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**Department of Plant Protection**

 **College of Agricultural Engineering Sciences**

**University of Salahaddin/Erbil**

**Subject: Theoretical & Practical Horticulture insects**

**Course Book**

**Lecturer's name: Gona Sirwan Sharif / PhD**

**Practical Lecturer name:Hero Muhyaddin Muhammad/ MSc**

**Academic Year: 2024/2025**

**Course Book**

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| **1. Course name** | **Horticulture insects**  |
| **2. Lecturer in charge** | **Dr. Gona Sirwan Sharif** |
| **3. Department/ College** | **Plant Protection/Agricultural****Engineering Sciences** |
| **4. Contact** | **e-mail: gona.sharif@su.edu.krd****Tel: +964(0) 07702155967** |
| **5. Time (in hours) per week**  | **Sunday, Theory (2) and Practically (2) hrs./week** |
| **6. Office hours** | **Monday and Tuesday**  |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **Personal information:**Date of Birth: 17 January 1984Place of Birth: SulaymaniyahNationality: IraqiMarital Status: MarriedSex: Female**Education and certifications:**-Bachelor of Science (BSc) in Plant ProtectionSalahaddin University-Erbil, Kurdistan Region, Iraq (2001-2005)- Master of Science (MSc) in EntomologySalahaddin University-Erbil, Kurdistan Region, Iraq (2012)Thesis Title: "Survey of Alfalfa Insects and the Study of Population Density of Some Common Species in the Grdarasha Region, Erbil, Kurdistan Region, Iraq."- Doctor of Philosophy (PhD) in Economic EntomologySalahaddin University-Erbil, Kurdistan Region, Iraq (2015-2020)Thesis title: "Bio-Ecological and Molecular Studies of the Codling Moth *Cydia pomonell*a (L.) (Lepidoptera: Tortricidae) in Erbil Governorate, Kurdistan Region, Iraq."Work History:(A) 2020-2024Performing lecturer at the plant protection department of the agricultural college-University of Salahaddin with the following responsibilities:\*Teaching of Medical and veterinary insects for 4th grade college students. \*Horticulture insects for 4th grade college students.\*Member of dormitories committee.\*Member of the entomology museum committee.\*(B)2015-2019\*PhD student at Plant Protection Department of Agriculture University of Salahaddin(C)2012-2015 Performing Assistant lecturer in the plant protection department of Agriculture college-university of Salahaddin with the following responsibilities.\*Teaching Insect physiology for college 3rd grade students (2012-2013).\* Teaching Field crop insects for college 4th grade students (2013-2014).\*Teaching insect storage for college 4th grade students (2014-2015)\* Member of examination committee 2nd trial (first & second semester on 2012-2013).\*Member of examination committee (2013-2014 semester).\* Member of quality assurance committee in plant protection department (2013-2014).(D)2009-2011M.Sc. student at university of Salahaddin-Erbil(E)2008-2009Performing assistant agricultural engineer at university of Salahaddin-Erbil with following responsibilities;\*Assisting in teaching biological control.\*Assisting in teaching field crop disease.\*Assisting in teaching bee breeding.\*Assisting in teaching medical and veterinary insects.\*Assisting in teaching forest insects.\*Assisting in teaching insect physiology.\*Member of welcoming committee of new students (2008-2009).(F)2006-2008Performing assistant agricultural engineer at university of Sulaymaniyah with following responsibilities;\*Assisting in teaching Insect morphology.\*Assisting in teaching Insect taxonomy.MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS.\*Kurdistan teachers union (2007)\*Kurdistan Agricultural Engineers Syndicate Iraq (2005)Number of published research: (4)  |
| **9. Keywords** | Horticulture insect, Host, Characters, Life cycle, economic importance and Control. |
| **10. Course overview:**  The courseis designed to provide students with an overview of pest insects and pest management strategies, emphasizing ecological principles and their applications within the major agro-ecosystems of fruit trees cultivation. Pest insect biology and management of the fruit production systems in temperate regions will be considered, as apple, grape, cherry, plum, peach, strawberry and other small fruit. Specific attention will be given to beneficial insects, biological control and IPM strategies.The course will cover the following topics: Overview on general entomology; Key pest insect species of apple, grape, cherry, plum, peach, strawberry and other small fruit; Synthetic insecticides and Integrated Pest Management; Biological Control, Benefical Insects in Organic Farming and Botanical Insecticides; Pollination Services.  |
| **11. Course objective:**The course entitled “ Horticulture Insects” has been designed with the primary objective of imparting adequate knowledge to students, both in theory and practice, to diagnose a variety of horticultural crop problems related to insects, to comprehend their life histories and damages and to be able to recommend management strategies  |
| **12. Student's obligation**In this part, the role of students is as follows: Student Attendance in lectures and examinations, preparing reports about some important course subjects, writing an assignment on any field visiting, doing the daily quiz, and giving samples. |
| **The following teaching methods will be used:****PowerPoint Presentations:** We will use PowerPoint slides to summarize each lecture in the course. Narration will provide additional detailed information, while the slides will illustrate the key points of each lecture.**Whiteboard:** A whiteboard will also be used to teach and explain different topics, as well as to provide examples**3. Field Observation:** The observation of insects and their behavior will be conducted practically at the Grda-Rasha Research Station. |
| **14. Assessment scheme**Students must pass the mid-term exam, which is worth 50 marks, and the final exam, which is also worth 50 marks. |
| **15****. Student learning outcome:**Detailed information has been provided on all major pests of crops as regards their taxonomic position, distribution, host range, life history, nature and symptoms of damage, seasonal abundance and their management. However, for minor pests their taxonomic position, nature and symptoms of damage and management have been covered with additional information wherever necessary. Major and minor pests have been differentiated by their text format. |
| **16. Course Reading List and References‌:** Cubero, S., Marco-Noales, E., Aleixos, N., Barbé, S. and Blasco, J., 2020. RobHortic: A Field Robot to Detect Pests and Diseases in Horticultural Crops by Proximal Sensing. Agriculture, 10(7), p.276.Pruthi, H.S., 1969. Textbook on agricultural entomology. Textbook on agricultural entomology.Vänninen, I., Worner, S., Huusela-Veistola, E., Tuovinen, T., Nissinen, A. and Saikkonen, K., 2011. Recorded and potential alien invertebrate pests in Finnish agriculture and horticulture. Agricultural and Food Science, 20(1), pp.96-114. |
| **17. The Topics:** | **Lecturer's name** |
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|   | Subject | Weeks |
|  |  Detailed Review of some basic terms about Economic entomology.Pests, entomology, economic entomology, characters of Class insecta, , characters contributing to the success of insect and Insects of economic importance.  | 1st |
| = |  Classification of insects Type of insect mouth parts and their metamorphosis  | 2nd |
| = | Identification of Typical Symptoms of Damage by various Phytophagous Insects | 3rd |
| = | Detection and monitoring the insect pests. Pests of Agricultural and Horticultural Crops (General pests | 4th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Apple tree | 5th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Citrus. | 6th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Pomegranate  | 7th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Fig tree. | 8th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Olive tree. | 9th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of stony seed fruit tree. | 10th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Grape vine  | 11th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Vegetable  | 12th |
| = | Identification, distribution, host range, nature of damage, biology and management of insect pests of Tomatoes.  | 13th |
| = |  distribution, host range, nature of damage, biology and management of insect pests of Cucumber | 14th |
| = |  Identification, distribution, host range, nature of damage, biology and management of insect pests of ornamental plants. | 15th |

 | Dr. Gona Sirwan Sharif (2 hrs) |
| **18. Practical Topics (If there is any)** |  |
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| Lecturer | Subject | Weeks |
|   | Definitions of some scientific terms that related with horticulture entomology, metamorphosis and modification of insect mouthparts | 1st |
| = | Classification and separating of horticulture Insects with insects and other arthropods Types of insect larvae and pupae | 2nd |
| = |  Applying of methods of insect pest control, monitoring and inspection | 3rd |
| = |  Identification of Insect Pests of apple and Their Damage Symptoms | 4th |
| = | Identification of Insect Pests of Citrus and Their Damage Symptoms | 5th |
| = | Identification of Insect Pests of Pomegranate and Their Damage Symptoms | 6th |
| = | Identification of Insect Pests of Fig and Their Damage Symptoms | 7th |
| = | Identification of Insect Pests of Olive and Their Damage  | 8th |
| = | Identification of Insect Pests of Stone fruits and Their Damage Symptoms | 9th |
| = | Identification of Insect Pests of Grapevine and Their Damage Symptoms | 10th |
| = | Grape insects (Description, Signs of infestation and Nature of Damage)  | 11th |
| = |  Identification of Insect Pests of Vegetables and Their Damage Symptoms | 12th |
| = | Tomatoes insects (Description, Signs of infestation and Nature of Damage) | 13th |
| = | Insect pests of the family of Cucurbitaceae.  | 14th |
| = | Identification of Insect Pests of Ornamental Plants and Their Damage Symptoms | 15th |

 | **Lecturer's name****Noor nadhir polus** **(3hrs)** |
| **19. Examinations:*****Compositional***Q1: Define five of the following terms.  Q2: Write the scientific name and the order of the following.

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|  Order |  Scientific name | Common name  |
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Q3: Enumerate the following. Q4: Write briefly about the biology and life cycle of the following insects Q5: What are the best control methods for the following insects? Q6: Multiple choice  |
| **20. Extra notes:**The student in this course must visit fields and the places which damaged by these pests. |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** * Feldmann, F. and Vogler, U., 2021. Towards sustainable performance of urban horticulture: ten challenging fields of action for modern integrated pest management in cities. *Journal of Plant Diseases and Protection*, 128(1), pp.55-66.
* Ibrahim, S.S., 2020. Essential oil nanoformulations as a novel method for insect pest control in horticulture. *Horticultural crops*, pp.195-209.
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