Horticultural technologies – viticulture and oenology (IIIRD YEAR OF STUDY, VTH SEMESTER)

Credit value (ECTS) 3

Course category:
Mandatory

Course holder:
Lecturer Lucia-Cintia COLIBABA, PhD.

Discipline objectives (course and practical works)

The aim of the course is to have students acquire knowledge on the biology and ecology of the vine cultivation systems, the most important Romanian varieties of vines, but also elements of winemaking, authorized oenological practices, stabilization and conditioning of wines

Practical works seek to familiarize students with technical work in the vine-growing and wine-making laboratories and also, to provide them with general notions relating to the morphology of the vine plant and also on common analyses for wines and other information to assist in future training of an agronomist.

Contents (syllabus)

Course (chapters/subchapters)
BASICS OF VINES' BIOLOGY AND ECOLOGY: Definition and discipline content, connection with other sciences; Romania's wine geography; Origin and evolution of the vine species. Ecological grouping of species of vines; Ecology of vines: climate, soil and orographic factors; 1Biology of vine: ontogenetic biological cycle of the vine; Annual biological cycle.
PRODUCTION OF PLANTING MATERIAL: Vine propagation. Vine nursery; Rootstock cuttings production technology; Grafting technology.
VINE PLANTATIONS: Culture systems and types of vineyards; Preparing the soil for planting vines; Choosing varieties of vines. Planting of vines; Maintenance of plantations in the years I, II, III.
AGROTEHNICS in the VINE PLANTATIONS: Trelissing of vines; Vine prunning; Soil tillage in fruit-bearing vineyards; Fertilization and herbicide usage in vineyards; Green works and operations; 4.6. Pest and disease control in vineyards; Harvesting grapes.
VINE VARIETIES GROWN IN ROMANIA: Rootstocks; Table grape varieties; Grape varieties for wine-making.
OENOLOGICAL CONSTRUCTIONS: Oenological constructions; Oenological vessels.
GRAPES – RAW MATERIAL FOR MUST: Harvesting and reception of grapes; Grapes and grape processing technology; Corrections applied to the must before fermentation.
ANTISEPTICS AND ANTIOXIDANTS IN WINE INDUSTRY: Sulphur dioxide; Sorbic acid; Ascorbic acid.
FERMENTATION AND MACERATION TECHNOLOGY IN WINE-MAKING: Alcoholic fermentation of must; Maceration; Malolactic fermentation.
CHEMICAL COMPOSITION OF WINE AND THEIR CLASSIFICATION. UNWANTED CHANGES THAT MAY APPEAR IN WINE: Alcohols; Acids; Esters; Aldehydes; Extract; 10.6. Ash; Gasses; Tartaric precipitations; Iron precipitation; Casses.

STABILISATION AND CONDITIONING TECHNOLOGY OF WINES: Fining wines: Clarification of wine by fining. Filtering wines; Wine stabilization.
WINE BOTTLING TECHNOLOGY USED IN WINEMAKING: Types of bottles; Corks; Labels; Technological bottling lines.

Practical works
The presentation of the Viticulture and Oenology laboratory; work safety rules; Laboratory equipment and utensils; good practice working in microbiology.
Vine organography: Recognition of wooden organs of the vine trunk; Shoot morphology; Bud morphology and anatomy; Grape and berry morphology;
Production of vine planting material: Vine grafting; Young vines: activities in the field; Harvesting of rooted vines rooted from nurseries.
Plantations of fruit-bearing vineyards: Planting of vines; Filling the gaps in young plantations.
Agrotechnics in the vine plantations: Determining viability of buds. Calculating the berry load; Vine pruning; Filling gaps in fruit-bearing vineyards; Main activities and operations during the vegetation period; Harvest management.
Vine varieties grown in Romania: Classification of the main varieties of vines cultivated in Romania; Establishing the optimum time for harvesting;
Evaluation of the content of sugars relative must.
Determining the alcoholic strength of wine.
Determination of total and free SO2 in musts and wines.
Determination of total and volatile acidity in must and wine.
Wine stabilization treatments.
Sensory analysis of wine.
Wine faults.
Final colloquium - knowledge evaluation

Bibliography

1. Cotea, V.V., Pomohaci, N., Năməloşanu, I., Stoian, V., Antoce, A., Popa, A., Sîrghi, C., 2001, Oenologie,vol. 1, Editura Ceres, Bucureşti, 2001.
2. Cotea, V.V., Pomohaci, N., Năməloşanu, I., Stoian, V., Antoce, A., Popa, A., Sîrghi, C., 2001, Oenologie,vol. 2, Editura Ceres, Bucureşti,.
3. Dobrei Alin, Rotaru Liliana, Morelli Silvano, 2008 – Ampelografie. Editura "Solness", Timisoara.
4. Dobrei Alin, Rotaru Liliana, Mustea Mihai, 2005 – Cultura viţei de vie. Editura "Solness", Timisoara.
5. Rotaru Liliana, 2009, Soiuri de viţă de vie pentru struguri de vin. Editura "Ion Ionescu de la Brad", Iaşi.
6. Ţârdea C., Rotaru Liliana, 2003, Ampelografie, Ed. Ion Ionescu de la Brad, Iaşi.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Final written evaluation	70%
Oral examinations	Oral assessment during the semester, verification tests and final laboratory colloquium.	30%

Contact

Lecturer Lucia-Cintia COLIBABA, PhD.
Faculty of Horticulture- USAMV Iasi
Aleea Mihail Sadoveanu nr. 3, Iaşi, 700490, Romania
telefon: 0040 232 407440, fax: 0040 232 407519
E-mail: cintia.colibaba@uaiasi.ro

Horticulture Technologies - VEGETABLE GROWING (IIIrd Year of study, VIth Semester)

Credit value (ECTS) 3

Course category
Domain (Imposed)

Course holder:
Associate Professor Dr. Stan Teodor

Discipline objectives (course and practical works)

Theoretical and practical training of students with elements of general and special cultivation of vegetable plants, ensuring completion of professional knowledge, enabling better use of land and buildings for the production of vegetables in order to achieve higher production in terms of quantity and quality, unpolluted as possible, which ultimately lead to achieving superior returns for growers.

At practical aims:

- Consolidation of elements, rules and details of construction and materials production plant vegetable seedlings;

- correct wording of a technology of cultivation of a vegetable species in correlation with social and economic pedoclimatic factors existing in a certain area of vegetable;

- encouragement to prevent and fight certain risk factors that may occur at some point in a vegetable crop in order to obtain high yields both quantitatively and qualitatively;

- encouragement to charge the "new" by applying modern, fully mechanized to be as profitable in economic terms.

Contents (syllabus)

Course (chapters/subchapters)

1. Importance, development and objectives
2. table

1.1. Course objectives and content of vegetable
1.2. Vegetable growing importance and place in agricultural production.
1.3. The current situation and development prospects vegetable
2. The biological bases of cultivation of vegetable plants
2.1. The origin and evolution of vegetable plants
2.2. Peculiarities of growth and development of vegetable plants
2. 3. Classification vegetable plants
3. Propagated vegetables
3.1. By vegetative propagation (asexual)
3.2. Multiplying about generative (sexual)
3.3. Preparation of seeds for sowing
4. Ecology of vegetable plants
4.1. Relations with light vegetable plants
4.2. Relations with the heat vegetable plants
4.3. Air as a factor in vegetable growing season
4.4. Vegetable plants to water requirements
4.5. Soil and nutrition
5.Process systems culture of vegetable plants
6. Basics of technologies
6.1. Rational use and land-intensive crop and soil gardening
6.2. Irrigation, fertilization and weed control in vegetable crops

General technology production of vegetable seedlings
6.3. Preparing construction, machinery and equipment, land and inventory for seedling production
6.4. The technology of producing seedlings in greenhouses multiplier
6.5. The technology of producing seedlings in greenhouses and greenhouses with solar-heated substrate biologically
6.6. The technology of producing seedlings in greenhouses and unheated greenhouses, solar
6.7. The technology of producing seedlings in seedbeds heated biological
6.8. The technology of producing seedlings in field
7. General technology of cultivation of vegetable plants in the field unprotected
7.1. Land and soil preparation
7.2. Establishment of field vegetable crops
7.3. Maintenance work applied to vegetable crops in the field
8. General technology culture of vegetable plants in shelters covered with plastic and mass-solar greenhouses
8.1. Construction and soil preparation
8.2. Establishment of vegetables in greenhouses
8.3. Leading environmental factors during cultivation in greenhouses
8.4. Maintenance of vegetable crops in greenhouses
9. Harvesting, conditioning, transport, preservation and development of vegetable products
9.1. Vegetables harvesting
9.2. Conditioning vegetable products
9.3. Vegetables transport

Practical works

Knowing assortment of vegetable plants grown in our country and around the globe Knowledge of vegetable seed; Special methods for determining and analyzing the characteristics useful for production Quality control of vegetable plant seed Preparing seed vegetable plant to seeding Establishing the necessary materials and seedlings for vegetable farm Vegetable seedling production plant crops in open field, forced and protected Preparing the land and building for the establishment of vegetable crops Establishment of vegetables in greenhouses, greenhouses and open field Works for general care applied to vegetable crops in the field, greenhouses and solariums Harvesting vegetables and recovery Colloquium final knowledge tests.

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1. Ciofu Ruxandra, Stan N. şi colab. – *Tratat de legumicultură*, Editura Ceres, Bucureşti, 2003
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9. Marinescu A. - *Tehnologii şi maşini pentru mecanizarea lucrărilor în cultura legumelor de câmp*. Editura Ceres, Bucureşti, 1989.
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11. Voinea M. şi colab. - *Criterii pentru zonarea legumiculturii*. Editura Ceres, Bucureşti, 1977.
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13. x x x - Revista Cercetări Agronomice în Moldova. Iaşi, 1990-2016.
14. x x x - Revista Horticultural abstracts. 1990-2016.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Written examination	70%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	30%

Contact

Associate Professor Dr. Stan Teodor
Faculty of Horticulture - USAMV Iași
Aleea Mihail Sadoveanu nr. 3, Iaşi, 700490, Romania
telefon: 0040 232 407531
E-mail: steodor@uaiasi.ro