

Course Unit	Plant Protection of Vineyards	Field of study	Agricultural and Animal Production		
Bachelor in	Oenology	School	School of Agriculture		
Academic Year	2022/2023	Year of study	2	Level	1-2
Type	Semestral	Semester	2	ECTS credits	6.0
Code	9998-705-2205-00-22				
Workload (hours)	162	Contact hours	T 30	TP -	PL 30
			TC -	S -	E -
			OT 4	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, Álvaro José Lopes César

Learning outcomes and competences

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

1. Know the main enemies of plants, their bioecology and associated damage.
2. Identify the symptoms and signs of diseases associated with fungal bacteria and vine viruses. Understand the mechanisms of pathogenesis and development of parasitic diseases in the vine.
3. Recognize the importance of pests as plant enemies and identify the damage associated with insects. Understand the biological cycle of pests and the succession of generations.
4. Know the principles of integrated plant protection in crop protection and agricultural production.
5. Know how to apply, to each enemy of the cultures, the different risk estimation methods.
6. Know the economic thresholds of attack and know how to interpret the economic thresholds of attack.
7. Know the different control methods against vine enemies. Be able to advise the use of protection methods (cultural, chemical, biological, biotechnical or other).

Prerequisites

Before the course unit the learner is expected to be able to:

Students must have knowledge of plant biology, microbiology and plant physiology.

Course contents

The agrarian ecosystem. The vineyard ecosystem. Crop protection. Integrated protection. The enemies of cultures. Enemies of vine cultivation. Integrated pest management in vineyard.

Course contents (extended version)

1. Plant protection. Symptoms. Damages. Losses. Causative agents.
2. Plant Pathology. Disease-causing agents. Disease cycle and disease control.
 - Disease-causing agents (fungi, bacteria, virus)
 - Infection, virulence and resistance to plant
 - Cycle of parasitic diseases in vines associated with fungi, bacteria and virus
 - Strategic control measures for disease control in vines
3. Agricultural entomology
 - Pest concept. Type of damage/losses
 - Life and biological cycles. Guest-host and trophic relationships. Pest population dynamics
 - Main organisms with pest and auxiliary status. Insects and mites
 - Disease vectors and other animal organisms
4. Principles of pesticides used in plant protection.
 - Fundamental concepts
 - Classification, composition, formulation of pesticides
 - Persistence and efficacy of pesticides
 - Routes of entry and modes of action of pesticides
 - Toxicity of pesticides
5. Strategies and plant protection means
 - Integrated plant protection. Concept of integrated plant protection. Main control methods used
 - Chemical, cultural, biological and other control methods. Important factors in their use.
 - Protection systems and sustainable production. Case study

Recommended reading

1. Serviço Nacional de Avisos Agrícolas (2022 - recursos online) Ministério da Agricultura e Pescas (Portugal)
2. Direção Geral Alimentação e Veterinária (SIFITO- informação online) DGAV (<https://www.dgav.pt>) Ministério da Agricultura e Pescas (Portugal)
3. Magalhães, Nuno, 2022. Tratado de Viticultura- A videira, a vinha e o Terroir. Ebook, ed autor, pp 608.
4. Wilcox, W., Gubler, W., Uyemoto, J., 2015. Compendium of Grape Diseases, Disorders, and Pests, (Second Edition). APS Press Compendium Publications
5. Howes, P. 1998. Insect pheromones and their use in pest management. Ch&Hall, 369pp.

Teaching and learning methods

Theoretical and theoretical-practical classes: based mainly on expository and active methods. Audiovisual media and multimedia resources. In the theoretical-practical classes will be held group activities, addressing some of the themes included in the program and will be scheduled visits to wines and wine companies

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 50%
 - Final Written Exam - 50%
2. Alternative 2 - final exam - 100% - (Regular, Student Worker) (Supplementary, Special)

Language of instruction

Portuguese

Electronic validation

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20-12-2022	24-12-2022	26-12-2022	26-12-2022