

Course Unit	Field crops		Field of study	Animal and Agricultural Productions	
Bachelor in	Agronomic Engineering		School	School of Agriculture	
Academic Year	2022/2023	Year of study	3	Level	1-3
Type	Semestral	Semester	2	ECTS credits	6.0
Code	9086-307-3201-00-22				
Workload (hours)	162	Contact hours	T 30	TP -	PL 30
			TC -	S -	E -
			OT 20	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) Manuel Ângelo Rosa Rodrigues

Learning outcomes and competences

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

1. To enable for the coordination and execution of several cropping techniques at a farm scale level.
2. To enable for the assimilation of new knowledge and to interact with producers associations, co-operatives and other groups operating in the large scale field crops production sector.
3. To enable for the implementation and divulgation of the new scientific and technical knowledge in this sector.
4. To enable for the participation in experimental activities previous defined, with high self-sufficiency in the execution of several field and laboratory tasks.

Prerequisites

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

1. General knowledge on botany
2. General knowledge on plant physiology
3. General knowledge on soils and soil fertility

Course contents

Large scale field crops: importance and worldwide distribution. The field crops in Portugal. Specific study of the main crops in Portugal (wheat, barley, rice, maize, industrial tomato, potatoes, ...); botanical characterization; ecophysiology and crop growth; growing cycle; coping techniques; product quality; typical crop rotations. Identification of plant material. Phenological phases discrimination. Identification of seeds of cultivated species.

Course contents (extended version)

1. 1. Large scale field crops: definitions; concepts; importance; worldwide distribution; perspectives.
2. 2. Specific study of the most important crops (winter cereals, rice, maize, potatoes, tomatoes, ...)
 - 2. 1. Botanical and systematic description
 - 2. 2. Ecological adaptation
 - 2. 3. Growing cycle, phenology and physiology of development
 - 2. 4. Cropping (soil preparation, sown, fertilization, pest and diseases, irrigation, harvest).
 - 2. 5. Product quality, conservation, transformation and utilization.
 - 2. 6. Varieties and breeding
 - 2. 7. Insertion in crop rotations
 - 2. 8. Policies and perspectives
3. 3. Crop ecology: climatic gradients in Portugal; growing degree days; quality of agricultural soils.
4. 4. Sowing: factors affecting crop emergence; seed rates; sowing methods; spatial seed distribution.
5. 5. Seed quality indices: field and pot experiments on factors affecting seedling emergence.
6. 6. Plant material identification: plant species; phenological phases; weeds; seeds.

Recommended reading

1. Miladinovic, J. , Hrustic, M. , Vidic, M. 2011. Soybean. Institute of Field and Vegetable Crops, Nivi Sad, Serbia
2. Gooding, M. J. & Davies, W. P. 1997. Wheat production and utilisation: systems, quality and the environment. CAB International, U. K.
3. Guerrero, A. 1999. Cultivos herbáceos extensivos. 6ª ed. Ediciones Mundi-Prensa, Madrid.
4. Villalobos, F. , Mateos, L. , Orgaz, F. & Fereres, E. 2002. Fitotecnia: Bases y tecnologías de la producción agrícola. Mundi-Prensa, Madrid.
5. He, Z. , Larkin, R. , Honeycutt, A. 2012. Sustainable Potato Production. Global case studies, 7th ed. , CRC Press, New Orleans, USA.

Teaching and learning methods

Introduction of theoretical contents by using audio-visual equipment and blackboard. Establishment of field experiments. Plant material sampling and processing. Seminar preparation, from experimental results and bibliographical searching. Results presentation as written reports and oral communications. Technical study visits.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Final Written Exam - 50% (Written exam)
 - Practical Work - 50% (Continuous evaluation. Worker-student can fulfill the component simultaneously with the written test)
2. Alternative 2 - (Regular, Student Worker) (Supplementary)
 - Final Written Exam - 50% (Written exam)
 - Practical Work - 50% (Continuous evaluation. Worker-student can fulfill the component simultaneously with the written test)
3. Alternative 3 (worker-students) - (Student Worker) (Special)
 - Final Written Exam - 50% (Written exam)
 - Practical Work - 50% (Continuous evaluation. The student can fulfill this component simultaneously with the written test)
4. Alternative 4 (finalist students) - (Regular, Student Worker) (Special)
 - Final Written Exam - 50% (Exam on the theoretical part of the program)
 - Practical Work - 50% (Continuous evaluation. The student can fulfill this component simultaneously with the written test)

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

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05-12-2022	07-12-2022	09-12-2022	09-12-2022