

**Exam Knowledge Expectations for
Qualified Applicator Certificate & Qualified Applicator License
Category F – Aquatic**

Use these knowledge expectations (KEs) to help study the suggested material, The Safe and Effective Use of Pesticides, Third Edition. University of California Integrated Pest Management Program (UC IPM), 2016 and Aquatic Pest Control. P.J. O'Connor-Marer and K.K. Garvey, 2001. Knowing the information from all of the KEs should prepare you for taking the exam.

I. Aquatic Pests

- A. Identification, biology, and management of aquatic pests including: weeds, fish, amphibians, insects, crabs, mollusks, mammals, and birds.
- B. Ability to identify, classify, and name species of aquatic weeds into the following categories based on their characteristics: algae, submersed, emersed, and free-floating.
- C. Knowledge of asexual and sexual reproduction in aquatic weeds.
- D. Understanding allelopathy characteristics of aquatic weeds.
- E. Knowledge of ideal growing conditions for aquatic weeds.
- F. Knowledge of ways in which aquatic weeds impact their surrounding environments.

II. Pesticide Applications

- A. Knowledge of pesticide application equipment including: sprayer types, calibration, application rate, flow meter, nozzle selection, pumps, and proper cleaning and maintaining of application equipment.
- B. Knowledge of appropriate pesticide application techniques including: surface, subsurface, bottom, flowing water, slug, metered flow, granular, and application timing.
- C. Knowledge of pesticide types, formulations, and appropriate uses for pesticides including: herbicides (contact, systemic, selective), broad spectrum pesticides, and adjuvants.
- D. Advantages and disadvantages of control methods used on aquatic pests including: chemical, mechanical, cultural, biological, and integrated pest management (IPM).
- E. Ability to compute pesticide related calculations and conversions including: area, equipment travel speed, tank capacity, swath width, dilution, flow rate, volume, water speed, pesticide concentration, dosage, and application rate.
- F. Ability to read and understand pesticide labeling and safety data sheets (SDS).
- G. Understanding of who can apply restricted use materials and their requirements for use.

**Exam Knowledge Expectations for
Qualified Applicator Certificate & Qualified Applicator License
Category F – Aquatic**

III. Protection of Human Health and Environmental Exposure

- A. Understanding how environmental factors affect aquatic pesticide activity including: weather conditions, water movement, and water characteristics.
- B. Knowledge of personal protective equipment (PPE) including: safe and effective use, respirators, eye protection, and clothing.
- C. Knowledge of how to prevent and treat pesticide related exposure including: spills, routine and emergency decontamination, eye flushing, first aid, and heat stress.
- D. Knowledge of how to prevent the following: drift, harm to non-target species or endangered species, and environmental contamination.
- E. Understanding how pesticides cause injury including: routes of exposure, toxicity, and poisoning symptoms.