

**Exam Knowledge Expectations for  
Qualified Applicator Certificate & Qualified Applicator License  
Category H – Seed Treatment**

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 Seed Treatment - A National Pesticide Applicator Study Manual, (2018). Knowing the information from all of the KEs should prepare you for taking the exam.

**I. Overview of Seed Treatment**

- A. Define “treated seed”.
- B. Explain why seed treatment is important.
- C. List some of the most common crop seeds treated in the United States.
- D. Describe the most common types of pests that seed treatments help control.

**II. Types of Seed Treatment, Adjuvants, and Additives**

- A. List the advantages and disadvantages of chemical seed treatment.
- B. State the qualities of an ideal seed treatment.
- C. Define the terms “active ingredient”, “dose rate”, and “slurry rate”.
- D. Explain the difference between contact and systemic pesticides.
- E. Explain the difference between selective and broad-spectrum pesticides.
- F. Distinguish between a disinfectant pesticide, a disinfectant pesticide, and a seed protectant.
- G. Describe the main types of pesticides used to treat seeds.

**III. Formulations and Mixes**

- A. Explain the purpose of adjuvants and additives.
- B. Describe several types of adjuvants and additives used with seed treatment products.
- C. Compare and contrast the main chemical formulations used to treat seeds.
- D. Discuss the importance of pesticide compatibility when mixing different seed treatment pesticides.
- E. Outline the proper way to mix a seed treatment slurry.

**IV. Safety Considerations and Regulations**

- A. Describe how to minimize pesticide exposure to yourself, your coworkers, and the public, and the environment.
- B. Explain the importance of the pesticide label and the Safety Data Sheet (SDS).
- C. State the contents of the pesticide label and the SDS.
- D. Explain the need for coloring and labeling treated seed.
- E. Describe proper storage and disposal of treated seed.
- F. Discuss how federal and state seed regulations affect the labeling of treated seed.
- G. Explain how to prevent contamination of untreated seed through proper handling of treated seed.
- H. Describe how to reduce the risk of water contamination by preventing runoff, back-siphoning, and backflow.
- I. Outline how to set up and maintain a safe seed treatment facility.

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**V. Seed Treatment Equipment and Application**

- A. State the goals of a successful seed treatment.
- B. Name the seven basic components of a commercial seed treating system.
- C. Describe the function of each component of a seed treating system.
- D. Outline in detail how seed travels through a seed treating system.

**VI. Equipment Calibration and Maintenance**

- A. Distinguish between batch treaters and continuous flow treaters.
- B. Compare the uses, functions, advantages, and disadvantages of different seed treaters.
- C. Discuss factors to consider when selecting a seed treater.
- D. Define calibration as it relates to seed treatment.
- E. Name some important reasons to properly calibrate seed treatment equipment.
- F. Briefly describe how to calibrate dry-product treaters, volumetric treaters, mechanical-metering treaters, electronic controlled treaters, and batch treaters.
- G. Explain the importance of having a good “checks-and-balances” plan when operating seed treaters.
- H. List the recommended steps to properly maintain seed treatment equipment.