services and Housing	6	Police Station	- district Police Station grounds	7	Ambulance Station	- district ambulance station grounds	8	Works Yard	- property managed by Transportation and Works Department	9	Long Term Care Facility	- property managed by the Health Services Department	10	Forestry	- trees only, York Region park or ravine (individual, multiple or forest)	11	Sewage/Water Facility	- property managed by the Transportation and Works Department	12	Bed/Garden	- flower beds, shrub beds, prominent display areas within a park	13	Administration Facility	- Administrative Centre, South Service Centre, etc.
1	General Parkland	- open green-space, patios and other hard surfaces																																						
2	Sportsfield	- playing fields (baseball, football, etc.)																																						
3	Road Side/Allowance	- arterial road or highway right of way																																						
4	Transportation Corridor	- part of York Region road network																																						
5	Regional Housing	- property managed by Community Services and Housing																																						
6	Police Station	- district Police Station grounds																																						
7	Ambulance Station	- district ambulance station grounds																																						
8	Works Yard	- property managed by Transportation and Works Department																																						
9	Long Term Care Facility	- property managed by the Health Services Department																																						
10	Forestry	- trees only, York Region park or ravine (individual, multiple or forest)																																						
11	Sewage/Water Facility	- property managed by the Transportation and Works Department																																						
12	Bed/Garden	- flower beds, shrub beds, prominent display areas within a park																																						
13	Administration Facility	- Administrative Centre, South Service Centre, etc.																																						
PLANT(S) TREATED	Specify species if appropriate or type (annuals, perennials, shrubs, trees)																																							
PEST(S) TREATED	Specify target organism (Wasps, etc)																																							
QTY. PRODUCT. USED	Total amount of concentrate used (ml, L, g, kg)																																							
AREA TREATED	m ² , km ² , hectares, or number of shrubs, trees																																							
TIME APPLIED	Actual time of application – specify AM/PM																																							
WIND DIRECTION	Specify direction aspect from which wind is travelling																																							
WIND VELOCITY	Measured on site with an Anemometer, or Weather Bureau published value, (km. per hour)																																							
TEMPERATURE	Approximate ambient air temperature during application																																							
APPLICATOR	MOE licensed Exterminator performing the application																																							
LICENSE NUMBER	Specify MOE issued Exterminator License No.																																							
SUPERVISOR	Individual in charge of the treatment site(s)																																							
APPLICATOR SIGNATURE	Signature of licensed individual performing the treatments (Applicator indicated above)																																							
SUPERVISOR SIGNATURE	Signature of Supervisor or Manager indicated above																																							
COPY DISBURSEMENT	<table border="0"> <tr> <td>White</td> <td>Remains with applicator during treatment(s); returned to Supervisor upon completion; forwarded by the Supervisor to the Regional Forester</td> </tr> <tr> <td>Blue</td> <td>Forwarded to the Manager of Environmental Health</td> </tr> <tr> <td>Pink</td> <td>Remains with applicator</td> </tr> <tr> <td>Canary</td> <td>Remains with applicator during treatment(s); returned to Supervisor upon completion for filing</td> </tr> </table>	White	Remains with applicator during treatment(s); returned to Supervisor upon completion; forwarded by the Supervisor to the Regional Forester	Blue	Forwarded to the Manager of Environmental Health	Pink	Remains with applicator	Canary	Remains with applicator during treatment(s); returned to Supervisor upon completion for filing																															
White	Remains with applicator during treatment(s); returned to Supervisor upon completion; forwarded by the Supervisor to the Regional Forester																																							
Blue	Forwarded to the Manager of Environmental Health																																							
Pink	Remains with applicator																																							
Canary	Remains with applicator during treatment(s); returned to Supervisor upon completion for filing																																							

APPENDIX “E”

ACKNOWLEDGEMENTS

As a result of the June 14, 2001 *‘Pesticide Reduction Strategy’* report from the Commissioner of Health Services, a Region of York Pesticide Reduction Task Force was formed in October 2001. The Task Force was an interdisciplinary and interdepartmental group, and included representatives from area municipalities, school boards, conservation authorities, industry, environmental groups, and medical associations.

The purpose of the Pesticide Reduction Task Force was to develop Pesticide Reduction Guidelines for lands owned by the Region of York. It was our belief, at the beginning of this undertaking, that Plant Health Care and Integrated Pest Management principles should direct the Guidelines with the expectation that there will be a restriction in the Non-Essential Use of Pesticides on Lands Owned by the Region of York.

We wish to thank these individuals who took time out of busy schedules to contribute as both Pesticide Reduction Working Group Members and Pesticide Reduction Task Force Members.

PESTICIDE REDUCTION TASK FORCE MEMBERS

Diane Humeniuk as Chair, Regional Councillor, Town of Newmarket
Jeff Holec as Co-Chair, Mayor, Town of Georgina
Tony Wong, Regional Councillor, Town of Markham
Erin Shapero, Councillor, Town of Markham
Marlene Johnston, Councillor, Town of East Gwillimbury
Colleen Breen, Town of Aurora
Kelly Williams, Town of East Gwillimbury
Brock McDonald, Town of Georgina
Mark Ingwersen, Town of Markham
Dan Murnaghan, Town of Newmarket
Jim Tettmar, Town of Richmond Hill
Kelly Batt, Town of Whitchurch-Stouffville
Marjie Fraser/ Reid Patterson/ Terry DiNatale, City of Vaughan
Brian Denney, Toronto and Region Conservation Authority
Rick Brouwer, York Region District School Board
Sari Merson, York Region Environmental Alliance and Pesticide Free Ontario
Peter Walling, Pesticide Free Ontario
Valerie Burke, Markham Conservation Committee & Markham Environmental Alliance
Karl Mahler, Markham Environmental Alliance
Teri Mittelman/ Julie Starr, Vaughan Environmental Action Committee
Colette Boileau/ Lech Soburn, Organic Landscape Alliance
Lorelei Hepburn, The Environmental Factor Inc.
Fraser Pegg/ Brent Kopperson, Windfall Eco-Works
Dr. David Wong, Ontario College of Family Physicians
Dr. Trevor Hancock, Canadian Association of Physicians for the Environment
Dr. Keith Solomon, Canadian Network of Toxicology Centres, University of Guelph
Kimberly Bates, Urban Pest Management Council of Canada

Tom Somerville/ Ken Pavely/ Tony Di Giovanni, Landscape Ontario Horticultural Trades Association
Louis Van Haastnecht, Dr. Green
Bryan Allen, Bryan Allen and Associates Inc.
Philip Brown, Summit Golf and Country Club
Brian McHugh /Micheal Ufkes/Chris Lemcke, Weed Man
Greg Montag, Green Lawn Care
Martin Williams, Nutri-Lawn
Paul Pisani, Professional Lawn Care Association of Ontario
Chris Gynan, Silv-Econ Ltd.

**REGIONAL STAFF WHO ASSISTED IN THE PESTICIDE
REDUCTION TASK FORCE AND IN THE DEVELOPMENT OF THE
BACKGROUND AND THE GUIDELINES:**

Dr. Troy Herrick, Health Services Department
Oryst Zyhar, Health Services Department
Diane Bladec-Willett, Health Services Department
Manuela Di Re, Health Services Department
Helen Doyle, Health Services Department
Kevin Haley, Health Services Department
Guy Hall, Health Services Department
Len Munt, Transportation and Works Department
Jan Donaldson, Health Services Department
Beata Pach, Health Services Department
Nancy Roy, Health Services Department
Donna Swan, Health Services Department
Sylvia Patterson, Community Services and Housing
Kevin McCann, Community Services and Housing
Bill Kou, Health Services Department
Joan Prentice, Corporate Communications
Harold Brown, Clerk's Office