

**Exam Knowledge Expectations for  
Qualified Applicator Certificate & Qualified Applicator License  
B - Landscape Maintenance Category**

Use these knowledge expectations (KEs) to help study the suggested material,  
*Landscape Maintenance Pest Control* (2006 Edition)  
Knowing the information from all of the KEs should prepare you for taking the exam.

### **Chapter 1 Pest Identification**

- A. Explain why identifying pests correctly is important.
- B. Explain the importance of identifying the plant(s) affected by the pest.
- C. List the main groups of common pests of landscapes, interiorscapes, and turfgrass and their identifying features.
- D. Describe different types of characteristic plant damage caused or nuisance created by insects and other arthropods.
- E. Explain the importance of pest life cycles to effective pest identification and management.
- F. Describe the differences between broadleaf weeds, grasses, and sedges.
- G. Describe different types of plant damage caused by abiotic factors and pathogens.
- H. List common vertebrate pests of landscapes and turfgrass and the damage they cause.
- I. List and describe the types of resources and references available for identifying pests, symptoms of infestation, and damage caused by pests.

### **Chapter 2 Pest Management and Chapter 8: Using Pesticides Effectively**

- A. Define Integrated Pest Management (IPM) in a landscape maintenance context.
- B. Explain the advantages and disadvantages of the pest management methods that make up an IPM program in landscapes, turfgrass, and interiorscapes.
- C. Explain the importance of
  - a. site-specific variables
  - b. pest, host, and natural enemy populations
  - c. pest life stage
  - d. pest management planning
- D. Define natural enemies and explain how they control pests.
- E. Describe nonchemical pest management practices.
- F. Explain the relationships among the components of an effective IPM program.
- G. Define selectivity as it relates to pesticides.
- H. Describe the factors that control a pesticide's selectivity.
- I. Describe the methods used to prevent, suppress, or eradicate pests.
- J. List and describe sources of pest management information.

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## Chapter 3 Pesticides

- A. Explain the concepts of pesticide hazard, exposure, and toxicity and how they relate to one another.
- B. List pesticide toxicity categories and signal words, and explain what each category means in terms of a pesticide's effects on humans and animals.
- C. Define a pesticide's mode of action and provide examples of the different modes.
- D. Explain how contact and systemic pesticides control pests differently.
- E. List and define factors that influence efficacy of pesticides.
- F. List the various pesticide formulations available and the advantages and disadvantages of each.
- G. Explain the role of adjuvants in pesticide applications.
- H. List the indications that a tank mix of two or more pesticides is incompatible.

## Chapter 5 Hazards Associated with Pesticide Use

- A. List and describe specific hazards associated with using pesticides in landscape, turf, and interiorscape situations.
- B. List the handling tasks most often associated with work related pesticide exposure and explain why these tasks are hazardous.
- C. Describe the potential effects of pesticide exposure on people.
- D. Explain the various fates of pesticides in the environment, and how different pesticides and application methods influence the pesticide's fate.
- E. List the types of offsite movement of pesticides.
- F. Describe ways that pesticides can impact nontarget organisms.
- G. Define phytotoxicity and factors that influence the likelihood of phytotoxicity in landscape, interiorscape, and turfgrass applications.
- H. Describe symptoms of phytotoxicity.
- I. List activities that can result in pesticide damage to treated surfaces.

## Chapter 6 Protecting People and the Environment

- A. List the types of hazards that may be present at an application site.
- B. Describe how to identify potentially sensitive areas that could be adversely affected by pesticide application, mixing and loading, storage, disposal, and equipment washing.
- C. Describe ways in which applicators ensure the public's safety before, during, and after pesticide applications.
- D. Explain that handler pesticide safety training must include how to prevent, recognize, and mitigate heat stress when wearing Personal Protective Equipment (PPE) and handling pesticides as part of the job.

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- E. Explain how PPE can protect a person from hazards associated with pesticides.
- F. List various types of PPE that pesticide handlers use to protect themselves from pesticide exposure.
- G. Explain how to select the most effective PPE for the job.
- H. Describe how to wear, clean, maintain and store reusable PPE, and how to dispose of worn or single-use PPE.
- I. Describe posting requirements when using pesticides on public property.
- J. Describe how to restrict access to areas where pesticides are in use or have been used.
- K. Describe techniques for mixing and loading pesticides safely, including the equipment, location, and procedures used in the process.
- L. Describe methods for
  - a. mixing a single pesticide
  - b. mixing two or more pesticide formulations
- M. Describe procedures, additives, formulation types, and conditions that help keep pesticides on the treated site.
- N. Explain how to properly process all types of pesticide containers for disposal.
- O. Explain how to properly triple rinse empty rigid plastic and metal pesticide containers.
- P. Explain the potential environmental hazards associated with pesticides
- Q. Describe the proper weather conditions for the safe application of pesticides.
- R. Describe pesticide chemical and physical characteristics and how these characteristics indicate the potential for pesticides to move offsite.
- S. Describe the procedures to follow for safe, effective cleanup after handling pesticides, including cleaning application equipment, as well as personal decontamination.

### **Chapter 7 Pesticide Emergencies**

- A. Explain the procedures to follow in getting emergency medical treatment for someone who has been exposed to pesticides.
- B. Describe general pesticide poisoning symptoms.
- C. Describe where to find information about first aid for a person involved in a pesticide incident and explain what to do if
  - a. you get pesticides on your clothing
  - b. you get pesticides in your eyes
  - c. you inhale pesticides
  - d. you swallow pesticides

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- D. Describe what to do when faced with a pesticide leak or spill.
- E. Describe how to respond to the misapplication of pesticides.
- F. List common errors that can occur when applying pesticides and describe the problems that can result from these errors, including legal and economic consequences.

### **Chapter 9 Application Equipment and Calibration**

- A. Describe various pesticide application methods.
- B. List the types of application equipment and describe the advantages and limitations of each type.
- C. List components of liquid application equipment, explain how they work together, and identify which components work best with which pesticide formulations.
- D. List the types of application equipment used to apply dusts, and describe the situations in which each should be used.
- E. List the types of application equipment used to apply granules, and describe the situations in which each should be used.
- F. List types of bait application equipment and explain how they work.
- G. Name the parts of application equipment that can be switched out or adjusted to accommodate changing conditions and formulations (such as nozzles or psi).
- H. Explain how to select the right equipment for effective applications to common plant structures.
- I. List the adjustments to make to improve inadequate spray coverage or pesticide placement.
- J. List the important factors to consider when selecting nozzles for a given application.
- K. Describe how to recognize wear in nozzles.
- L. Describe the various nozzles available, including design, size, angles, and output.
- M. Describe how to maintain liquid, dust, and granule pesticide application equipment.
- N. Describe safe and effective practices for cleaning application equipment.
- O. Define calibration and explain why accurate calibration is essential to safe, effective pest control.
- P. Describe methods used to determine how much pesticide to put into the hopper or tank for a specific application rate over the total area of the application site.
- Q. Describe what you need to know before you can dilute a pesticide correctly.
- R. Be able to calculate the active ingredient concentration of pesticides using formulas.
- S. Describe how to determine the correct amount of pesticide needed for a particular application.
- T. Describe how to calibrate application equipment for interiorscape, turfgrass, and ornamental applications.

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**Chapter 10 Safe and Effective Applications in Landscape and Turf Settings**

- A. List types of landscape and turf application sites and the goals of plant maintenance at these sites.
- B. Explain the various fates of pesticides in outdoor environments, and how different pesticides and application methods influence the pesticide's fate.
- C. List ways that pesticides can damage plants in the treatment area.
- D. List actions that will reduce drift during applications in landscapes and turfgrass.
- E. Explain why and in which situations it is important to communicate with neighbors and others in the area before making a pesticide application.
- F. Describe the safety information that must be provided to people before applications are made in landscape or turfgrass sites.
- G. Explain how to protect people and pets that frequent areas that will be or have recently been treated with pesticides.
- H. List the steps necessary to keep people safe during tree injection operations.
- I. Describe site-specific variables that affect the potential for pesticides to move in water away from landscape and turf application sites.
- J. Describe ways to reduce the potential for runoff during and after applications to landscapes and turf.

**Chapter 11 Safe and Effective Applications in Interiorscape Settings**

- A. List the types of sites that can be classified as interiorscapes.
- B. List the potential problems caused by pesticide use in interiorscapes.
- C. List precautions to take that mitigate pesticide hazards and impacts of interiorscape applications.
- D. Describe nonchemical pest control methods used in interiorscapes.
- E. Describe the ways pesticides can move offsite during and after interiorscape applications.
- F. Describe how to reduce drift during and after pesticide applications to interiorscapes.
- G. Explain how to avoid phytotoxicity in interiorscape applications.
- H. Describe information that must be provided to people in or near any application site to keep them safe.