Course Code : ENT 202
Course Title : Principles and Practices of Insect Pest Management
Credit Hours : 3 (2+1) Full Marks: 75 Theory: 50 Practical: 25

OBJECTIVES

Upon the completion of this course, the students will be able to understand the basic principles and practices of integrated pest management including various approaches of pest management.

I. SYLLABUS

Introduction, principles and methods, economic decision level, pesticide residue analysis, components, IPM-FFS, pest and natural enemies (NEs), pesticide and their managements, host plant resistant, biological control, novel pest management practices etc.

II. COURSE OUTLINE

A. Lecture

S.N.	Topics	No. of Lectures
1.	Crop pest and pest management	3
	1.1 Pest: Concept of pest, Classifications of insect on different basis, General impact of pest, Common agricultural pest Pest Management: Concept of management, Terminology related to IPM, Insect pest management, Integrated pest management, Organic pest management. History; Historical aspect of crop protection, Historical aspect of integrated pest management in world, Developmental history of IPM in Nepal	
2.	Basic concept of IPM tactics and strategies	2
	2.1 IPM Tactics: Pest manipulation, Plant manipulation, Environment manipulation	
	2.2 Basic strategies of IPM	
3.	Concept of decision level and significance for threshold level assessment	3
	3.1 Decision level assessment tools: Monitoring, Survey and Surveillance	
	3.2 Concept of threshold level for assessment of decision level of pest management	
	3.3 Significance of decision level in pest management	

4.	Basic concept of IPM tactics and strategies		
	4.1	Cultural method: Principle and common practices of cultural methods and Significance in pest management	2
	4.2	Mechanical methods: Principle and practices of mechanical pest of pest management and Significance in pest management	2
	4.3	Physical methods: Principle and practice of physical methods of pest management and Significance in pest management	2
	4.4	Legislative pproaches: Basic concept of legislative approaches through quarantine, Quarantine of Nepal and their role in pest management, Pest risk analysis and its significance in pest management, National and International IPM policies	4
	4.5	Biological method of pest management: Concept, type of biological organisms and short history of biological control in pest management, Type of bio-pesticides and their role in pest management	2
	4.6	Host plant resistance (HPR): Basic concept, history and significance in pest management, Mechanisms and measurement techniques of HPR, Genetic engineering techniques and their significance in IPM	3
	4.7	Chemical pest management: Type, classification, formulation, hazardous level and international convention related to pesticide, Pesticide appliance, spray techniques, exposure of pesticide, residue levels and residue level measurement, Pollution caused by pesticides, areas of misuse, and precautionary measurements	3
5.	Innovative control methods and their use in IPM		1
6.	Common IPM tools available in Nepal and their possible Integration in pest management		1
7.	Concept of IPM Extension model through Farmers Field School.		1
8.	Possible Market management strategy of IPM product		1
	Total		**30**

B. Practical

S.No.	Topics	No. of Practical
1.	Familiarization of IPM tools available in Entomology Lab.	1
2.	Identification of common predators and parasitoids available in Ento. Lab	1
3.	Regular monitoring of common pest through pheromone traps	1
4.	Monitoring of Fruit fly through cure lure trap	1
5.	Preparation of botanical bio-pesticide and their spray techniques	1
6.	Chemical pesticide formulation and spray techniques in the field	1
7.	Identification and collection of insect repelling botanical materials available in university periphery	1
8.	Collection and identification of insect pests, diseases, weeds and natural enemies (NEs) of different crops	1
9.	Pesticide survey in market and their classification: A case study	1
10	Assessment of morphological resistant characteristics of certain crop against insect pest	1
11.	Bioassay techniques of pesticide and bio-pesticide against common pest	1
12.	Introduction of Bio-pesticide available in the market and familiarization of production techniques of Heli-NPV.	
13.	Rearing of Corcyra for *Trichogramma* production and releasing techniques in the maize filed.	1
14.	Insect zoo and cup study and its significance	1
15.	Isolation of EPF from soil and lab study of bio-pesticide focused on Metarhizium	1
	Total	**15**

REFERENCES

Dhaliwal, G.S. and R. Arora. 2001. Integrated Pest Management- Concepts and Approaches. Kalyani Publishers, New Delhi, India.

FAO. 2000. Cabbage Integrated Pest Management: An Ecological Guide. FAO Inter-Country Program for the development and application of integrated pest management in vegetable growing in South and Southeast Asia 125p.

Neupane, F.P. 2002. Tarkari Balima Lagne Kiraharuko Akikrit Bebastaphan (in Nepali) (Integrated Management of Vegetable Insects, translated in English. Jagadamba Press, Patandhoka, Lalitpur, Nepal. 172p.

Norris. R.F. and E.P.C-Chen and M. Kogan. 2002. Concepts in Integrated Pest Management. Prentice-Hall of India Pvt. Ltd. New Delhi India. 586p.