

Study program: Ecological agriculture			
Type and level of study: Master academic studies			
Course Title: Mycotoxins and phytotoxins in the chain of animal nutrition			
Teachers: Dr. Midhat E. Jašić, Full professor			
Status: Elective 1, semester I			
ECTS: 6			
Prerequisite: None			
The goal of course The aim of the course is to learn the harmful effects of toxic metals and pesticides present in water, air and food of animals as well as the methods and procedures of laboratory diagnosis, and prevention.			
The outcome of the course Students will gain the necessary scientific knowledge about the presence of toxic metals and pesticides in animal feed and adverse impacts on health, production characteristics and products of animals caused by toxic metals and pesticides. Students will also be introduced to the methods of the clinical and laboratory diagnosis and prevention, as well as analytical methods for the determination of toxic metals and pesticides in food animal excretions and secretions and organs and tissues of animals.			
Syllabus <i>Theoretical study</i> - The health of animals occurred as a result of malnutrition and food intake of toxic substances in the body of animals. Nutritional deficits and surpluses of nutrients as a cause of health problems in animals. Deterioration and harmfulness of animal feed, physical, chemical, biological factors, bacteria, parasites, fungi. Toxins, microorganisms - bacteria, plant toxins - phytotoxins, animal toxins. Fungal toxins. Aspergilo-toxins, Penicilio-toxin; Fuzario-toxins. Poisoning of animals with organophosphate and organochlorine compounds, carbamates, herbicides. Poisoning of animals with inorganic compounds and metals, toxic metals and pesticides in air, water and soil. Adoption, distribution and accumulation in plants. Reabsorption of toxic metals and pesticides in animals, accumulation and excretion from the body. Toxicity and metabolic effects of toxic metals and pesticides. The residues in tissues and ecotoxicology of poisoning by toxic metals. How to prevent harmful effects of toxic metals and pesticides on animals. <i>Practical classes</i> - Going to the farms in order to examine the possibility of contamination of food and of animals with toxic metals and pesticides. Determination of metabolic disorders caused by animal poisoning by heavy metals and pesticides, as well as determining the presence of toxic metals and pesticides in the air, water and food of animals.			
Literature French Food Safety Agency: Risk assessment for mycotoxins in human and animal food chains Grazina Juodeikiene, Loreta Basinskiene, Elena Bartkiene and Paulius Matusевичius (2012): Mycotoxin Decontamination Aspects in Food, Feed and Renewables Using Fermentation Processes. INTECH Srebočan, V. & Srebočan, E. 2009. Veterinarska toksikologija. Medicinska naklada, Zagreb. FOOD QUALITY AND STANDARDS Kofi E. Aidoo (2007) Mycotoxins, Natural Contaminants in the Food Chain International and national journals and proceedings of symposia and congresses devoted to poisoning and animal health disorders caused by the presence of toxic metals and pesticides in the food chain.			
Number of lectures:4			Other Classes
Lectures: 2	Practices: 2	Other forms of teaching:	
Teaching methods: The method of oral presentation and interview methods written work (essay and test). Method of practical work on the animal farm, as well as in clinical and analytical chemistry laboratories.			
Score (maximum 100 points)			
Pre-exam commitments	Points	Final exam	Points
Activity during lectures	10	Written exam	
Practical classes	10	Oral examination	30
Colloquia	20		
Seminars	10		
Laboratory exercise	20		
<i>Total</i>	70		30