

Biology of Plant Parasitic Nematodes

Obligatory module or Selective module	Biology of Plant Parasitic Nematodes	PNH 4236
Semester	Even semester	
Module level	Undergraduate	
Module Coordinator	Dr. Ir. Siwi Indarti, MP	
Lecturer(s)	Dr. Ir. Siwi Indarti, MP	
Type of Module	1 hour 40 minutes lecture Practical	
Status	E (elective courses)	
Exam	Written	
Number of participants	9	
Credit Points:	2/1 (5.02 ECTS)	
Description:	<p>Biology of Plant Parasitic Nematode course material is the basis for the management of plant parasitic nematodes. Therefore students who study the Biology of Plant Parasitic Nematodes are able to explain the environmental parasitic management model of plant nematodes. The subject matter of Plant Parasite Nematode Biology covers:</p> <ol style="list-style-type: none"> 1. Reproduction and life cycle of plant parasitic nematodes 2. Movement, distribution and dispersal of plant parasitic nematodes 3. Symptoms of an attack 4. Adaptation to parasitism 5. Management of plant parasitic nematodes. <p>The learning system that is applied in the form of lectures, discussions and practice in the laboratory and in the field together with students gets twice the assignment to be presented. For the sake of a smooth learning process, students actively study literature in the form of reference books, research journals and can access via the internet to get to know the types of plant parasitic nematodes and their bio ecology. In each learning activity students can actively express the knowledge they get through exercises in the form of class discussions and seminars on the subject of nematology in agriculture</p>	
Academic goal (competency):	<p>Students can explain about:</p> <ol style="list-style-type: none"> 1. Reproduction, the life cycle is influenced by internal and external environmental factors, so students are able to explain the basis for decision making when controlling is done. 2. Movement, distribution and dispersal of plant parasitic nematodes in relation to plant cultivation and local environmental conditions, so students are able to explain the basis for making decisions to: (a) determine steps to prevent the spread of parasitic nematodes to a wider 	

	<p>area, (b) control in mechanical and physical in suppressing population growth and (c) nematicide application techniques into the soil.</p> <p>3. Recognition of symptoms of attack, so students can make a useful diagnosis to determine whether plant parasitic nematodes as a cause of plant damage is important to control.</p> <p>4. Adapt parasitism as a basis for obtaining resistant plants and determining management strategies.</p>
<p>Course outcomes:</p> <p>CO1 = Method of reproduction and life cycle of plant parasitic nematodes.</p> <p>CO2 = How nematodes move, move and how plant parasitic nematodes scatter (spread) to a wider area.</p> <p>CO3 = Invasion of plant parasitic nematodes and how to eat.</p> <p>CO4 = Symptoms of an attack and explains the mechanism of the formation of symptoms of an attack on the host.</p> <p>CO5 = Adapt parasitism and why nematodes adapt to parasitism.</p> <p>CO6 = Internal and external factors that influence the behavior and growth of plant parasitic nematode populations.</p> <p>CO7 = Concept of Integrated Nematode Management.</p>	
<p>Contents:</p> <ol style="list-style-type: none"> 1. Reproduction and life cycle of plant parasitic nematodes 2. Movement, distribution and dispersal of plant parasitic nematodes 3. Symptoms of an attack 4. Adaptation to parasitism 5. Management of plant parasitic nematodes. 	
<p>Which previous course required? Plant Protection, Agricultural Zoology, Agricultural Nematology</p>	
<p>Literature:</p> <p>Barker, K.R.; G.A. Pederson and G.L. Windham. 1998. Plant and Nematode Interactions. Number 36 in the series Agronomy. Madison, Wisconsin, USA. 771 p.</p> <p>Dropkin, V.H. 1988. Introduction to Plant Nematology. John Willey Interscience Publication. John Willey and Sons, New York. 305 p.</p> <p>International Meloidogyne Project. 1976. Proceeding of the research Planning Conference on Root-knot Nematodes, <i>Meloidogyne</i> spp. North Carolina State University Raleigh. 106 p.</p> <p>Lee, D.L. and H.J. Atkinson. 1977. Physiology of Nematodes. New York Columbia University Press. 215 p.</p> <p>Luc, M.; R.A. Sikora and J. Bridge. 1990. Plant Parsitic Nematodes in Subtropical and Tropical Agriculture. C.A.B. International Inst. of Parasitology Wallingford, U.K. 629 p.</p> <p>Mulyadi. 2009. Nematologi Pertanian. Gadjah Mada University Press. 339 p.</p> <p>Norton, D.C. 1978. Ecology of Plant Parasitic Nematodes. John Willey and Sons. Inc. USA. 268 p.</p> <p>Wallace, H.R.1964. The Biology of Plant Parasitic Nematodes. New York. ST. Martin's Press Inc. 280 p.</p> <p>_____. 1973 Nematodes Ecology and Plant Disease. Great Britain by Alden & Mowbray Ltd. Oxford. 228 p.</p>	
<p>Materials provided: PPT</p>	

Requirements for exam: 75% attendance set by the Faculty of Agriculture	
Teaching method(s)	Lectures, Presentation, Assignments
Workload (hrs). Theoretical of course: 14 times Lab work: 7 times Home studies: related to the chapter discussed in the class	