Management of ecological vineyard systems (ENVIRONMENTAL ENGINEERING, 3RD YEAR OF STUDY, SIXTH SEMESTER)

Credit value (ECTS): 6

Course category:
specialty course (mandatory)

Course holder:
Prof. Rotaru Liliana, PhD

Discipline objectives (course and practical works)
- Knowledge of the biological, ecological, agrotechnical and managerial bases of the cultivation of vines in ecological system;
- Development of a unitary system of knowledge of the principles and coherent interpretation of the principles and models in the field of rational use and exploitation of a vine plant;
- Use of a judicial system of knowledge of the techniques of exploiting a vine plant, of the deposition and of the permanent relation with the economic environment;
- Integration of the knowledge regarding the culture of the living life in the context of the sustainable development of the region and the activity of the economic crisis and of the resources;
- Formation of an ecological awareness, care to allow the sustainable management of the vine resources in harmony with the environment.

Contents (syllabus)

Course (chapters/subchapters)
INTRODUCTION TO ECOLOGICAL VITICULTURE SYSTEMS
Definition and content of the discipline, connection with other sciences
The economic and social importance of the vine culture. The situation of viticulture on the globe.
The geographical spread of the culture of vines. The wine-growing areas in Romania.
Capitalizing on the wine landscape
THE BIOLOGICAL BASIS
Origin and evolution of grape varieties. Ecological grouping of vine species.
Morphology of vines.
Vines biology: the ontogenetic biological cycle of vines; the annual biological cycle
THE VITICULTURE ECOSYSTEM IS AN INTEGRAL PART OF THE BIOSPHERE
The ecology of vines: the influence of climatic, edaphic and orographic factors. The influence of secondary biotope factors.
Synthetic ecological indices for assessing the suitability of wine-growing areas
Soil - as the main factor in the wine ecosystem
Bioenergy and energy balance in the wine ecosystem
ECOTECHNOLOGIES REGARDING THE MULTIPLICATION OF VINES
Vegetative multiplication of vines.
Multiplication by grafting. The nursery.
Technology of producing grafted vines in the school of vines.
ORGANIZATION OF VINEYARDS IN THE SYSTEM OF INTEGRATED ECOLOGICAL MANAGEMENT OF THE CULTURE OF VINES
Land suitability for ecological system culture.
Using the GIS technique for precision viticulture
Execution of hydro-ameliorative works. Organization and arrangement of the land.
The choice of fruit varieties and rootstocks. Establishing planting distances. Planting vines.
Ecotechnologies of young vineyards
INTEGRATED MANAGEMENT OF VINE CULTURE IN ECOLOGICAL SYSTEM

Ecotechnologies of variety culture for table grapes
Ecotechnologies of wine grape culture
SPECIAL ECOTECHNOLOGIES FOR GROWING VINES
The culture of vines on the sands
Sustainable viticulture in the biological system
TRACEABILITY IN THE WINE SECTOR
Topo-cadastral traceability of wine-growing sites
Traceability of exploitation of wine-growing sites
Traceability of exploitation of wine sites
WASTE AND EFFLUENT MANAGEMENT IN VITICULTURE
Impact of wine technologies on the environment
Management and recycling of waste and effluents from viticulture
VITICULTURE AND THE CHALLENGES OF THE NEW MILLENNIUM
The ecological footprint
Carbon footprint
Water footprint

Practical works
The organography of the vine
Calculation of the main synthetic ecological indices for the characterization of ecological viticultural ecosystems
Determination of the main physico-chemical characteristics of soils from organic vineyards
Design of hydro-ameliorative works in vineyards
Carrying out the works for setting up an organic vineyard plantation
Vine cuttings
Preparation of the energy balance in a vineyard plantation
Evaluation of grape production
Drawing up the cadastral and invariant sheets of plots using the GIS system
Applications regarding the traceability in the sector of exploitation and exploitation of organic wine production
Preparation of a waste and effluent management plan for a wine farm
Balance of greenhouse gas emissions from the wine sector
Water consumption in vines
Thematic visits of documentation to objectives of interest

Bibliography

Bernaz Gh., Dejeu L., 2006 - Fertilizarea viilor şi întreţinerea solului în concepţie ecologică. Editura Ceres, Bucureşti.

Dejeu Liviu, Georgescu Magdalena, Chira Aurel, 1997 – Hortiviticultură şi protecţia mediului. Edit. Didactică şi Pedagogică, Bucureşti.

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Stoleru Vasile, Grădinariu Gică, Munteanu Neculai, Jităreanu Gerard, Istrate Mihai, Rotaru Liliana, Vrabie Iurie, Senic Iurie, 2008 - Ghid de bune practici în producţia agricolă ecologică. Editura "Stef", Iaşi.
Volf Irina, 2005 - Ecotehnologii, ecoproduse, ecoservicii. Editura Ecozone, Iaşi

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Course	Exam	**60%**
	Presence at course	**10 %**
Practical works	Test	**30%**

Contact

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