

Course Unit Descriptor

Study Programme: Phytomedicine			
Course Unit Title: Rational Use of Herbicides			
Course Unit Code: 19.FT1021			
Name of Lecturer(s): Maja Meseldžija			
Type and Level of Studies: undergraduate academic studies			
Course Status (compulsory/elective): elective			
Semester (winter/summer): winter			
Language of instruction: Serbian			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: Basics Herbology, Advanced Herbology, Basis of Phytopharmacy			
Course Aims: The aim of the course is to provide students with basic knowledge about the application of herbicides in minimal quantities and within the framework of integrated management and effective weed control. Introducing students with methods of reducing the use of herbicides, modeling and their application within the concept of precision agriculture.			
Learning Outcomes: Enabling students to based on cultural measures, the influence of external factors (abiotic and biotic) and economic justification to choose the appropriate herbicide and to determine the adequate amount of their application.			
Syllabus:			
<i>Theory</i>			
Optimal time of application and herbicide selection. Determining the effective amount of application. Environmental factors relevant to the application, behavior and action of herbicides. Basics for rational application of herbicides. Economic justification of herbicide application. Economic threshold of harmfulness. History of herbicide use - cultural methods. Methods of reduction of herbicide application. Hormesis effect of sub-lethal amounts. SSWM – site-specific weed management. Patch spraying. Herbicide application within precision agriculture. Herbicide application within IPM (integrated pest management). The possibility of combining alternative and chemical weed control measures. Essential oils as potential bioherbicides. Biocidal activity, mycoherbicides. Modeling in the application of herbicides.			
<i>Practice</i>			
Calculating the amount of herbicides, preparation and cost savings. Calculating the economic level of harmfulness and control costs. Calculating the index of competitiveness. Simulation models of long-term control. Control models in case of herbicide resistance. Effect of sub-lethal amounts of herbicides.			
Required Reading:			
Jamal, R. Qasem (2011): Herbicides Applications: Problems and Considerations, Herbicides and Environment. Dr Andreas Kortekamp (Ed.), ISBN: 978-953-307-476-4			
Zimdahl, R.L. (2013): Fundamentals of Weed Science. Academic Press.			
Kramer, W., Schirmer, U., Jeschke, P., Witschel, M. (2012): Modern Crop Protection Compounds (Herbicides; Fungicides; Insecticides). Second, Revised and Enlarged Edition, Wiley-VCH Verlag & Co. KgaA, Weinheim, Germany			
Second, Revised and Enlarged Edition, Wiley-VCH Verlag & Co. KgaA, Weinheim, Germany.			
Janjić, V. (2005): Fitofarmacija. Društvo za zaštitu bilja Srbije, Beograd Institut za istraživanja u poljoprivredi Srbija, Poljoprivredni fakultet, Banja Luka.			
Spasić, R. (ed.) (2017): Pesticidi u poljoprivredi i šumarstvu Srbije. Pesticidi u poljoprivredi i šumarstvu Srbije.			
Weekly Contact Hours: 3	Lectures: 1	Practical work: 2	
Teaching Methods:			
Lectures – oral presentation and direct communication; visual (presentations, illustrations); Practical classes (laboratory-experimental methods)			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points

Active class participation	10	written exam	
Practical work	10	oral exam	50
Preliminary exam(s)	30	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			