

Study program: Organic crop and livestock production
Type and level of study: Bachelor academic studies
Course Title: WATER PROTECTION AND MANAGEMENT IN AGRICULTURE
Professors: Dr. Danka Radić, Assistant professor; dr Gordana Racić, Assistant professor
Status: Compulsory, semester IV
ECTS: 7
Prerequisite: None
<p>The goal of the course</p> <p>Acquiring the knowledge of basic characteristics of surface waters, their use in the function of organic crops and selection of appropriate system for their exploitation. The impact of climate change on the status of surface waters and influence peddling in the ecosystem. Basic characteristics of running or standing water. Definition of the exploitation of surface and ground water in agriculture by applying basic principles of environmental protection. Application possibilities of monitoring water quality to maintain organic crops. The basics of using water for sustainable development in agriculture and their rational use.</p>
<p>The outcome of the course</p> <p>Knowledge of the basic elements of water use and protection in organic agriculture. The ability of water use in agriculture for the cultivation of agricultural crops, the ability to choose and implement the measures of protection of water from conventional farming activities, the ability to define the regime of protective use of funds for agriculture in order to protect water and the environment, capacity planning of water use in agriculture, the capability of determining the needs for water, water balance and rational use of water in agriculture</p>
<p>Syllabus</p> <p><i>Theoretical study</i> - The basics of water use in agriculture and hydrological cycle. Water use and agriculture, the role of water in photosynthesis, evapotranspiration and water crops, the losses due to evaporation, discharges and infiltration, water consumption in agriculture, irrigation, excessive use of water resources, water quality and use, total water use in agriculture, pollution and protection of water and agriculture, pesticides, herbicides, fertilizers and livestock waste, sediment and erosion, salinization. Precipitation and constraints of agricultural production, specific requirements of water for crops, the influence of climatic factors on crop requirements for water, influence of spatial and temporal distribution of rainfall and productivity in agriculture. Rational use of water in agriculture, plant cover to reduce water needs and protect against excessive losses of cover (biomass, live blankets, plastic sheets), sowing without ploughing, sowing by contour, measures of retention and slowing runoff, protective strips, the rotation of crops and so on.</p> <p><i>Practical lessons</i></p> <p>Measuring the quality of water from selected sites like streams, wells and rain water Students have a group task to carry out measurements of basic physical-chemical parameters of water on their properties (tap water, water for irrigation, rain water, water from streams or water from wells). This is followed by written and oral presentation of the results. Visiting the irrigation systems of large organic producers (e.g. Selenča).</p>
<p>Literature</p> <ol style="list-style-type: none"> 1. Molden, D. ed, (2007). Water for Food, Water for Life. Earthscan, London and International Water Management Colombo Institute. 2. Pimentel et al. (1982). "Water Resources in Food and Energy Production," BioScience 32, no. 11 (1982) 861–867. 3. Pimentel, David et al. "Water Resources: Agriculture, the Environment and Society." Bioscience 47(2): 97–106. 4. Postel, S. (1999). Pillar of Sand: Can the Irrigation Miracle Last? New York: W.W. Norton & Company. 5. Molden, D. & Oweis T. Y. (2007). Pathways for increasing agricultural water productivity. 6. www.fao.org 7. https://www.oecd.org/tad/sustainable-agriculture/49040929.pdf

Number of lectures: 4				Other Lessons
Lectures: 2	Practices: 2	Other forms of teaching:	Student research work:	
Teaching methods: Lectures, discussions with students, experimental exercises, preparation and public defense of practical applied work.				
Score (maximum 100 points)				
Pre-commitments	Points	The final exam		Points
Activity during lectures	20	Written exam		35
Practical lessons	10	Oral examination		15
Preliminary exam				
Seminars	20			
<i>Total</i>	50			50