COURSE REGISTRATION FORM

Teacher	Milomirka Madić
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Course	Importance of plant breeding in food production
Target	Agricultural Extension Service
Type	online
Duration	2 days - 16 hours

Description	Food production is based on scientific achievements and their use depending on environmental factors and economic development. Cultivars and hybrids created by breeding and crop management using optimum farming technologies under particular environmental conditions play an important role in plant food production. Breeding has resulted in new cultivars and hybrids that give yields several times as high as those of earlier selections and natural populations, thus greatly contributing to food supply. The need to ensure the security of food supply has given rise to new approaches to breeding based on recombinant DNA manipulation. Biotechnological methods have led to the development of genetically modified crops through the incorporation of desirable genes from evolutionarily distant species. Side effects of GM foods, high biosphere pollution levels and substantial climate change have prompted the need for safe food production, eventually resulting in a tendency to adopt organic production systems and practices, characterized by low yields and product safety control. Through its development and achievements, conventional breeding has given rise to new approaches to cultivar development and production (organic production and genetically modified food).

Contents	Traditional breeding programs have led to improvements in numerous morphological, anatomical, physical and biochemical traits through specific gene combinations in newly developed genotypes i.e. cultivars and hybrids. Breeders have managed to make targeted corrections of many shortcomings in plants due to the development of molecular biological methods and biotechnology, referred to as the biotechnological revolution period. Accomplishments in this field have disturbed homeostasis in scientific, professional and political organizations, and in the human population around the world. Biotechnology has produced transgenic organisms as carriers of genes of distantly related species, thus inciting doubts and fear of GM crops and resulting products. Conversely, the incorporation of desirable genes builds confidence due to a more powerful approach to disease management, biofortification and gene therapy. Under present biotech revolutionary conditions, the agri-food sector in Serbia still lacks implementation of high technologies in companies and products. Conflicting views on genetically

	modified organisms have enhanced activities related to the intensification of organic production. In recent years, organic farming has been developing intensively and in a more organized manner, in line with regional development and biodiversity conservation requirements. Great efforts have been made to create cultivars under organic selection principles and exclude GMO cultivation.

Objectives	1. Gain knowledge of the importance of new plant breeding technologies and their procedures 2. Contribute to developing competence in using online courses

Activities	The first activity will be to assess extension officers' level of knowledge of the topics. Then, course participants will become familiar with basic conventional (traditional) breeding practices and genetic modifications. Thereafter, they will be actively involved in solving problems related to both advantages and disadvantages of the methods used as well as in new technologies in creating cultivars and hybrids. Once the course topics have been covered, participants' level of knowledge will be assessed by online tests.

Materials	Computer equipment, internet access