

Knowledge Expectations for Landscape Maintenance Pest Control (Category B)

The information you will be expected to know to pass the exam in the Landscape Maintenance category is included in these knowledge expectations (KEs). Use the KEs together with the recommended study materials to study and prepare for the exam. If you can answer all of the questions listed in the KEs, you are probably ready for the exam.

1. Pest Identification

- A. Have a general understanding of pest identification.
- B. Distinguish between damage caused by pests with sucking mouthparts versus chewing mouthparts.
- C. Understand the concept of pest life cycles and the importance of these to effective identification and management.
- D. Be able to tell the difference between a broadleaf weed and a grass that is a weed.
- E. Know that plants may be injured by inadequate or improper cultural practices, insects and mites, vertebrates, weeds, fungi, bacteria, viruses, nematodes, environmental conditions such as drought and nutritional deficiency, and chemical injury such as air pollutants and spray drift.
- F. Know where to access pest identification information and resources.

2. Pest Management/Using Pesticides Effectively

- A. Understand general principles of pest management, including integrated pest management (IPM).
- B. Know how to protect beneficial organisms.
- C. Be able to recognize plant stress and have a general awareness of the range of potential causes.
- D. Understand what natural enemies are and how they control pests.
- E. Understand the importance of monitoring weather conditions prior to and during an outdoor application.
- F. Understand that there is a range of control methods to choose from, including cultural, chemical, biological, etc.
- G. Understand pesticide selectivity.
- H. Understand the principles of selective uses of pesticides.

- I. Understand the benefits of using pest-resistant plant varieties.
- J. Be able to detect when pest control efforts have not been successful.
- K. Know where to access pest management information, including on the internet.

3. Pesticides

- A. Have a thorough understanding of what a pesticide is.
- B. Understand the concept of different toxicities of pesticides.
- C. Know the different pesticide chemical groups.
- D. Understand the concept of pesticide mode of action.
- E. Recognize factors that influence efficacy of pesticides.
- F. Be familiar with the different types of pesticide formulations.
- G. Understand what adjuvants are for.
- H. Understand how to recognize incompatibility in pesticide mixtures.
- I. Understand ways to reduce incompatibility problems.

4. Pesticide Laws and Regulations

- A. Have a general understanding of pesticide laws and regulations.
- B. Understand parts of pesticide labels and be able to find specific information.
- C. Recognize acceptable deviations from pesticide label requirements.
- D. Understand how to avoid using pesticides in conflict with the label.
- E. Understand the importance of only using products registered for the site.
- F. U how to dispose of excess materials and empty pesticide containers properly and legally.
- G. Know how to properly transport pesticides.
- H. Understand what service containers are and how these must be labeled.
- I. Know how to properly store pesticide containers and equipment.
- J. Understand that pesticides must be stored in proper containers and never in food storage containers (e.g., soft drink bottles).

K. Understand worker safety requirements (training and PPE especially).

5. Hazards Associated with Pesticide Use

A. Have a general understanding of pesticide hazards.

B. Understand how people get exposed to pesticides in landscape, turfgrass, and interiorscape settings.

C. Understand how pesticides enter the body.

D. Understand the health effects of exposure to pesticides.

E. Understand how pesticides get into surface and ground water.

F. Understand the impact of pesticides on nontarget organisms.

G. Understand the causes of phytotoxicity in landscape, interiorscape, and turfgrass applications.

H. Understand that spray drift of soil-applied herbicides can injure sensitive plants.

I. Understand that soil persistence is one cause of phytotoxicity.

J. Know how to recognize the results of phytotoxicity (includes abnormal growth, leaf drop, and discolored, curled, and spotted leaves).

K. Understand that when plants are young and tender they are more susceptible to phytotoxicity.

L. Understand how to consult the label about avoiding phytotoxicity for specific plants or varieties.

6. Protecting People and the Environment

A. Have a general understanding of how to protect people and the environment.

B. Ensure that health and safety hazards are considered before making a pesticide application.

C. Know how to prevent humans, pets, and other domestic animals from contacting hazardous amounts of pesticides within the treated area.

D. Recognize hazards at the application site that could endanger people or the environment during a pesticide application.

E. Know how to handle pesticides safely within landscapes, interiorscapes, and turfgrass environments before, during, and after spray applications.

F. Recognize the ways pesticides can damage treated surfaces.

- G. Understand how to prevent hazardous amounts of pesticide from drifting into nontarget areas.
- H. Know how to select, fit, care for, and use personal protective equipment.
- I. Understand how to recognize, treat, and prevent heat-related illness associated with personal protective equipment.
- J. Understand how to reduce the impact on the environment from pesticides.
- K. Understand how to clean application equipment and dispose of empty containers.
- L. Understand proper personal hygiene after handling pesticides.
- M. Understand the liabilities associated with pesticide applications.
- N. Read the label and be familiar with the characteristics of each pesticide that may be applied in landscapes, interiorscapes, or on turfgrass.
- O. Understand the ultimate fate of pesticides in the environment through drift, volatilization, photodecomposition, runoff, leaching, degradation by microorganisms, dilution by soil water, and attachment to soil particles.
- P. Understand posting requirements.
- Q. Know how to communicate with others who perform work in the treated area (e.g. mowers).

7. Pesticide Emergencies

- A. Have a general understanding of how to deal with pesticide emergencies.
- B. Know proper first aid procedures for pesticide exposure.
- C. Know procedures for dealing with pesticide leaks and spills.
- D. Understand how to deal with pesticide fires.
- E. Know procedures for dealing with pesticide misapplications.
- F. Know how to deal properly with mixing-loading errors.
- G. Understand who to call in emergencies of various sorts.

8. Pesticide Application Equipment

- A. Understand proper pesticide application procedures.
- B. Be aware of the different types of landscape, interiorscape, and turfgrass application equipment.

- C. Understand the components of liquid application equipment and the roles of each component.
- D. Understand how to use bait and bait stations for vertebrate pests.
- E. Know how to service and maintain pesticide application equipment.
- F. Know how to monitor equipment during an application in order to spot problems.
- G. Understand how different nozzle patterns affect application.
- H. Understand the affect of sprayer pressure and nozzle type and height on drift.
- I. Understand how to properly clean tools and equipment.

9. Calibrating Pesticide Application Equipment

- A. Have a general understanding of calibration.
- B. Understand the reasons for calibrating pesticide application equipment.
- C. Know how to calibrate for interiorscape, turfgrass, and ornamental applications.
- D. Be able to calculate the amount of pesticide to apply to a known area.
- E. Understand proper pesticide mixing procedures.
- F. Know how to make a pesticide mixture of a certain percentage of active ingredient.
- G. Know how to mix pesticides on a parts-per-million basis.
- H. Understand the important of using the proper equipment for each job.

10. Interiorscapes

- A. Have a general understanding of hazards associated with interiorscape applications.
- B. Recognize when plants are stressed.
- C. Understand the concept of pest prevention.
- D. Know how to apply pesticides safely in interiorscapes.
- E. Understand how to avoid phytotoxicity in interiorscape applications.
- F. Understand how to avoid indoor air problems from pesticide applications.
- G. Understand how to avoid pesticide residues from interiorscape applications.

- H. Understand the fate of pesticides in interiorscapes and how to protect people and pets.
- I. Understand posting requirements.
- J. Have practical knowledge of how pesticides move off application site.
- K. Understand site-specific hazards.
- L. Understand hazards of applications to trees.

11. Landscapes

- A. Have a general understanding of hazards associated with landscape applications.
- B. Be able to recognize pesticide injury to plants.
- C. Know the main causes of plant diseases (bacteria, fungi, and nematodes).
- D. Know how to prevent drift to sensitive plants.
- E. Understand the fate of pesticides in the landscape environment and how to protect people and pets.
- F. Understand posting requirements.
- G. Have practical knowledge of how pesticides move off application site.
- H. Understand site-specific hazards.
- I. Understand how to perform soil injections and tree injections safely and effectively.
- J. Know how to communicate with others who perform work in the treated area (e.g. mowers).

12. Turfgrass

- A. Have a general understanding of hazards associated with turf applications.
- B. Know the main causes of turfgrass diseases (bacteria, fungi, and nematodes).
- C. Understand the fate of pesticides in the turfgrass environment and how to protect people and pets.
- D. Understand posting requirements.
- E. Have practical knowledge of how pesticides move off application site.
- F. Understand site-specific hazards.
- G. Know how to communicate with others who perform work in the treated area (e.g. mowers).