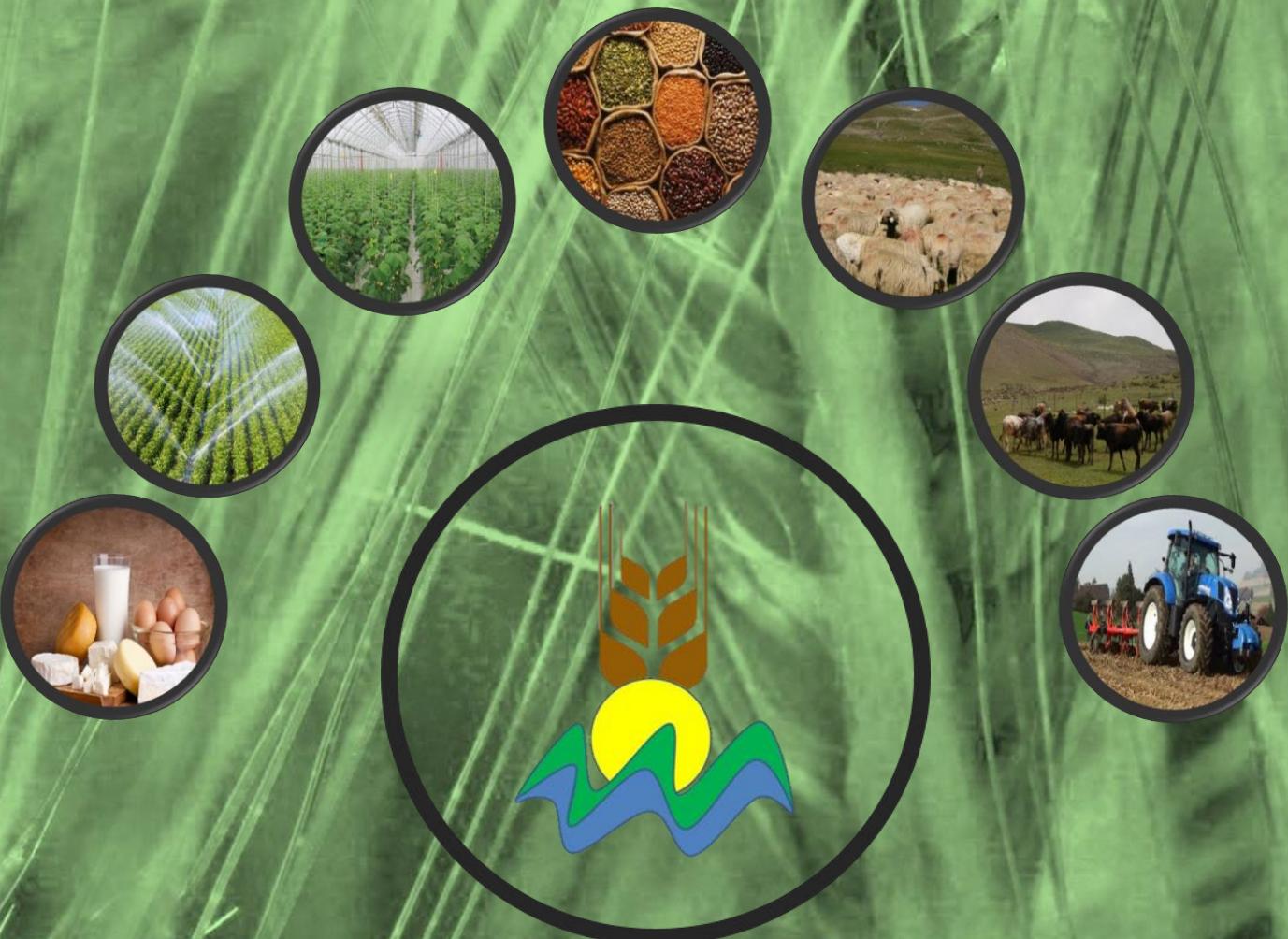


Black Sea Journal of Agriculture





**BLACK SEA JOURNAL OF AGRICULTURE
(BSJ AGRI)**



Black Sea Journal of Agriculture (BSJ Agri) is a double-blind peer-reviewed, open-access international journal published electronically 4 times (January, April, July and October) in a year since January 2018. It publishes, in English, full-length original research articles, innovative papers, conference papers, reviews, mini-reviews, rapid communications or technical note on various aspects of agricultural science like agricultural economics, agricultural engineering, animal science, agronomy, including plant science, theoretical production ecology, horticulture, plant breeding, plant fertilization, plant protect and soil science, aquaculture, biological engineering, including genetic engineering and microbiology, environmental impacts of agriculture and forestry, food science, husbandry, irrigation and water management, land use, waste management etc.

ISSN: 2618 - 6578

Phone: +90 362 408 25 15

Fax: +90 362 408 25 15

Email: bsjagri@blackseapublishers.com

Web site: <http://dergipark.gov.tr/bsagriculture>

Sort of publication: Periodically 4 times (January, April, July and October) in a year

Publication date and place: July 01, 2022 - Samsun, TURKEY

Publishing kind: Electronically

OWNER

Prof. Dr. Hasan ÖNDER

DIRECTOR IN CHARGE

Assoc. Prof. Uğur ŞEN

EDITOR BOARDS

EDITOR IN CHIEF

Prof. Dr. Hasan ÖNDER, Ondokuz Mayıs University, TURKEY

Assoc. Prof. Uğur ŞEN, Ondokuz Mayıs University, TURKEY

SECTION EDITORS*

Prof. Dr. Mehmet KURAN, Ondokuz Mayıs University, TURKEY

Prof. Dr. Muharrem ÖZCAN, Ondokuz Mayıs University, TURKEY

Prof. Dr. Kürşat KORKMAZ, Ordu University, TURKEY

Prof. Dr. Mustafa ŞAHİN, Kahramanmaraş Sütçü İmam University, TURKEY

Prof. Dr. Berna KILIÇ, Ege University, TURKEY

Assoc. Prof. Dr. Hasan Gökhan DOĞAN, Kirsehir Ahi Evran University, TURKEY

Assoc. Prof. Dr. Kadir Ersin TEMİZEL, Ondokuz Mayıs University, TURKEY

Assoc. Prof. Dr. Kadyrbay CHEKİROV, Kyrgyz Turkish Manas University, KYRGYZSTAN

Assoc. Prof. Dr. Ömer SÖZEN, Kirsehir Ahi Evran University, TURKEY

Assoc. Prof. Dr. Şerife Evrim ARICI, Süleyman Demirel University, TURKEY

Assoc. Prof. Dr. Ümrان ÇİÇEK, Tokat Gaziosmanpasa University, TURKEY

Assoc. Prof. Dr. Kemal Çağatay SELVİ, Ondokuz Mayıs University, TURKEY

* The ranking is arranged alphabetically within the academic title

EDITORIAL - ADVISORY BOARD*

Prof. Dr. Ahmet BALKAYA, Ondokuz Mayıs University, TURKEY

Prof. Dr. Alireza TERINEJAD, Azarbajian Shahid Madani University, IRAN

Prof. Dr. Ercan EFE, Kahramanmaraş Sütçü İmam University, TURKEY

Prof. Dr. Gheorghe VOICU, Politehnica University of Bucharest, ROMANIA

Prof. Dr. Savaş ATASEVER, Ondokuz Mayıs University, TURKEY

Prof. Dr. Sherein Saeid ABDELGAYED, Cairo University, EGYPT

Prof. Dr. Habil Sorin STEFAN BIRIS, Politehnica University of Bucharest, ROMANIA

Assoc. Prof. Dr. Mustafa BOĞA, Nigde Ömer Halisdemir University, TURKEY

Dr. Jiban SHRESTHA, Nepal Agricultural Research Council, NEPAL

Dr. Mikó JÓZSEFNÉ JÓNÁS, University of Szeged, HUNGARY

Dr. Valentin VLADUT, National Research and Development Institute, ROMANIA

* The ranking is arranged alphabetically within the academic title

STATISTIC EDITOR

Assoc. Prof. Dr. Taner TUNÇ, Ondokuz Mayıs University, TURKEY

ENGLISH EDITOR

Prof. Dr. Muhammad KHALID, University of London, UNITED KINGDOM

REVIEWERS OF THE ISSUE*

- Prof. Dr. Atilla DURSUN, Atatürk University, TÜRKİYE
- Prof. Dr. Çiğdem TAKMA, Ege University, TÜRKİYE
- Prof. Dr. Ertan YILDIRIM, Atatürk University, TÜRKİYE
- Prof. Dr. Halil İbrahim ERKOVAN, Eskişehir Osmangazi University, TÜRKİYE
- Prof. Dr. Levent ARIN, Namık Kemal University, TÜRKİYE
- Prof. Dr. Mehmet ARSLAN, Erciyes University, TÜRKİYE
- Prof. Dr. Sonay SÖZÜDOĞRU OK, Ankara University, TÜRKİYE
- Prof. Dr. Şebnem KUŞVURAN, Çankırı Karatekin University, TÜRKİYE
- Prof. Dr. Ümit ARSLAN, Uludağ University, TÜRKİYE
- Assoc. Prof. Dr. Adnan ÜNALAN, Niğde Ömer Halisdemir University, TÜRKİYE
- Assoc. Prof. Dr. Alihan ÇOKKIZGIN, Gaziantep University, TÜRKİYE
- Assoc. Prof. Dr. Beata SITKOWSKA, Bydgoszcz University of Science and Technology, POLAND
- Assoc. Prof. Dr. Çağdaş AKPINAR, Osmaniye Korkut Ata University, TÜRKİYE
- Assoc. Prof. Dr. Çağrı Özgür ÖZKAN, Kahramanmaraş Sütçü İmam University, TÜRKİYE
- Assoc. Prof. Dr. Cengiz YILDIRIM, Amasya University, TÜRKİYE
- Assoc. Prof. Dr. Emre SİRİN, Kırşehir Ahi Evran University, TÜRKİYE
- Assoc. Prof. Dr. Ertuğrul KUL, Kırşehir Ahi Evran University, TÜRKİYE
- Assoc. Prof. Dr. Fatih ÖNER, Ordu University, TÜRKİYE
- Assoc. Prof. Dr. Fatih ÜÇKARDEŞ, Adiyaman University, TÜRKİYE
- Assoc. Prof. Dr. Göksel ÖZER, Bolu Abant İzzet Baysal University, TÜRKİYE
- Assoc. Prof. Dr. Hatıra TAŞKIN, Çukurova University, TÜRKİYE
- Assoc. Prof. Dr. Hülya DOĞAN, Yozgat Bozok University, TÜRKİYE
- Assoc. Prof. Dr. Mehmet Akif BOZ, Yozgat Bozok University, TÜRKİYE
- Assoc. Prof. Dr. Mohammed JASIM, University of Anbar, IRAQ
- Assoc. Prof. Dr. Musa SEYMEN, Selçuk University, TÜRKİYE
- Assoc. Prof. Dr. Rena HÜSEYİNOĞLU, Giresun University, TÜRKİYE
- Assoc. Prof. Dr. Sabri GÜL, Mustafa Kemal University, TÜRKİYE
- Assoc. Prof. Dr. Şenol ÇELİK, Bingöl University, TÜRKİYE
- Assoc. Prof. Dr. Turgut ATAY, Tokat Gaziosmanpaşa University, TÜRKİYE
- Assist. Prof. Dr. Abdulveli SİRAT, Gümüşhane University, TÜRKİYE
- Assist. Prof. Dr. Abdurrahim YILMAZ, Bolu Abant İzzet Baysal University, TÜRKİYE
- Assist. Prof. Dr. Asloob Ahmad MALIK, University of Agricultural Sciences and Technology of Kashmir, INDIA
- Assist. Prof. Dr. Aycan Mutlu YAGANOGLU, Atatürk University, TÜRKİYE
- Assist. Prof. Dr. Bahadır DEMİREL, Erciyes University, TÜRKİYE

Assist. Prof. Dr. Cuneyt CESUR, Karamanoğlu Mehmetbey University, TÜRKİYE
Assist. Prof. Dr. Emrah KAYA, İğdır University, TÜRKİYE
Assist. Prof. Dr. Esra YAVUZ, Şırnak University, TÜRKİYE
Assist. Prof. Dr. Gökhan FİLİK, Kırşehir Ahi Evran University, TÜRKİYE
Assist. Prof. Dr. Hacer TÜFEKCİ, Yozgat Bozok University, TÜRKİYE
Assist. Prof. Dr. Ivan PUTRA, IPB University, INDONESIA
Assist. Prof. Dr. Koray KIRIKÇI, Kırşehir Ahi Evran University, TÜRKİYE
Assist. Prof. Dr. Merve GÖRE, Ege University, TÜRKİYE
Assist. Prof. Dr. Önder ALBAYRAK, Dicle University, TÜRKİYE
Assist. Prof. Dr. Sabriye BELGÜZAR, Tokat Gaziosmanpaşa University, TÜRKİYE
Assist. Prof. Dr. Serdar GENÇ, Kırşehir Ahi Evran University, TÜRKİYE
Assist. Prof. Dr. Yusuf Ziya GÜZEY, Mustafa Kemal University, TÜRKİYE
Dr. Ali Alpaslan EZİCİ, East Mediterranean Agricultural Research Institute, TÜRKİYE
Dr. Ahmet UÇAR, Ankara University, TÜRKİYE
Dr. Canan VEJSELOVA SEZER, Eskişehir Anadolu University, TÜRKİYE
Dr. Chinyere IKELE, University of Nigeria, NIGERIA
Dr. Gürkan BAŞBAĞCI, West Mediterranean Agricultural Research Institute, TÜRKİYE
Dr. Hakan HEKİMHAN, Ege Agricultural Research Institute, TÜRKİYE
Dr. Hasan ASİL, Mustafa Kemal University, TÜRKİYE
Dr. Maria DATTENA, Agris Sardegna, ITALY
Dr. Medine ÇOPUR DOĞRUSÖZ, Yozgat Bozok University, TÜRKİYE
Dr. Yasin ALTAY, Eskişehir Osmangazi University, TÜRKİYE

* The ranking is arranged alphabetically within the academic title

Table of Contents

Research Article

- 1. EFFECTS OF ENVIRONMENT ON PRODUCTIVE PERFORMANCE OF HOLSTEIN-FRIESIAN DAIRY COWS IN THREE AGRO-ECOLOGICAL REGIONS OF ZIMBABWE**
Tafara Kundai MAVUNGA, Eddington GORORO, Obert TADA.....172-179
- 2. IN VITRO MICROPROPAGATION OF MAINTAINER WHITE HEAD CABBAGE LINES USING COTYLEDON AND HYPOCOTYL EXPLANTS**
Senay MURAT DOGRU, Ahmet BALKAYA, Ertan Sait KURTAR.....180-188
- 3. DETERMINATION OF SATURATED AND UNSATURATED FATTY ACIDS IN SECOND CROP SEASON PEANUT CULTIVATION IN THE EASTERN MEDITERRANEAN**
Mustafa YILMAZ.....189-194
- 4. NON-DESTRUCTIVELY DETERMINING BLUEBERRY (*Vaccinium Corymbosum L.*) LEAF AREA USING DPI-BASED SOFTWARE**
Mehmet Serhat ODABAŞ, Gökhan KAYHAN, Hüseyin ÇELİK, Recai OKTAŞ.....195-199
- 5. EVALUATION OF SEEDLING DEVELOPMENT AND PHYSICAL CHARACTERISTICS, VIABILITY AND GERMINATION OF SEEDS IN SOME LAMIACEAE TAXA**
Belgin COŞGE ŞENKAL, Tansu USKUTOĞLU.....200-207
- 6. DETERMINATION OF THE GROWTH PATTERN OF ROSS 308 BROILER STRAIN REARED IN A HUMID TROPICAL ENVIRONMENT**
Ogechi KADURUMBA, Ifeanyi AHAMBA, Conellus UDEALOR, Chinyere IKELE.....208-211
- 7. FUNGICIDE AND ARBUSCULAR MYCORRHIZA FUNGI APPLICATIONS IN TOMATO**
Tuğba ÖZBUCAK, Döndü KABUL.....212-219
- 8. EVALUATION OF AN INTERCROPPING SYSTEM: LETTUCE AND RADISH GROWING IN FRUIT SAPLING PRODUCTION**
Hüseyin KARLIDAĞ, İbrahim Kutalmış KUTSAL, Fırat Ege KARAAT, Rabia KÜÇÜK, Tuncay KAN.....220-226
- 9. EFFICACY OF NATIVE BEAUVERIA BASSIANA AND *B. PSEUDOBASSIANA* ISOLATES AGAINST INVASIVE BROWN MARMORATED STINK BUG, *HALYOMORPHA HALYS* (STÅL) (HEMIPTERA: PENTATOMIDAE)**
İsmail Oğuz ÖZDEMİR, Elif YILDIRIM, Mansur ULUCA, Celal TUNÇER.....227-233
- 10. BIBLIOMETRIC ANALYSIS FOR GENOME-WIDE ASSOCIATION STUDIES IN ANIMAL SCIENCE**
Cem TIRINK.....234-239
- 11. THE NUTRITIONAL DYNAMICS OF COMMON WEEDS IN THE RANGELANDS OF THE AKDAĞ MOUNTAINS, SAMSUN**
İbrahim AYDIN, Nuh OCAK.....240-247
- 12. THE ANTAGONISTIC AND SYNERGISTIC COMPARISON OF THE ANTIMICROBIAL CHARACTERISTICS OF EXTRACTS OF SOME HERBS**
Ayşe GüL DOĞAN, Cihan DARCAN.....248-254

13. THE EFFECT OF ELEMENTAL SULFUR FERTILIZATION ON GREEN BEANS (<i>Phaseolus Vulgaris L.</i>) GROWN IN CALCAROUS SOIL	
Ayşen AKAY.....	255-259
14. MODELING OF IN VITRO GAS PRODUCTION	
Merve BAYAZIT, Mustafa ŞAHİN, Tolga TOLUN.....	260-264
15. RESPONSE OF BREAD WHEAT CULTIVAR TO DIFFERENT SOWING DENSITIES FOR YIELD AND YIELD TRAITS	
Huseyin GUNGOR, Mehmet Fatih CAKIR, Ziya DUMLUPINAR.....	265-268
16. DETERMINATION OF THE EFFECTS ON MEAT QUALITY AND FATTY ACIDS OF DIFFERENT BORON SOURCES IN AKKARAMAN LAMBS	
Betül Zehra SARIÇEK, Birgül YILDIRIM.....	269-277
17. THE EFFECT ON FERTILITY OF USING DIFFERENT DOSES OF PMSG IN ANATOLIAN MERINO SHEEP	
Emre ŞİRİN.....	278-280
18. THE EFFECT OF PROGESTIN SOURCE ON SOME REPRODUCTIVE PERFORMANCE IN AKKARAMAN EWES	
Dilek GÖKÇEK, Büşra BAYRAK, Uğur ŞEN.....	281-287
19. DETERMINATION OF THE EFFECT OF DIFFERENT NITROGEN DOSES ON THE YIELD, YIELD COMPONENTS AND CHLOROPHYLL CONTENTS OF BREAD WHEAT (<i>TRITICUM AESTIVUM L.</i>) CULTIVARS USING ARTIFICIAL NEURAL NETWORK	
Fatih ÖNER, Gökhan KAYHAN, Erhan ERGÜN, Ferda ÖZKORKMAZ, Recai OKTAŞ, Mehmet Serhat ODABAŞ.....	288-299
20. THE EFFICACY OF HOT WATER TREATMENTS AGAINST <i>FUSARIUM FUJIKUROI</i>: THE FUNGAL AGENT OF BAKANAE DISEASE	
Yeşim EĞERCİ, Pervin KINAY TEKSÜR, Ayşe UYSAL MORCA.....	300-305
21. THE EFFECTS OF PARTIALLY SLATTED FLOOR DESIGNS ON SOME EARLY BEHAVIORAL TRAITS IN BROILER CHICKS	
Hatice ÇAVDARCI, Musa SARICA, Kadir ERENZOY, Resul ASLAN.....	306-310
22. 3-D CLASSIFICATION OF AGRICULTURAL AREAS OF TURKEY USING MAMMALIAN LIVESTOCK EXISTENCE	
Burcu KURNAZ, Hüseyin Mert YÜKSEL, Hasan ÖNDER, Cem TIRINK.....	311-313
23. A COMPARATIVE RESEARCH ON DATA ANALYSIS WITH FACTORIAL ANOVA, LOGISTIC REGRESSION AND CHAID CLASSIFICATION TREE METHODS	
Ömer AKBULUT, Ali KAYGISIZ, İsa YILMAZ.....	314-322
24. STRUCTURAL FEATURES OF SHEEP FARMS IN ORDU PROVINCE	
Aslıhan ATEŞ, Mehmet Akif ÇAM.....	323-328
25. COMPARATIVE EVALUATION OF SALICYLIC ACID (SA) AND 2,4-DICHLORO-6-{(E)-[(3METHOXYPHENYL)IMINO]METHYL} PHENOL (DPMP) ON GROWTH AND SALT STRESS TOLERANCE IN FORAGE PEA (<i>PISUM SATIVUM SSP. ARVENSE L.</i>)	
Nazlı ÖZKURT, Yasemin BEKTAS.....	329-335
26. THERAPEUTIC SOURCE: PLANTS	
Hilal ATEŞ, Erkan YALÇIN.....	336-343

**27. AN OVERVIEW OF HAPLOID AND DOUBLE HAPLOID PRODUCTION METHODS IN
WHEAT**

Noor Maiwan BAHJAT, Mehtap YILDIZ, Sana SALIH, Sara LUNA.....344-350