

Soil management and agricultural techniques 2 (3rd Year, 1st Semester)

Credit value (ECTS) 5

Course category

Domain (Imposed)

Course holder:

Prof. Dr. Gerard JIȚĂREANU

Discipline objectives (course and practical works)

Soil management and agricultural techniques 2 deals with issues concerning the definition, recognition and classification of the main species of weeds and development of integrated control methods, toxicology of herbicides, the biology of weed plants that essential for their effective management and knowledge regarding propagation, dispersal and persistency behavior of weeds; the importance of crop rotation, climatic and pedological principles and requirements, socioeconomic; knowledge of measures to increase the productive potential of low productive and unproductive soils, improving soil tillage systems for different climatic conditions, differentiated agricultural technique; farming systems, organic farming, biological, etc., development of a system of sustainable land use and sustainable agriculture.

Contents (syllabus)

Course (chapters/subchapters)
6. Crop weeds 6.1. Damages caused by weeds. 6.2. Biological particularities of weeds. 6.6. Sources weeding of crops. 6.4. Classification of weeds. 6.5. The mapping of weeds.
7. Weed management technique 7.1. Preventive methods. 7.2. Agro-technical methods. 7.3. Physico-mechanical methods. 7.4. Biological methods. 7.5. Chemical methods - herbicides. Importance. The structure and classification of herbicides. Absorption, translocation and herbicidal action. The absorption and translocation of herbicides action. The persistence of herbicides in soil. Some aspects concerning the effects using herbicides on crops, soil and the environment. Factors that influence the effectiveness of herbicides. Safety measures when using herbicides. The herbicides used, doses and method of the main groups of cultivated plants. Integrated control of weeds.
8. Crop rotations 8.1. General considerations. 8.2. Principles underlying the organization of rational crop rotations. 8.3. The rotation period of crop rotation. 8.4. Classification of crop rotation. 8.5. The place of crop groups in rotations. 8.6. The development of crop rotation. 8.7. The relationship between crop rotation and the main agro-technical measures to increase production.
9. Soil management for areas with distinct climate and different types of soil 9.1. Soil management in steppe and forest steppe zones. 9.2 Soil management in the forest area. 9.3. Soil management for erosion control. 9.4. Soil management for sandy soils. 9.5. Soil management for acid, saline and alkaline soils. 9.6. Soil management for soils with moisture excess and those recently taken in culture.
10. Agricultural systems

Practicum
Recognition of major groups of weeds in crops
Recognition of weed seeds
Determination of the pool of weed seeds in soil
Recognize the main herbicides. Prepare the mixture for spraying.
Develop agricultural crop rotations
Develop fodder crop rotations
Develop special crop rotations
Employment in the rotation system work
Employment in the rotation fertilization system
Transition plan crop rotations. Preparation and use of fields register
Summary introducing rational crop rotation newly established agricultural units
The recognition of weeds in the field. Evaluation of the weed crop. Preparation of maps of weed

Bibliography

1. **Gerard Jitoreanu**, Denis Țopa, Costică Ailincăi, Anca Elena Calistru și colab., 2020 – *Tratat de agrotehnica*, Ed. “Ion Ionescu de la Brad” Iași, ISBN: 978-973-147-353-6.
2. **Gerard Jitoreanu**, Costică Ailincăi, 2016 – *Agrotehnica*, Ed. “Ion Ionescu de la Brad” Iași, ISBN: 978-973-147-183-9.
3. **Gerard Jitoreanu**, 2015 - *Agrotehnica*. Vol I. Editura “Ion Ionescu de la Brad”, Iași. ISBN 978-973-147-198-3
4. Ailincăi Costică, 2015 – *Agrotehnica zonelor de deal și munte*, Editura “Ion Ionescu de la Brad”, Iași. ISBN 978-973-147-209-6
5. Ailincăi Costică, **Gerard Jitoreanu**, Lucian Răus, Denis Țopa, 2013 – *Tehnologii de cultură și metode de protecție a solului*. Editura “Ion Ionescu de la Brad”, Iași. ISBN 978-973-147-121-1
6. Denis Țopa, **Gerard Jitoreanu**, Costică Ailincăi, Lucian Răus, 2013 – *Impactul unor sisteme minime asupra producției și fertilității solului*. Editura “Ion Ionescu de la Brad”, Iași. ISBN 978-973-147-122-8
7. Mihai Berca, 2011 – *Agrotehnica*. Editura Ceres, București. ISBN 978-973-40-0899-5
8. Teodor Rusu, Ileana Bogdan, Adrian Ioan Pop, 2012 – *Îndrumător de lucrări practice de Agrotehnică*. Editura Grința, Cluj Napoca. ISBN 978-973-126-409-7
9. **Gerard Jitoreanu**, Ioan Țenu, Petru Cojocariu, Nicolae Bria, Iosif Cojocar, 2007 – *Tehnologii și mașini pentru mecanizarea lucrărilor solului în vederea practicării conceptului de agricultură durabilă*. Editura Ion Ionescu de la Brad, Iași. ISBN 978-973-7921-95-6
10. **Gerard Jitoreanu**, Lucian Răus, Daniel Bucur, 2007 – *Ameliorarea, conservarea și valorificarea solurilor degradate prin intervenții antropice*. Editura Ion Ionescu de la Brad, Iași. ISBN 978-973-7921-94-9
11. Teodor Onisie, **Gerard Jitoreanu**, 2000 – *Agrotehnica*. Editura Ion Ionescu de la Brad, Iași. ISBN 973-8014-35-2
12. Hillel Daniel - *Environmental Soil Physics*. ISBN-9780123485250.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Final Exam	Oral examination	50%
Labs Colloquium	Oral examination	10%
Partial exam	Written assessment	30%
Evaluation during the semester	Oral examination	10%

Contact

Prof. Dr. Gerard JITĂREANU

Faculty of Agriculture - USAMV Iași

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

Tel.: 0040 232 407.401, fax: 0040 232 219175

E-mail: gerardj@uaiasi.ro