

5th ISAF 2025

INTERNATIONAL SYMPOSIUM
for AGRICULTURE AND FOOD

8–10 October 2025

Book of Abstracts



Organized by:
Faculty of Agricultural Sciences and Food - Skopje,
Ss. Cyril and Methodius University in Skopje





Republic of North Macedonia
**Ministry of agriculture,
forestry and water economy**

CO-ORGANIZERS



Golden Sponsor:



General Sponsor:



PHILIP MORRIS
TUTUNSKI KOMBINAT PRILEP LLC SKOPJE

The Faculty of Agricultural Sciences and Food-Skopje is organizing the **5th International Symposium for Agriculture and Food (ISAF-2025)**, which offers a possibility for presenting novel and fundamental advances in the field of sustainable agriculture and food production. ISAF 2025 will bring together and foster the communication among leading researchers, engineers and practitioners with an aim to share their scientific ideas and experiences with all actors in the agricultural sector. Since 2012, the International Symposium for Agriculture and Food is integrating the previous organized events: Faculty-Economy Meeting, Symposium of Viticulture and Wine Production, Symposium for Vegetable and Flower Production and International Conference of the Association of Agricultural Economists of the Republic of North Macedonia.

EVENTS WITHIN ISAF 2025

- 41st Faculty-Economy Meeting
- 14th International Conference of the Association of Agricultural Economists of the Republic of North Macedonia (AAEM)
- Meeting of the Association of Faculties of Agricultural Sciences of South Eastern Europe
- 10th Balkan Animal Sciences Conference BALNIMALCON 2025
- General Assembly of Agro-Well – Horizon Europe Project
- Beyond the leaf: Innovation, Research & Regulation - Philip Morris Panel Discussion
- Biobased Technologies for Climate-Resilient Farming: The DIVAGRI Project Approach
- AgriFood Business x EDIH: Innovate, Connect, Transform

SCIENTIFIC AREAS OF ISAF 2025

The topics of ISAF 2025 are divided into the following scientific sections:

- Animal Biotechnology & BALNIMALCON 2025
- Agricultural Economics
- Agricultural Machinery and Sustainable Agriculture
- Apiculture
- Phytomedicine - Plant Protection
- Food Quality and Safety
- Fruit Growing, Viticulture and Wine Production
- Vegetable, Flower and Decorative Plants Production
- Digital Agriculture & Natural Resources Management
- Field Crop Production
- Genetics, Breeding and Genetic Resources

ORGANIZING COMMITTEE	HONORARY ORGANIZING COMMITTEE
Prof. Dr. Mile Markoski, <i>President</i>	Prof. Dr. Vjekoslav Tanaskovikj, North Macedonia
Prof. Dr. Ivana Janeska Stamenkovska	Prof. Dr. Dragi Dimitrievski, North Macedonia
Prof. Dr. Biljana Kuzmanovska	Prof. Dr. Ordan Cukaliev, North Macedonia
Prof. Dr. Toso Arsov	Prof. Dr. Vidoja Trpevski, North Macedonia
Prof. Dr. Marjan Kiprijanovski	Prof. Dr. Marina Pintar, Slovenia
Prof. Dr. Srekjko Gjeorgjievski	Prof. Dr. Ales Gregorc, Slovenia
Prof. Dr. Vjekoslav Tanaskovikj	Prof. Dr. Aleksandar Mesic, Croatia
Prof. Dr. Mirjana Jankulovska	Prof. Dr. Krunoslav Zmaic, Croatia
Prof. Dr. Ile Canev	Prof. Dr. Tomislav Vinkovic, Croatia
Prof. Dr. Lenche Velkoska-Markovska	Prof. Dr. Muhamed Brka, Bosnia and Hercegovina
Prof. Dr. Riste Elenov	Prof. Dr. Zlatan Kovacevic, Bosnia and Hercegovina
Prof. Dr. Dragi Dimitrievski	Prof. Dr. Ivan Ostojic, Bosnia and Hercegovina
Prof. Dr. Koco Porcu	Prof. Dr. Jurica Primorac, Bosnia and Hercegovina
Prof. Dr. Tatjana Mitkova	Prof. Dr. Nenad Magazin, Serbia
Prof. Dr. Dane Boshev	Prof. Dr. Vladan Bogdanovic, Serbia
Prof. Dr. Romina Kabranova	Prof. Dr. Vladimir Kurcubic, Serbia
Prof. Dr. Aleksandar Uzunov	Prof. Dr. Igor Pajovic, Montenegro
	Prof. Dr. Bozidarka Markovic, Montenegro
	Prof. Dr. Mehmet Ihsan Soysal, Turkey

SECRETARIAT

Prof. Dr. Ivana Janeska Stamenkovska, <i>President</i>	Doc. Dr. Ivana Angelova
Prof. Dr. Biljana Kuzmanovska	Doc. Dr. Nikola Saraginovski
Prof. Dr. Toso Arsov	Doc. Dr. Igor Iljovski
Prof. Dr. Marina Nacka	Ass. MSc. Nadica Sandeva Atanasova
Prof. Dr. Ana Simonovska	Ass. Dr. Biljana Ristakjovska Shirgovska
Prof. Dr. Dushica Santa	MSc. Stojance Neckovski
Prof. Dr. Elizabeta Miskoska Mileska	MSc. Marija Zdravkovska
Prof. Dr. Mirjana S. Jankulovska	BSc. Biljana Stoilkovska
Prof. Dr. Margarita Davitkovska	BSc. Suncica Andonova
Prof. Dr. Frosina Babanovska Milenkovska	BSc. Zlatko Chanevski
Prof. Dr. Zlatko Prculovski	BSc. Marija Todorovska
Doc. Dr. Aleksandra Silovska Nikolova	BSc. Dragana Trajcevska

SCIENTIFIC COMMITTEE

Prof. Dr. Ivana Janeska Stamenkovska, <i>President</i>	Prof. Dr. Zoran Jovovic
Prof. Dr. Toso Arsov	Prof. Dr. Rade Rusevski
Prof. Dr. Biljana Kuzmanovska	Prof. Dr. Metodija Trajcev
Prof. Dr. Mirjana Jankulovska	Prof. Dr. Romina Kabranova
Prof. Dr. Koco Porcu	Prof. Dr. Krum Boskov
Prof. Dr. Hossein Azadi	Prof. Dr. Riste Elenov
Prof. Dr. Cecilia Costa	Prof. Dr. Emel Ozkan Unal
Prof. Dr. Svetoslav Malcev	Prof. Dr. Zaklina Karaklajic-Stajic
Prof. Dr. Mirjam Vujadinovic Mandic	Prof. Dr. Sanda Stanivukovic
Prof. Dr. Adriana Filipovic	Prof. Dr. Pavle Maskovic
Prof. Dr. Tomaž Langerholc	Prof. Dr. Branimir Njezic
Prof. Dr. Andreas Drichoutis	Prof. Dr. Tatjana Prentovikj
Prof. Dr. Bozidar Ivanov	Prof. Dr. Zlatko Prculovski
Prof. Dr. José-Luis Todolí-Torró	Prof. Dr. Marija Vukelikj-Sutovska
Prof. Dr. Irzada Taljić	Prof. Dr. Silvana Manasievska
Prof. Dr. Marin Kovacic	Prof. Dr. Hrisula Kiprijanovska
Prof. Dr. Dragana Bozic	Prof. Dr. Ana Kotevska
Prof. Dr. Sanja Radonjić	Prof. Dr. Mirjana S. Jankulovska
Prof. Dr. Shpend Shahini	Prof. Dr. Zvonko Pacanoski
Prof. Dr. Rozalija Cvejić	Prof. Dr. Tatjana Mitkova
Prof. Dr. Zdenko Lončarić	Prof. Dr. Mihail Petkov
Prof. Dr. Dragan Radivojevikj	Prof. Dr. Stanislava Lazarevska
Prof. Dr. Daniela Raicevic	Prof. Dr. Rukie Agic
Prof. Dr. Djordje Moravcevic	Prof. Dr. Dragoslav Kocovski
Prof. Dr. Ana Marjanovic Jeromela	Prof. Dr. Marina Nacka
Prof. Dr. Mirela Kajkut Zeljkovic	Prof. Dr. Frosina Babanovska Milenkovska
Prof. Dr. Simeon Rakonjac	Prof. Dr. Radmila Iliac
Prof. Dr. Levent Ozduven	Prof. Dr. Eser Kemal Gurcan
Prof. Dr. Jaka Zgajnar	Prof. Dr. Marko Petek
Prof. Dr. Imre Balazs	Prof. Dr. Angel Sarov
Prof. Dr. Ivana Majic	Prof. Dr. Jasmin Grahic
Prof. Dr. Mirjana Djukic Stojic	Prof. Dr. Biljana Lazovic
Prof. Dr. Denis Rusjan	Prof. Dr. Samir Muhamedagic
Prof. Dr. Marija Cerjak	Prof. Dr. Miljenko Konjacic

PLENARY SPEAKERS



Prof. Dr. Dragi Dimitrievski, Faculty of Agricultural Sciences and Food-Skopje, North Macedonia

Title: From Support to Resurgence – A Vision for the Macedonian Agri-Food Sector

Prof. Dr. Dragi Dimitrievski is a full professor at the Institute of Agricultural Economics at the Faculty of Agricultural Sciences and Food-Skopje, University Ss. Cyril and Methodius in Skopje, and a former Vice-dean for sciences (2003–2005) and former Dean of the Faculty (2009–2017). His research interests and contributions include applied macro-economic analysis in the field of agriculture, with focus on agricultural and rural development policy. Dr. Dragi Dimitrievski is key national expert for agricultural policy and has been actively involved as researcher in different national and international projects related to agricultural and rural development policy analysis. For almost two decades, he is national expert within the Regional Rural Development Standing Working Group in South Eastern Europe (SWG). Dr. Dragi Dimitrievski is regularly being consulted on different important issues regarding the agricultural economics, so as a leader of various national projects, he contributed to development of significant number of strategic and legal documents regarding agricultural policy and rural development. His contribution is especially evident during the food crises due to the Covid-19 and the war in Ukraine, both as support to the policy makers, but also to media to update the public with reliable and thorough information regarding food security issues. All his knowledge and experience in this field he transfers to students through courses in Agricultural Policy that he lectures at all three study cycles, as well as in the course Human Resources Development on the undergraduate studies. Dr. Dragi Dimitrievski has published more than 100 articles in academic journals and international conference proceedings, as well as chapters in different monographs and two textbooks in the field.

PLENARY SPEAKERS



Prof. Dr. Cecilia Costa, CREA, Italy

Title: The most essential of all agricultural activities: apiculture

Dr. Cecilia Costa holds a degree in Agricultural Science and a PhD in Agricultural Biotechnologies. She is a Principal Researcher at CREA, the Italian Agricultural Research Council, where she has led research for over two decades on honey bee breeding and the biodiversity of *Apis mellifera*. Her work emphasizes disease resistance, genotype–environment interactions, and colony health and welfare. Dr. Costa is an active member of the COLOSS Association for the prevention of honey bee colony losses and currently coordinates an EU Horizon project. She has authored approximately 70 scientific publications and is a frequent invited lecturer at national and international apicultural and scientific events.



Prof. Dr. Hossein Azadi, Department of Geography, Ghent University, Belgium

Title: Tipping Points and Resilient Agriculture: How Climate-Smart Agriculture Can Support Small-Scale Farmers

Prof. Dr. Hossein Azadi obtained his first PhD in agricultural economics and the second in human geography. He is currently a professor at Ghent University in Belgium. He has published about 500 journal articles with +13000 citations and h-index of 60 underscoring him as top 3% global scientist ranked by AD Scientific index. His main focus is on land governance, the impacts of climate change on small-scale farmers, and agroecology. He is a member of the editorial boards in Land Use Policy, Land Degradation & Development, Agroecology and Sustainable Food Systems, and Climatic Change. He also serves as a research project evaluator for several international councils and organizations.

PANEL DISCUSSIONS

1. The Role of Innovation and Technology in Climate Change Adaptation in Agriculture

Moderator: Prof. Dr. Vjekoslav Tanaskovikj

Prof. Dr. Zdenko Loncaric, Faculty of Agrobiotechnical Sciences, Josip Juraj Strossmayer University of Osijek, Croatia

Prof. Dr. Hossein Azadi, Department of Geography, Ghent University, Belgium

Prof. Dr. Ordan Cukaliev, Faculty of Agricultural Sciences and Food-Skopje, North Macedonia

Prof. Dr. Mirela Kajkut Zeljković, Institute of Genetic Resources of University of Banja Luka, Bosnia and Hercegovina

Mr. Boban Ilic, SWG

2. From Farm to Global Market: Rethinking Agri-Food Trade

Moderator: Neda Gruevska

Prof. Dr. Ruzica Loncaric, Faculty of Agrobiotechnical Sciences, Josip Juraj Strossmayer University of Osijek, Croatia

Prof. Dr. Vlade Zaric, Faculty of Agriculture, University in Belgrade, Serbia

Prof. Dr. Bozidar Ivanov, Institute of Agricultural Economics, Sofia, Bulgaria

Dr. Ljupco Veleski, Vitaminka AD Prilep, North Macedonia

Sinisha Stefanovski, LK Raspberry DOOEL, North Macedonia

GENERAL PROGRAMME OF ISAF 2025

Date and Time	Programme	Hall
Day 1: 8 October 2025		
09.00–17.30	Registration of participants	Lobby
09.15–15.00	General Assembly of Agro-Well – Horizon Europe Project	Banket
16.00–17.30	Meeting of the Association of Faculties of Agricultural Sciences of Southeast Europe	Banket
18.00–19.00	Opening Ceremony	Biljana
19.00–19.30	Plenary Session 1	Biljana
19.30–21.30	Welcome Reception	Lobby
Day 2: 9 October 2025		
09.00–10.00	Plenary Session 2a & 2b	Biljana
10.00–10.30	Coffee Break	Lobby
	Parallel Sections 1	Biljana, Car Samoil, Kaneo, Ohrid, Labino, Banket
10.30–12.00	Beyond the leaf: Innovation, Research & Regulation - Philip Morris Panel Discussion	Car Samoil
12.00–12.30	Coffee Break	Lobby
	Parallel Sections 2	Biljana, Car Samoil, Kaneo, Ohrid, Labino, Banket
12.30–14.00	AgriFood Business x EDIH: Innovate, Connect, Transform	Green
	Biobased Technologies for Climate-Resilient Farming: The DIVAGRI Project Approach	Banket
14.00–15.00	Lunch	
15.00–16.00	Panel Discussion 1	Biljana
16.00–16.30	Coffee Break	Lobby
16.30–18.00	Parallel Sections 3	Biljana, Car Samoil, Kaneo, Ohrid, Labino, Banket
20.00	Gala Dinner	

Date and Time	Programme	Hall
Day 3: 10 October 2025		
09.00–10.00	Panel Discussion 2	Biljana
10.00–10.30	Coffee Break	Lobby
10.30–12.00	Parallel Sections 4	Biljana, Car Samoil, Kaneo, Ohrid, Labino, Banket
12.00–12.30	Coffee Break	Lobby
12.30–13.45	Parallel Sections 5	Biljana, Car Samoil, Kaneo, Ohrid, Labino, Banket
13.45–14.00	Closing Ceremony	Biljana
14.00–15.00	Lunch	
15.00–18.00	Excursion (optional)	
15.00	Departure of participants	

ID: 216 / SES-P-GBGR-02: 4

Abstract Submissions

Poster Presentation

Topics: Genetics, Breeding and Genetic Resources

Keywords: genetic diversity, seed composition, NIRS analysis, bioactive compounds, breeding potential

EVALUATION OF OIL AND PROTEIN CONTENT VARIABILITY IN CAMELINA GENOTYPES

Ana Marjanović Jeromela¹, Nada Grahovac¹, Dragana Rajković¹, Sandra Cvejić¹, Ankica Kondić Špika¹, Federica Zanetti²

¹Institute of Field and Vegetable Crops, Serbia; ²Dept. of Agricultural and Food Sciences (DISTAL), Alma Mater Studiorum - University of Bologna, Italy; ana.jeromela@ifvcns.ns.ac.rs

Camelina sativa (L.) Crantz, a re-emerging oilseed crop of the Brassicaceae family, has attracted growing attention due to its valuable seed oil composition and high-quality meal. The oil is rich in essential fatty acids and potentially beneficial for human health, while the protein-rich meal has value for animal feed. This study assessed the oil and protein content variability in 20 camelina genotypes selected from diverse origins. A field trial was conducted at the experimental site of Rimski Šančevi, Serbia, and seed composition was analyzed using near-infrared reflectance spectroscopy (NIRS). Oil content ranged from 29.90% to 36.73% (mean 33.22%), while protein content ranged from 29.02% to 35.59% (mean 32.84%). Analysis of variance showed significant genotypic differences ($p < 0.001$), and cluster analysis grouped genotypes into three major clusters with one unclassified genotype. The results confirm the existence of substantial genetic variability, which can be exploited in breeding programs aiming to improve camelina seed composition. As a result of ongoing breeding activities at the Institute of Field and Vegetable Crops (IFVCNS), two camelina cultivars have been developed and commercially released: NS Slatka and NS Zlatka. These findings support the potential of camelina as a source of health-promoting bioactive compounds and contribute to its development as a sustainable crop for food and feed applications.

Acknowledgment: This research was funded by the European Commission, CARINA project (grant agreement No. 101081839)