Integrated Pest Management Certification Program for Cemeteries

(IPMCP for Cemeteries)

Study Guide

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Presented by:

University of Guelph Ridgetown Campus

In cooperation with the:

Ministry of the Environment, Conservation and Parks

Ministere de l'Environnement, de
La Protection de la nature et des Parcs

The IPM Certification Program for Cemeteries examination is a 60 minute, closed book exam consisting of 50 multiple choice questions. Applicants must achieve a passing grade of 75% or greater. All examinations will be marked by IPMCP for Cemeteries staff. Results will be sent to applicants within ten (10) business days following the examination. Exam results are confidential and will be disclosed by mail or email to the applicant.

Study Material:

Current study material for the IPMCP for Cemeteries examination includes:

- OMAFRA Publication 845: "Integrated Pest Management for Turf": http://www.omafra.gov.on.ca/english/crops/pub845/pub845.pdf
- e-Laws *Pesticides Act:* https://www.ontario.ca/laws/statute/90p11?search=Pesticides+Act
- e-Laws O. Reg. 63/09 GENERAL: https://www.ontario.ca/laws/regulation/090063?search=Pesticides+Act
- IPM Certification Program for Cemeteries Policies and Procedures
- IPM Certification Program for Cemeteries Study Guide

Applicants with technical questions concerning the content of the study material will be directed to the authors of the material or other government or industry experts.

The Study Guide is designed to focus on the topics and content that will be tested in the exam. You will be tested on your knowledge of general IPM principles, how IPM is applied to maintain turf on a lot in a cemetery, and the regulatory requirements of the cemetery exemption under the cosmetic pesticides ban.

While every effort has been made to ensure the accuracy of the information contained in this document, it should not be construed as legal advice. In the event of conflict with requirements identified in the Act or Regulation, the legal requirements will apply.

IPM Regulatory Information for Cemeteries:

(referencing: Ontario Regulation 63/09, *Pesticides Act*; IPMCP for Cemeteries Policies and Procedures)

Regulatory information for cemetery owners, operators, and licensed landscape exterminators that apply pesticides for the purposes of the cemeteries exception under the cosmetic pesticides ban is provided below. Pesticides used on cemeteries must be used in accordance with all relevant legislation, including requirements of the *Pesticides Act* and Ontario Regulation 63/09 that are related to licensing, posting of signs and storage of pesticides.

A. Ontario's Cosmetic Pesticides Ban

(Referencing O. Reg. 63/09 Section 17 and Section 18)

Ontario's cosmetic pesticides ban is in place to reduce potential risk from the cosmetic uses of pesticides. Pesticides cannot be used for cosmetic purposes unless the only active ingredients in the pesticide are active ingredients that are on the Allowable List. The Allowable List can be found at https//www.ontario.ca/page/guide-pesticides-classes. It is illegal for any person to use, cause or permit the use of a pesticide for cosmetic purposes in a land extermination unless under an exception to the ban. "Cosmetic" as defined in the *Pesticides Act* means the non-essential use of a pesticide.

Pesticide products that contain only active ingredients that are on the Allowable List (i.e. biopesticide or lower risk pesticide) are allowed to be used for cosmetic purposes, such as to control weeds and other pests on lawns, gardens, and driveways. All pesticides must be federally registered and used according to label directions.

Pesticide active ingredients on the Allowable List include:

- biopesticides (microbial, pheromones or semiochemicals) as defined by the Pest Management Regulatory Agency,
- non-conventional pesticides that pose a low risk to human health and the environment based on consideration of the following factors:
    - The active ingredient has a low inherent toxicity to non-target organisms.
    - The products in which the active ingredient is contained have a low potential for their use to result in significant human or environmental exposure.
    - The active ingredient is not persistent in the environment.
    - The active ingredient is widely available to the public and has a history of safe use for a purpose other than as a pesticide.
    - The active ingredient has a mode of action that is not the result of toxicity to the target organism.

B. Exception for Cemeteries

(Referencing O. Reg. 63/09 Section 27)

Under the cosmetic pesticide ban, the use of pesticides with an active ingredient that is not on the Allowable List is permitted for certain excepted purposes in accordance with specific conditions. One such purpose is to maintain turf on a lot in a cemetery.

C. Definitions

(Referencing O. Reg. 63/09 Section 27)

For the purposes of the cemetery exception to the Cosmetic Pesticide Ban, the terms "cemetery" and "lot" have the same meaning as in the *Funeral, Burial and Cremation Services Act, 2002* and are defined below:

> "cemetery" means,
>
> (a) land that has been established as a cemetery under this Act, a private Act or a predecessor of one of them that related to cemeteries, or
>
> (b) land that was recognized by the registrar as a cemetery under a predecessor of this Act that related to cemeteries,
>
> and includes,
>
> (c) land that, in the prescribed circumstances, has been otherwise set aside for the interment of human remains, and
>
> (d) a mausoleum or columbarium intended for the interment of human remains;
>
> and
>
> "lot" means an area of land in a cemetery containing, or set aside to contain, Interred human remains and includes a tomb, crypt or compartment in a mausoleum and a niche or compartment in a columbarium and any other similar facility or receptacle;

D. Maintaining Turf on a Lot in a Cemetery

(Referencing O. Reg. 63/09 Section 27)

Pesticides with an active ingredient that is not on the Allowable List that are used under the cemeteries exception can only be used to maintain **turf** on a **lot** in a cemetery. An IPM certified licensed landscape exterminator must ensure pesticides are used according to label directions and for purposes allowed under the ban.

The exception does not apply to other lawns or turf areas that are not cemetery lots. To control pests in gardens, paved areas or other turf areas, such as lawns in areas of the cemetery where burial plots are not located or around buildings and border areas of the cemetery, only pesticides with active ingredients that are on the Allowable List can be used.

E. IPM Certification Requirements

(Referencing O. Reg. 63/09 Section 27)

The exception to the cosmetic pesticide ban for cemeteries sets out certain requirements related to IPM certification. The person using the pesticide must be certified by an integrated pest management body approved by the Director or working under written instructions of a person so certified. Currently, University of Guelph, is an approved IPM body.

If the person using the pesticide is certified by an integrated pest management body, the person shall carry (or have readily available at the extermination site) the certificate or a copy of the certificate. Alternatively, if the person using the pesticide is working under the written instructions of a person who is certified by an integrated pest management body, the person shall carry (or have readily available at the extermination site) a copy of the following:

1. The certificate issued to the certified person.
2. The written instructions.

F. Annual Report

(Referencing O. Reg. 63/09 Section 19)

The owner or operator of the cemetery that is using unlisted pesticides must prepare an annual report each year. The annual report covers the period from January 1 to December 31 in a year and shall be prepared before January 31 in the following year.

The form that must be used for the Annual Report can be found on the University of Guelph Ridgetown Campus webpage for IPM Certification. The annual report must include the following information:

- The name of each active ingredient used.
- The quantity in kilograms of each active ingredient used.
- The reason for using each active ingredient.
- The method of use for each active ingredients
- A map or plan showing the location of all application areas.
- An explanation of how future use of each active ingredient used will be minimized.

- The signature of the integrated pest management agent or another person who is certified by an integrated pest management body approved by the Director and who used, supervised the use of or provided any written instructions on the use of unlisted pesticides.

A copy of this report must be kept at the head office of the owner or operator of the cemetery for at least five years and, on request, given immediately to a provincial officer or the Director or to any person free of charge within seven days.

OMAFRA Publication 845: Integrated Pest Management for Turf

(The following items are relevant to potential examination content)

Chapter 1: Integrated Pest Management for Turf

Introduction to IPM

- Definition
- Advantages of IPM programs

Planning of Turf

- Soil conditions
- Turf selection

Management of Turf

- Water management – frequency and quantity
- Fertilization – effects of quantity
- Mowing – mowing height and frequency
- Thatch control – methods for control
- Aeration – benefits of use
- Verticutting – benefits of use
- Topdressing – benefits of use
- Growing environment – irrigation and fertilizing

Identification of Problems

- Abiotic problems
- Biotic problems

Scouting and Record Keeping

- Plant phenology - definition and use
- Steps to help diagnose a turf problem
- Key pests
- Scouting methods
    - Visual inspections
    - Counting methods
    - Insect traps - pheromone traps, black light traps
    - Weed counts - importance of count number and selection

Thresholds
- Definition

Controls
- Cultural controls
- Physical controls
- Biological controls
- Chemical controls

Evaluation
- Benefits
- Evaluation requirements

Chapter 2: Developing a Turf IPM Program

General Steps
- Set Realistic Objectives
- Categorize the Sites
- Assemble Site Background Information
- Conduct a Site Assessment
- Draft an IPM Program
- Revise the IPM Program

Chapter 3: IPM for Turf Weeds

Weed Biology
- Weed life cycles
- Examples of weed species

Identification
- Importance of identification
- Conditions favouring weed invasion in lawns (Table 3-1)

Scouting
- Counting Methods
  - Transect method
  - Grid method
  - Centreline method

Thresholds
- Examples of Action Levels/Thresholds for Weeds (Table 3-2)

Cultural Controls

- Turf Establishment – turfgrass species selection and timing of seeding
- Mowing – benefits of basic mowing principles
- Fertilizing – (more info in chapter 6)
- Irrigating – basic principles of irrigating
- Compaction

Physical Controls

- Hand removal
- Heat treatment – benefits of use and how it operates

Biological Controls

Chemical Controls

Evaluation

- Benefits

Chapter 4: IPM for Turf Insects

Biology of Insects

- Mouth parts and damage
- Metamorphosis
- Life cycles

Insect Identification

- Turf Insect Summary (Table 4-1)

Scouting

- Where, when and how often to scout
- Visual inspections – Turfgrass Insect Injury Key (Table 4-2)

Control Methods

- Cultural controls – turfgrass species selection and irrigation management
- Biological controls
  - Beneficial insects
  - Nematodes and bio-insecticides
  - Bacteria and fungi
- Chemical controls – when to use
- Evaluation

Foliar and Stem Feeding Insects

- Black cutworm – description of life stages, damage assessment
- Sod webworms - description of life stages, damage assessment

Crown and Thatch Feeding Insects

- Annual bluegrass weevil - description of life stages, damage assessment
- Bluegrass billbug - description of life stages, damage assessment
- European crane fly - description of life stages, damage assessment
- Hairy chinch bug - description of life stages, damage assessment
- Turfgrass scale - description of life stages, damage assessment

Soil Inhabiting Insects

- Black turfgrass ataenius - description of life stages, damage assessment
- White grubs or June beetles - description of life stages, damage assessment
- European chafer - description of life stages, damage assessment
- Japanese beetle - description of life stages, damage assessment

Other Turf Insect Pests

- Turfgrass ant - description of life stages, damage assessment

Chapter 5: IPM For Turf Diseases

Diseases

- Abiotic or biotic pathogens - descriptions
- Fungi
- Disease triangle – definition and identifying the components
- Disease cycle – components of the disease cycle
- Diagnosis – what to look for
    - Key to Turfgrass Diseases of Ontario (Table 5-1) – when and where on the plant do you see the symptoms; which species are affected

Winter Diseases

- Grey snow mould
- Pink snow mould and Fusarium patch

Spring and Fall Diseases

- Read thread
- Yellow patch
- Leaf spots
- Necrotic ring spot
- Take-all patch

Summer Diseases

- Summer patch
- Dollar spot
- Brown patch
- Anthracnose foliar blight
- Anthracnose basal rot

- Pythium blight
- Pyhium root rot
- Brown ring patch

Other Diseases
- Fairy ring
- Powdery mildew
- Rusts
- Slime moulds

Chapter 6: Soil Management and Fertilizer Use

Soil Testing
- Soil sampling – when and how to sample
- Micronutrient tests – when and how these are useful

Plant Analysis
- Soil sampling – when and how to sample, determining when analysis is useful

Nitrogen (N) – the role of N, how to test for N and when to apply it
- Nitrogen equivalency
- Nitrogen sources
    - Inorganic nitrogen
    - Synthetic organic nitrogen
    - Slow-release synthetic organic nitrogen
    - Coated ureas
    - Natural organic nitrogen sources

Phosphorus (P) and Potassium (K) – the role of P and K, how to test for P and K and when to apply them

Applying Fertilizer
- Turf use, conditions and soil type
- Type of fertilizer
- Timing of application
- Environmental consideration

Municipal Sewage Biosolids

Adjusting soil pH
- Raising pH
- Buffer pH
- Limestone quality
- Lowering pH

- Soluble Salts in Soil

Chapter 7: Turfgrass Species

Turfgrass Species Characteristics and Use (Table 7-2)

- Kentucky bluegrass
- Canada bluegrass
- Rough bluegrass
- Supina bluegrass
- Weeping alkaligrass
- Fine fescue
- Turf-type perennial ryegrass
- Spreading turf-type perennial ryegrass
- Colonial bentgrass
- Velvet bentgrass
- Tall fescue
- Spreading tall fescue

Time of Seeding – when is the optimal time to seed

Weed Control

Mowing newly seeded turf

- Mowing Heights (Table 7-4)

Chapter 8: Water Management

Laws and Regulations

- Permit to Take Water

Irrigation Scheduling for Golf Courses, Sports Fields and Sod

- Envirotranspiration - definition

Measuring soil moisture – how soil type can influence soil moisture

Water budget

- Rain and irrigation vs. evapotranspiration
- Crop factor
- Water budget example – predict water needs as well as waste
- Scheduling home lawn irrigation – recommended amounts and timing
- Dormant turf
- Weed invasion

Quality of Irrigation Water – water quality problems and how they affect water quality

Management Strategies for Low-Quality Irrigation Water

Conserving Water – methods to conserve water