



EH 61 - Plant Protection Materials

Catalog Description

Transfer Status: CSU

Unit(s): 3.00

Lecture: 51.00 Contact hours/102.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

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Course Description: Introduces the safe and responsible use of horticultural and agricultural chemicals including pesticides and plant growth regulators. Topics include the history of pesticide use along with laws and regulations plus mode of action, toxicology, and the benefits and risks of use. Pesticide application equipment and calibration are covered. Emphasis is on sustainable practices using commercial examples to generate discussion and support the formulation of integrated agrichemical management programs.

Objectives

Upon successful completion of this course, the student should be able to:

1. Evaluate pesticides and other plant protection materials based on mode of action and toxicity level.
2. Analyze the components of a pesticide label including application rate information for various crops.
3. Identify personal protective equipment (PPE), restricted entry interval (REI) and preharvest interval (PHI) for various pesticides.
4. Compute calibration values for pesticide application equipment.
5. Compare various online tools for pest identification and pesticide research.
6. Contrast various modes of action found in plant protection materials for invertebrates and weeds with consideration for resistance management and sustainability.
7. Describe how plant hormones affect growth, senescence, and abscission.
8. Describe the safe handling and storage of pesticides including actions required in a pesticide emergency.

Course Content

Topic Titles / Suggested Time Topic	
Topics	<u>Lecture</u>
	<u>Lec Hrs</u>
Overview of pesticides and plant protection materials	2.00
Pesticide formulations, mixtures, and adjuvants	1.00
State and federal laws and regulations, labels, and sustainable practices	2.00
California qualified applicators and pest control advisors state licensure knowledge expectations	2.00
Applicator safety, personal protective equipment (PPE), restricted entry interval (REI) and preharvest interval (PHI)	4.00
Equipment calibration, methods and pesticide calculations	3.00
Agrichemicals used to control invertebrates	4.00
Agrichemicals used to control, regulate, and defoliate plants	6.00
Agrichemicals used to control pathogenic microorganisms	4.00
Agrichemicals used to control and repel vertebrate pests	3.00
Biological and biochemical interactions with plant protection materials including toxicity, pesticides resistance, and mode of action	4.00
Hazards of pesticide use	4.00
Biorationals and transgenic crop use	3.00
Agrichemical application methods and equipment	3.00
Safe handling and storage of pesticides including spill management techniques and first aid.	2.00
Integrated agrichemical management plans and recordkeeping	2.00
Pest management programs and the identification of pests	2.00
Total Hours: 51.00	

Methods of Instruction

- A. Group Discussions
- B. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- C. Lecture
- D. Problem-Solving Sessions
- E. Reading Assignments

Methods of Evaluation

- A. Exams/Tests
- B. Quizzes
- C. Research Projects
- D. Homework
- E. Written Assignments

Examples of Assignments

Reading Assignments

1. Review and critique existing integrated pest management techniques and procedures for California cotton using your Harvest Aid Materials and Practices text.
2. Read The Pesticide Book's chapter on microbials and beneficial insects and their use. Comment on how the use of biological control has helped bring sustainable practices to commercial agriculture.

Writing Assignments

1. Explain the principles of pesticide rotation. Write a 3-page explanation to show the relationship between these principles and include five (5) specific examples of pesticide groups or classes that could be rotated in a cropping system.
2. Prepare a research paper reviewing a commercially available pesticide in 1500 words or less (this is about 4-5 pages, double spaced, 12 point font, including figures and excluding references).

Out-of-Class Assignments

1. Complete the review questions on pesticide application equipment in your textbook.
2. Locate information on a local bird pest as designated by the instructor. Give some information of potential avicides or other control practices in commercial or organic production. Give the target bird pest and crop infested.

Recommended Materials of Instruction

Withaus, S. & Becker, L. (2016). The Safe and Effective Use of Pesticides. *University of California, Agriculture and Natural Resources, 3rd*. 9781601078957.

Flint, M.L. (2015). Plant Growth Regulators - A Study Guide for Agricultural Pest Control Advisors. *University of California, Agriculture and Natural Resources, Revised*. 9781601074188.

Zero Cost Textbook

Hutmacher, R.B., et al. (2003). Harvest Aid Materials and Practices for California Cotton. University of California, Agriculture and Natural Resources, 1st. <https://anrcatalog.ucanr.edu/pdf/4043e.pdf>

Other Learning Materials

The instructor will provide supplemental up-to-date materials

Minimum Qualifications

Agricultural Production

Agriculture (Masters Required)

Ornamental Horticulture

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Date: 12/01/2025