

**Exam Knowledge Expectations for
Qualified Applicator Certificate & Qualified Applicator License
Category N – Sewer Line Root Control**

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 Sewer Line Root Control. P.J. Marer, 1996. Knowing the information from all of the KEs should prepare you for taking the exam.

I. Roots

- A. Identification and biology of sewer line roots including: growth, structure, and function.
- B. Knowledge of types of root systems including: tap, fibrous, and adventitious.

II. Pesticide Applications

- A. Ability to identify sewer line root problems using knowledge of the following techniques: maintenance history, sewer line video reports, and commonalities in root-prone areas.
- B. Knowledge of non-chemical root control methods including: sewer line planning prior to construction, physical, and mechanical treatments.
- C. Knowledge of chemical root control methods, modes of action, and use of the following chemicals: Trifluralin, copper products, Metam-Sodium, Dichlobenil, sodium hydroxide, and 2,6 Dichlorobenzonitrile (Dichlobenil).
- D. Knowledge of pesticide formulations used for sewer root control including: foams, wettable powders, and flowables.
- E. Knowledge of sewer line application equipment and use including: mixing tanks, purpose of air-gaps, backflow devices, calibration, back siphoning, and proper hose use.
- F. Knowledge of how sewer lines are constructed including: ground depth, materials used, and direction of flow.
- G. Understanding purpose and components of wastewater facilities including: collection systems, treatment plants, sewer discharges, and disposal processes.
- H. Knowledge of application methods including: hose insertion, split treatment, inadequate flow, wye connections and lateral branches, surface coating large diameter pipes, spot treatment, and treating lateral service lines.
- I. Understanding sewer pipe variables that effect root control including: pipe slope, grade, flow, diameter, capacity, and velocity.
- J. Knowledge of licensing and certification requirements for sewer line root pesticide applicators.
- K. Ability to compute pesticide related calculations including: amount of active ingredient needed, dilution ratios, dosage, area, and pipe radius and length.
- L. Ability to read and understand all sections of pesticide labeling.

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III. Protection of Human Health and Environmental Exposure

- A. Knowledge of impacts associated with applying sewer root control chemicals including: reactivity, inhalation exposure, dermal and eye exposure, and developmental effects.
- B. Understanding how to prevent pesticide illness and exposure including: routes of exposure, recognizing poisoning symptoms, first aid, emergency and routine decontamination, safe and effective use of personal protective equipment (PPE), respiratory protection, and proper maintenance and use of application equipment.
- C. Understanding pesticide related safety procedures including: early-entry requirements, transportation, storage, mixing and loading, cleaning equipment, proper disposal methods, and cleaning of leaks and spills.
- D. Understanding of how root control chemicals can impact wastewater treatment facilities and the environment.