

**Goce Delcev University – Stip  
Faculty of Agriculture**



**5<sup>th</sup> INTERNATIONAL MEETING  
AGRISCIENCE & PRACTICE  
(ASP 2026)**

# **BOOK OF ABSTRACTS**

**16 APRIL 2026  
Stip, Republic of North Macedonia**

**BOOK OF ABSTRACTS**  
**5<sup>th</sup> International Meeting AGRISCIENCE & PRACTICE**  
**(ASP 2026)**

**Publisher:**  
**Faculty of Agriculture, Goce Delcev University, Stip**

**Editor**  
**Prof. Liljana Koleva Gudeva, PhD**

**Technical editors**  
**Prof. Fidanka Trajkova, PhD**

**English language editor**  
**Biljana Petkovska Ivanova (MA, Senior lecturer)**

**The abstracts are technically edited according to the 'Template for Abstracts', without additional editing of the abstract text. The results and writing style are presented in the original form provided by the authors.**

CIP - Каталогизација во публикација

Национална и универзитетска библиотека "Св. Климент Охридски", Скопје

631/635(062)(084.3)

INTERNATIONAL meeting agriscience & practice (ASP 2026) (5 ; 2026 ;  
Stip)

Book of abstracts : Електронски извор / 5th International meeting agriscience & practice (ASP 2026, Stip, Republic of North Macedonia) ; [editor Liljana Koleva Gudeva]. - Текст во PDF формат, содржи VI, 48, илустр. - Stip : Goce Delcev University, Faculty of agriculture, 2026

Начин на пристапување (URL): <https://zf.ugd.edu.mk/c/agronauka/> (Отворен пристап). -

Наслов преземен од екранот. - Опис на изворот на ден 13.05.2026. - Organizing committee  
Emilija Arsov, Biljana Balabanova, Biljana Kovacevik, Dimitar Nakov, Fidanka Trajkova, Natalija  
Markova Ruzdik, Elizabeta Davitkovska Barbareeva, Ivan Donev

ISBN 978-608-277-154-0

**5<sup>th</sup> INTERNATIONAL MEETING AGRISCIENCE & PRACTICE  
ASP 2026**

**Organized by  
FACULTY OF AGRICULTURE  
GOCE DELCEV UNIVERSITY, STIP, REPUBLIC OF NORTH MACEDONIA  
16 April 2026, Stip, Republic of North Macedonia**

The Faculty of Agriculture is organizing the 5th International Meeting *Agriscience & Practice (ASP 2026)*, providing participants with the opportunity to present and discuss original scientific and practical results in various fields of agriculture.

The 5th International Meeting *Agriscience & Practice (ASP 2026)* brings together agricultural stakeholders to share their knowledge, experience, and challenges. Its main goal is to connect research and fieldwork in the agricultural sector, both nationally and beyond, giving it an international dimension.

Over the past years, we have been fully committed to building exactly these kinds of bridges—bridges between science and practice, between institutions and producers, and between experience and innovation. Moreover, we strive to build bridges that transcend borders and connect us with the region and the world.

Scientific and applied presentations will be organized into the following sections:

1. Agricultural Economics
2. Animal Sciences
3. Plant Sciences
4. Food Science and Nutrition
5. Soil Science and Environment
6. Enology

Poster presentations will also be available. In addition, in response to the needs of the agricultural sector, panel discussions will be organized, where invited speakers and panelists will have the opportunity to share their experience with meeting participants.

Dear colleagues, partners, and friends, let us once again gather in one place, united by a common idea—to bring together agricultural science and practice in order to share information, knowledge, experiences, and solutions to overcome existing challenges. The main objective of this meeting is the successful establishment of continuous and meaningful communication and collaboration among scientific, research, and practical activities in the agricultural sector at the national, regional, and international levels. We will achieve this goal, as well as our shared objectives, through the synergy we have been actively building over the past years.

Every scientific field has its significance and value within a given social context, but agricultural production holds a particularly vital place.

Our shared task is not only to improve production, but also to strengthen the importance and dignity of agriculture in society. Above all, we must inspire young people to recognize their potential right here, because faculties and universities exist first and foremost for them—the younger generation. They are our future, but also our most important connection to society.

***With great joyfulness we thank you for active participation in the Meeting***

***Prof. Emilija Arsov, PhD***  
**Dean of Faculty of Agriculture**  
**&**  
**Chair of the Organizing Committee**

## **SCEINTIFIC COMMITTEE**

Emilija Arsov, PhD (Chair person)

1. Alen Mujčinoić, PhD, University of Sarajevo, Faculty of Agriculture and Food Sciences, Sarajevo, Bosnia and Herzegovina
2. Dragomir Vlchev, PhD, Institute of Agriculture, Karnobat, Bulgaria
3. Stefan Georgiev Dragoev, PhD, University of Food Technologies, Bulgaria
4. Andrijana Rebečić, PhD, Faculty of Agrobiotechnical Sciences, Josip Juraj Strossmayer University of Osijek, Croatia
5. Marijan Bubola, PhD, Institute of Agriculture and Tourism, Poreč, Croatia
6. Sanja Radeka, PhD, Institute of Agriculture and Tourism, Poreč, Croatia
7. Petr Sláma, PhD, Faculty of AgriSciences, Mendel University in Brno, Czech Republic
8. George Zalidis, PhD, Aristotle University of Thessaloniki, Greece
9. Yuliya Byzova, PhD, Manash Kozybayev North Kazakhstan University (NKU), Kazakhstan
10. Liridon Berisha, PhD, University of Prishtina, Prishtina, Kosovo
11. Kajtaz Bllaca, PhD, University of Prishtina, Prishtina, Kosovo
12. Musaj Pacarizi, PhD, University of Prishtina, Prishtina, Kosovo
13. Sevdije Govori, PhD, University of Prishtina, Prishtina, Kosovo
14. Danijela Raičević, PhD, Biotechnical Faculty, University of Montenegro, Podgorica, Montenegro
15. Alirami Saliji, PhD, Faculty of Agriculture and Biotechnology, State University of Tetovo, North Macedonia
16. Biljana Balabanova, PhD, Faculty of Agriculture, Goce Delcev University - Stip, North Macedonia
17. Dimitar Nakov, PhD, Faculty of Agriculture, Goce Delcev University - Stip, North Macedonia
18. Liljana Koleva Gudeva, PhD, Faculty of Agriculture, Goce Delcev University - Stip, North Macedonia
19. Ljupčo Mihajlov, PhD, Faculty of Agriculture, Goce Delcev University - Stip, North Macedonia
20. Saša Mitrev, PhD, Faculty of Agriculture, Goce Delcev University - Stip, North Macedonia
21. Violeta Dimovska, PhD, Faculty of Agriculture, Goce Delcev University - Stip, North Macedonia
22. Borce Makarijoski, PhD, Faculty of Biotechnical Sciences, St. Kliment Ohridski University, Bitola, North Macedonia
23. Vesna Knights, PhD, Faculty of Technology and Technical Sciences – Veles, St. Kliment Ohridski University, Bitola, North Macedonia
24. Tatjana Blaževska, PhD, Faculty of Technology and Technical Sciences – Veles, St. Kliment Ohridski University, Bitola, North Macedonia
25. Kiril Bahchevandzhiev, PhD, University of Coimbra, Portugal
26. Dejan Pljevljakušić, PhD, Institute for Medicinal Plant Research Josif Pančić, Belgrade, Serbia
27. Dragan Nikolić, PhD, Faculty of Agriculture, University of Belgrade, Belgrade, Serbia
28. Jordana Ninkov, PhD, Institute of Field and Vegetable Crops, Novi Sad, Serbia
29. Jovica Vasin, PhD, Institute of Field and Vegetable Crops, Novi Sad, Serbia
30. Radivoje Jevtić, PhD, Institute of Field and Vegetable Crops, Novi Sad, Serbia
31. Slavča Hristov, PhD, Faculty of Agriculture, University of Belgrade, Belgrade, Serbia
32. Abdurrahim Yilmaz, PhD, Bolu Abant Izzet Baysal University, Bolu, Turkey
33. Bukhara Yücesan, PhD, Bolu Abant Izzet Baysal University, Bolu, Turkey
34. Emrah Güler, PhD, Bolu Abant Izzet Baysal University, Bolu, Turkey
35. Taras Levsukov, PhD, University of Life and Environmental Sciences, Faculty of Land Management, Kyiv, Ukraine

## **ORGANIZING COMMITTEE**

Emilija Arsov, PhD (Chair person)

1. Biljana Balabanova, PhD
2. Biljana Kovacevik, PhD
3. Dimitar Nakov, PhD
4. Fidanka Trajkova, PhD
5. Natalija Markova Ruzdik, PhD
6. Elizabeta Davitkovska Barbareeva, BSc
7. Ivan Donev, BSc










## **English language editor**

Biljana Petkovska Ivanova (MA, Senior lecturer)

## Faculty of Agriculture, UGD – Stip is organizing

### 5<sup>th</sup> INTERNATIONAL MEETING AGRISCIENCE & PRACTICE (ASP 2026)

#### in cooperation with

	FACULTY OF BIOTECHNICAL SCIENCES - BITOLA UNIVERSITY ST. KLIMENT OHRIDSKI - BITOLA (UKLO) NORTH MACEDONIA
	FACULTY OF AGRICULTURE BOLU ABANT IZZET BAYSAL UNIVERSITY (BAIBU) TURKEY
	FACULTY OF AGRICULTURE AND BIOTECHNOLOGY - TETOVO STATE UNIVERSITY OF TETOVO NORTH MACEDONIA
	FACULTY OF AGRISCIENCES MENDEL UNIVERSITY IN BRNO CZECH REPUBLIC
	FACULTY OF AGROBIOTECHNICAL SCIENCES OSIJEK (FAZOS) JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK (UNIOS) CROATIA
	FACULTY OF TECHNOLOGY AND TECHNICAL SCIENCES - VELES UNIVERSITY ST. KLIMENT OHRIDSKI - BITOLA (UKLO) NORTH MACEDONIA
	FACULTY OF MATHEMATICS AND NATURAL SCIENCES UNIVERSITY OF PRISHTINA, PRISHTINA, KOSOVO
	GREEN GROWTH PLATFORM, NGO, SKOPJE, NORTH MACEDONIA
	UNI SERVIS AGRO, DOOEL – STIP, NORTH MACEDONIA

## TABLE OF CONTENTS

<b>PLENARY PRESENTATIONS</b> .....	<b>11</b>
ANTIMICROBIAL RESISTANCE AS A GLOBAL CHALLENGE WITHIN THE ONE HEALTH FRAMEWORK Iskra Cvetkovikj.....	12
GRAPEVINE BREEDING AND ADAPTATION OF VITICULTURE TO CLIMATE CHANGE Dragan Nikolić.....	13
3D TECHNIQUES OF CELL CULTIVATION IN AGRICULTURE RESEARCH Petr Slama.....	14
<b>PANEL DISCUSSIONS</b> .....	<b>15</b>
<b>PANEL DISCUSSION 1</b> LEADING THE FUTURE OF FOOD SAFETY: GLOBAL RISK AND FOOD INDUSTRY RESILIENCE IN THE 21 <sup>ST</sup> CENTURY.....	16
<b>PANEL DISCUSSION 2</b> CLIMATE CHANGE AND THE FUTURE OF VITICULTURE: CHALLENGES, INNOVATIONS, AND SUSTAINABLE SOLUTIONS.....	19
<b>PLANT SCIENCES</b> .....	<b>22</b>
EFFECT OF NUT WEIGHT ON KERNEL PERCENTAGE AND YIELD IN <i>Corylus avellana</i> L. cv. Ennis IN THE POLLOG REGION Alirami Saliji, Zejnedije Ademi, Bardhyl Limani, Hirijete Idrizi, Bardha Ibishi.....	23
PRECISION VITICULTURE PRACTICES FOR ADAPTATION TO CLIMATE CHANGE AND MAINTAINING GRAPE PRODUCTION AND QUALITY Riste Gjorgjiev.....	24
EFFECT OF BIOLOGICAL SEED TREATMENTS ON SEED ASSOCIATED MYCOBIOTA AND GERMINATION Slobodan Vlajić, Emil Rekanović, Ana Vlajić, Vukašin Popović.....	25
BIOMASS FROM VINEYARD OBTAINED BY WINTER PRUNING Violeta Dimovska, Fidanka Ilieva.....	26
EVALUATION OF GRAIN YIELD AND QUALITY TRAITS IN ADVANCED WINTER COMMON WHEAT LINES Zlatina Uhr, Violeta Bozhanova, Evgeniy Dimitrov, Teodora Angelova, Boryana Hadzhiivanova.....	27
RESISTANCE MANAGEMENT STRATEGIES FOR THE COLORADO POTATO BEETLE ( <i>Leptinotarsa decemlineata</i> ) IN POTATO PRODUCTION Biljana Kovacevik, Sasa Mitrev, Emilija Arsov, Dusan Spasov, Biljana Atanasova, Marija Taskova Kukutanov, Natalija Markova Ruzdik.....	28
EVALUATION OF OOMYCETE-TARGETED FUNGICIDES FOR CONTROLLING DOWNY MILDEW IN VEGETABLE CROPS Biljana Kovacevik, Sasa Mitrev, Emilija Arsov, Dusan Spasov, Biljana Atanasova <sup>1</sup> , Marija Taskova Kukutanov, Natalija Markova Ruzdik.....	29
ASSESSMENT OF MORPHOLOGICAL VARIABILITY IN DIFFERENT DRIED PEPPER GENOTYPES Daniela Todevska, Natalija Atanasova-Pancevska, Pece Sherovski, Biljana Kovacevik, Natalija Markova Ruzdik, Mite Ilievski.....	30
IMPACT OF WEED FLORA ON APHID AND THRIPS OCCURRENCE IN PEPPER ( <i>Capsicum annuum</i> L.) IN THE STRUMICA REGION Dusan Spasov, Dragica Spasova, Sasa Mitrev, Emilija Arsov, Biljana Atanasova, Biljana Kovacevik, Mite Ilievski.....	31
INTEGRATIVE STATISTICAL APPROACHES TO EVALUATE FUNGICIDE EFFICACY AGAINST BOTRYTIS CINEREA IN THE WHITE GRAPE VARIETY GRENACHE BLANC Gligor Bojkov, Emilia Arsov, Sasa Mitrev.....	32
THE EFFECT OF PLANT GROWTH REGULATORS ON <i>IN VITRO</i> CUCUMBER ( <i>Cucumis sativus</i> L.) REGENERATION Izabela Andonova, Fidanka Trajkova, Liljana Koleva Gudeva.....	33
ROLE OF FOREST WINDBREAK SYSTEMS ON AGRICULTURAL PRODUCTION IN OVCHER POLE REGION Jordanco Dimitriev, Ljupco Mihajlov, Natalija Markova Ruzdik, Fidanka Trajkova...	34
ORGAN SPECIFIC WILD YEAST POPULATIONS ON CEREAL CROPS IN NORTH MACEDONIA – VARIANCE AND CORRELATION Nikola Radmanovik, Sofija Kostandinovska, Natalija Atanasova - Pancevska.....	35
<b>FOOD SCIENCE AND NUTRITION</b> .....	<b>36</b>
SEASONAL VARIATIONS IN THE PHYSICO-CHEMICAL QUALITY OF WELL WATER IN THE PROBISTIP AND KOCANI REGION Ankica Anastasova, Dimitar Nakov, Elena Tortevska Danilov, Aleksandra Angjeleska, Aco Kuzelov, Fidanka Ilieva.....	37

ANALYSIS OF ORGANIC MOLECULES AND PHYSICOCHEMICAL PARAMETERS AS INDICATORS OF AUTHENTICITY AND QUALITY OF FLOWER HONEY SAMPLES Ariona Lubishtani, Blerona Gavazi, Miribane Dërmaku-Sopjani, Arleta Rifati-Nixha.....	38
CHANGES OF ANTIOXIDANT POTENTIAL OF COLD-PRESSED EDIBLE OILS FROM SUNFLOWER AND SESAME DURING STORAGE Borjanka Veselinova, Sanja Kostadinović Veličkovska, Sasa Mitrev.....	39
QUALITY EVALUATION OF COLD-PRESSED EDIBLE OIL FROM PEANUT PRODUCED FROM MACEDONIAN "VIRGINIA" VARIETY Borjanka Veselinova, Sanja Kostadinović Veličkovska, Sasa Mitrev.....	40
ISOLATION OF ANTHOCYANINS BY HIGH-SPEED COUNTERCURRENT CHROMATOGRAPHY AND APPLICATION OF COLOR ACTIVITY CONCEPT TO DIFFERENT RED GRAPE POMACES Dejan Pljevlajkusić, Sanja Kostadinović Veličkovska.....	41
RESVERATOL IN WINES – POTENT ANTIOXIDANT RESPONSIBLE FOR "FRENCH PARADOX" Dejan Pljevlajkusić, Sanja Kostadinović Veličkovska.....	42
EFFECT OF FERMENTATION TIME ON THE SENSORY QUALITY OF COMPOSITE WHEAT BREAD Durim Alija, Viktorija Stamatovska, Vezirka Jankuloska <sup>1</sup> Joanna Harasym, Gafur Xhabiri, Daniela Nikolovska Nedelkoska.....	43
DIETARY PATTERNS OF CEREAL CONSUMPTION AND THEIR ASSOCIATION WITH THE HOMA-IR INDEX AMONG ADULTS WITH HYPERINSULINEMIA Eleonora Delinikolova, Vezirka Jankuloska.....	44
LACTIC ACID BACTERIA COUNTS IN GOAT MILK AND TRADITIONAL GOAT MILK CHEESES Hava Miftari, Tatjana Kalevska, Tatjana Blazevska, Ismail Ferati, Vezirka Jankuloska, Daniela Nikolovska Nedelkoska.....	45
THE PRESENCE OF MYCOTOXINS IN VARIOUS DOMESTIC AND EXPORTED FOOD PRODUCTS Ismail Ferati, Daniela Nikolovska Nedelkoska, Hava Miftari, Durim Alija, Rejhana Luma, Mirsade Tairi.....	46
COMPARATIVE ANALYSIS OF NATURAL ANTIOXIDANTS ON THE OXIDATIVE STABILITY OF DIFFERENT COLD-PRESSED SUNFLOWER OILS UNDER VARYING FILL VOLUMES Katerina Temelkovska Ristevska, Vezirka Jankuloska, Valentina Velkovski, Viktorija Stamatovska, Tatjana Blazhevska, Tanja Stojanovska, Gorica Pavlovska.....	47
ADVANCED APPROACHES FOR DETECTION OF MYCOTOXINS IN FOODS Marija Taskova Kukutanov, Sasa Mitrev, Emilija Arsov, Biljana Kovacevik.....	48
CURRENT ANALYTICAL METHODS FOR MYCOTOXIN DETECTION IN FOODS AND FEEDS: A COMPARATIVE REVIEW Marija Taskova Kukutanov, Biljana Kovacevik, Emilija Arsov, Sasa Mitrev.....	49
SENSORY EVALUATION OF DIETARY SAUSAGES INTENDED FOR CHILDREN'S NUTRITION Nadica Bajraktarova, Dimitar Nakov, Aco Kuzelov.....	50
FATTY ACID PROFILE OF 16 COLD-PRESSED SUNFLOWER OILS FROM THE REGION OF NORTH MACEDONIA Sanja Kostadinović Veličkovska, Saša Mitrev.....	51
VOLATILE PROFILE AND SENSORY EVALUATION OF COLD-PRESSED SUNFLOWER OILS Sanja Kostadinović Veličkovska, Saša Mitrev.....	52
FORMULATION OF LIP BALMS FROM ESSENTIAL OILS Xheneta Gashi, Edona Ismajli, Miribane Dërmaku-Sopjani, Arleta Rifati-Nixha.....	53
FATTY ACID PROFILE AND QUALITY OF YOGURT FROM LOCAL SHEEP BREEDS RAISED IN THE SOUTHWESTERN RILA MOUNTAIN REGION Yuliya Koyundzhijaska, Silviya Ivanova, Vasil Nikolov.....	54
IMPLEMENTATION OF TRACEABILITY SYSTEMS IN THE IMPORT OF WHEAT FLOUR IN THE REPUBLIC OF KOSOVO Zenun Krasniqi, Biljana Trajkovska.....	55
<b>SOIL SCIENCE AND ENVIRONMENT.....</b>	<b>56</b>
DISTRIBUTION AND FACTOR ANALYSIS OF SOIL ORGANIC CARBON IN SOILS FOR GRAPEVINES FROM SELECTED MICROLOCATIONS IN THE OVCE POLE VINE DISTRICT Aleksandar Piperevski, Biljana Balabanova.....	57
SOIL CARBON DYNAMICS IN BARLEY AND CHICKPEA UNDER CARBON-FARMING AND CONVENTIONAL PRACTICES: EVIDENCE FROM PILOT SITES IN NORTH MACEDONIA Biljana	

Balabanova, Verica Ilieva, Sasa Mitrev, Blagoja Mukanov, Mario Petkovski, Jovana Milosavljeva .....	58
ASSESSMENT OF ORGANOCHLORINE PESTICIDE RESIDUES IN FISH FROM BATLLAVA LAKE Ilirjana Osmani, Anja Babić, Arben Haziri, Aurel Nuro .....	59
ATMOSPHERIC DEPOSITION OF NITROGEN AND SULFUR IN KOSOVO USING MOSSES AS BIOINDICATORS Musaj Paçarizi, Flamur Sopaj, Trajče Stafilov, Robert Šajn, Valon Sadiku, Riccardo Fedeli, Stefano Loppi .....	60
<b>ENOLOGY</b> .....	<b>61</b>
DETERMINATION OF ORGANIC SELENIUM COMPOUNDS IN KRATOSIJA WINE APPLYING HPLC- ESI-MS/MS Violeta Ivanova-Petropulos, Elena Bogeva, Aleksandra Sentkowska .....	62
<b>MEETING SIDE EVENT</b> .....	<b>63</b>
<b>PRESENTATION OF AGRICULTURAL COMPANIES WITH EXHIBITION STANDS</b> .....	<b>64</b>

**THE EFFECT OF PLANT GROWTH REGULATORS ON *IN VITRO* CUCUMBER (*Cucumis sativus* L.) REGENERATION** Izabela Andonova<sup>1</sup>, Fidanka Trajkova<sup>1\*</sup>, Liljana Koleva Gudeva<sup>1</sup>

<sup>1</sup>Faculty of Agriculture, Goce Delcev University, Stip, Krste Misirkov 10-A, 2000 Stip, Republic of North Macedonia

\*Corresponding author: [fidanka.trajkova@ugd.edu.mk](mailto:fidanka.trajkova@ugd.edu.mk)

**Abstract**

The main objective of this study was to establish a culture of apical buds, hypocotyls and cotyledons from cucumber (*Cucumis sativus* L.) to determine their efficiency for regeneration into a whole plant. The genotypes SV0091 and Nomia F1 were used as source for apical buds, hypocotyls and cotyledons as starting explants. The starting explants from both genotypes were cultured on MS medium enriched with different combinations and concentrations of plant growth regulators: MS1 (MS+0.1 mg/l IBA+0.5 mg/l IAA+3.0 mg/l KIN), MS2 (MS+0.5 mg/l IAA+3.0 mg/l BAP), (MS + 0,1 mg/l IBA + 1,5 mg/l BAP + 0,5 mg/l KIN) and MS4 (MS + 0,1 mg/l NAA + 1,0 mg/l BAP). The cultures were grown in a climate chamber under controlled conditions at a temperature of 25 °C and a photoperiod of 16 hours light and 8 hours dark. The *de novo* plants and shoots in different percentages were obtained from apical buds grown on MS1, MS3 and MS4 media from both genotypes. The hypocotyls and cotyledon segments responded mostly with roots and callus on MS1, MS3 and MS4 media. The MS2 medium proved unsuccessful for micropropagation from all initial explants from both genotypes. After 60-70 days, *de novo* plants and well-rooted shoots were transferred to plastic pots filled with sterilized peat mixed with perlite and they were put through acclimatization process.

**Key words:** *genotypes, MS medium, phytohormones, de novo plants, shoots, roots, callus.*