

Course Unit	Plant Pests and Diseases		Field of study	Agrcultural and Animal Production	
Bachelor in	Agronomic Engineering		School	School of Agriculture	
Academic Year	2024/2025	Year of study	2	Level	1-2
Type	Semestral	Semester	1	ECTS credits	6.0
Code	9086-813-2105-00-24				
Workload (hours)	162	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Maria Eugénia Madureira Gouveia

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. know and identify organisms associated with key-pests and diseases of plants.
2. Know bio ecological characteristics of key plant pests, the symptoms and injuries on plants and economic losses
3. Plant pest diagnosis. Integrate the methods and techniques for diagnosis of plant key pests.
4. Learn biological cycle of key-pests and diseases to implement appropriate control measures.

Prerequisites

Before the course unit the learner is expected to be able to:
Students should have knowledge in general microbiology

Course contents

Etiology of plant diseases. Symptoms, damages and crop losses, disease cycle of plant diseases and epidemiology. Diagnostic techniques in plant pathology, isolation of pathogens and their identification by immunological and molecular techniques. Control methods of plant diseases. Insects and mites as plant pests. Morphology, reproduction and development. Taxonomic groups of insects and mites that are important plant pests. Damages and crop losses associated with plant pests.

Course contents (extended version)

1. Introductory concepts in plant protection
 - Plant pests and crop protection.
 - The agricultural ecosystem (agroecosystems)
 - Economic importance of plant diseases and pests
2. Plant pathology
 - Plant diseases and plant symptoms.
 - Plant disease diagnosis and etiology of diseases.
 - Disease cycle of parasitic diseases
 - Dissemination and survival of the parasite
3. Plant pathogenic fungi
 - Morphology, type of spores and taxonomy.
 - Life cycle of fungi that cause plant diseases
 - Epidemiology
 - General approaches for disease control of fungal plant diseases. Fungicide active substances.
4. Bacterial plant pathology
 - Morphology and general biological characteristics
 - Disease symptoms, disease epidemiology and control of bacterial diseases of plants.
 - Cultural and chemical control of bacterial disease.
 - Eradication and quarantine.
5. Plant viruses
 - Mechanisms of penetration, translocation and distribution of virus in crop plants.
 - Detection and identification of plant viruses.
 - Control strategies: eradication, quarantine and certification.
6. Plant pests. Damages and losses in plants
7. Insects: morphology, reproduction, development and life cycle.
 - Life cycle and succession of generations.
 - Taxonomy and classification of insects.
 - Insect orders with economic importance as plant pest.
 - General strategies for insect pest control.
8. Mites in plant crops
 - Morphology, life cycle and number of generations, taxonomy, and pest biology,
 - Damages and control.
 - Strategies for general pest control and integrated pest management.

Recommended reading

1. Agrios, N. George, 2005 – Plant Pathology, Elsevier, Academic Press, 5ª Edição
2. Fox, R., T., V., 1993 – Principles of Diagnostic Techniques in Plant Pathology. International Mycological Institute. Surrey, UK.
3. García-Tejero F. D., 1998. Plagas Y Enfermedades de las Plantas Cultivadas. 9ª Ed., Ediciones Mundi-Prensa.
4. European and Mediterranean Plant Protection Organization - "Site oficial"
5. Recursos B. on - pesquisa bibliográfica de estudos publicados em revistas relacionados com sanidade vegetal

Teaching and learning methods

Lectures by audiovisual and multimedia techniques and laboratory protocols complemented with fieldwork in the orchards, IPB campus and IPB greenhouses. Bibliographic research and seminars.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 50%
 - Final Written Exam - 50%

Assessment methods

2. Type 2 - (Regular, Student Worker) (Supplementary, Special)
- Final Written Exam - 100%

Language of instruction

Portuguese

Electronic validation			
Maria Eugénia Madureira Gouveia	Álvaro José Lopes César	Albino António Bento	José Carlos Batista Couto Barbosa
16-12-2024	16-12-2024	19-12-2024	19-12-2024

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