

INTERNATIONAL SCIENTIFIC JOURNAL

# MECHANIZATION IN AGRICULTURE

# & CONSERVING OF THE RESOURCES



Issue 4  
2024

Year LXX, ISSN print:2603-3704, ISSN web 2603-3712

SCIENTIFIC TECHNICAL UNION OF MECHANICAL ENGINEERING  
BULGARIAN ASSOCIATION OF MECHANIZATION IN AGRICULTURE



PUBLISHERS

SCIENTIFIC-TECHNICAL UNION OF MECHANICAL ENGINEERING "INDUSTRY-4.0"  
BUGLARINA ASSOCIATION OF AGRICULTURAL MACHINERY

ISSN (PRINT) 2603-3704, ISSN (ONLINE) 2603-3712

YEAR LXX ISSUE 4 / 2024

### EDITORIAL BOARD

**Chief Editor:** Prof. Dr. eng Miho Mihov

**Responsible secretary:** Corresp. Memb. Prof. D.Sc. Hristo Beloev

#### MEMBERS:

Acad. D.Sc. Jemal Katsitadze – Georgia  
Acad. D.Sc. Sayakhat Nukeshev - Kazakhstan  
Acad. D.Sc. Volodymyr Bulgakov – Ukraine  
Acad. D.Sc. Valeriy Adamchuk – Ukraine  
Prof. Abdullah Sessiz - Turkey  
Prof. Abdulrahman Al-soqeer - Saudi Arabia  
Prof. Alexander Tokarev - Russia  
Prof. Alexey Vassilev - Russia  
Assoc.Prof. Angel Trifonov - Bulgaria  
Prof. Anupam Kumar Nema - India  
Prof. Ayrat Valiev - Russia  
Prof. Barbro Ulén - Sweden  
Prof. Carmen Puia - Romania  
Prof. Cheslav Vashkievich - Poland  
Prof. Cumhur Aydinalp - Turkey  
Prof. Daisuke Higaki - Japan  
Prof. Davor Romic - Croatia  
Prof. Domenico Pessina - Italy  
Dr. Finn Plauborg - Denmark  
Assoc.Prof. Ganka Baeva - Bulgaria  
Assoc. Prof. Dr. Mariusz Szymanek - Poland  
Prof. Georgi Tassev - Bulgaria  
Prof. Haiyan Huang - China  
Prof. Hoang Thai Dai - Vietnam

Prof. Iliya Malinov – Bulgaria  
Eng. Ivan Opacak - Croatia  
Prof. PhD Iurie Melnic - Moldova  
Assoc.Prof. Ivan Ivanov - Bulgaria  
Prof. Jan Szczepaniak - Poland  
Prof. Komil Muminov - Uzbekistan  
Prof. Krassimira Georgieva - Bulgaria  
Prof. Maja Manojlović - Serbia  
Prof. Mihail Iliev - Bulgaria  
Prof. Mohammad Salem Al-Hwaiti - Jordan  
Prof. Papamichail Dimitris - Greece  
Prof. Pavel Tlustos - Czech Republic  
Prof. Plamen Kangalov - Bulgaria  
Prof. Ralph Meissner - Germany  
Prof. Rossen Ivanov - Bulgaria  
Prof. Svetla Rousseva - Bulgaria  
Prof. Tadeusz Pawłowski - Poland  
Prof. Tamara Persikova - Belarus  
Prof. Valentina Kundius - Russia  
Prof. Wojciech Tanaś - Poland  
Prof. Yerbol Sarkynov - Kazakhstan  
Prof. Zdenko Tkach - Slovakia  
Prof. Zinta Gaile - Latvia  
Prof. Zivko Davchev - Macedonia

**All articles are published after peer review by two independent reviewers.**

The journal "MECHANIZATION IN AGRICULTURE & CONSERVING OF THE RESOURCES" is continuer of the journals "Mechanized farming" (1948-1957), "Mechanization and electrification of agriculture" (1959-1980) and "Mechanization of agriculture" (1981-1991)

108, Rakovski Str., 1000 Sofia, Bulgaria  
tel. (+359 2) 987 72 90, tel./fax (+359 2) 986 22 40,  
[office@stumejournals.com](mailto:office@stumejournals.com)  
[WWW.STUMEJOURNALS.COM](http://WWW.STUMEJOURNALS.COM)

# CONTENTS

## **MECHANIZATION IN AGRICULTURE**

<b>Study of a flexible screw conveyor for reclamation of agricultural soils disturbed by military operations</b> Oleksandra Trokhaniak, Olha Dubrovina, Olena Yoldych .....	119
<b>Optimization of vertical surfaces with continuous and discrete finning</b> Valerii Gorobets, Viktor Trokhaniak .....	122
<b>The main requirements for the modern content of lectures under the condition of direct training in the training of mechanical engineers in the field of agricultural engineering</b> Inna Savytska, Oksana Bulgakova, Oleksandra Trokhaniak, Maria Bondar .....	125

## **CONSERVING OF THE RESOURCES**

<b>Research on the possibilities of restoring agricultural land damaged by military operations</b> Oleksandra Trokhaniak .....	130
<b>Study of moisture conditions of chernozem in the left-bank forest-steppe of Ukraine</b> Volodymyr Bulgakov, Ivan Holovach, Alexander Demydenko, Oleksandra Trokhaniak .....	135
<b>Integrated low-carbon practices for managing key resources in agriculture, soil and water</b> Jechko Iordanov, Ruslan Yanev, Yoncho Pelovski .....	138
<b>Influence of soil organic matter on the water-soluble forms of technogenic radionuclides in soils – a model study</b> Miriyana Varbeva, Petya Kovacheva .....	141
<b>The influence of the method of agricultural production on the state of surface water</b> Rasa Žolynaitė, Algimantas Paulauskas .....	145
<b>Agro-Climatic Suitability of Albanian Arable Land for <i>Nigella Sativa L.</i>: Analyzing Soil Structure and Organic Matter Effects</b> Jonida Biturku, Olsid Mema, Max Hofmann, Erta Dodona, Klarent Dedaj, Etleva Jojic .....	151
<b>Low-input fertilization with organic and complex mineral fertilizers and their influence on the content of available and total forms of macroelements in haplic chernozems</b> Margarita Nankova, Trayan Sirtmachev, Miroslav Slavov, Atanas Atanasov .....	155
<b>Study of the seasonal dynamics of microcystins and nutrients in Kokalyane bent</b> Mariya Mitreva, Petya Karakashkova, Vera Pavlova .....	159