

Plant Protection

Obligatory module or Selective module	Plant Protection	PNH 1101																																
Semester	I																																	
Module level	Undergraduate																																	
Module Coordinator																																		
Lecturer(s)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td>A. Dr. Ir. Witjaksono, M.Sc.</td> </tr> <tr> <td></td> <td>Dr. Suryanti, S.P., M.P.</td> </tr> <tr> <td></td> <td>B. Dr. Ir. Sedyo Hartono, M.P.</td> </tr> <tr> <td></td> <td>Dr. Tri Harjaka, S.P., M.P.</td> </tr> <tr> <td></td> <td>C. Dr. Ir. Arman Wijonarko M.Sc.</td> </tr> <tr> <td></td> <td>Dr. Ir. Sri Sulandari, S.U.</td> </tr> <tr> <td></td> <td>D. Prof. Dr. Ir. Triwidodo Arwiyanto, M.Sc.</td> </tr> <tr> <td></td> <td>Dr. Ir. Nugroho Susetya P., M.Si.</td> </tr> <tr> <td></td> <td>E. Dr. Tri Joko S.P., M.Sc.</td> </tr> <tr> <td></td> <td>Dr. Ir. Witjaksono, M.Sc.</td> </tr> <tr> <td></td> <td>F. Prof. Dr. Ir. Siti Subandiyah, M.Agr.Sc.</td> </tr> <tr> <td></td> <td>Alan Soffan, S.P., M.Sc., Ph.D.</td> </tr> <tr> <td></td> <td>G. Prof. Dr. Ir. Y. Andi Trisyono, M.Sc. (English class)</td> </tr> <tr> <td></td> <td>Ani Widiastuti S.P., M.P., Ph.D.</td> </tr> <tr> <td></td> <td>H. Dr. Suryanti S.P., M.P.</td> </tr> <tr> <td></td> <td>Alan Soffan, S.P., M.Sc., Ph.D.</td> </tr> </table>			A. Dr. Ir. Witjaksono, M.Sc.		Dr. Suryanti, S.P., M.P.		B. Dr. Ir. Sedyo Hartono, M.P.		Dr. Tri Harjaka, S.P., M.P.		C. Dr. Ir. Arman Wijonarko M.Sc.		Dr. Ir. Sri Sulandari, S.U.		D. Prof. Dr. Ir. Triwidodo Arwiyanto, M.Sc.		Dr. Ir. Nugroho Susetya P., M.Si.		E. Dr. Tri Joko S.P., M.Sc.		Dr. Ir. Witjaksono, M.Sc.		F. Prof. Dr. Ir. Siti Subandiyah, M.Agr.Sc.		Alan Soffan, S.P., M.Sc., Ph.D.		G. Prof. Dr. Ir. Y. Andi Trisyono, M.Sc. (English class)		Ani Widiastuti S.P., M.P., Ph.D.		H. Dr. Suryanti S.P., M.P.		Alan Soffan, S.P., M.Sc., Ph.D.
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Type of Module	1 hour and 40 minutes lectures Laboratory works																																	
Status	C (compulsory courses)																																	
Exam	Written																																	
Number of participants	64																																	
Credit Points	2/1 (5.02 ECTS)																																	
Description:	This lecture provides students with understanding the importance of crop protection in agricultural production system, pests development-losses-trading, principles of Integrated Pest Management (IPM), pests control measures, and examples of current pest problems in different crops.																																	
Academic goal (competency):	Students are able to identify the problem, understand the principles of crop protection, and how to select and use suitable strategies based on ecosystem approaches to manage the pests and diseases																																	
Course outcomes:																																		

- principles and best practices of crop protection, decision making process based on the ecosystem analysis, and selection of the technology that can be applied in the field.
- the definition and historical perspectives of plant protection and classification of harmful organisms;
- the methods to recognize the type of pests and plant diseases, methods of observations in the field, and ecosystem analysis as the base for selecting technology;
- the principle of Integrated Pest Management, and its implementation in different crops.

This lecture provides students with principles and best practices of crop protection, decision making process based on the ecosystem analysis, and selection of the technology that can be applied in the field. Lectures are divided into three main parts. First part discusses the definition and historical perspectives of plant protection and classification of harmful organisms; the second part deals with methods to recognize the type of pests and plant diseases, methods of observations in the field, and ecosystem analysis as the base for selecting technology; and the last part discusses the principle of Integrated Pest Management, and its implementation in different crops.

Contents:

Introduction :

1. Preface
2. Problem of pests and diseases in agricultural field.
3. Understanding the importance of crop protection to minimize the impact of pests and diseases on crops.

Pests problem in crop protection:

1. Pests, host plant, and environment problems
2. Human efforts to control the pests

Plant diseases problem in crop protection.

1. Determination of plant disease
2. Factors influencing plant disease
3. Examples of important plant diseases

Post harvest management in crop protection.

1. Why post harvest is important?
2. Problem of post harvest pests and diseases

Classification of pest and impact of environmental factors on pests development

Pathogens, characteristic and factors influence their development

Integrated Pest Management: historical perspective and changing in the paradigms

The role of crop protection in international trading:

1. Crop protection in high commercial products
2. Sanitary and phytosanitary
3. Plant quarantine, its importance and role in crop protection

Judicious use of pesticides in agriculture

Introduction of biotechnological approaches in crop protection:

1. Introduction of biotechnology in crop protection
2. Molecular technique in plant disease diagnosis
3. Gene expression and plant resistance against pest and disease
4. GMO

Impact of agricultural production system on pests and disease problems and their management:

1. Impacts of global warming and changing in agricultural approaches on pests and diseases
2. Conventional and organic cultivation
3. Differences of agricultural activities and crop protection management in tropic and subtropic

Crop protection in food crops

Crop protection in horticultural crops

Crop protection in estate crops

Which previous course required? -

Literature:

1. Agrios, G.N., 2005. Plant Pathology (5th edition). Elsevier Academic Press, Burlington.
2. Abrol, D.P., 2014. Integrated Pest Management. Current concepts and ecological perspective. Elsevier-Academic Press, Amsterdam.
3. Metcalf, R.L. & W.H. Luckman. 1975. Introduction of insect pest management. A Wiley-Interscience Publication. New York.

Materials provided: Handout

Requirements for exam:75% attendance set by the Faculty of Agriculture

Teaching method(s)

Classes and Special Project Assignments

Workload (hrs).

1. Lectures: 14 times
2. Assignments: 3 times