

MANAGEMENT OF ECOLOGICAL VITICULTURAL SYSTEMS (Specialization Environmental engineering, 3rd Year of study, 2nd Semester)

Credits (ECTS): 6

Course category: Specialized discipline

Course holder: Assoc. Prof. Lucia Cintia Colibaba, PhD

Objectives of the discipline:

- Knowledge of the biological, ecological, agrotechnical and managerial bases of grapevine cultivation in an ecological system;
- Development of a unitary system of knowledge through the use and coherent interpretation of principles and models in the field of valorization and rational exploitation of wine plantations;
- The judicious use of the technical knowledge of exploitation of a vineyard, in a full and permanent relationship with the economic environment;
- The integration of knowledge regarding the culture of the vine in the context of the sustainable development of mankind and the current economic and resource crisis;
- The formation of an ecological consciousness, which allows the sustainable management of viticultural resources in harmony with the environment.

Contents (syllabus)

Course (chapters/subchapters)
1.INTRODUCTION TO ECOLOGICAL VITICULTURE SYSTEMS
1.1. Definition and content of the discipline, connection with other sciences
1.2. The economic and social importance of the vine culture. The situation of viticulture on the globe.
1.3 The geographical spread of the culture of vines. The wine-growing areas in Romania.
1.4 Capitalizing on the wine landscape
2. THE BIOLOGICAL BASIS
2.1. Origin and evolution of grape varieties. Ecological grouping of vine species.
3.2. Morphology of vines.
3.3. Vines biology: the ontogenetic biological cycle of vines; the annual biological cycle
THE VITICULTURE ECOSYSTEM IS AN INTEGRAL PART OF THE BIOSPHERE
3.1. 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
3.3. Soil - as the main factor in the wine ecosystem
3.4. Bioenergy and energy balance in the wine ecosystem
4. ECOTECHNOLOGIES REGARDING THE MULTIPLICATION OF VINES
4.1. Vegetative multiplication of vines.
4.2. Multiplication by grafting. The nursery.
4.3. Technology of producing grafted vines in the school of vines.
5. ORGANIZATION OF VINEYARDS IN THE SYSTEM OF INTEGRATED ECOLOGICAL MANAGEMENT OF THE CULTURE OF VINES
5.1. Land suitability for ecological system culture.
5.2. Using the GIS technique for precision viticulture
5.3. Execution of hydro-ameliorative works. Organization and arrangement of the land.

5.4. The choice of fruit varieties and rootstocks. Establishing planting distances. Planting vines.
5.5. Ecotechnologies of young vineyards
6. INTEGRATED MANAGEMENT OF VINE CULTURE IN ECOLOGICAL SYSTEM
6.1. Ecotechnologies of variety culture for table grapes
6.2. Ecotechnologies of wine grape culture
7. SPECIAL ECOTECHNOLOGIES FOR GROWING VINES
7.1. The culture of vines on the sands
7.2. Sustainable viticulture in the biological system
8. TRACEABILITY IN THE WINE SECTOR
8.1. Topo-cadastral traceability of wine-growing sites
8.2. Traceability of exploitation of wine-growing sites
8.3. Traceability of exploitation of wine sites
9. WASTE AND EFFLUENT MANAGEMENT IN VITICULTURE
9.1. Impact of wine technologies on the environment
9.2. Management and recycling of waste and effluents from viticulture
10. VITICULTURE AND THE CHALLENGES OF THE NEW MILLENNIUM
10.1. The ecological footprint
10.2. Carbon footprint
10.3. Water footprint

Practical activity
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

1. Bernaz Gh., Dejeu L., 2006 - Fertilizarea viilor și întreținerea solului în concepție ecologică. Editura Ceres, București.
2. Dejeu Liviu, Georgescu Magdalena, Chira Aurel, 1997 – Hortiviticură și protecția mediului. Edit. Didactică și Pedagogică, București.
3. Dobrei Alin, Rotaru Liliana, Dobrei Alina, 2017 – Viticultură, Ampelografie, Oenologie. Editura “Solness”, Timișoara.
4. Dobrei Alin, Rotaru Liliana, Mustea Mihai, 2005 – Cultura viței de vie. Editura “Solness”, Timișoara.
5. Rochard Joel, 2005 - Traite de viticulture et d'oenologie durable. Edit. Oenoplurimedia, Chaintre-France.
6. Rotaru Liliana, Voiculescu Ioan, 2004 - Tehnici culturale de creștere a calității în viticultură, Editura “Prahova” Ploiești.

7. Rotaru Liliana, Vasile Ancuța, Nechita Bogdan, Nicolaua Marius, Colibaba Cintia, 2011 - Modernizarea tehnologiei de obținere și valorificare a strugurilor de masă prin implementarea sistemului european de calitate Eurepgap. Editura "Ion Ionescu de la Brad", Iași.
8. Rotaru Liliana, Stoleru Vasile, 2011 - Bazele producției viticole în sistem ecologic. Editura Performatica, Iași.
9. Stoleru Vasile, Grădinariu Gică, Munteanu Neculai, Jităreanu Gerard, Istrate Mihai, Rotaru Liliana, Vrabie Iurie, Senic Iurie, 2008 - Ghid de bune practici în producția agricolă ecologică. Editura "Stef", Iași.
10. Volf Irina, 2005 - Ecotehnologii, ecoproduse, ecoservicii. Editura Ecozone, Iași

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Final exam	Written / oral examination	60
Evaluation of the activity during the semester	Written and oral assessments during the semester	40

Contact

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