



COURSE REGISTRATION FORM

Teacher	Ivana Vico
University	University of Belgrade, Faculty of Agriculture
Course	Mycotoxins in fruits and vegetables
Target	Agricultural Extension Service
Type	classic
Duration	1 day - 8 hours

Description

Mycotoxins are toxic secondary metabolites of some fungal species which are harmful to humans and animals even in very low concentrations. They comprise a large group of chemical compounds capable of causing acute illnesses with severe symptoms or chronic toxicoses with cumulative effects including cancers or immune deficiency, all known as mycotoxicoses. Mycotoxins are one of the main causes of food contamination. Toxin producing plant pathogenic fungi, secrete mycotoxins in fruit and vegetable tissues and commodities during growth, making contaminated food a serious threat to the health of humans and animals. The course „Mycotoxins in fruits and vegetables“ is intended for the advisory service having in mind that knowledge about toxigenic fungi and main toxins they produce will enable the production of safe food for human and animal consumption. Through this course advisory service members, who had little or no chance to learn about these fungi during undergraduate studies, will gain knowledge on main characteristics, detection and the control of toxigenic fungi. Also, during the course they will have the possibility to study the most important mycotoxins in fruits and vegetables, ways of their detection, prevention of mycotoxin contamination and decontamination of contaminated fruits, vegetables and commodities.

Contents

During the course focus will be on two main topics: mycotoxins and toxigenic fungi causal agents of vegetable and fruit decay and detection and control of toxigenic fungi for the purpose of overcoming fruit, vegetable and commodity contamination. These two topics will be divided in the following teaching units:

1. The most important mycotoxins (MT) in fruits, vegetables and their commodities:
 - Definition, economic importance, toxicity;
 - Important toxin producing plant pathogenic fungi, time and mode of infection;
 - Influence of ecological factors on fungal development and MT synthesis;
 - Presence of MT in fruits, vegetables and commodities;
 - Law regulations - legislative limits.
2. Detection and control measures for prevention of the presence mycotoxins:
 - Identification of pathogenic fungi, toxin producers;



- Identification of MT, determination of mycotoxin levels;
- Prevention of contamination and decontamination of contaminated food.

Objectives

1. Development of the ability to connect knowledge from different areas of plant pathology, pomology and vegetable crop production.
2. Implementation of the knowledge on postharvest plant diseases and causal agents of this diseases with emphasis on toxigenic fungi.
3. Understanding nature's laws in order to prevent and control decay caused by toxigenic fungi.
4. The ability to implement gained knowledge in new situations with the purpose of preventing mycotoxin contamination and producing safe food.

Activities

1. At the beginning of the course a short introductory lecture will be given to attendants in order to inform them on the content and objectives of the course.
2. Attendants are given a test to evaluate their current knowledge in postharvest pathology and toxigenic fungi.
3. Teacher gives a lecture through presentations in power point and discussion on the topics with students.
4. Students are divided in two groups and each is given decayed samples of fruit or vegetable. Each group gives identification assumptions on the disease and disease causing agent and based on that on the possibility of the fruit being contaminated with mycotoxins.
5. After a short introduction the topics in the second part of the course teacher gives a lecture with the aid of presentations in power point and through discussion with attendants.
6. Previously determined groups now get new material (pure cultures of toxigenic fungi) and they characterize macroscopic and microscopic features in order to tentatively identify the fungi.
7. Teacher leads discussion with the aim of unlabeled photographs of diseased plants, fungal cultures, etc. in power point with the purpose of repeating newly gained knowledge. The attendants are each asked to comment a photograph so that everyone gets a chance to test gained knowledge on a new example.
8. Another, parallel form of test is given to attendants in order to evaluate advancement as a result of the course.

Materials

Printed handouts and test, decayed and healthy fruit, fungal cultures, microscope, microscopic slides, water, needle for slide mount preparation.