

HERBOLOGY (I st Year of study, Ird Semester)

Credit value (ECTS): 7

Course category: Domain (Imposed)

Course holder: PhD. Costică AILINCĂI

Discipline objectives (course and practical works):

The discipline "Herbology", according to the analytical program, aims to:

- The study of the biological particularities of the weeds and of the possibilities of their control and capitalization;
- Teaching theoretical and practical knowledge on methods and means of prevention, agrotechnical, physical, biological and chemical for the integrated protection of the plants, in different systems of agriculture, against weeds;
- Consolidation and deepening of theoretical and practical knowledge on the use of machines, technical equipment and new technologies for their use in plant protection;
- Studying the crop rotations specific to different agricultural areas and methods for weed control;
- Evaluation of the impact of technological elements on agricultural ecosystems;
- Training of practical skills necessary for the development of plant protection activities, phytosanitary quarantine, including risk analysis in integrated weed control; Know the ways to develop ecological systems of integrated plant protection against weeds. Knowledge of the European legislative framework for the management of plant protection products against weeds.

Contents (syllabus)

Course (chapters/subchapters)
1. The role of plants and soil in the development of agricultural production and in the greening and sustainable stabilization of the ecological reconstruction. Studies on the biology and ecology of the main weed species required for the development of integrated programs control.
2. Crop patterns and the cropping systems for maintaining biodiversity in modern agriculture. Fertilization and soil conservation systems for different species, genotypes and the crop rotations.
3. Technologies and agro-technical methods for the protection and use of agro-ecological resources in the main agricultural areas in Romania. Alternative farming systems to increase production and reduce pollution of the components of the natural environment and to maintain the health of organisms.
4. The weeds from the agricultural crops of the agro-ecological zones in Romania 4.1. National legislation governing weed control. 4.2. EU strategy on integrated weed control. 4.3. Herbicide resistant weeds. 4.4. Damage caused by weeds. 4.5. Biological features of weeds. 4.6. Weed classification. 4.7. Sources of weeding. 4.8. Weed mapping. 4.9. Integrated methods for weed control. 4.9.1. Preventive methods. 4.9.2. Agrotechnical methods. 4.9.3. Physico-mechanical methods. 4.9.4. Biological methods. 4.9.5. Chemical methods. 4.9.6. The possibility of capitalizing on weeds.

<p>5. Weed control methods 5.1. Preventive methods to control weeds; 5.2. Curative methods of weed control; 5.3 Agrotechnical methods of weed control; 5.4 Physical methods of weed control; 5.5. Biological methods of weed control; 5.6. Chemical methods for weed control.</p>
<p>6. Chemical methods for weed control. 6.1. Herbicide uptake and translocation into plants. 6.2. The penetration of herbicides into the plant and the environmental factors that may influence the penetration and absorption of herbicides through the aerial organs. 6.3. The transport of herbicides through the plant, their action in plants and their influence on metabolic processes. 6.4. Physical phenomena that can influence herbicides in the soil (adsorption). 6.5. Herbicide selectivity. 6.6. Persistence of herbicides in soil. 6.7. Remanency of herbicides. 6.8. Herbicide residues in plants, soil and water. 6.9. Factors influencing herbicide efficacy. 6.10. Occupational safety measures when using herbicides.</p>
<p>7. Crops and their peculiarities in crop protection. 7.1. General considerations. Plants indicated to be cultivated and their grouping in crops. 7.2. Principles underlying the organization of crop rotations. 7.3. Crop classification. 7.4. The place of plant groups in the crop. 4.5. Crop elaboration methodology.</p>
<p>8. Systems of agriculture 8.1 The system of cultivation in modern agriculture. 8.2. Conventional farming system. 8.3 Precision agriculture system. 8.4. Organic farming. 8.5 Sustainable agriculture system.</p>

Practical works
Recognition of the annual weed species
Recognition of the perennial weed species
Recognition of the weed seeds
Determination of the degree of weeding Weed mapping methods
Determination of weed seed reserve in the soil
Preparation of technological maps for the segetal flora
Preparing the spray mixture; Installations and spraying machines used in the application of herbicides
Elaboration of crops for crop protection
Appreciation of the quality of works for plant protection; Preparation and use of soil register; Laboratory colloquium

Bibliography

1. Ailincă Costica, 2007 - "Agrotechnics of arable land". Ed. Ion Ionescu from Brad. IASI
2. Ailincă Costică, Jităreanu Gerard, Lucian Raus, Țopa Denis- 2013-Cultivation technologies and methods for soil protection - Crop technologies and methods for soil protection, "Ion Ionescu de la Brad" Publishing House, Iași, 2013, 212 p, ISBN 978 -973-147-121-1.
3. Ailincă Costică, Jităreanu Gerard, Lucian Raus- 2012-Technologies and methods for agro-ecological resources for the protection and use of agro-ecological resources in the Moldavian Plain - Technologies and methods for the protection and use of

- agro-ecological resources in the Moldavian Plain, Edit. “Ion Ionescu de la Brad”, Iași, 2012, 178 p, ISBN 978-973-147-120-4.
4. Geertrui Louwagie, Stephan Hubertus Gay, Alison Burrell, 2009, Addressing soil degradation in EU agriculture: relevant processes, practices and policies, Report on the project 'Sustainable Agriculture and Soil Conservation (SoCo)' JRC 50424, ISBN 978-92-79- 11358-1, Luxembourg: Office for Official Publications of the European Communities.
 5. Guș P., Lăzureanu A., Săndoiu D., Jităreanu G., Stancu I., 1998 - “Agrotehnica”. Ed. Risoprint, Cluj Napoca.
 6. Lixandru Gh., 2006 - Integrated fertilization systems in agriculture, Edit. Pim, Iasi
 7. Onisie T., Jităreanu G., 2000 - “Agrotehnica”. Ed. Ion Ionescu from Brad Iași.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
written, written and oral, oral, test, practical application, others	Exam	50
	Colloquy	10
	Evaluation along the way	20
	Laboratory	20

Contact

PhD. Costică AILINCĂI

Faculty of Agriculture, IULS Iași

Alley Mihail Sadoveanu no. 3, Iași, 700490, Romania

Phone: 0232407535

E-mail: ailincai@uaiasi.ro