



ISSN 2312-3370 (Print )  
ISSN 2312-3389 (Online)

# Agricultural Science and Practice

Farming Agriculture,  
Agronomic Chemistry

---

Plant Growing, Feed Industry

---

Animal Husbandry, Veterinary Medicine

---

Genetics, Selection, Biotechnology

---

Mechanization, Electrification

---

Ecology of Agriculture, Radiology,  
Amelioration

---

Storage and Processing  
of Agricultural Products

---

Agricultural Economics

1  
2018

[www.agriscp.com](http://www.agriscp.com);  
e-mail: [editor@agriscp.com](mailto:editor@agriscp.com)

# Agricultural Science and Practice Editorial Board

ISSN 2312-3370 (Print ), ISSN 2312-3389 (Online)

## Editor-in-Chief

### Yaroslav M. Gadzalo

Academician of NAAS, President of National Academy of Agrarian Sciences of Ukraine

### Mykhaylo I. Bashchenko

First Deputy Editor-in-Chief, First Vice-President of NAAS, Academician of NAAS, Doctor of Science in Agriculture

*Address for correspondence:*

*Agricultural Science and Practice* Editorial Board, Vasylykivska Str. 37, Kyiv, 03022 Ukraine

Phone / Fax +380 44 2574081

e-mail: editor@agrisp.com

www.agrisp.com

## Assistant Editors

### Liliya Pylypenko

Deputy Chief Editor, Doctor of Science in Biology,  
Corresponding Member of the NAAS,  
Deputy Academician-Secretary of NAAS

### Volodymyr Velychko

Deputy Chief Editor, Doctor of Science in Agriculture,  
Corresponding Member of the NAAS,  
Director of the Agrarian Science Publishing House (NAAS Press)

## EDITORIAL BOARD

### Valeriy Adamchuk

National Scientific Center "Institute of  
Mechanization and Electrification in Agriculture",  
Kyiv, Ukraine

### Sviatoslav Baliuk

National Scientific Center "Institute of Soil Science  
and Agronomic Chemistry named after O.N.  
Sokolovskiy", Kharkiv, Ukraine

### Anush Balyan

National Academy of Agrarian Sciences,  
Kyiv, Ukraine

### Stanko Boboš

Univerzitet u Novom Sadu, Poljoprivredni  
fakultet, Serbia

### Vladymyr Bulgakov

National Scientific Center "Institute  
of Mechanization and Electrification  
in Agriculture", Kyiv, Ukraine

### Valentina Dzitsiuk

Institute of Animal Breeding and Genetics  
of M.V. Zubets NAAS Ukraine,  
Chubynske-Kyiv

### Borys Dziubetskiy

Institute of grain crops NAAS, Dnipro, Ukraine

### Boris Faybishenko

University of California, Lawrence Berkeley  
National Laboratory, Earth  
and Environmental Sciences Area, Energy  
Geosciences Divisionin, USA

### Viktor Fayt

Plant Breeding and Genetics Institute,  
National Center of Seed and Cultivar  
Investigation NAAS, Odessa, Ukraine

### Anton Gerilovych

National Scientific Center "Institute for  
Experimental and Clinical Veterinary Medicine",  
Kharkiv, Ukraine

### Ildus Ibatullin

National Academy of Agrarian Sciences,  
Kyiv, Ukraine

### Svitlana Kalensky

National University of Life and Environmental  
Sciences of Ukraine, Kyiv

### Petro Kovalenko

Institute of Watering and Amelioration NAAS,  
Kyiv, Ukraine

### Oleksandr Kutsan

National Scientific Center  
"Institute for Experimental and Clinical  
Veterinary Medicine", Kharkiv, Ukraine

### Vitaliy Lapa

Institute for Soil Science and Agrochemistry,  
Republic of Belarus

### Yuriy Lupenko

National Scientific Center "Institute of Agrarian  
Economics", Kyiv, Ukraine

### Vitaliy Medvedev

National Scientific Center "Institute of Soil  
Science and Agronomic Chemistry named  
after O.N. Sokolovskiy", Kharkiv, Ukraine

### Lidiya Moklyachuk

Institute of Agroecology and Environmental  
NAAS, Kyiv, Ukraine

### Volodymyr Morgun

Institute of Plant Physiology and Genetics NAS  
of Ukraine, Kyiv, Ukraine

### János Nagy

University of Debrecen, Hungary

### Krzysztof Niemczuk

National Veterinary Research Institute  
in Pulawy, Poland

### Ladislav Nozdrovicky

Faculty of Engineering Slovak University  
of Agriculture in Nitra, Slovak republic

### Volodymyr Patyka

Institute of Microbiology and Virology named  
after D. K. Zabolotnyi NAS of Ukraine, Kyiv

### Borys Prister

Institute of Nuclear Power Security NAS  
of Ukraine, Kyiv

### Mykola Royik

Institute of Bioenergy Crops and Sugar Beets  
NAAS, Kyiv, Ukraine

### Tatyana Satarova

Institute of grain crops NAAS, Dnipro,  
Ukraine

### Viktor Schwartzau

Institute of Plant Physiology and Genetics NAS  
of Ukraine, Kyiv, Ukraine

### Dragan Škorić

Serbian Academy of Sciences and Arta,  
Republic of Serbia

### Volodymyr Snitynskiy

Lviv National Agrarian University, Ukraine

### Oleksiy Sozinov

National Academy of Agrarian Sciences, Kyiv,  
Ukraine

### Borys Stegnyy

National Scientific Center "Institute for  
Experimental and Clinical Veterinary Medicine",  
Kharkiv, Ukraine

### Oleksandr Tarariko

Institute of Agroecology and Environmental  
Management NAAS, Kyiv, Ukraine

### Vasyl Vlizlo

Institute of Animal Biology NAAS, Lviv, Ukraine

### Anatoliy Zaryshniak

National Academy of Agrarian Sciences,  
Kyiv, Ukraine

### Valeriy Zhuk

National Academy of Agrarian Sciences,  
Kyiv, Ukraine

### Ostap Zhukorskiy

National Academy of Agrarian Sciences, Kyiv,  
Ukraine

State Registration Certificate KB No 20442-10242P, issued on Dec 20, 2013

Gone to bed: November 21, 2017 Publisher's signature: 8.0. Print run – 150 copies. Recommended for publication by the Publishing Steering Committee of the Presidium of the National Academy of Sciences of Ukraine (minutes No. 11, dated November 20, 2017). Printed by TOV Barmy, LLC Frunze Str., 86, Kyiv, 04080, Ukraine Tel. 239 19 77