



**AgroSym**  
2021



**BOOK OF  
ABSTRACTS**

*XII International Scientific  
Agriculture Symposium  
"AGROSYM 2021"  
October 7-10, 2021*



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# **BOOK OF ABSTRACTS**

**XII International Scientific Agriculture Symposium  
“AGROSYM 2021”**



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## PREFACE

Dear colleagues,

In your hands is the Book of Abstracts of the 12<sup>th</sup> International Scientific Agricultural Symposium "AGROSYM 2021", which I hope you will find useful in your work. As many as 700 contributions have been accepted for the Book of Abstracts. The themes of AGROSYM 2021 cover all branches of agriculture and are divided into seven sessions: 1) Plant production, 2) Plant protection and food safety, 3) Organic agriculture, 4) Environmental protection and natural resources management, 5) Animal husbandry, 6) Rural development and agro-economy, and 7) Forestry and agroforestry.

The multi-functionality of agriculture (viz. crop production, animal production and fisheries) and the central role it plays in food production, food security, rural development, bio-economy (e.g. production of fibres and raw materials for industries) and green economy (e.g. production of biofuels) determine its importance in all countries; especially nowadays, with the second year of the COVID-19 pandemic.

Many scholars and practitioners argue that technology will increase production and feed more people while reducing the variability as well as the environmental impacts of agricultural production. Technology has been particularly important for improving production in non-tree crops such as maize, rice, soybean, wheat and cotton. Because trees have longer cycles, they take longer to improve through traditional breeding programs. New techniques of plant breeding can improve productivity further, but there is a lively academic debate about their pros and cons.

While the focus has been in the past on the production side (cf. productivity, efficiency), more and more attention is nowadays paid to the consumption side as well as the intermediate stages (e.g. processing, distribution) of the food chain thus moving towards a 'farm to fork' approach. Globally, consumers are sending clearer signals than ever before about what they want on their tables i.e. higher quality as well as healthier, safer, and tastier products. Therefore, most companies in the food industry are currently exploring different ways to ensure that they have more control over the production processes for agricultural commodities as well as final products quality. Changes in investment strategy also have the potential to reduce the environmental and social costs of agriculture. It is now apparent to most investors that companies that pay more attention to sustainability and social responsibility, even with the same financial rating, will have better returns both in the short term and over time.

Agri-food systems have been central in the global debate on sustainable development and the achievement of the Sustainable Development Goals (SDGs) as shown by the recent United Nations' Food Systems Summit held in September 2021 in New York. Indeed, agri-food systems are at the center of various global challenges such as climate change, poverty, vulnerability, food insecurity, biodiversity loss, resource scarcity and ecosystem degradation. In this context, one of the goals of the sustainable agriculture movement is to create farming systems that mitigate or eliminate environmental harms associated with industrial agriculture.

Many thanks to all the authors, reviewers and colleagues for their help in editing the Book of Abstracts. Special thanks go to all co-organizers and partners for their unselfish collaboration and comprehensive support.

East Sarajevo, 07 October 2021

Prof. Dušan Kovačević, PhD

Editor in Chief, President of the Scientific Committee of AGROSYM 2021



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# INVASIVE INSECT SPECIES IMPORTANCE AND POSSIBLE PATHWAYS OF THEIR SPREADING IN SERBIA

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## Abstract

Invasive insect species are alien species that have significant impact on biodiversity of certain area or specific country, and also can cause severe damage to cultivated plants. Many insects spread actively, but very often benefit from human activities and use transport of trades and passengers to travel all around the globe. Directions and stopover of these stowaways are usually unpredictable hence the importance of insect monitoring and investigation of their spreading pathways are of great importance for the country, and even for the whole potentially endangered region. One of the currently most important Hemipteran species, recorded for the first time in 2015 in Serbia, is Brown Marmorated Stink Bug, *Halyomorpha halys* Stål (Pentatomidae). The species has been monitored for five consecutive years and nowadays it is considered as well established in the country. On the other side, another cosmopolitan Hemipteran species, in Serbia known as tobacco white fly, *Bemisia tabaci* (Gennadius) (Aleyrodidae) was recorded on the territory of Serbia in 2016 and 2017, but since then specimens of this species have not been recorded neither outside nor in green houses during regular monitoring, why it is considered as not established. Samples of both species were analyzed based on COI gene and results revealed similarities with populations from Egypt, Syria, and Turkey in case of *B. tabaci* MED species, while *H. halys* populations from Serbia showed high haplotype diversity represented by five haplotypes, indicating multiple sources of invasion. All possible ways of spreading will be discussed.

**Key words:** *Brown Marmorated Sting Bug, Tobacco whitefly, monitoring, establishment, COI.*