



Ministerul Agriculturii și Dezvoltării Rurale  
(M.A.D.R.)



Academia de Științe Agricole și Silviculturale  
"Gheorghe Ionescu-Șișești"  
(A.S.A.S.)

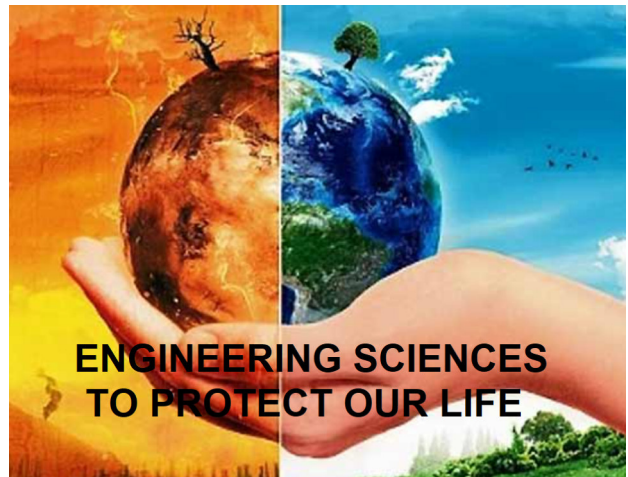


CERCETARE PENTRU BUNĂSTARE

**ICRESB**

# 6<sup>TH</sup> INTERNATIONAL CONFERENCE ABOUT RICE AND ENGINEERING SCIENCES IN BRĂILA

## ICRESB 2026 ABSTRACTS VOL. 6 / 2026



**30<sup>TH</sup> JANUARY 2026  
BRĂILA- ROMANIA**



ABSTRACTS OF “6<sup>TH</sup> INTERNATIONAL CONFERENCE  
ABOUT RICE AND ENGINEERING SCIENCES IN BRAILA  
(ICRESB - 2026)”



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CERCETARE PENTRU BUNĂSTARE

**ICRESB**

## FINAL PROGRAMME OF ICRESB 2026 CONFERENCE 30<sup>th</sup> JANUARY 2026, 10:00 AM, ROMANIA TIME

<https://us06web.zoom.us/j/84283961971?pwd=VZTcPjYiOivdLdsPxBut5zIBypAlxH.1>

Meeting ID: 842 8396 1971

Passcode: 982100

### SECTION 1:



10:00 – 10:05	<b>INTRODUCTIVE PRESENTATION ABOUT ICRESB `26 CONFERENCE - Daniela TRIFAN</b>
10:05 – 10:15	<b>1.1. ANTI-OBESITY EFFECTS OF BROWN RICE AND RELATED RESEARCH</b> Authors: Reyhan IRKIN <sup>1*</sup> , Ceylin ÖZTEN <sup>1</sup> , Dilara KIRKGÖZ <sup>1</sup> , Feyza KAYA <sup>1</sup> <sup>*</sup> <sup>1</sup> Izmir Demokrasi University, Health Sciences Faculty, Department of Nutrition and Dietetics, Goztepe, Konak, Izmir, Turkey
10:15 – 10:25	<b>1.2. SUBJECTIVE PERCEPTION OF DROUGHT IMPACT – A SURVEY-BASED ANALYSIS FOR ROMANIA</b> Authors: Liliana VELEA, Zenaida CHIȚU, Roxana BOJARIU, Argentina NERȚAN, Sorin CHEVAL National Meteorological Administration, Bucharest, Romania
10:25 – 10:35	<b>1.3. DROUGHT-RESILIENT NITROGEN NUTRITION USING METHYLENE-UREA TECHNOLOGY</b> Author: Alexandre MOUREAU ADVAGREEN Eastern Europe, Budapest   Hungary
10:35 – 10:45	<b>1.4. THE BIOPHYSICAL CONCEPT OF CONTROLLED HUMIDIFICATION: THEORETICAL AND APPLICATIVE FRAMEWORK</b> Authors: Gheorghe JIGĂU <sup>1</sup> , Sergiu DOBROJAN <sup>1</sup> , Galina DOBROJAN <sup>1</sup> , Eugeniu SPRÂNCEAN <sup>1</sup> <sup>1</sup> Moldova State University, Chisinau city, A. Mateevici Street, no. 60, Republic of Moldova
10:45 – 10:55	<b>1.5. ALTERNATIVE TECHNIQUES FOR MAINTAINING THE SPECIFICITY OF AGRICULTURAL ECOSYSTEMS UNDER CURRENT CLIMATIC CONDITIONS</b> Authors: Mihai TUDOR <sup>1</sup> , Gabriel TABARANU <sup>1</sup> , Daniela Ionela FERȚU <sup>2</sup> , MOREAU Alexandre <sup>3</sup> <sup>1</sup> Bujoru Viticulture and Winemaking Research and Development Station, Str. Gral Eremia Grigorescu, no. 65, Tg.Bujor, Galati, 805200, Romania, <sup>2</sup> "Dunărea de Jos" University Galati, 800002 Galati, Romania <sup>3</sup> ADVAGREEN SA Route de Wallonie, Darse d'Hautrage 7334 Hautrage Belgique
10:55 – 11:05	<b>1.6. RESEARCH ON THE BEHAVIOR OF RICE VARIETIES AND NEWLY CREATED LINES BY S.C.D.A.BRĂILA-C.E.POLIZEȘTI</b> Authors: Ionel IVAN, Elena IVAN, Vlad Dumitru MIHAILA Agricultural Research and Development Station of Braila, Romania
11:05 – 11:15	<b>1.7. CHANGES IN THE PHYSICO-CHEMICAL PROPERTIES OF RICE UNDER INAPPROPRIATE STORAGE CONDITIONS</b> Authors: Nicolae POPESCU <sup>1,2</sup> , Ionel IVAN <sup>1</sup> , Alin Ionel GHIORGHE <sup>1</sup> , Ioana GORGOVAN <sup>1</sup> , Cristian STROIA <sup>1,2</sup> <sup>1</sup> Agricultural Research and Development Station of Braila, Romania, Sos. Vizirului, Km. 9, Braila <sup>2</sup> University of Agriculture and Veterinary Medicine, Bulevardul Mărăști 59, 011464 București
11:15 – 11:25	<b>1.8. USE OF BACILLUS ATROPHAEUS IN SEED BIOPRIMING AS A BIOLOGICAL ALTERNATIVE TO CHEMICAL TREATMENTS</b> Authors: George TOADER <sup>1</sup> , Liliana IONESCU <sup>2</sup> , Cristina MELUCĂ <sup>3</sup> , Cătălin-Ioan ENEA <sup>4</sup> , Nichita NEGUȘERI <sup>4</sup> <sup>1</sup> Saaten Union Romania SRL, General Praporgescu Street, No. 1-5, 2nd Floor, Sector 2 020965 Bucharest, <sup>2</sup> Andermatt Biocontrol România SRL, Gheorghieni Street, No. 15-17, 3rd floor, apartment 15, sector 5, Bucharest, <sup>3</sup> Agricultural Research and Development Station Teleorman, Draganesti-Vlasca, European Road E70, Teleorman county, <sup>4</sup> Agricultural Research and Development Station Suceava, 15 Decembrie 1918 Blvd., Suceava, Suceava County
11:25 – 11:35	<b>1.9. MODULAR IOT SYSTEM FOR DATA-DRIVEN DECISION SUPPORT IN SMART AGRICULTURE</b> Authors: Theodor PINTILIE <sup>1</sup> , Andrei DANILA <sup>1</sup> , Robert STRECHE <sup>1</sup> , Cristina DOBRE <sup>1</sup> , George SUCIU <sup>1</sup> <sup>1</sup> Beia Consult International, Peroni Street, No 16, Bucharest, Romania
11:35 – 11:45	<b>1.10. AGRI-ENVIRONMENT MEASURES AND CLIMATE ADAPTATION IN BRĂILA COUNTY</b> Authors: Florina Loredana SERBAN <sup>1</sup> , Emanuela LUNGU <sup>1</sup> , Daniel-George SERBAN <sup>1,2</sup> , Maria Magdalena TUREK RAHOVEANU <sup>2</sup> , Daniela TRIFAN <sup>1</sup> <sup>1</sup> Agricultural Research and Development Station Braila, Romania <sup>2</sup> "Dunărea de Jos" University from Galati, Romania
11:45 – 12:30	<b>QUESTIONS AND ANSWERS SESSION + COFFEE BREAK</b>



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**ICRESB**

FINAL PROGRAMME OF ICRESB 2026 CONFERENCE  
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Meeting ID: 842 8396 1971

Passcode: 982100

**SECTION 2:**



12:30 – 12:40	<b>2.1. COMPARATIVE STUDY ON SOIL TILLAGE SYSTEMS APPLIED TO SPRING STRAW CEREALS</b> Authors: Felicia CHEȚAN <sup>1</sup> , Alina ȘIMON <sup>1</sup> , Camelia URDĂ <sup>1</sup> , Emanuela FILIP <sup>1</sup> , Cornel CHEȚAN <sup>1</sup> <sup>1</sup> Agricultural Research and Development Station, Turda, 27 Agriculturii Street, Cluj County, Romania
12:40 – 12:50	<b>2.2. THE IMPACT OF DIGITALIZATION ON AGRICULTURE IN THE CONTEXT OF THE WAR IN UKRAINE</b> Authors: Daniel-George SERBAN <sup>1</sup> , Emanuela LUNGU <sup>1</sup> , Florina Loredana SERBAN <sup>1</sup> , Maria Magdalena TUREK RAHOVEANU <sup>2</sup> , Daniela TRIFAN <sup>1</sup> 1Brăila Agricultural Research and Development Station, Romania, 2"Dunărea de Jos" University from Galati, Romania
12:50 – 13:00	<b>2.3. WINTER TRITICALE, AN IMPORTANT SOURCE OF ESSENTIAL AMINO ACIDS</b> Authors: Diana HIRIȘCĂU <sup>1</sup> , Rozalia KADAR <sup>1</sup> , Adina VARADI <sup>1*</sup> , Florin KADAR <sup>1</sup> , Darius MORAR <sup>1</sup> , Andreea-Sabina PINTILIE <sup>2</sup> , Ionuț RACZ <sup>1</sup> <sup>1</sup> Agricultural Research and Development Station Turda, 27 Agriculture Street, Cluj, Romania <sup>2</sup> Agricultural Research and Development Station Secuieni, 371 Main Street, Neamț, Romania
13:00 - 13:10	<b>2.4. THE CONCEPT OF MODERNIZING AGROECOSYSTEMS NURSERY THROUGH BIOLOGIZATION OF THE PRODUCTION PROCESS</b> Authors: Gheorghe JIGĂU <sup>1</sup> , Sergiu DOBROJAN <sup>1</sup> , Galina DOBROJAN <sup>1</sup> , Valentin GABER <sup>2</sup> <sup>1</sup> Moldova State University, Chisinau city, A. Mateevici Street, no. 60, Republic of Moldova <sup>2</sup> Technical University of Moldova, Chisinau city, 168 Stephen the Great blvd, Republic of Moldova
13:10 – 13:20	<b>2.5. THE IMPACT OF APPLICATION OF DIFFERENT DOSES OF ALGAE BIOFERTILIZERS ON THE QUANTITATIVE PARAMETERS OF THYMUS VULGARIS L.</b> Authors: Sergiu Dobrojan <sup>1</sup> , Victor MELNIC <sup>1</sup> , Gheorghe JIGĂU, Galina DOBROJAN <sup>1</sup> , Angela MELNIC <sup>1</sup> <sup>1</sup> Moldova State University, Chisinau city, A. Mateevici Street, no. 60, Republic of Moldova
13:20 – 13:30	<b>2.6. BIOCHEMICAL COMPOSITION OF FIELD PEA PHYTOMASS AND ITS POTENTIAL APPLICATIONS IN THE BIOECONOMY</b> Author: Victor ȚÎȚEI <sup>1</sup> <sup>1</sup> "Alexandru Ciubotaru" National Botanical Garden (Institute) of Moldova State University, Republic of Moldova
13:30 – 13:40	<b>2.7. QUALITATIVE CHARACTERIZATION OF VOLATILE COMPOUNDS FROM THE ESSENTIAL OIL OBTAINED FROM THE AREAL PARTS OF HELICHRISUM ITALICUM, VARIETY "AURIU 21" LOCAL CHEMOTYPE</b> Authors: Victor MELNIC <sup>1</sup> , Sergiu DOBROJAN <sup>1</sup> , Gheorghe JIGĂU <sup>1</sup> , Victor ȚÎȚEI <sup>1</sup> , Galina DOBROJAN <sup>1</sup> , Angela MELNIC <sup>1</sup> , Tamara MERCIUCARI <sup>1</sup> <sup>1</sup> Moldova State University, Chisinau city, A. Mateevici Street, no. 60, Republic of Moldova
13:40 – 13:50	<b>2.8. IDENTIFICATION OF GENETIC PROGRESS FOR SPRING WHEAT PRODUCTION CAPACITY IN COMPARATIVE MULTIANNUAL AND MULTILOCATIONAL TRIALS</b> Authors: Gabriel Lengyel <sup>1</sup> , Florin KADAR <sup>1,2*</sup> , Darius MORAR <sup>1,2</sup> , Rozalia KADAR <sup>2</sup> , Ionuț RACZ <sup>1</sup> , Diana HIRIȘCĂU <sup>2</sup> , Adina VARADI <sup>2</sup> , Leon MUNTEAN <sup>1</sup> <sup>1</sup> University of Agriculture Sciences and Veterinary Medicine Cluj-Napoca, Calea Mănăștur 3-5, Cluj, Romania, <sup>2</sup> Agricultural Research and Development Station Turda, 27 Agriculture Street, Cluj, Romania
13:50 – 14:00	<b>2.9. THE WINTER WHEAT GENOTYPE, FOUNDATION FOR IMPROVEMENT IN AGRICULTURE</b> Authors: Adina VARADI <sup>1</sup> , Diana HIRIȘCĂU <sup>1</sup> , Rozalia KADAR <sup>1</sup> , Ionuț RACZ <sup>1</sup> , Darius MORAR <sup>1,2</sup> , Florin KADAR <sup>1,2</sup> <sup>1</sup> Agricultural Research and Development Station Turda, 27 Agriculture Street, Cluj, Romania <sup>2</sup> University of Agriculture Sciences and Veterinary Medicine Cluj-Napoca, Calea Mănăștur 3-5, Cluj, Romania
14:00 – 14:10	<b>2.10. ASTERACEAE SPECIES WITH MELIFEROUS AND ENERGY POTENTIAL FROM THE COLLECTION OF THE "ALEXANDRU CIUBOTARU" NATIONAL BOTANICAL GARDEN (INSTITUTE)</b> Authors: Natalia CÎRLIG <sup>1</sup> , Victor ȚÎȚEI <sup>1</sup> , Elena IURCU-STRĂISTARU <sup>2</sup> , Mihail GADIBADI <sup>1</sup> <sup>1</sup> "Alexandru Ciubotaru" National Botanical Garden (Institute) of Moldova State University, Republic of Moldova <sup>2</sup> Institute of Zoology of Moldova State University, Republic of Moldova
14:10 – 14:20	<b>2.11. BIOLOGICAL CHARACTERISTICS AND CHEMICAL COMPOSITION OF PHYTOMASS OF AGROPYRON INTERMEDIUM AND PANICUM VIRGATUM UNDER THE AGROCLIMATIC CONDITIONS OF MOLDOVA</b> Authors: Ana GUȚU <sup>1</sup> ; Victor ȚÎȚEI <sup>1</sup> <sup>1</sup> "Alexandru Ciubotaru" National Botanical Garden (Institute) of Moldova State University, Republic of Moldova
14:20 – 16:00	<b>QUESTIONS AND ANSWERS SESSION + COFFEE BREAK + CONCLUSIONS</b>

## SECTION 1:



### 1.1. ANTI-OBESITY EFFECTS OF BROWN RICE AND RELATED RESEARCH

Reyhan IRKIN<sup>1\*</sup>, Ceylin ÖZTEN<sup>1</sup>, Dilara KIRKGÖZ<sup>1</sup>, Feyza KAYA<sup>1</sup>

<sup>1</sup>Izmir Demokrasi University, Health Sciences Faculty, Department of Nutrition and Dietetics, Goztepe, Konak, Izmir, Turkey

Corresponding author email: [reyhan.irkan@idu.edu.tr](mailto:reyhan.irkan@idu.edu.tr)

#### **Abstract**

*Brown rice has attracted attention as a functional food due to its high fibre content and rich bioactive compounds. It is a good source of protein, fat, minerals such as calcium and magnesium, and vitamins. The fermentation process has been shown to increase the antioxidant activity of rice. Obesity is a non-communicable disease that is prevalent worldwide and poses a significant risk for various health conditions. Brown rice may exert anti-obesity effects owing to its nutritional properties and bioactive components. These effects are thought to occur through several mechanisms.*

*The aim of this study is to provide a better understanding of the potential anti-obesity effects of brown rice by examining its nutritional content and antioxidant properties. Its high fibre content promotes satiety and may help prevent obesity by reducing excessive food intake. In addition, brown rice may exhibit anti-obesity effects by supporting the growth of beneficial gut bacteria, reducing harmful bacterial populations, and helping to regulate lipid profiles. Brown rice is also rich in magnesium, which plays a role in regulating insulin sensitivity and possesses anti-inflammatory properties.*

*Studies investigating the anti-obesity effects of brown rice suggest that it may assist in weight control; however, its effects on metabolic parameters appear to be limited. Nevertheless, current evidence indicates that brown rice may contribute to the prevention of obesity. Further long-term, large-scale, and multi-centre studies are needed to clarify these effects.*

**Key words:** Brown rice, fibre, insulin, obesity, weight control

## SECTION 1:



### 1.2. SUBJECTIVE PERCEPTION OF DROUGHT IMPACT – A SURVEY-BASED ANALYSIS FOR ROMANIA

Liliana VELEA<sup>1</sup>, Zenaida CHIȚU<sup>1</sup>, Roxana BOJARIU<sup>1</sup>, Argentina NERȚAN<sup>1</sup>,  
Sorin CHEVAL<sup>1</sup>

<sup>1</sup>Administrația Națională de Meteorologie, Sos. București-Ploiești nr.97, 013686, București, Romania

Corresponding author: [liliana.velea@meteoromania.ro](mailto:liliana.velea@meteoromania.ro)

#### **Abstract**

*Despite the large amount of research on gender and social inclusion dimension of climate changes and natural hazards, the number of studies covering European countries is low, especially for those documenting the link between drought and gender differentiated impact. To cover this gap, within CROSSEU (<https://crosseu.eu/>) project the investigation of this aspect is approached using an online survey, aiming to gather insights on the individual perception of drought impact.*

*The survey has been distributed in Romania, Czech Republic and Poland, in November 2025, either in the national language or in English. The target audience of the survey covers people residing and/or working in urban and/or rural areas, of age above 18 years. The survey includes three main parts: \*) social and demographic data. \*) perceived type of impact – related to health income/economic impact, food security, public services, leisure, security; \*) perceived gender-differentiated impact, considering 9 social categories (women, men, children, seniors, people without stable income, people living in plain / hilly areas, people living in urban/rural areas).*

*The present study discusses some preliminary outcomes based on a sample of 86 responses from Romania. The results suggest that a large share of respondents perceive a high intensity impact on both women and men as well as on all eight social groups considered; furthermore, most respondents appreciate that rural population is affected ‘much’ and ‘very much’ by drought, on second place being people with chronic medical conditions; also, urban population is generally perceived as not being strongly affected by drought.*

**Key words:** drought impact, population, health,

**Acknowledgement:** *The results of the study are partially obtained within the CROSSEU (Cross-Sectoral Framework for Socio-Economic Resilience to Climate Change and Extreme Events in Europe) project, financed within Horizon Europe programme, grant id 101081377.*

## SECTION 1:



### 1.3. DROUGHT-RESILIENT NITROGEN NUTRITION USING METHYLENE-UREA TECHNOLOGY

Alexandre MOUREAU<sup>1</sup>

<sup>1</sup>ADVAGREEN Eastern Europe, Budapest | Hungary

Corresponding author email: [alexandre.moureau@advagreen.com](mailto:alexandre.moureau@advagreen.com)

**Abstract:**

*Climate change is increasing the frequency and intensity of summer droughts in Eastern Europe, severely affecting nitrogen efficiency and crop productivity. Under such conditions, conventional granular nitrogen fertilizers exhibit poor performance due to limited soil moisture, leading to low Nitrogen Use Efficiency (NUE) and yield penalties.*

*This study presents two years of field trials (2024–2025) conducted in collaboration with SCDA Brăila in Brăila, evaluating a liquid slow-release nitrogen fertilizer based on methylene-urea technology (CLEAN FERTILIZER N28) under severe rainfall deficit conditions.*

*Results on maize and sunflower demonstrate consistent yield increases ranging from +11% to +28%, despite rainfall reductions of –33% to –45% compared to multiannual averages. These results highlight the capacity of methylene-urea nitrogen to provide resilient, drought-tolerant nitrogen nutrition, offering a concrete agronomic response to both climate constraints and upcoming European nitrogen regulations.*

**Key words:** drought resilient, nitrogen fertilizer, methylene-urea

## SECTION 1:



### 1.4. THE BIOPHYSICAL CONCEPT OF CONTROLLED HUMIDIFICATION: THEORETICAL AND APPLICATIVE FRAMEWORK

Gheorghe JIGĂU<sup>1</sup>, Sergiu DOBROJAN<sup>1</sup>, Galina DOBROJAN<sup>1</sup>, Eugeniu SPRÂNCEAN<sup>1</sup>

<sup>1</sup>Moldova State University, Chisinau city, A. Mateevici Street, no. 60, Republic of Moldova

Corresponding author email: [gheorghe.jigau@gmail.com](mailto:gheorghe.jigau@gmail.com)

#### **Abstract**

*The biophysical concept of controlled humification of fresh organic matter in the soil involves agrobiotechnological elements aimed at ensuring in the soil an optimal biophysical framework for the most efficient development of the processes of humification of plant residues (including secondary production) and rooting. The concept is based on the scientific framework regarding the realization of the processes of formation and accumulation of humus and the establishment of the functioning of the system of organic substances in several stages in time and space. The theoretical framework is provided by the theory of organic synthesis in stages and phases with different intensity as a result of the interaction of mineralization processes and organic synthesis controlled by bioclimatic, aerohydric and hydrothermal conditions. The application framework involves landscape adaptation, energy sustainability, biological diversification and activation, minimization of works, optimization of aero- and hydrothermal conditions in the active biological layer.*

**Key words:** biophysical concept, humification processes, physical processes, biophysical framework, controlled humification.

## SECTION 1:



### 1.5. ALTERNATIVE TECHNIQUES FOR MAINTAINING THE SPECIFICITY OF AGRICULTURAL ECOSYSTEMS IN CURRENT CLIMATE CONDITIONS

Mihai TUDOR<sup>1</sup>, Gabriel TABARANU<sup>1</sup>, Daniela Ionela FERȚU<sup>2</sup>, MOREAU Alexandre<sup>3</sup>

<sup>1</sup>Bujoru Viticulture and Winemaking Research and Development Station, Str. Gral Eremia Grigorescu, no. 65, Tg.Bujor, Galati, 805200, Romania

<sup>2</sup>”Dunărea de Jos” University Galati, 800002 Galati, Romania

<sup>3</sup>ADVAGREEN SA Route de Wallonie, Darse d’Hautrage 7334 Hautrage Belgique

Corresponding author email: [farm.tudor@gmail.com](mailto:farm.tudor@gmail.com)

#### **Abstract**

*This study investigates the benefits of using eco-fertilizers in multi annual crops. Grapevine plantations due to their physiological characteristics were a suitable candidate for monitoring the impact on vegetative development and phenophases caused by changing micro ecosystem indices and the use of our experimental protocol. Global warming phenomena affect all ecosystems, modifying their specificity beyond their intrinsic adaptive capacity. Due to extreme drought, the Balkan region is facing an unprecedented decrease in water reserves, with negative effects on the quality of life. Implementation of innovative environmentally friendly techniques becomes the only solution that ensures sustainability. The results obtained identify some changes in the adaptability of grapevine plantations to new climatic conditions.*

**Key words:** eco fertilizers, cover crops

## SECTION 1:



### 1.6. RESEARCH ON THE BEHAVIOR OF NEW RICE VARIETIES AND PERSPECTIVE LINES CREATED AT S.C.D.A BRĂILA- C.E. POLIZEȘTI

Ionel IVAN<sup>1</sup>, Elena IVAN<sup>1</sup>, Vlad Dumitru MIHAILA<sup>1,2</sup>

<sup>1</sup>Agricultural Research and Development Station of Braila, Romania, Sos. Vizirului, Km. 9, Braila

<sup>2</sup>University of Agriculture and Veterinary Medicine, Bulevardul Mărăști 59, 011464 București

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#### **Abstract**

*The paper presents the results of research on the productive and economic agrobiological behavior of approved varieties and prospective rice lines created at the Brăila Agricultural Research and Development Station, tested within the Polizești experimental field. The study was conducted over a period of three years (2023-2025) and aimed to identify genotypes with high productive potential and good adaptability to the pedoclimatic conditions of southeastern Romania.*

*The evaluation of the biological material was carried out based on the main biometric indicators (plant height, vegetation cycle duration, panicle length, number of grains per panicle, percentage of dry grains and mass of 1000 grains), correlated with the level of paddy rice and milled rice production. The results highlighted significant differences between genotypes, the perspective lines: L 94/11, L 94/17 and L 100/7 being distinguished by higher values of the main parameters analyzed and by high and stable productions.*

*The economic analysis, based on estimated expenditures for 2025, showed that genotypes with yields above 9,500-10,000 kg/ha of paddy rice provide a favorable ratio between production costs and income obtained, especially when coupled with access to support. The study's conclusions emphasize the importance of the breeding activity carried out at S.C.D.A. Brăila and recommend continuing to test and promote promising lines with high biological and economic value.*

**Keywords:** rice varieties, promising lines, agrobiological behavior, agricultural production, economic analysis

## SECTION 1:



### 1.7. CHANGES IN THE PHYSICOCHEMICAL PROPERTIES OF RICE UNDER INAPPROPRIATE STORAGE CONDITIONS

Nicolae POPESCU<sup>1,2</sup>, Ionel IVAN<sup>1</sup>, Alin Ionel GHIORGHE<sup>1</sup>, Ioana GORGOVAN<sup>1</sup>,  
Cristian STROIA<sup>1,2</sup>

<sup>1</sup>Agricultural Research and Development Station of Braila, Romania, Sos. Vizirului, Km. 9, Braila

<sup>2</sup>University of Agriculture and Veterinary Medicine, Bulevardul Mărăști 59, 011464 București

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#### **Abstract**

*Inadequate storage of rice is a major factor in the deterioration of its quality, with a direct impact on its nutritional, technological and commercial value.*

*The paper presents the results of a study on the changes in the physicochemical properties of rice grains stored under inappropriate temperature and humidity conditions.*

*Variations in moisture content, changes in pH, intensification of biochemical degradation processes, as well as their influence on the hectoliter mass and appearance of the grains are analyzed.*

*The results highlight the importance of respecting optimal storage conditions to maintain rice quality and reduce post-harvest losses, while also offering practical recommendations for the correct management of storage.*

**Keywords:** rice storage, quality, post-harvest losses

## SECTION 1:



### 1.8. USE OF BACILLUS ATROPHAEUS IN SEED BIOPRIMING AS A BIOLOGICAL ALTERNATIVE TO CHEMICAL TREATMENTS

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#### **Abstract**

*This study evaluates the efficacy of Bacillus atropheus (RhizoVital® C5) as a biological seed treatment compared to chemical alternatives (Raiza Mix) in winter wheat (Triticum aestivum L.) and winter oilseed rape (WOSR, Brassica napus oleifera L.). Field trials conducted at three locations in Romania during the 2025-2026 growing season demonstrated that biological treatment with B. atropheus significantly enhanced germination rates, pre-winter development, root system architecture, and foliage development compared to both chemical treatment and untreated controls. The biological treatment resulted in superior root branching (14 cm vs. 11 cm), increased leaf production (9 leaves vs. 6), and enhanced root hair density, leading to improved nutrient absorption efficiency and plant vigor. These findings suggest that B. atropheus-based seed biopriming offers a sustainable and effective alternative to conventional chemical seed treatments.*

**Key words:** Bacillus atropheus, seed biopriming, biological treatment, winter wheat, oilseed rape, rhizosphere colonization.

## SECTION 1:



### 1.9. MODULAR IOT SYSTEM FOR DATA-DRIVEN DECISION SUPPORT IN SMART AGRICULTURE

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#### **Abstract**

*This article explores a modular IoT-based architecture designed to support data-driven decision making in agricultural environments. The proposed framework integrates a diverse set of environmental sensing modules with low-power wireless communication protocols (LoRaWAN, Wi-Fi, 5G), enabling long-range, continuous data acquisition across cultivated areas. Sensor nodes capture multi-parameter measurements, including soil and atmospheric conditions, and transmit the information to a cloud-enabled data aggregation service.*

*A dedicated visualization platform processes incoming streams and transforms them into dynamic dashboards, interactive charts, and spatial overlays that facilitate rapid interpretation by end-users. Beyond real-time monitoring, the platform incorporates analytical components that evaluate field conditions and detect anomalies indicative of crop stress or early-stage disease development. Automated notifications are triggered when threshold deviations occur, guiding users toward timely interventions.*

*By emphasizing system scalability, interoperability, and usability, the solution supports diverse agricultural contexts—from small plots to large, distributed farms. The combination of IoT sensing, robust communication protocols, and an intuitive visualization layer contributes to more informed resource planning, improved crop protection strategies, and enhanced operational efficiency.*

**Key words:** IoT monitoring systems, agricultural analytics, wireless communication protocols, visualization platforms, precision crop management, smart farming technologies

## SECTION 1:



### 1.10. AGRI-ENVIRONMENT MEASURES AND CLIMATE ADAPTATION IN BRĂILA COUNTY

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#### **Abstract**

*The present paper investigates the role of compensatory payments granted through Measure 10 (M10) of the National Rural Development Programme (NRDP) in the transition towards resilient agriculture in the South-East region of Romania. The study focuses on Brăila County, an area with immense agricultural potential but under severe threat from desertification and soil degradation. Through an analysis of APIA (Payments and Intervention Agency for Agriculture) data and agronomic performance indicators, the paper demonstrates that attracting funds through agri-environment packages has become an indispensable tool not only for environmental protection but also for the financial stability of farmers. The results show an increase in soil organic matter content in areas where "green crops" were applied and a preservation of avian biodiversity in the areas adjacent to the Danube.*

**Key words:** Measure 10, Green crops, Desertification, APIA, EAFRD Funds.

## SECTION 2:



### 2.1. COMPARATIVE STUDY ON SOIL TILLAGE SYSTEMS APPLIED TO SPRING STRAW CEREALS

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#### **Abstract**

*Stopping soil degradation processes requires the adoption of an integrated approach to agricultural systems, based on environmental protection and the principles of sustainable development. In this context, conservation agriculture plays a central role by promoting reduced mechanical soil disturbance, maintaining a protective layer of crop residues, and diversifying crop rotations. The research conducted at ARDS Turda during the period 2023-2025 aimed to highlight the dependency relationship between technological factors and climatic conditions on the yield of certain spring straw cereals (wheat, oat, and barley). Sowing was carried out in the first decade of March at a density of 500 germinative grain/m<sup>2</sup>, simultaneously with the application of mineral fertilization at a rate of 300 kg/ha NPK 15-15-15. Barley is less demanding regarding the soil tillage system, the yield realized was  $\approx$  5000 kg annually.*

**Key words:** spring straw cereals, pedo-climatic conditions, system, yield

**Acknowledgments:** This research was funded by the Ministry of Agriculture and Rural Development, Project ADER no. 123/17.07/2023: Conservation of soil resources was achieved through the use of technological components of regenerative agriculture in order to obtain economic and sustainable harvests of straw cereals in the Transylvanian Plateau.

## SECTION 2:



### 2.2. THE IMPACT OF DIGITALIZATION ON AGRICULTURE IN THE CONTEXT OF THE WAR IN UKRAINE

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#### **Abstract**

*The war in Ukraine (starting 2022) has severely disrupted agri-food value chains, access to inputs and export capacity, pushing farmers and sector actors to adopt digital solutions (satellite monitoring, telemetry, farm management systems, online marketplaces) to sustain production and optimize inputs. This study assesses how the crisis accelerated certain forms of digitalization while exacerbating inequalities in access to technology, synthesizing micro-level data and recent literature. Findings show increased use of remote-sensing solutions and an urgent need for digital infrastructure and financing to scale adoption.*

**Key words:** digital agriculture, war in Ukraine, precision agriculture, food security.

## SECTION 2:



### 2.3. WINTER TRITICALE, AN IMPORTANT SOURCE OF ESSENTIAL AMINO ACIDS

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#### **Abstract**

*Triticale grains are notable for their high protein content and well-balanced structure of essential amino acids. Amino acids are the building blocks of proteins and are involved in synthesising numerous substances important to the body, such as hormones and neurotransmitters. Amino acids in animal feed support growth, development, and reproductive performance, as well as immune function. The biological sample consisted of 25 winter triticale genotypes. We used Agilent 1260 Infinity II DAD+FLD equipment with a pre-column derivatisation process to determine the essential amino acid content using liquid chromatography. The internal standard used was ITST 27. Eight of the nine essential amino acids were detected; however, tryptophan was not quantified. Line 16026T1 exhibited the highest concentrations of essential amino acids, except for isoleucine. In contrast, the genotypes Zvelt and 18061T showed low concentrations of most of the analysed amino acids. Due to its high essential amino acid content, line 16026T1 provides exceptional nutritional value. This makes it an important source of lysine, particularly for meeting the nutritional needs of humans and domestic animals.*

**Key words:** winter triticale, quality, essential amino acids.

## SECTION 2:



### 2.4. THE CONCEPT OF MODERNIZING AGROECOSYSTEMS NURSERY THROUGH BIOLOGIZATION OF THE PRODUCTION PROCESS

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#### **Abstract**

*Watermelon agroecosystems are distinguished by the high degree of technologicalization of the production process and therefore they are vulnerable to various stress factors (drought, pathologies, pests). In this context, the concept of their modernization is a modern approach aimed at optimizing the management of the production process through the priority use of biological factors and methods in increasing soil health and fertility.*

*Its key principles and methods are:*

- 1. Adaptation of all components of the agroecosystem to landscape conditions.*
- 2. Creation of optimal conditions for the interactive self-regulation of physical and biological processes.*
- 3. Regulation of the functionality of the "soil-pedocenosis-agrophytocenosis" system through the use of biologically and physiologically active substances of humic origin.*
- 4. Practice of green fertilizers and algal biofertilizers in order to optimize bioenergy resources in the soil.*
- 5. Methods for increasing the resilience of agroecosystems and the capacity to suppress the development of pathogens based on controlled management of the humification process.*

**Key word:** watermelon agroecosystems, production process, soil health, soil fertility

**SECTION 2:****2.5. THE IMPACT OF APPLICATION OF DIFFERENT DOSES OF  
ALGAE BIOFERTILIZERS ON THE QUANTITATIVE PARAMETERS OF  
*THYMUS VULGARIS* L.**

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***Abstract***

*The paper aims to present the results of scientific research obtained from the application of an algal suspension to the open field cultivation of the species *Thymus vulgaris* L., under the conditions of 2025. In the experiment, the *Chlorella vulgaris* suspension was applied in a concentration of 100%, as well as diluted with drinking water in ratios of 1:3, 1:4 and 1:5. The control plots were represented by crops established with the same species, without the administration of algal biofertilizers. The results showed that the variant with the application of the algal suspension in a concentration of 100% determined the most significant effects on *Thymus vulgaris* L., reflected by the increase in plant height, bush diameter, production and essential oil content in biomass. With the reduction of the dose of biofertilizer applied, a quantitative decrease in aerial biomass and essential oil content was observed. Research has shown that, in the cultivation of the *Thymus vulgaris* L. species, the most effective dose was the suspension of *Chlorella vulgaris* in a concentration of 100%, this being recommended for the industrial cultivation of the species in order to increase productivity and the essential oil content of the biomass.*

**Key words:** *Thymus vulgaris* L.; algal biofertilizers; biomass production; essential oil

## SECTION 2:



### 2.6. BIOCHEMICAL COMPOSITION OF FIELD PEA PHYTOMASS AND ITS POTENTIAL APPLICATIONS IN THE BIOECONOMY

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#### Abstract

*Field pea (*Pisum sativum* ssp. *sativum* var. *arvense*, Fabaceae family), native to Europe and also occurring in the spontaneous flora of Bessarabia, is a cool-season annual species commonly cultivated as feed, forage, or cover crops. The local ecotype of field pea, grown in monoculture on experimental plot at the National Botanical Garden of Moldova MSU in Chişinău, was the subject of this study. The harvested whole plants contained 20% dry matter, with the biochemical composition of the dry matter comprising 21.0% crude protein (CP), 25.1% crude fiber (CF), 43.8% neutral detergent fiber (NDF), 26.9% acid detergent fiber (ADF), 3.6% acid detergent lignin (ADL), 15.6% total soluble sugars (TSS), 16.9% hemicellulose (HC), 23.3% cellulose (Cel) and 12.0% ash. The feed and energy values of the dry matter from natural fodder were 679 g/kg dry matter digestibility (DMD), relative feed value (RFV) = 144, 13.29 MJ/kg digestible energy (DE), 10.91 MJ/kg metabolizable energy (ME), and 6.93 MJ/kg net energy for lactation (NEL). Prepared hay from the same material showed 20.1% CP, 26.4% CF, 42.5% NDF, 28.6% ADF, 4.2% ADL, 10.2% TSS, 13.9% HC, 23.3% Cel and 12.1% ash, with corresponding feed values of 666 g/kg DMD, RFV = 146, 13.06 MJ/kg DE, 10.72 MJ/kg ME and 6.74 MJ/kg NEL. Furthermore, the field pea phytomass demonstrated a favorable carbon-to-nitrogen (C/N) ratio of 14-15 and a biochemical methane potential (BMP) of 364 L/kg of organic matter, indicating its suitability as a substrate for biogas production. These results suggest that the local ecotype of field pea is a promising source of early-season, protein-rich fodder and an optimal phytomass substrate for biomethane production. This study was financially supported by Subprogram No. 01.01.02 “Identification of valuable forms of plant resources with multiple uses for the circular economy”.*

**Key words:** pea phytomass, circular economy, bioeconomy, feed, forage, cover crops.

## SECTION 2:



### 2.7. QUALITATIVE CHARACTERIZATION OF VOLATILE COMPOUNDS FROM THE ESSENTIAL OIL OBTAINED FROM THE AREAL PARTS OF HELICHRISUM ITALICUM, VARIETY "AURIU 21" LOCAL CHEMOTYPE

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#### **Abstract**

*The article presents scientific data on the content of essential oil from Helichrysum italicum local chemotype, variety Auriu 21 plant material collected from the batches of the collection of Medicinal and Aromatic Plants of the LCȘ Plant Biochemistry CCȘ Integrated Natural Sciences. In the researched samples, 50 chemical constituents were identified in the content of the essential oil. The results showed that the most evident odor-active compounds, constantly perceived sensory and characterized by the highest average aroma dilution factor, are: 4,6-dimethyloctane - 3,5 - dione, 1,8 - cineole and nerol. In addition, numerous other constituents, present in low concentrations or even at trace levels, synergistically contribute to the formation of the characteristic odor, color, viscosity of the essential oil of Helichrysum italicum local chemotype, variety Auriu 21. biochemically rich and can be exploited in various branches of industry.*

**Key words:** essential oil, volatile compounds, chemical constituents, Helichrysum italicum local chemotype, variety Auriu 21

## SECTION 2:



### 2.8. IDENTIFICATION OF GENETIC PROGRESS FOR SPRING WHEAT PRODUCTION CAPACITY IN COMPARATIVE MULTIANNUAL AND MULTILOCATIONAL TRIALS

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#### **Abstract**

*The evaluation of genetic progress for production capacity can be made based on multi-annual results obtained in multi-location comparative trials, which should permanently include a reference variety, kept over the years as a long-term control, in this case Pădureni. The production capacity of a variety represents the amount of organic matter accumulated in a vegetation cycle and is conditioned by the following productivity elements: the number of fertile ears/m<sup>2</sup>, the number of grains/ear and the mass of 1000 grains. Indirect correlations are naturally established between the productivity elements, which manifest themselves more or less depending on the biological particularities of the cultivated variety and the environmental conditions. The application of the backcross method led to an increase in the frequency of favorable recombinations for production capacity in the new spring wheat lines, highlighting the T 2601-22 line, with a production of 7046 kg/ha, which will most likely be submitted in 2026 to ISTIS Bucharest for testing for homologation. Also, genotypes that seem to be adapted to extreme climate conditions through better grain filling capacity and disease resistance were obtained.*

**Key words:** spring wheat, productivity elements, long-term control.

## SECTION 2:



### 2.9. THE WINTER WHEAT GENOTYPE, FOUNDATION FOR IMPROVEMENT IN AGRICULTURE

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#### **Abstract**

*Winter wheat is a vital crop that feeds billions of people worldwide and contributes to about 21% of global food production. In Romania the significant portion of 2024's total grain production that went to wheat (53%) illustrates the significance of winter wheat in our agriculture. In wheat crop management, genotype selection is a fundamental criterion for high yields; higher yields can only be realized with good genetic potential. The performance of different varieties is also influenced by the environment, and it is important to understand that no variety is perfect in all growing areas. The new breeding lines at ARDS Turda need to be tested and evaluated in several testing centers for both quality and their yield potential and the best ones will be registered as future wheat varieties.*

**Key words:** breeding lines, quality, yield, winter wheat

## SECTION 2:



### 2.10. ASTERACEAE SPECIES WITH MELIFEROUS AND ENERGY POTENTIAL FROM THE COLLECTION OF THE “ALEXANDRU CIUBOTARU” NATIONAL BOTANICAL GARDEN (INSTITUTE)

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#### **Abstract**

Plants from the Asteraceae (Compositae) family are globally recognized for their diverse utility, including food, honey production, medicinal, industrial, energy and ornamental uses. Certain species are integrated into the “honey conveyor”, characterized by prolonged and staggered flowering periods, thereby providing nectar and pollen to a broad spectrum of pollinators over an extended timeframe. This study investigates several species with potential for honey, forage and energy production, specifically *Helianthus annuus* L., *Inula helenium* L., *Silphium perfoliatum*, and *Silybum marianum* (L.) Gaertn., grown within the “Alexandru Ciubotaru” National Botanical Garden (Institute) of MSU. Phenological and ontogenetic observations reveal that both annual and perennial species (in their second year of vegetation) complete their full ontogenetic cycle, with a flowering period lasting approximately 25–35 days (late June to August), producing viable seeds. During the flowering phase, these species attract a wide range of pollinators, with honeybees (*Apis mellifera*) and other valuable insect species (*Bombus* sp., *Eristalis* sp.) being the most abundant. These findings suggest that the flowers of these species are rich in nectar and pollen, with a meliferous potential of 40–180 kg/ha. Additionally, the stems, harvested at the end of the growing season, serve as raw material for the production of solid biofuels (briquettes, pellets), with a net calorific value of approximately 15–15.3 MJ/kg, as well as for the production of cellulose-based bioethanol, yielding 510–540 liters/ton. This study was financially supported by Subprogram No. 01.01.02 “Identification of valuable forms of plant resources with multiple uses for the circular economy”.

**Key words:** Asteraceae, honey, melliferous potential

## SECTION 2:



### 2.11. BIOLOGICAL CHARACTERISTICS AND CHEMICAL COMPOSITION OF PHYTOMASS OF *AGROPYRON INTERMEDIUM* AND *PANICUM VIRGATUM* UNDER THE AGROCLIMATIC CONDITIONS OF MOLDOVA

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#### **Abstract**

*The species *Agropyron intermedium* and *Panicum virgatum* (family Poaceae), maintained in monoculture on the experimental plots of the National Botanical Garden (Institute), Moldova State University, Chișinău, served as the objects of study. Under the studied conditions, the culms of these grass species are erect and, at the flowering stage, reached heights of 138–150 cm. The nutrient concentrations in the harvested phytomass were as follows: 6.8–13.1% crude protein, 39.0–41.2% crude fiber, 9.1–9.3% ash, 40.7–42.2% acid detergent fiber, 65.3–67.2% neutral detergent fiber, 3.6–4.9% acid detergent lignin, 37.1–37.3% cellulose and 23.1–26.5% hemicellulose. The nutritive and energy values were: 56.0–57.2% dry matter digestibility, a relative feed value of 79–92, 11.37–11.86 MJ/kg digestible energy, 9.06–9.34 MJ/kg metabolizable energy and 5.18–5.55 MJ/kg net energy for lactation. The biochemical biomethane production potential of the fresh biomass used as substrates for anaerobic digestion reached 317–352 L/kg of organic dry matter. The studied grass species are suitable for the establishment of temporary grasslands in monoculture or in mixtures with other perennial grasses and legumes. The harvested green mass can be used both as fodder and as a substrate for biomethane production in biogas reactors, contributing to renewable energy generation. This study was financially supported by Subprogram No. 01.01.02 “Identification of valuable forms of plant resources with multiple uses for the circular economy”.*

**Key words:** *Agropyron, Panicum, grass species, circular economy*