Department of Plant protection

College of Agricultural Engineering Sciences

University of Salahaddin

Subject: non-insect animal pests

Course book – year 3 students

Lecturer's Name: Sahand K. Khidr

Academic Year: 2023/2024

1. Course name	**Non-insect animal pests**
2. Lecturer in charge	**Sahand K. Khidr**
3. Department/ College	**Plant Protection/ Agricultural Engineering Sciences**
4. Contact	**e-mail: sahand.khidr@su.edu.krd** **Tel: (optional)**
5. Time (in hours) per week	**For example Theory: 2** **Practical: 3**
6. Office hours	**Sunday to Thursday**
7. Course code	
8. Teacher's academic profile	I have obtained Bachelor degree is in the department of Microbiology, college of Science, university of Salahaddin in 1997. Since 1998 worked in the college of agriculture as a lab assistant. In 2002 graduated obtaining M.Sc. Degree in the field of plant entomology. In 2008 I have travelled to the UK in order to study PhD in Nottingham University. I have taught Applied Entomology module at Nottingham University in 2010 and 2011. Later awarded PhD in the University of Nottingham in 2012 in Agriculture and Environmental Sciences, School of Biosciences named Biology and biological potential of Bethylid wasps. I was able to publish several papers in international journals with impact factors.
9. Keywords	**Arachnid pests, crop management, Rodent pest, control technique, slug and snails, bird damage**

10. Course overview:

The aim of the module

Agricultural products such as fruits and vegetables are vital food source for humans universally. Food systems in developing countries are not always as well organised and developed as in the industrialised world. The overall increase in human population growth poses great challenges to food system so the demand for enhanced food production is as topical as ever. Global food security involved both improved production and improved protection of agricultural products. High proportions of produce may be lost to agricultural non insect animal pests

Also to better understand the sources of infestation and how to minimize the lost by finding suitable solutions. For example one of the most important features of a successful pest

management program is to look for pests and damage symptoms on a regular basis in stored products, vegetables, crops and orchard trees. The course provides students with basic and applied insights into noninsect animal pests' biology and their life cycle and to know and use fundamental concepts and information in several core techniques of control.

11. Course objective:

- Providing information on the importance of the study of major non insect animal pests i.e. mite, mouse and rat, snail and slugs biology ,bird types and damage, habits to use them in identification of insect pests precisely and prepare proper managements.
- Be able to accurately describe the classification, biology, life cycles and population dynamics of non insect anima pests, including;
- Define and characterise pest species.
- Identify major non insect animal pests
- Economic, environmental and societal costs of pests.
- Population biology and pest dynamics.
- Be able to discuss the principles and approaches for the control and management of non-insect animal pests including chemical, biological and cultural

12. Student's obligation

Students have to attend lecture on time during theory part of the programme. They are responsible for all explanations and details that given by the lecturer and write down them in their notebooks. Referring to text books is also required in order to have more details about any subject. The practical part is an essential for learning new techniques in the field
Preparing a report after each practical session is required

13. Forms of teaching

Datashow, PowerPoint, Whiteboard, Handouts, In some cases, samples will be shown to students to have a close and real idea on the subject.
Regarding the practical part, specific procedures given to students who normally work as teams of 2. Precise achievements by students comes with excellent outcomes and make coherence with the forthcoming and related techniques.

14. Assessment scheme

15. Student learning outcome:

The students will familiarize with the significance and important pests whether it is insect, mite, slug and snails. Students should be able to define key concepts relating the biology and control methods covered in lecture materials. Also learn how to apply and implement different approaches in detection and characterization of non insect animal pests.

- 16. Course Reading List and References:

- Castle, G.D., Mills, G.A., Gravell, A., Jones, L., Townsend, I., Cameron, D.G. and Fones, G.R., 2017. Review of the molluscicide metaldehyde in the environment.

Environmental Science: Water Research & Technology, 3(3), pp.415-428.

- Ellis, S., Berry, P. and Walters, K., 2009. A review of invertebrate pest thresholds. HGCA Research Review, (73).
- Speiser, B., Glen, D., Piggott, S., Ester, A., Davies, K., Castillejo, J. and Coupland, J., 2001. Slug damage and control of slugs in horticultural crops. Research Institute of Organic Agriculture (FiBL).
- Nash, M.A. and Hoffmann, A.A., 2012. Effective invertebrate pest management in dryland cropping in southern Australia: The challenge of marginality. Crop Protection, 42, pp.289-304.
- Tobin, M.E. and Fall, M.W., 2004. Pest control: rodents.
- Desoky, A.S.S., 2014. Damage caused by birds and rodent in field crops and their control. J. Glob. Innov. Agric. Soc. Sci, 2(4), pp.169-170.

17. The Topics:

1. **Introduction to non- insect animal pests**
2. **Centipedes and millipedes**
3. **Crustacea like woodlice**
4. **Slug and snails**
5. **Control techniques of slug and snails**
6. **Rodent classification and important characteristics**
7. **Rodents control techniques**
8. **Most important type of birds**
9. **Biology of birds**
10. **Control techniques of birds**
11. **Arachnids damage**
12. **Biology of mite pests**
13. **Control methods**
14. **Biology of some other important non insect animal pests**
15. **Control techniques**

18. Practical Topics (If there is any)