

Ministry of Higher Education and Scientific research



Department of Plant Protection

College of Agricultural Engineering Sciences

University of Salahaddin/Erbil

Subject: Theoretical & Practical Pesticides

Course Book – (Year 3)

Lecturer's name: Dr. Khalid Q. Khidher, PhD

Practical Lecturer name: Omer Osman

Academic Year: 2022/2023

Course Book

1. Course name	Pesticide
2. Lecturer in charge	Dr.Khalid Qadir Khidher
3. Department/ College	Plant Protection/Agricultural Engineering Sciences
4. Contact	e-mail: Khalid.khidher@su.edu.krd Tel: +964(0)7504439239
5. Time (in hours) per week	Theory: 2 Practical: 3
6. Office hours	Monday (8:30 – 12:30)
7. Course code	
8. Teacher's academic profile	<p>Doctor of philosophy (PhD) in Entomology, Economic Entomology, graduated from Salahaddin University-Erbil, College of Agricultural Engineering Sciences- Plant Protection-2022.</p> <p>Bio-ecological study and management of sesame webworm, <i>Antigastra catalaunalis</i> (Duponchel) (Lepidoptera: Crambidae) on some varieties of Sesame in Erbil Governorate Supervised by: Assist. Prof. Dr Abdulbaset M.A. Mohamed and Assist. Prof. Dr. Nawzad B. Kader.</p> <p>My master degree (MSc) in Entomology, Plant Protection Department, graduated from Salahaddin University-Erbil, College of Agricultural Engineering Sciences - Plant Protection -2012. My Thises Title: Biology and Ecology of Corn Stem borer, <i>Sesamia cretica</i> (Led.) (Lepidoptera: Phalaenidae) on Corn Crop and the Evaluation of Some Damages in Erbil City Supervised by: Assist. Prof. Adel O. Abdulwahid</p> <p>My Bachelor degree(BSc) in Plant Protection Department- College of Agriculture, Salahaddin University-Erbil-Iraq</p>
9. Keywords	Pesticides, insecticides, classification of pesticides, pesticide formulations, pesticide storage, chemicals.

10. Course overview:

Pests are living organisms that are either harmful or a cause of concern to humans and their surrounding environment. Pests may also have a negative economic impact. They come in all shapes and sizes. For instance, they can range from insects (e.g. cockroach) to plants (e.g. dandelion) to mammals (e.g. rats) to fungus (e.g. mold). As a result of this diversity, there are different types of pesticides that target them such as insecticides, herbicides, rodenticides, and Fungicides.

The term pesticide defines a chemical substance mixture of chemical substances used to prevent, eliminate, or repel pests. There are different types of pesticides with different uses. The general pest control categories include: 1) chemical pesticides, 2) biopesticides, and 3) pest control devices. Humans can be exposed to pesticides via: 1) ingestion, 2) skin contact, 3) eye contact, or 4) inhalation. The risks associated with pesticides and the effects to human health vary based on age and lifestyle as well as dose, duration, and toxicity of the substance.

11. Course objective:

In this course we will talk about pesticides in general and composition of pesticides, also we will talk about major classes of pesticides. Their types according to the target pest or managed pest; mode of action, mode of entry, persistency of pesticides and chemical contents of pesticides. In this course also we will talk about pesticide formulation and its types with advantages and disadvantages of each type of pesticide formulation. And the toxicity level of pesticides which is referred to as LD₅₀ of pesticides.

In addition we will talk about pesticide exposure, types of exposure, symptoms and first aid for each type of exposure if occurred.

Finally we will talk about some common pesticides and their characteristics and uses against pests.

12. Student's obligation

In this part the role of students is as follows:

Students attendance in Lecture and Examination, preparing reports about some important course subjects, writing an assignment on **any** field visiting, doing daily quiz, giving samples.

13. Forms of teaching

Teaching methods are using Data show, power point, and white board

Giving hand notes.

14. Assessment scheme

Breakdown of overall assessment and examination 15 marks for theoretical part and these marks divided as follows:

5 marks for 1st monthly exam, and 5 mark for the 2nd monthly exam.

2 marks for daily quiz

2 for reports

1 for class conversations

Final examination 50 marks for theoretical part.

15. Student learning outcome:	
<p>On successful completion of the course, students should be able to: recognize and know various pesticide application methods and technologies,</p> <p>Recognizing major classes of pesticides, other classes and additives also some common pesticides will be known. Choose the right pesticide method and sprayer, Pest control of plant diseases in a thoughtful approach Save in pesticides.</p> <p>Also choose the suitable type of pesticide formulation to control a particular pest in spite of recognizing the advantage and disadvantages of each type of pesticide formulation.</p> <p>At the same time will be able to choose different types of active ingredient so that the pest will not achieve resistance against the pesticide.</p> <p>Final point is to learn how and where to store, transport pesticides safely and first aid for each type if spill or exposure occurred.</p>	
16. Course Reading List and References:	
<p>1- Johanningsmeier,J.S.(2002) Pesticide Applicator Core Training Manual. Michigan State University.</p> <p>2- Jokanovic, M.(2012) The Impact of Pesticide. University of Nish Serbia.</p> <p>3- http://en.wikipedia.org/wiki/pesticide</p>	
17. The Topics:	Lecturer's name
<p>Lecture 1 pesticide definitions and classifications</p> <p>Lecture 2 classes of pesticide (Organochlorins and Their characters).</p> <p>Lecture 3 Organophosphates</p> <p>Lecture 4 Carbamates</p> <p>Lecture 5 Pyrethroids</p> <p>Lecture 6 1st monthly examination</p> <p>Lecture 7 Insect Growth Regulators</p> <p>Lecture 8 New classes of Insecticides</p> <p>Lecture 9 pesticides Formulations (Solutions)</p> <p>Lecture 10 types of Pesticide formulations continue</p> <p>Lecture 11 Insecticides (Dusts , Granules , Pellets and Fumigants.</p> <p>Lecture 12 2nd monthly examinations</p> <p>Lecture 13 Spray Adjuvants (Types)</p>	<p>Dr. Khalid Qadir Khidher (2 hrs)</p>

<p>Lecture 14 Some common pesticides and their Characters and uses (Diazinon and dursban) ,Baygon (Propoxur) , Sevin and Malathion Lecture 15 Aldicarb or Temik and Metaldehyde. Lecture 16 Biopesticides</p>	
<p>18. Practical Topics (If there is any)</p>	
<p>Lecture 1 Pesticides, pesticides classification and Their groupings. Lecture 2 pesticide formulation and general Advantages and Disadvantages of each type. Lecture 3 Pesticide labeling and registration. Lecture 4 Pesticides and Human health (Hazards) Lecture 5 Pesticide exposure Lecture 6 First Aid of pesticides Lecture 7 1st monthly exam. Lecture 8 Personal protective equipment Lecture 9 Pesticide Storage Lecture 10 Pesticide handling and transportation Lecture 11 Pesticide sprayers and their types Lecture 12 Visit to pesticide storage (belonging to General directorate of Agriculture) Lecture 13 2nd monthly exam. Lecture 14 Pesticide sprayers' calibration methods. Lecture 15 some common Pesticides Lecture 16 Visit to the Field to practice calibration.</p>	<p>Lecturer's name Mr. Omer Osman (3hrs)</p>
<p>19. Examinations:</p> <p>1. Compositional: What are the major classes of pesticide? Numerate the types of? What are the characteristics of?</p> <p>2. True or false type of exams:</p> <p>1- baygon is a pesticide with high toxicity to mammalian.(false) with moderate toxicity.</p> <p>2- Stickers are added to decrease the adhesion of the spray to the leaf surfaces to improve the persistence of the insecticide. (False) to increase .</p> <p>3. Multiple choices:</p>	

1- Malathion is an insecticide that used to control:

a- aphids b- Mollusca c- wireworm

20. Extra notes:

My wish in completing these lectures we will be able to use some plant extracts with lower toxicity to control pests if needed , so that our environment will no be contaminated with pesticides (chemicals) , and live with better health.

21. Peer review