

Postharvest Pest And Disease

Obligatory module or Selective module	Postharvest Pest and Disease	PNH 4131
Semester	Even Semester	
Module Level	Undergraduate	
Module Coordinator	Prof. Dr. Ir. FX. Wagiman, SU	
Lecturer(s)	Prof. Dr. Ir. FX. Wagiman, SU Dr. Suryanti, S.P., M.P. Dr. Suputa, S.P., M.P. Dr. Ir. Sri Sulandari, SU	
Type of Module	1 hour and 40 minutes lecture Practical	
Status:	E (elective course)	
Exam	Written and Presentation	
Number of participants	50	
Credit Points:	2/1 (5.02 ECTS)	
Description:	Discussion of post-harvest products and quality required in the global trade system. Product damage after harvest by biotic, mechanical, and physical factors. Types of pests and post-harvest diseases; morphological, biological, and ecological characteristics. Post-harvest product handling and storage systems: packing, storage techniques. Warehouse: requirements, ecology, and management. Management and control of post-harvest pests and diseases: monitoring, control techniques.	
Academic goal (competency):	<ol style="list-style-type: none"> 1. Students are able to know the physical, physiological, nutritional content, and quality of post-harvest commodity products and their processed products required in the global trade system. 2. Students are able to explain the damage to post-harvest commodity products and their processed products by biotic, mechanical, and physical factors, in the agricultural production system, various sources of pest infestation and source of infectious diseases, times of pest infestation and onset of disease, as well as forms loss caused. 3. Students are able to explain the morphological and bioecological features of the types of pests and the symptoms of attacks on post-harvest products and their processed products. 4. Students are able to explain the symptoms of post-harvest disease, morphological and bioecological features of pathogens, mycotoxins, in post-harvest commodity products and their processed products. 5. Students are able to explain the handling and storage system of post-harvest commodity products and their processed products, the ideal warehouse and warehouse management. 	

	7. Students are able to explain the management and control system of pests and post-harvest diseases: monitoring and control techniques.
<p>Course outcomes:</p> <p>CO1 = Students are able to understand and explain physical, physiological and nutritional characteristics, as well as the quality of post-harvest commodity products and their processed products</p> <p>CO2 = Students are able to understand and explain the causes of damage, symptoms of pest and disease attacks, times of pest infestation and the emergence of diseases and losses resulting from post-harvest commodity products and their processed products,</p> <p>CO3 = In order for students to know, be able to understand, and explain the morphological and bioecological features of the types of pests, types of pathogens and symptoms of diseases in post-harvest commodity products and their processed products.</p> <p>CO4 = Students are able to understand the handling, packing and storage techniques of post-harvest commodity products and their processed products, ideal warehouses and warehouse management</p> <p>CO5 = Students are able to develop their abilities, competencies, and creativity in efforts to manage pests and post-harvest diseases to prevent and / or minimize the impact of economic losses caused.</p>	
<p>Contents:</p> <p>Lecture:</p> <ol style="list-style-type: none"> 1. Postharvest products; physical, nutrition, physiological characteristics, and quality 2. Deterioration of postharvest products; causes, symptoms, occurrence, and losses. 3. Insects and vertebrate pests; morphological and bioecological characteristics 4. Product handling, packaging, storage techniques, ecology and management of warehouse 5. Postharvest pest management and control 6. Postharvest disease, yield and food loss, food waste 7. Physiological damage, biotic disease, and micotoxins in post-harvest products 8. Good Post Harvest Handling 9. Prevention of diseases in the storage and distribution of post-harvest products <p>Practicum</p> <ol style="list-style-type: none"> 1. Introduction of Coleoptera pests 2. Introduction to Lepidoptera and Vertebrate Pests 3. Moisture content and yield loss 4. Isolate post-harvest pathogens 5. Characterization of pathogens 6. Observation and control of post-harvest diseases 7. Visit to the BULOG warehouse 	
<p>Which previous course required? Principles of Crop Protection, Principles of Plant Pathology, Principles of Plant Pest Science, Plant Pathogen, Plant Pests Identification, Ecology of Plant Pests and Diseases</p>	
<p>Literature:</p>	

Haines, CP. 1991. Insects and arachnids of tropical stored products: their biology and identification. (A training manuals). 2nd ed. (revised). Natural Resources Institute, Central Avenue, UK. 246p.

Hall, D.W. 1970. Handling and storage of food grain in Tropical and subtropical areas. FAO, Rome

Kader, A.A. 1992. Postharvest Technology of Horticultural Crops.

Wills, RHH, TH Lee, D. Graham, WB McGlasson, and EG Hall. 1981. Postharvest: An introduction of the Physiology and Handling of Fruit and Vegetables New South Wales Univ. Press. Australia.

Baur, F.J. (Ed.). 1985. Insect Management for Food Storage and Processing. American Association of Cereal Chemists. St. Paul. Minnesota. 384 p.

BIOTROP. 1986. Biotrop Third Training Course on Pests of Stored Products. Volume IIA and IIB. Compilation of Lecture Notes. Bogor, Indonesia.

Cotton, R.T. 1963. Pests of stored grain and grain products. Burgess Publishing Company. Minneapolis, Minnesota. 318 p.

Harris, K.L. and C.J. Lindbad. 1976. Postharvest Grain Loss Assessment Methods. A Manual of Methods for the Evaluation of Postharvest Losses. American Association of Cereal Chemists. 193 p.

Justice, O.L. and L.N. Bass. 1978. Principles and practices of seed storage. Agriculture Handbook Number 506. Science and Education Administration. USDA, Washington, D. C. 289 p.

Wagiman, F. X. 2014. Postharvest pests and their management (Hama Pasca Panen dan Pengelolaannya). Gama Press, Yogyakarta.

Anonim. Training notes on insect and mite identification and biology. Modules I and II. Tropical Products Institute. Ministry of Overseas Development, London. 116p.

Material provided:

Reading materials
Speciments

Requirements for exam:

75% attendance

Teaching method(s)

Student Center Learning, Classes, Special assignment related to the subject matters

Workload (hrs).

1. Theoretical of course: 14 x 100 minutes
2. Lab work: 7 x 120 minutes
3. Home studies: 14 x 2 x 100 minutes