Exam Knowledge Expectations for
Qualified Applicator Certificate & Qualified Applicator License
A - Residential, Industrial, and Institutional Category

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

Chapter 1 Pest Management

A. Define Integrated Pest Management (IPM).
B. Provide examples of common pest monitoring methods used before applying pesticides.
C. Describe the various thresholds used to determine when to begin controlling pests at a site.
D. Explain the various control methods and techniques that make up an IPM program.
E. Describe various pest control methods and their advantages and disadvantages.
F. Describe the factors that contribute to various pest problems in and around structures.

Chapter 2 Safe Use

A. List and explain the criteria used to select a pesticide for use in a school.
B. Describe how to handle pesticide containers so that they remain in safe and useable condition.
C. List the steps to take in order to properly apply pesticides.
D. Describe the procedures used to store pesticides properly.
E. Explain why it is important to keep an up-to-date inventory of stored pesticides.
F. Explain how to properly process all types of pesticide containers for disposal.
G. Describe proper methods of disposal for leftover or expired pesticides.
H. List the various pesticide formulations available and their advantages and disadvantages.
I. Explain how to select the right bait for controlling specific pests.
J. Describe methods that help minimize bait shyness and pesticide resistance when using poisoned bait.
K. Describe how people get exposed to pesticides.
L. Describe common symptoms of pesticide exposure in people.
M. Explain why it is important to apply pesticides in strict conformity with label instructions, including application rates.
N. Explain how to select the most effective Personal Protective Equipment (PPE) for the job.
O. Describe how to wear, clean, maintain, store, and dispose of PPE.
P. List the types of hazards that may be present at an application site.
Q. Explain how to protect yourself from pesticide exposure when working in confined areas.
R. Explain why pesticide residue can be a problem.
S. List some environmental consequences of pesticides that move offsite.
T. Explain how to reduce offsite movement of pesticides during application.
U. List activities that can result in pesticide damage to treated surfaces and explain how to prevent this type of damage.
V. List procedures and safety precautions for transporting pesticides in a vehicle.

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W. Describe what to do when faced with a pesticide leak or spill.
X. Describe how to dispose of contaminated materials from a pesticide spill.

Chapter 3 Weed Control

A. List the ways that weeds cause problems around structures.
B. Identify the differences between broadleaf weeds, grasses, and sedges.
C. Explain why identifying weeds correctly is important.
D. List the resources and plant characteristics that can be used to accurately identify weeds.
E. Explain the advantages and disadvantages of various methods and techniques used to control weeds around structures.
F. Describe the various ways herbicides control weeds.
G. Identify factors that should be considered when selecting herbicides.
H. Explain when a tank mix of two or more herbicides is appropriate.
I. List some environmental consequences of pesticides that move offsite.
J. Describe why it is important to identify potentially sensitive areas that could be adversely affected by pesticide application.
K. List several ways to prevent or reduce pesticide drift during herbicide applications.
L. Describe the steps to take to keep yourself safe when applying herbicides to weeds in school grounds.
M. Explain the role of adjuvants in herbicide applications.
N. Explain how pesticide tolerance develops and describe ways to manage it.
O. List the types of application equipment and the advantages and limitations of each type.
P. List suitable formulations for various types of application equipment.

Chapter 4 Pests On or Near Food

A. List common pests that occur on or near food.
B. Describe the damage caused or nuisance created by cockroaches in structures.
C. Explain why gel baits are effective and how to use gel baits effectively against cockroaches.
D. List guidelines for using cockroach baits in school buildings.
E. Describe the cockroach species that are major pests in California.
F. Describe non-chemical pest management practices for cockroaches.
G. Discuss types of insecticides used to control cockroaches and describe which type works best in a given situation.

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H. Describe how to implement follow-up monitoring to assess the effectiveness of a site's cockroach management program.
I. Describe the damage caused or nuisance created by ants in and around structures.
J. Describe the ant species that are major pests in buildings in California.
K. List guidelines for using ant baits in school buildings.
L. Describe various management methods for
    a. Argentine ants
    b. pharaoh ants
    c. odorous house ants
    d. California harvester ants
    e. thief ants
    f. southern fire ants
    g. red imported fire ants
M. Describe the fly species that are major pests in and around buildings in California.
N. Describe the damage caused or nuisance created by flies in and around structures.
O. Describe various management methods for
    a. house flies and little house flies
    b. cluster flies
    c. blow flies
    d. vinegar flies

Chapter 5 Parasitic, Biting, and Stinging Arthropods

A. Describe the problems caused by arthropods that bite, sting, or are parasitic on people or domestic animals.
B. List common pests that bite, sting, or are parasitic on people or domestic animals.
C. List complications from and methods of preventing Lyme disease.
D. List complications from and methods of preventing West Nile virus.
E. Describe various management methods for mosquitos.
F. Describe the true bug species that are pests in buildings in California.
G. List the guidelines for using insect repellants.

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H. Describe various management methods for
   a. bed bugs
   b. bat bugs
   c. swallow bugs
I. Describe various management methods for conenose bugs.
J. List the flea species that are pests in and around buildings in California.
K. Describe various management methods for cat fleas.
L. Describe the bee and wasp species that can be pests in and around buildings in California.
M. Describe various management methods for:
   a. bees and social wasps
   b. solitary wasps
N. Describe the spider species that are pests in and around buildings in California.
O. Describe various management methods for spiders.

Chapter 6 Fabric Pests

A. List common pests that feed on natural or synthetic fabrics or preserved fur, feathers, horns, and other animal parts.
B. Describe the carpet beetle species that are pests in buildings in California.
C. Describe the damage caused or nuisance created by carpet beetles in structures.
D. Describe various management methods for carpet beetles.
E. Describe the benefits of using low-oxygen atmospheres to control insect pests in museums.
F. Describe the clothes moth species that are pests in buildings in California.
G. Describe the damage caused or nuisance created by clothes moths in structures.
H. Describe various management methods for clothes moths.
I. Describe silverfish and firebrats that are pests in buildings in California.
J. Describe the damage caused or nuisance created by silverfish and firebrats in structures.
K. Describe various management methods for silverfish and firebrats.
L. Describe crickets that are pests in buildings in California.
M. Describe the damage caused or nuisance created by crickets in structures.
N. Describe various management methods for crickets.

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Chapter 7 Stored Product Pests

A. List common pests of stored food products.
B. Explain how birds are pests of stored food.
C. Describe various management methods for birds.
D. Explain how rodents are pests of stored food.
E. Describe various management methods for rodents.
F. Explain how fungi and other microorganisms are pests of stored food.
G. Describe various management methods for fungi and other microorganisms.
H. Describe insect pests of stored products.
I. Describe the damage caused by insect pests of stored products.
J. Describe various management methods for insect pests of stored products.
K. Describe mite pests of stored food.
L. Explain how mites are pests of stored food.
M. Describe factors in the environment that may affect fumigants used in a variety of structures.
N. Describe various management methods for stored-product mites.

Chapter 8 Wood-destroying Pests

A. List common wood-destroying pests.
B. Describe common termite species that are pests in California.
C. Describe the benefits and drawbacks of various management methods for termites.
D. List the steps necessary to perform a thorough termite inspection of a variety of structures.
E. Name areas of faulty construction that may lead to subterranean termite infestation.
F. Describe various insecticide application methods used to control termites and the degree of penetration typical of each method.
G. Explain how fungi can destroy wood in buildings.
H. Describe various management methods for wood decay fungi.
I. Describe methods used to prevent and remediate toxic mold in buildings.
J. List typical areas in structures where wood decay may be present.
K. Describe carpenter ants and the damage that they cause to structures.
L. Describe various management methods for carpenter ants.
M. Describe carpenter bees and the damage that they cause to structures.
N. Describe various management methods for carpenter bees.
O. Describe common wood-boring beetle species that are pests in California.

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P. Describe various management methods for wood-boring beetles.
Q. Describe marine borers and the damage that they cause to wood.
R. Describe various management methods for marine borers.

Chapter 9 Safe and Effective Applications in Landscape and Turf Settings

A. List common vertebrate pests in and around buildings in California.
B. Describe problems associated with rats and mice found in and around buildings.
C. Describe hantavirus and how it is spread.
D. Describe the rat and mouse species that can be pests in buildings in California.
E. Describe various management methods for rats and mice.
F. Describe ways to estimate the size of a rodent population.
G. Explain how bats can be pests in and around buildings.
H. Describe various management methods for bats.
I. Explain how birds can be pests in and around buildings.
J. Describe various management methods for birds in and around buildings.
K. Describe pest bird species, their behavior, and the damage they cause.