

**GOCE DELCEV UNIVERSITY - STIP
FACULTY OF AGRICULTURE**



**JOURNAL OF AGRICULTURE
AND PLANT SCIENCES**

YEAR 2026

VOLUME 24, Number 1

EDITOR IN CHIEF

Editor in Chief

Fidanka Trajkova, Faculty of Agriculture, Goce Delcev University, Stip, Republic of North Macedonia, fidanka.trajkova@ugd.edu.mk

Editors

Liljana Koleva Gudeva, Faculty of Agriculture, Goce Delcev University, Stip, Republic of North Macedonia, liljana.gudeva@ugd.edu.mk

Emilija Arsov, Faculty of Agriculture, Goce Delcev University, Stip, Republic of North Macedonia, emilija.arsov@ugd.edu.mk

Biljana Atanasova, Faculty of Agriculture, Goce Delcev University, Stip, Republic of North Macedonia, biljana.atanasova@ugd.edu.mk

Administrator

Aleksandar Piperevski, Faculty of Agriculture, Goce Delcev University, Stip, Republic of North Macedonia, aleksandar.30920@student.ugd.edu.mk

Technical Editing

Ana Runcheva

Prof. d-r Fidanka Trajkova

Language Editors

Biljana Ivanova, MA, Senior lecturer, Faculty of Philology, Goce Delcev University, Stip, Republic of North Macedonia, biljana.petkovska@ugd.edu.mk – English language Editor

Marija Sokolova, Goce Delcev University, Stip, Republic of North Macedonia, marija.sokolova@ugd.edu.mk – Macedonian language Editor

Editorial Office

Faculty of Agriculture, Goce Delcev University, Stip,
Krste Misirkov Str., No.10-A P.O. Box 201, 2000 Stip, Republic of North Macedonia
japs@ugd.edu.mk
<http://js.ugd.edu.mk/index.php/YFA>

**GOCE DELCEV UNIVERSITY - STIP, REPUBLIC OF NORTH MACEDONIA
FACULTY OF AGRICULTURE**

doi.org/10.46763/JAPS201
Indexed in EBSCO database
DOAJ: Directory of Open Access Journals

ISSN 2545-4447 print
ISSN 2545-4455 online
Vol. 24, No. 1, Year 2026



Journal of Agriculture and Plant Sciences, JAPS, Vol 24, No. 1

YEAR 2026

Volume 24, Number 1

EDITORIAL BOARD

Biljana Balabanova,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, biljana.balabanova@ugd.edu.mk

Danijela Raičević,

Biotechnical Faculty, University of Montenegro, Mihaila Lalica b.b.,
Podgorica, Montenegro, nelar@mail.com

Dimitar Nakov,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, Dimitar.nakov@ugd.edu.mk

Dragan Skorić,

Serbian Academy of Sciences and Arts, Knez Mihajlova 35,
11000 Belgrade, Serbia, draganskoric@sbb.rs

Dragomir Vlcev,

Institute of Agriculture – Karnobat,
Bulgaria, vulchevd@abv.bg

Emilija Arsov,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, emilija.arsov@ugd.edu.mk

Hatice Gülen,

Istinye University, Faculty of Engineering and Natural Sciences,
Department of Molecular Biology and Genetics, Istanbul, Turkey hatice.gulen@bilgi.edu.tr

Jovica Vasin,

Institute of Field and Vegetable Crops, Novi Sad,
Serbia, jovica.vasin@ifvcns.ns.ac.rs

Kiril Bahcevandziev,

Coimbra Agricultural School, 3045-601 Coimbra,
Portugal, kiril@esac.pt

Klemen Lisjak,

Agricultural Institute of Slovenia, Hacquetova ulica 17, Ljubljana,
Slovenia, Klemen.Lisjak@kis.si

Liljana Koleva Gudeva,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, liljana.gudeva@ugd.edu.mk

Ljupco Mihajlov,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, ljupco.mihajlov@ugd.edu.mk

Marijan Bubola,

Institute of Agriculture and Tourism, Karla Huguesa 8, 52440 Poreč,
Croatia, marijan@iptpo.hr

Maryna Mardar,

Odessa National Academy of Food Technologies, Odessa, 65039, Kanatnaya Str.,
Ukraine, marinamardar2003@gmail.com

Sanja Radeka,

Institute of Agriculture and Tourism, Karla Huguesa 8, 52440 Poreč,
Croatia, sanja@iptpo.hr

Sasa Mitrev,

Faculty of Agriculture, Goce Delcev University, Stip, Republic of
North Macedonia, sasa.mitrev@ugd.edu.mk

Shuhe Wei,

Institute of Applied Ecology, Chinese Academy of Sciences,
China, shuhewei@iae.ac.cn

Violeta Dimovska,

Faculty of Agriculture, Goce Delcev University, Stip,
Republic of North Macedonia, violeta.dimovska@ugd.edu.mk

Wolfram Schnäckel,

Anhalt University of Applied Sciences, Bernburger Straße 55, 06366 Köthen,
Germany, Wolfram.Schnaeckel@hs-anhalt.de

CONTENT

Biljana Balabanova, Verica Ilieva, Sasa Mitrev, Blagoja Mukanov, Mario Petkovski, Jovana Milosavljeva SOIL ORGANIC CARBON AND NITROGEN DYNAMICS UNDER CARBON FARMING AND CONVENTIONAL MANAGEMENT IN BARLEY AND CHICKPEA SYSTEMS IN NORTH MACEDONIA	9
Angel Cvetanov, Krume Bogeovski, Viktorija Maksimova, Emilija Janevik-Ivanovska POST-HARVEST DRYING OF <i>Cannabis sativa</i> L. FLOWERS AND ITS IMPACT ON THE PRESERVATION AND EXTRACTION OF BIOACTIVE PHYTOCHEMICALS	23
Jordancho Dimitriev, Fidanka Trajkova, Ljupco Mihajlov AGROECOLOGICAL CONDITION AND FUNCTIONALITY OF WINDBREAK BELTS IN THE OVCHE POLE REGION.	37
Oyedapo Ademuyiwa Ipadeola, Ayo Babalola, Kolapo Faruq Abdullahi GIS-BASED MULTI-CRITERIA LAND SUITABILITY ASSESSMENT FOR CASSAVA CULTIVATION IN KWARA STATE, NIGERIA	51
Matea Kuzmanoska, Tatjana Risteska, Viktorija Maksimova COMPARATIVE ANALYSIS OF BIOACTIVE COMPONENT CONTENT IN TWO VARIETIES OF <i>Humulus lupulus</i> L.	67
Muhammad Sher Mahmud, Sajal Roy, Azizul Hakim, Muhammad Munawar Anjoom Rahee, Nazia Anwar, Md. Aktaruzzaman SOIL AGGREGATE STABILITY AND CHEMICAL PROPERTIES: EFFECTS OF DIFFERENT SIZE FRACTIONS OF BLACK SOLDIER FLY DERIVED COMPOST	77
Lynette Moyo, Wiza Mphande EVALUATION OF COMPOSTED CABBAGE (<i>Brassica oleracea</i> L.) AS A PLANT GROWING MEDIA FOR HORTICULTURAL PRODUCTION	89
Dusan Spasov, Nikola Spasov, Dragica Spasova, Sasa Mitrev, Emilija Arsov, Biljana Atanasova, Biljana Kovacevik, Mite Ilievski IMPACT OF WEED FLORA ON APHID AND THRIPS OCCURRENCE IN PEPPER (<i>Capsicum annuum</i> L.) IN THE STRUMICA REGION	101
Juliana Machado da Silva, Rafaela Rodrigues Pinheiro, Lucas Johnen, Lívia do Vale Martins, Josué Maldonado Ferreira, Mateus Mondin, André Luis Laforga Vanzela INSIGHTS INTO THE RELATIONSHIPS BETWEEN THE DISTRIBUTION OF REPETITIVE DNA SEQUENCES AND THE FLOWERING TIME OF MAIZE	109
SUPPLEMENTARY MATERIAL - INSIGHTS INTO THE RELATIONSHIPS BETWEEN THE DISTRIBUTION OF REPETITIVE DNA SEQUENCES AND THE FLOWERING TIME OF MAIZE	127

IN PRESS

ADVANCING AGRICULTURAL AND PLANT SCIENCES IN AN ERA OF GLOBAL CHALLENGES AND INNOVATION

Recent years have brought remarkable advances in agricultural and plant sciences, driven by innovations in plant biology, agronomy, crop protection, soil science, biotechnology, and environmental management. Emerging analytical tools, molecular techniques, and digital technologies have transformed the way researchers study plant growth, crop productivity, and ecosystem interactions. Technologies such as remote sensing, geographic information systems, precision agriculture, artificial intelligence, and data-driven decision-support systems are creating new opportunities to improve agricultural efficiency, productivity, and sustainability.

At the same time, agriculture faces unprecedented challenges. Climate change continues to affect agricultural production through rising temperatures, altered precipitation patterns, increased frequency of extreme weather events, and the emergence of new pest and disease pressures. Researchers across disciplines are actively exploring strategies to mitigate climate-related risks while ensuring food security and supporting rural livelihoods.

Sustainable management of natural resources has become a central priority in agricultural research. Soil degradation, water scarcity, biodiversity loss, and declining ecosystem services present significant obstacles to long-term agricultural development. In response, increasing attention is being directed toward conservation agriculture, integrated nutrient management, sustainable irrigation, agroecological practices, and regenerative farming systems. These approaches aim to balance productivity with environmental stewardship, recognizing that healthy ecosystems are essential for resilient agricultural systems.

Advances in plant breeding and genetic improvement continue to contribute significantly to agricultural progress. Developments in genomics, molecular biology, and high-throughput phenotyping have accelerated the development of crop varieties with enhanced yield potential, nutritional quality, and tolerance to biotic and abiotic stresses. Such innovations will remain critical as agricultural systems adapt to changing environmental and socio-economic conditions.

Equally important is the growing emphasis on translating scientific discoveries into practical solutions. Research achieves its greatest impact when it informs agricultural practice and benefits farmers, agricultural enterprises, and rural communities. Effective knowledge transfer, extension services, stakeholder engagement, and participatory approaches play a vital role in ensuring that scientific advances contribute to sustainable agricultural development.

The rapid expansion of digital technologies is also reshaping agriculture by facilitating the collection, analysis, and dissemination of information at unprecedented scales. Digital platforms and decision-support tools enable evidence-based management and strengthen connections among researchers, producers, advisors, and policymakers. However, issues related to accessibility, digital literacy, and equitable access to technology remain important challenges.

The articles presented in this issue of the Journal of Agriculture and Plant Sciences reflect the diversity and dynamism of contemporary agricultural research. Together, they contribute valuable insights into the challenges and opportunities facing agriculture and plant sciences today. They also demonstrate the importance of interdisciplinary collaboration, scientific rigor, and innovation in addressing complex global issues.

On behalf of the editorial team, we extend our sincere appreciation to the authors, reviewers, and readers whose contributions support the continued development of the journal. We hope that the research presented in this issue will stimulate further scientific inquiry, foster collaboration, and contribute to the advancement of sustainable and resilient agricultural systems worldwide.

June, 2026

**Editor in Chief,
Prof. d-r Fidanka Trajkova**

IN PRESS