

**TEACHING PLAN: Pests of Crops and Stored Grain and their Management**

SCHOOL: (SOAS) SCHOOL OF AGRICULTURAL SCIENCES		ACADEMIC SESSION: 2023 – 2024		FOR STUDENTS’ BATCH: 2021-2025		
1	Course No.	AET-T-301				
2	Course Title	Pests of Crops and Stored Grain and their Management				
3	Credits	2+1				
4	Learning Hours		Contact Hours	72		
			Assessment	9		
			Guided Study	9		
			Total hours	90		
5	Course Objective	<div>1. Knowledge and concept of different pests of crops</div> <div>2. Basics of damage caused by insect pests to different crops (Field crops, Fruits and vegetables ornamental plants and Medicinal Crop)</div> <div>3. Knowledge of management practices including physical, cultural, mechanical biological and chemical measures</div> <div>4. Study of deterioration of grains</div> <div>5. Study of storage and methods of grain storage</div>				
6	Course Outcomes	<div>1. Familiarized with identification of different insect pest of field, horticulture, ornamentals, vegetables and stored grains at the field level.</div> <div>2. Understand how insects affect animal and Plant health and agricultural production, and be able to safely manipulate populations of beneficial and destructive species in habitats and in production agro-ecosystems with minimal environmental impact.</div> <div>3. To be able about the biology, diversity, distribution of insects, and their relationships to crop and the environment condition of a particular area.</div> <div>4. To understand identification of nature of damage and symptoms caused by the pest so suitable technique of pest management can be apply for effective control.</div> <div>5. Management of crop pest through Integrated Pest Management approach without side effect on plant, animal and environment health.</div>				
7	Outline syllabus:					
7.01	Paper Code	Unit	Introduction	Page Numbers <sup>1</sup>	Lect ures	
7.02	AET-T-301	Unit I	1.General account on nature and type of damage by different arthropods pests.	390-421	4	
		Unit II	1.Scientific name, order, family, host range, distribution, biology and bionomics, nature of damage, and management of major pests and scientific name, order, family, host range, distribution, nature of damage and control practice important arthropod pests of field crop,	390-421	2	
			2. Scientific name, order, family, host range, distribution, biology and bionomics, nature of damage, and management of major pests and scientific name, order, family, host range, distribution, nature of damage and control practice other important arthropod pests of vegetable crop,	422-430	2	
			3.Scientific name, order, family, host range, distribution, biology and bionomics, nature of damage, and management of major pests and scientific name, order, family, host range,	431-440	2	

			distribution, nature of damage & control practice other important arthropod pests of fruit crop & plantation crops, 4. Scientific name, order, family, host range, distribution, biology &bionomics, nature of damage, & management of major pests and scientific name, order, family, host range, distribution, nature of damage & control practice other important arthropod pests of ornamental crops 5. Scientific name, order, family, host range, distribution, biology and bionomics, nature of damage, and management of major pests and scientific name, order, family, host range, distribution, nature of damage and control practice other important arthropod pests of various spices and condiments.	445-447	2
				440-445	2
		Unit III	1. Factors affecting losses of stored grain and role of physical, biological, mechanical and chemical factors in deterioration of grain. 2. Insect pests, mites, rodents, birds and micro-organisms associated with stored grain and their management.	448-471	2
		Unit IV	1. Storage structure and methods of grain storage and fundamental principles of grain store management.	452-471	3
8	Course Evaluation				
8.1	CA: 10%				
8.1.1	Attendance	25 %			
8.1.2	Homework	2 Assignments, 50%			
8.1.3	Quizzes	2 Quizzes, 25%			
8.1.4	Projects	-			
8.1.5	Presentation	-			
8.1.6	Any other	Practical Examination- 30%			
8.2	MTE	10%			
8.3	End-term examination: 50%				
9	Text Books & References				
9.1	Text book	1. Hand book of Entomology, New Vishal Publications 1. Text book of Entomology.			
9.2	References	1. Hand book of Entomology, New Vishal Publications 2.			
9.3	Video References	1.			

Outcome no. → Syllabus topic ↓	1	2	3	4	5
Paper Code. Unit I (1)			✓	✓	
Paper Code. Unit II (1)	✓		✓	✓	
Paper Code. Unit II (2)	✓		✓	✓	
Paper Code. Unit II (3)	✓		✓	✓	
Paper Code. Unit II (4)	✓		✓	✓	
Paper Code. Unit II (5)	✓		✓	✓	
Paper Code. Unit III (1)		✓	✓	✓	✓
Paper Code. Unit III (2)		✓	✓		✓
Paper Code. Unit IV (1)	✓	✓	✓		

### Section-A

1. Write short note on mango nut weevil.
2. Write short notes on apple codling moth.
3. What is vapour heat treatment?
4. Write short notes on Groundnut bruchids.
5. Write about store grain pest of pulses.
6. Write short note on Rice weevil.
7. Write short notes on Almond moth.
8. Write short notes on Tamarind beetle.
9. Mention the scientific name, symptoms and management of rhizome fly.
10. Mention the scientific name, symptoms and management of arecanut beetle.
11. Write detail about Cigarette beetle.
12. Write short notes on Irradiation treatment of spices and condiments.
13. Write the mechanical factors managing the losses of stored grains.
14. Write the chemical factors managing the losses of stored grains
15. Write the management to control mites.
16. Write the management to control birds.

### Section II

1. Write management practices of store grain pest of field crops
2. Write about general account on nature and type of damage by different arthropod pests in storage grain.
3. Write management practices of store grain pest in vegetables.
4. Write management practices of different arthropod pest.
5. Enlist primary and secondary storage pest.
6. Write short notes on Pulse beetle and Khapra beetle.
7. Write about Potato tuber moth and Sweet potato weevil.
8. Mention the scientific name, order and family of store grain pests of fruit crops.
9. Mention the scientific name, order and family of important store pests of plantation crops and write detail about arecanut beetle.
10. List out important stored pest for different spice products.
11. Write detail about Drug store beetle.
12. Write about Fumigants used for pest control in spices and spice products.
13. Write the biological factors for managing losses of stored grains.
14. Write about different species and management of rodents.
15. Write the management to control store grain pests.
16. Write short notes on microorganism associated with store grain.

### Section III

1. Write detail about Grain moth, Rice moth and Almond moth.
2. Write about Fumigants, types and application method in store grain.
3. Mention the scientific name, order and family of store grain pests of field crops and describe lesser grain borer and flour beetles.
4. Mention the scientific name, order and family of store grain pests of vegetable crops and describe bean weevil and pumpkin beetle.
5. Write about management of storage pest in spices and condiments.
6. Mention the scientific name, order and family of important store pests of spices and condiments with their respective crop.
7. Write the physical factors for managing losses of stored grains in deterioration of grain.
8. Describe about different storage structures.