



UNIVERSITY OF AGRONOMIC SCIENCES  
AND VETERINARY MEDICINE OF BUCHAREST  
FACULTY OF MANAGEMENT  
AND RURAL DEVELOPMENT



*International Conference*  
*"Agriculture for Life, Life for Agriculture"*

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# BOOK OF ABSTRACTS

## SECTION 7

### MANAGEMENT AND ECONOMICS OF RURAL AREAS



2025  
BUCHAREST

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ECONOMICS OF RURAL AREAS

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BUCHAREST

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Faculty of Management and Rural Development**

Address: 59 Marasti Blvd, District 1, Zip code 011464, Bucharest, Romania  
Phone: + 40 213 1830 75, E-mail: managementjournal@usamv.ro, Webpage: www.managusamv.ro

## CERES Publishing House

Address: 106 Izbiceni Street, District 1, Bucharest, Romania  
Phone: + 40 21 317 90 23, E-mail: edituraceres@yahoo.com, Webpage: www.editura-ceres.ro

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BOOK OF ABSTRACTS - Section 7: Management and Economics of Rural Areas, 2025

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ISSN 2457-3256  
ISSN-L 2457-3256

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## CONTENTS

### SUBSECTION PRODUCTION ECONOMICS AND AGROMARKETING

1. SYNERGIES BETWEEN ECONOMICS AND MARKETING IN AGRITOURISM: A WEB OF SCIENCE BOOLEAN SEARCH-BASED SCIENTOMETRIC EXAMINATION OF AGROTOURISM POTENTIAL – <b>Alina Emilia Maria GHERDAN, Ramona Vasilica BACTER, Cristina Maria MAERESCU, Monica DODU, Denis Paul BACTER, Alexandra UNGUREANU</b> .....	14
2. SORGHUM, THE CROP OF THE FUTURE UNDER CLIMATE CHANGE CONDITIONS – <b>Paula STOICEA, Adina Magdalena IORGA, Livia DAVID, Cristina Georgiana BUCUR</b> .....	15
3. ECONOMIC WEIGHTS OF PRODUCTION AND FUNCTIONAL TRAITS AND THEIR IMPORTANCE IN SETTING UP BREEDING PROGRAMS WITH A POSITIVE IMPACT ON DAIRY SHEEP GROWING PROFITABILITY: A REVIEW – <b>Stanimira SLAVOVA, Nevyana STANCHEVA, Teodora ANGELOVA, Jivko KRASTANOV, Daniela KOLEVA</b> .....	16
4. THE ECONOMIC IMPACT OF LOCAL FOOD PRODUCERS ON RETAILERS IN ROMANIA – <b>Brindusa Mariana BEJAN, Ciprian Marcel POP, Gabriela Nicoleta SIRBU</b> .....	17
5. AGRICULTURAL YIELDS AND CLIMATE CHANGE: HOW DOES ROMANIA MAINTAIN ITS EXPORT COMPETITIVENESS? – <b>Miruna-Petruța GHILENCEA, Georgiana Armenița ARGHIROIU, Silviu BECIU</b> .....	18
6. WINE, CULTURE AND CONNECTION: EXPLORING THE OPPORTUNITIES OF WINE TOURISM IN ROMANIA – <b>Andreea Iuliana VÎRLAN (SAVA), Maria BOBEICĂ (COLPOȘ), Georgiana Armenița ARGHIROIU, Silviu BECIU</b> .....	19
7. STUDY ON THE CHARACTERISTICS OF THE VEGETAL AGRICULTURAL SECTOR IN ROMANIA COMPARED TO OTHER EU COUNTRIES – <b>Claudiu-Ovidiu AILIOAEI, Geta-Mirela ISPAS, Oana COCA, Gavril ȘTEFAN</b> .....	20
8. ASSESSMENT OF FOOD AVAILABILITY IN BULGARIA AS A KEY FACTOR FOR FOOD SECURITY – <b>Tsvetan MARKOV</b> .....	21
9. ANALYSIS OF THE STRUCTURAL EVOLUTION OF THE DOMESTIC DAIRY PRODUCTS SUPPLY IN ROMANIA – <b>Rodica CHETROIU, Lidia IURCHEVICI, Diana Maria ILIE</b> .....	22
10. EVALUATION OF CONSUMER PERCEPTIONS AND FUTURE POTENTIAL OF CULTURED MEAT: THE CASE OF ADANA – <b>Şinasi AKDEMIR, Ali BERK, Ufuk GÜLTEKIN, Kasım Eren TUNA, Aziz MAVRUK, Issaka Saidou ISMAILLA</b> .....	23
11. VARIABILITY OF WINTER WHEAT AGRICULTURAL YIELDS UNDER THE INFLUENCE OF THERMAL RESOURCES. CASE STUDY: CONTINENTAL DOBROGEA (ROMANIA) – <b>Maria-Gabriela RADU, Dana Maria CONSTANTIN (OPREA), Georgeta BANDOC, Daniel ALEXANDRU</b> .....	24
12. SUNFLOWER PRODUCTION PERFORMANCE UNDER CLIMATE CHANGE IN DOBROGEA REGION, ROMANIA – <b>Dana Maria CONSTANTIN (OPREA), Elena GRIGORE, Florina TATU, Nicoleta IONAC, Maria-Gabriela RADU, Giorgia LÜFTNER, Raul Gabriel ILEA</b> .....	25
13. CONSUMERS' ATTITUDE TOWARDS SENSORY ATTRIBUTES AND WILLINGNESS TO PURCHASE MEAT OF MALE LAYER-TYPE OR DUAL-PURPOSE CHICKENS – <b>Krasimir DIMOV, Evgeni PETKOV, Teodora POPOVA</b> .....	26
14. POTATO MARKET IN ROMANIA: LOCAL PRODUCTION VS IMPORTS – <b>Mariana CHIVU, Silvius STANCIU</b> .....	27

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---

**SUBSECTION FARM AND COOPERATIVES MANAGEMENT**

1. COOPERATIVIZATION IN ROMANIAN AGRICULTURE: EVOLUTION AND CURRENT PERSPECTIVES – <b>Silvius STANCIU</b> .....	30
2. LOCAL PRODUCER GROUPS IN ROMANIA: AN EUROPEAN CONTEXTUAL ANALYSIS – <b>Mihaela PILA, Silvius STANCIU</b> .....	31
3. FAMILY LIVESTOCK FARMS IN BULGARIA: THEIR COOPERATION – A NEW DEVELOPMENT HORIZON – <b>Todorka ATANASSOVA, Ivanka STOYCHEVA, Zlatina DIMOVA</b> .....	32
4. THE PROTEIN PRODUCTION POTENTIAL OF SOME MAIZE HYBRIDS – <b>Alina Laura AGAPIE, Marinel Nicolae HORABLAGA, Busuioc VACARIU, Ovidiu EREMI, Florin SALA</b> .....	33
5. CLUSTERING AND RANKING OF CORN HYBRIDS BASED ON YIELD AND SEED QUALITY INDICES – <b>Ovidiu EREMI, Alina Laura AGAPIE, Marinel Nicolae HORABLAGA, Daniela HORHOCEA, Busuioc VACARIU, Florin SALA</b> .....	34
6. PRODUCTIVITY ELEMENTS AND YIELD IN GRAPEVINE IN RELATION TO THE MANAGEMENT SYSTEM – CASE STUDY IN SAUVIGNON BLANC – <b>Anca Aneta DRAGUNESCU, Florin SALA</b> .....	35
7. AGRICULTURAL LAND ADMINISTRATION IN ALBANIA POST-PRIVATIZATION: CHALLENGES AND ISSUES FOR SUSTAINABLE DEVELOPMENT – <b>Sherif LUSHAJ, Enkelejda KUCAJ</b> .....	36
8. PRACTICES AND CHALLENGES IN HUMAN RESOURCE MANAGEMENT IN AGRICULTURAL FARMS IN ROMANIA: A QUALITATIVE APPROACH – <b>Marius OGREZEANU, Carmen Adriana COCIAN, Teodor DUMITRACHE, Cristina Bianca POCOL</b> .....	37
9. ASSESSMENT OF THE APPLICABILITY OF FINANCIAL INSOLVENCY MODELS – <b>Rumyana ANGELOVA, Dimitrina STOYANCHEVA, George ZHELYAZKOV</b> .....	38

**SUBSECTION AGRICULTURAL AND RURAL POLICIES**

1. ANALYSIS OF HUMAN RESOURCES IN RURAL ROMANIA: TRENDS AND SOCIO-ECONOMIC IMPLICATIONS – <b>Simona-Beatrice MANOLACHE, Silvius STANCIU</b> .....	40
2. THE IMPACT OF AGRICULTURAL INPUTS ON CROP PRODUCTION EFFICIENCY ACROSS ROMANIAN DEVELOPMENT REGIONS: A MULTI-CROP ANALYSIS (2007-2023) – <b>Ciprian-Dan MILITARU, Tiberiu IANCU, Marius Mihai MICU, Dragoş SMEDESCU, Alina Gabriela MĂRCUȚĂ, Valentina Constanța TUDOR</b> ....	41
3. SORGHUM CAN HELP BUILD A SUSTAINABLE FOOD SYSTEM, ACCORDING TO THE EU STRATEGY – <b>Carmen GURGU-LAZĂR, Constanța Laura ZUGRAVU, Gheorghe Adrian ZUGRAVU</b> .....	42
4. THE EUROPEAN UNION LONG TERM VISION FOR RURAL AREAS - PROSPECTS FOR BULGARIA – <b>Krum HRISTOV, Rositsa BELUHOVA-UZUNOVA, Grigor TODOROV, Boryana IVANOVA, Mariyana SHISHKOVA</b> .....	43
5. POLICIES AND FACTORS FOR RURAL DEVELOPMENT IN BULGARIA – <b>Emil MUTAFOV</b> .....	44
6. EUROPEAN GREEN POLICIES’ IMPACT ON FOOD PRODUCTION IN BULGARIA – <b>Georgi ALEKSIEV, Nadezhda PETROVA, Violetka ZHELEVA</b> .....	45

# BOOK OF ABSTRACTS

## SECTION 7: MANAGEMENT AND ECONOMICS OF RURAL AREAS

---

7. DYNAMICS OF THE AREAS, PRODUCTION, IMPORT AND EXPORT IN FRUIT AND VEGETABLES SECTORS AND LABOUR RESOURCES IN BULGARIA'S AGRICULTURE - TRYING TO ACHIEVE THE GOALS OF THE "FARM TO FORK" STRATEGY – <b>Georgi ALEKSIEV, Nadezhda PETROVA, Iskra NENCHEVA, Oleg MILEV</b> .....	46
8. THE IMPACT OF PUBLIC REGISTRIES ON GOVERNANCE STRUCTURE IN AGRICULTURE – <b>Minko GEORGIEV, Rumena GANDEVA</b> .....	47
9. PESTICIDES AND SUSTAINABILITY: A ROMANIAN FARMERS' PERSPECTIVE – <b>Carmen Adriana COCIAN, Teodor DUMITRACHE, Cristina Bianca POCOL</b> .....	48
10. STUDY ON THE IMPACT OF AGRICULTURAL POLICIES ON THE ECONOMIC EFFICIENCY OF FARMS IN ROMANIA – <b>Geta-Mirela ISPAS, Claudiu-Ovidiu AILIOAEI, Oana COCA, Ștefan GAVRIL</b> .....	49
11. THE ROLE OF SMALL FARMS WITHIN THEIR NATIONAL CONTEXTS IN CENTRAL AND EASTERN EUROPE – <b>Mihaela MIHAILOVA, Rumena GANDEVA, Monika KABADZHOVA</b> .....	50
12. VALUE-ADDED AGRICULTURE IN THE REPUBLIC OF MOLDOVA – INCREASING THE EXPORT POTENTIAL AND INTERNATIONAL COMPETITIVENESS – <b>Alexandru STRATAN, Eugenia LUCASENCO, Vasiliu SAKOVICI</b> .....	51
13. ESTIMATING EUROPEAN UNION FIELD CROPS FARM SUSTAINABILITY THROUGH MEASURING POLICY IMPLEMENTATION EFFICIENCY BY DATA ENVELOPMENT ANALYSIS – <b>Veselin KRUSTEV</b> .....	52
14. FOOD SYSTEM APPROACH IN ROMANIA: CHALLENGES AND OPPORTUNITIES – <b>Raluca BARBU, Diana DUMITRAȘ</b> .....	53
15. TRANSFORMING FOOD SECURITY IN THE REPUBLIC OF MOLDOVA THROUGH THE AGROVOLTAIC CONCEPT – <b>Alexandru STRATAN, Viorica LOPOTENCO, Liliana STAYER</b> .....	54
16. GLOBALIZATION OR GLOCALIZATION? A COMPARATIVE ANALYSIS OF AGRI-FOOD SYSTEMS IN NIGERIA AND DR CONGO AMID GLOBAL CRISES – <b>Ioana Mihaela BALAN, Monica OCNEAN, Bogdan Petru RADOI, Roger GAISE, Aisha SIMBIAT HUSSAINI, Andreea Letitia CATAN, Gina FINTINERU, Teodor Ioan TRASCA</b> .....	55
17. THE RELATIONSHIP BETWEEN MANAGERIAL BEHAVIOUR AND EUROPEAN FUNDS IN ROMANIAN RURAL AREAS – <b>Cristian GAINA, Carmen Simona DUMITRESCU, Raul PASCALAU, Cosmin SALASAN</b> .....	56
18. THE DEGREE OF INCOME DIVERSIFICATION AMONG RURAL HOUSEHOLDS IN THE POLOG AND PELAGONIA REGIONS OF NORTH MACEDONIA – <b>Marija GJOSHEVA KOVACHEVIKJ, Despina POPOVSKA STOJANOV, Lazo DIMITROV</b> .....	57
19. THE LABOR MARKET IN ROMANIAN AGRICULTURE: CURRENT TRENDS AND CHALLENGES FOR ENTREPRENEURS – <b>Petre Adrian LIPTAC, Simona Beatrice MANOLACHE, Mihaela PILA, Silviu STANCIU</b> .....	58
20. A DIFFERENTIATED RURAL SETTLEMENT FRAMEWORK FOR LOCAL ECONOMIC DEVELOPMENT RESILIENCE IN RURAL GHANA – <b>Joshua Babachuwekem VORODAM, Mohamad Fadhli RASHID, Siti Hajar MISNAN</b> .....	59
21. EVOLUTION OF THE PRE-EMPTION RIGHT IN THE PURCHASE OF AGRICULTURAL LAND IN ROMANIA: IMPLICATIONS AND REGULATIONS – <b>Mariana LUNGU (IACOBUTĂ), Adrian TUREK-RAHOVEANU</b> .....	60

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---

22. FROM CHALLENGES TO COMPETITIVE ADVANTAGE: A MATRIX FOR RESOURCE OPTIMIZATION, MARKET ACCESS, POLICY COHERENCE AND TECHNOLOGICAL ADVANCEMENT IN ROMANIAN AGRICULTURE – <b>Ramona Vasilica BACTER, Alina Emilia Maria GHERDAN, Felix ARION, Monica Angelica DODU, Anca Iulia DUDAȘ-GĂLĂȘEL, Codrin GAVRA, Mirela Salvia CASĂU CRAINIC, Alexandra UNGUREANU</b> .....	61
--	----

**SUBSECTION AGRIBUSINESS AND AGRICULTURAL EXTENSION**

1. STUDY ON THE ROMANIAN GARLIC MARKET FROM 2010 TO 2023 – <b>Bianca Eugenia SOARE, Marius Mihai MICU</b> .....	64
2. CONFLICT MANAGEMENT TECHNIQUES AND EMPLOYEE’S JOB PERFORMANCE IN FEDERAL COLLEGES OF AGRICULTURE IN SOUTH-WEST NIGERIA – <b>Kolade Kamilu BOLARINWA, Adefunke F. O. AYINDE, Abiodun E. OBAYELU</b> .....	65
3. AGRICULTURE PRODUCTION IN TWO SPANISH REGIONS WITH INTENSIVE USE OF FOREIGN LABOUR FORCE: A CASE STUDY OF ALMERIA AND MURCIA – <b>Miroslava KOSTOVA-KARABOYTCHEVA, Dora DONCHEVA</b> .....	66
4. THE IMPACT OF TAXES ON THE ACTIVITIES OF AGRICULTURAL ENTERPRISES: UKRAINIAN AND EUROPEAN PRACTICE – <b>Viktoriia RUDENKO, Halyna POHRISHCHUK, Nataliia DOBIZHA, Olena MOSKVICHOVA, Iryna HRYHORUK</b> .....	67
5. ANALYSIS OF THE STATUS AND PROBLEMS FOR THE DEVELOPMENT OF BEEKEEPING IN BULGARIA – <b>Georgi ANGELOV, Iliyana KRASTEVA</b> .....	68
6. ADAPTING THE U.S. UNIVERSITY-BASED EXTENSION MODEL TO THE AKIS FRAMEWORK OF ROMANIA AND THE EUROPEAN UNION – <b>Horia-Nicolae CIOCAN, Igori BALTA, Stefan Laurentiu BATRINA, Paula Ioana MORARU, Dragoș-Ioan SĂCĂLEANU, Vanessa SHONKWILER, Abigail BORRON</b> .....	69

**SUBSECTION SUSTAINABLE DEVELOPMENT OF RURAL AREA**

1. ANALYSIS OF SKILLS AND ABILITIES REQUIRED BY THE LABOR MARKET FOR THE DEVELOPMENT OF CIRCULAR ECONOMY IN THE RURAL AREAS OF ROMANIA – <b>Angelica MUȘAT, George Adrian MUȘAT, Constanța Laura ZUGRAVU, Gheorghe Adrian ZUGRAVU</b> .....	72
2. A MULTIDISCIPLINARY APPROACH TO THE SUSTAINABLE MANAGEMENT OF AGRICULTURAL LAND AND RURAL RESILIENCE DEVELOPMENT – <b>Adela-Maria NEAG, Tudor SĂLĂGEAN, Ioana Delia POP, Silvia CHIOREAN, Cristian MĂLINAȘ, Adina Lucia TRUȚĂ, Andreea Ramona BEGOV UNGUR, Florica MATEI</b> .....	73
3. A MULTIDIMENSIONAL ANALYSIS OF THE AGROECOLOGICAL PERFORMANCE OF THE ROMANIAN FARMING COMMUNITIES – <b>Cristina Georgiana BUCUR, Gina FÎNȚÎNERU</b> .....	74
4. RURAL VERSUS URBAN IN GALATI COUNTY. RURAL DEVELOPMENT PERSPECTIVES – <b>Camelia EPURE, Silviu STANCIU</b> .....	75

# BOOK OF ABSTRACTS

## SECTION 7: MANAGEMENT AND ECONOMICS OF RURAL AREAS

---

5. SPECIFIC ASPECTS OF BEEKEEPING DEVELOPMENT IN ROMANIA. CASE STUDY: GALATI COUNTY – <b>Camelia EPURE, Silviu STANCIU</b> .....	76
6. IMPLEMENTING PRECISION AGRICULTURE TECHNOLOGIES IN SOUTH-MUNTENIA REGION: ECONOMIC BENEFITS AND OPERATIONAL CHALLENGES – <b>Alexandru Sorin CIOBANU, Cosmina Andreea SMEDESCU, Valentina TUDOR, Alina Gabriela MĂRCUȚĂ, Liviu MĂRCUȚĂ, Dragoș SMEDESCU</b> .....	77
7. SMART RURAL DEVELOPMENT - EDUCATION FOR THE 2030 AGENDA IN RURAL SMART EDUCATIONAL CENTERS – <b>Ionut Cosmin GHEORGHESCU, Ioana Mihaela BALAN, Natalia MOCANU, Teodor MATEOC, Adrian FIRU, Nicoleta MATEOC-SIRB</b> .....	78
8. MACROECONOMIC FACTORS INFLUENCING RURAL YOUTH'S DEVELOPMENT – A CASE STUDY IN NORTH MACEDONIA – <b>Despina POPOVSKA</b> .....	79
9. EVALUATION OF GREEN AGRICULTURE DEVELOPMENT LEVEL AND REGIONAL DIFFERENCES IN SHANDONG PROVINCE, CHINA – <b>Ruohan LI, Khairul Hisyam KAMARUDIN, Yikun AN, Mohamad Fadhli RASHID</b> .....	80
10. BEEKEEPING: ECONOMIC AND SOCIAL IMPORTANCE, GLOBAL TRENDS AND DEVELOPMENT STRATEGIES IN EUROPE AND ROMANIA – <b>Ionuț Cosmin PĂRVAN, Raluca-Alexandra RĂDOI, Gina FÎNTÎNERU</b> .....	81
11. ADAPTATION OF PASTURE COMPOSITION TO CLIMATE CHANGE CONDITIONS – A FACTOR FOR INCREASING ANIMAL FODDER QUALITY AND IMPLIEDLY MILK PRODUCTION – <b>Ancuta MARIN, Lidia IURCHEVICI, Petruța Antoneta TUREK-RAHOVEANU</b> .....	82

### SUBSECTION AGRITOURISM AND RURAL TOURISM

1. STUDY ON ROMANIAN RURAL TOURISM BASED ON AUTHENTICITY CRITERIA FOR VERNACULAR HERITAGE – <b>Carina Andreia DOBRE, Gina FÎNTÎNERU, Iuliana ZAHARIA, Adina Magdalena IORGA</b> .....	84
2. ECOTOURISM AND ORGANIC FARMING – <b>Violetka ZHELEVA, Emil MUTAFOV, Petia BRANZOVA, Annie DIMITROVA</b> .....	85
3. DIVERSITY OF TRADITIONAL ROMANIAN PRODUCTS: CULTURAL AND ECONOMIC IMPACT IN RURAL REGIONS – <b>Elisabeta CĂLIN (DRAGOMIRESCU), Adrian TUREK-RAHOVEANU</b> .....	86
4. THE POTENTIAL OF CYCLING TOURISM DEVELOPMENT IN GRĂDINARI COMMUNE, GIURGIU COUNTY: ECONOMIC AND TOURISTIC IMPACTS OF ESTABLISHING CYCLING ROUTES – <b>Petrică ȘTEFAN, Vlad PANAIT</b> .....	87

### SUBSECTION ENVIRONMENTAL ECONOMICS AND BIOECONOMY

1. THE ROLE OF CARBON CREDITS IN SUSTAINABLE AGRICULTURE: A REVIEW OF LITERATURE – <b>Constantin-Dragos DUMITRAS, Alexandru Sorin TUDORAN, Oana COCA, Gavril ȘTEFAN</b> .....	90
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---

2.	ROMANIA'S COMMON OBJECTIVES FOR A SUSTAINABLE FUTURE WITHIN THE 2030 AGENDA. GREEN TRANSITION TO A CIRCULAR ECONOMY – <b>Cristiana SÎRBU</b> .....	91
3.	AGRO-INDUSTRIAL WASTE MANAGEMENT IN THE REPUBLIC OF MOLDOVA: CHALLENGES AND OPPORTUNITIES – <b>Laureana ODAJIU, Silviu STANCIU</b> ....	92
4.	CONSUMER PERCEPTIONS IN THE IMPLEMENTATION OF DEPOSIT RETURN SYSTEM – <b>Olga TIMOFEI, Rodica PERCIUN, Victoria IORDACHI</b> .....	93
5.	REVIEW OF RESEARCH FRAMEWORKS AND METHODOLOGICAL APPROACHES ON FOOD LOSS AND WASTE – <b>Paul-Alexandru ȘTEFAN, Marilena MIRONIUC, Gavril ȘTEFAN</b> .....	94
6.	WHEAT AND PRODUCT LOSSES AND THEIR IMPACTS ON THE POPULATION'S NUTRITION – <b>Stela TODOROVA, Kaloyan HARALAMPIEV</b> .....	95
7.	MAXIMIZING EFFICIENCY IN WATER AND ENERGY USE FOR GROWING PLANTS USING NUTRIENT FILM TECHNOLOGY – <b>Augustina Sandina TRONAC, Dragoș DRĂCEA, Sebastian Costel MUSTĂȚĂ, Alina NIȚU</b> .....	96

**SUBSECTION DIGITAL ECONOMY AND INNOVATION  
IN MODERN AGRICULTURE AND FOOD CHAIN**

1.	CYBER-PHYSICAL SOCIAL SPACE IN AGRICULTURE AND RISKS – <b>Dimitrina STOYANCHEVA, Daniela OROZOVA</b> .....	98
2.	RECENT ISSUES AND TRENDS OF ECO-INNOVATION IN THE EUROPEAN UNION – <b>Dumitru Florin FRONE, Simona FRONE</b> .....	99
3.	ENERGY EFFICIENCY OF AGRICULTURAL TECHNOLOGIES THROUGH THE CREATION OF A SUSTAINABLE MODEL: A CASE STUDY OF GREENHOUSES – <b>Maria POPA, Mirel GLEVITZKY, Gabriela-Alina DUMITREL, Dorin-Victor POPA, Ioana GLEVITZKY, Ana VÎRSTA</b> .....	100
4.	AN INTEGRATED MODEL OF FOOD LOSS AND WASTE DETERMINATION ALONGSIDE THE AGRI-FOOD CHAIN – <b>Nijloveanu DANIEL, Dumitrel-Victor TIȚA, Nicolae BOLD, Popescu DORU ANASTASIU, Nicoleta GHEORGHE-PĂTRĂCHIOIU</b> .....	101
5.	INFORMATION ECONOMY AND THE NEXUS OF ICT AND GROWTH – <b>Dora DONCHEVA, Dimitrina STOYANCHEVA</b> .....	102
6.	OPTIMIZING MOLDOVA'S AGRI-FOOD SUPPLY CHAINS FOR THE INTEGRATION INTO THE EUROPEAN UNION – <b>Liliana STAVER</b> .....	103
7.	TECHNOLOGY TRANSFER IN ROMANIA'S AGRO-FOOD SECTOR. AN OVERVIEW – <b>Ciprian VLAD, Silviu STANCIU</b> .....	104
8.	TRENDS AND CHALLENGES FOR IMPLEMENTING DIGITAL SOLUTIONS IN LAND MANAGEMENT IN BULGARIA – <b>Marina NIKOLOVA, Penka CHERNAEVA</b> .....	105
9.	ADVANCING EARLY DETECTION OF MICROBIAL PATHOGENS IN THE FOOD CHAIN IN SOUTH-EASTERN EUROPE – <b>Roxana CICEOI, Liliana Aurelia BADULESCU, Mihaela IORDACHESCU, Anca Amalia UDRISTE, Irina MALADENOVSKA</b> .....	106
10.	DIGITAL TRANSFORMATION IN AGRICULTURE: A COMPARATIVE ANALYSIS OF HUNGARY, ROMANIA, AND GREECE AND THE ROLE OF COMPETENCE PROFILING IN THE AGRITECH MANAGER FRAMEWORK – <b>Krisztina TOTH, Razvan Ionut TEODORESCU, Eva SZABONE TOTH, Laura IOSUB, Mihai GIDEA, Georgios NTINAS, Daniel AMARIEI</b> .....	107

# BOOK OF ABSTRACTS

## SECTION 7: MANAGEMENT AND ECONOMICS OF RURAL AREAS

---

### SUBSECTION MISCELLANEOUS

1. BIBLIOMETRIC ANALYSIS OF QUALITY IN EDUCATION: GLOBAL TRENDS AND RESEARCH GAPS – <b>Alina Gabriela MĂRCUȚĂ, Valentina Constanța TUDOR, Dragoș SMEDESCU, Mihaela GRECU, Mădălina Maria BREZULEANU</b>	110
2. ASSESSING HOUSEHOLD GROUNDWATER CONTAMINATION RISK IN RURAL ROMANIA: A SEMI-QUANTITATIVE REGIONAL MODEL – <b>Veronica IVANESCU, Mirela Alina SANDU</b>	111
3. CONSUMER BEHAVIOR TOWARDS THE CONSUMPTION OF PROTEIN ENRICHED FOOD – A CONJOINT STUDY – <b>Mihaela Cristina DRĂGHICI, Amalia Carmen MITELUȚ, Elisabeta Elena POPA, Mihaela GEICU-CRISTEA, Paul-Alexandru POPESCU, Alexandra Andreea ANGHEL, Mona Elena POPA</b>	112
4. ECONOMIC EVALUATION OF FORAGE PRODUCTION FROM GRASS MIXTURES IN THE MOUNTAIN REGIONS OF BULGARIA – <b>Katerina CHURKOVA, Boryana CHURKOVA</b>	113
5. THE IMPACT OF TREATMENT WITH KALAM AND FOCUS ULTRA HERBICIDES IN VARIOUS DOSES ON YIELD, GROSS REVENUE AND PROFIT IN BIRD'S-FOOT-TREFOIL GRASSLAND – <b>Boryana CHURKOVA, Katerina CHURKOVA</b>	114
6. STRUCTURAL DIFFERENCES OF THE AGRICULTURAL SECTOR IN THE SOUTH-EASTERN EUROPEAN COUNTRIES – <b>Ivanka STOYCHEVA</b>	115
7. COMPARATIVE ANALYSIS OF AWARD-WINNING WINES FROM ROMANIA VERSUS THE TOP WORLDWIDE PRODUCING COUNTRIES – <b>Andra-Elena GURGU, Gina FÎNTÎNERU</b>	116
8. EXPLORING THE DYNAMICS OF AGRICULTURAL LAND IN ROMANIA: AN IN-DEPTH ANALYSIS – <b>Silvia CHIOREAN, Tudor SĂLĂGEAN, Ioana Delia POP, Florica MATEI, Jutka DEAK, Mircea-Emil NAP, Camelia Raluca COTU</b>	117
9. ECONOMIC SIGNIFICANCE OF SMALL FARMS IN ENSURING FOOD SECURITY AND FOOD SOVEREIGNTY IN THE SOUTHERN CENTRAL REGION OF BULGARIA – <b>Rumena GANDEVA</b>	118
10. UNLOCKING THE ECONOMIC POTENTIAL OF RENEWABLE ENERGY IN RURAL AND AGRICULTURAL SECTORS – <b>Konstantin STOYANOV</b>	119
11. SMALL AND FAMILY FARMS - A PILLAR IN RURAL DEVELOPMENT IN BULGARIA – <b>Mihaela MIHAILOVA, Daniela TSVYATKOVA, Monika KABADZHOVA</b>	120
12. CONSUMER PREFERENCES STUDY FOR FRESH PEPPER – <b>Maria OJOG, Marian Vivian SÂRBU, Mihaela IORDĂCHESCU, Liliana BĂDULESCU, Viorica LAGUNOVSCI-LUCHIAN</b>	121
13. PLANNING FOR A MORE SUSTAINED SOCIAL DEVELOPMENT OF RURAL AREAS IN ROMANIA – <b>Cristian GAINA, Carmen Simona DUMITRESCU, Raul PASCALAU, Cosmin SALASAN</b>	122
14. MANAGEMENT OF THE NON-WOOD FOREST PRODUCTS IN THE AGROFORESTRY SYSTEM ESTABLISHED IN HORTINOVA NURSERY, CÂRCEA COMMUNE, DOLJ COUNTY, ROMANIA – <b>Cristian Mihai ENESCU</b>	123
15. ACADEMIC ENTREPRENEURSHIP ADDRESSING DROUGHT AND CLIMATE CHANGE: THE ROLE OF UNIVERSITY INCUBATORS IN SUSTAINABLE RESILIENCE IN MOROCCO – <b>Brahim ELAQIH</b>	124
16. CHALLENGES, OPPORTUNITIES, AND INNOVATIONS IN TOURISM IN THE NEW NORMAL: EVIDENCE FROM RURAL TOURISM SITES IN THE PHILIPPINES – <b>Amber Ghea PABLO, Louremel Marie MUNCADA, Michael DIAZ, Mylyn AGAPAY</b>	125

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---

17. REORIENTATION OF THE POPULATION FROM ROMANIA TOWARDS THE RURAL AREA – CHANGES GENERATED BY THE COVID-19 PANDEMIC – <b>Miruna Angela MUTU, Dragoș Mihai PANAGOREȚ, Sorina CERNAT, Andreea Anamaria PANAGOREȚ, Rareș Vladimir NIȚU</b> .....	126
18. THE ROLE OF RESPONSIBLE CONDUCT IN ACADEMIC ETHICS AND INTEGRITY: A BIBLIOMETRIC PERSPECTIVE – <b>Valentina Constanța TUDOR, Alina Gabriela MĂRCUȚĂ, Cosmina Andreea SMEDESCU, Mihaela GRECU, Mădălina Maria BREZULEANU</b> .....	127
19. THE ROLE OF PHYSICAL SECURITY MANAGEMENT IN CONSOLIDATING THE SAFETY AND SUSTAINABILITY OF PUBLIC FOOD AND AGROTURISM UNITS IN THE RURAL ENVIRONMENT – <b>Răzvan STANCU, Adrian TUREK-RAHOVEANU</b> .....	128
20. ENHANCING THE EFFECTIVENESS OF VILLAGE AUTONOMY: A SOFT SYSTEMS METHODOLOGY (SSM) APPROACH TO IDENTIFYING CHALLENGES AND POLICY REFORM IN RURAL DEVELOPMENT IN INDONESIA – <b>Robert SAPUTRA, Tomáš HAVLÍČEK</b> .....	129
21. IMPACT OF AGRICULTURE ON THE ENVIRONMENT IN BULGARIA AND ROMANIA – <b>Iliyana KRASTEVA, Georgi ANGELOV</b> .....	130
22. IMPACT OF M19 LEADER FUNDING ON RURAL AREAS IN THE NORTH-EAST REGION – <b>Andrei PRIGOREANU, Ștefan VIZITEU, Stejărel BREZULEANU</b> .....	131
23. UNLOCKING THE ECONOMIC POTENTIAL OF BEE DRONE LARVAE (APILARNIL): SCIENTIFIC INSIGHTS AND APPLICATIONS IN AGRI-FOOD INNOVATION – <b>Roxana Antoaneta SPULBER, Dragoș SMEDESCU, Teodora COLȚA, Cristina Florentina VĂDUVA, Maria Magdalena DINCĂ</b> .....	132
24. PRESSURE, PERFORMANCE AND UNIVERSITY ETHICS. ANALYSIS OF THE RELATIONSHIP BETWEEN EDUCATION FUNDING AND ACADEMIC INTEGRITY IN E.U. COUNTRIES – <b>Valentina Constanța TUDOR, Alina Gabriela MĂRCUȚĂ, Jeni Veronica ȚIU, Cosmina Andreea SMEDESCU, Diana VÂSCĂ-ZAMFIR, Cosmina Simona TOADER</b> .....	133
25. SOYBEAN IN THE EUROPEAN UNION - AN UPWARD TREND FOR CULTIVATION AND PRODUCTION – <b>Agatha POPESCU, Toma Adrian DINU, Elena STOIAN, Valentin ȘERBAN, Adelaida HONTUȘ, Carmen ANGELESCU, Mirela STANCIU</b> .....	134
26. LAND USE IN THE EUROPEAN UNION FOR CEREALS, OILSEEDS AND PROTEIN CROPS – <b>Agatha POPESCU, Cristina TINDECHE, Alina MĂRCUȚĂ, Liviu MĂRCUȚĂ, Adelaida HONTUȘ</b> .....	135

**SUBSECTION  
PRODUCTION ECONOMICS  
AND AGROMARKETING**

## SYNERGIES BETWEEN ECONOMICS AND MARKETING IN AGRITOURISM: A WEB OF SCIENCE BOOLEAN SEARCH-BASED SCIENTOMETRIC EXAMINATION OF AGROTOURISM POTENTIAL

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### **Abstract**

*Agritourism plays an important role in rural development, economic diversification, and sustainable tourism, yet research on its intersection with economics and marketing remains fragmented. This study employs a Boolean search-based scientometric analysis using the Web of Science database to systematically examine existing literature. Bibliometric techniques, including co-occurrence analysis, co-citation mapping, factorial analysis, and thematic mapping, were applied using Bibliometrix and Biblioshiny in RGui to identify key research trends, influential works, and thematic structures. The results highlight tourism, agritourism, and rural tourism as central themes, with increasing emphasis on visitor experience, sustainability, and policy frameworks. Findings also reveal the interdisciplinary nature of agritourism research, integrating economics, marketing, and environmental sustainability. The study identifies emerging research gaps, particularly in consumer behavior, digital marketing, and technological integration. By providing a structured overview of agritourism's knowledge landscape, this research offers valuable insights for academics, policymakers, and practitioners, supporting evidence-based strategies for sustainable agritourism development and enhanced rural economies.*

**Key words:** *agritourism, rural development, scientometric analysis, economic sustainability, marketing strategies.*

## **SORGHUM, THE CROP OF THE FUTURE UNDER CLIMATE CHANGE CONDITIONS**

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### ***Abstract***

*Sorghum, a herbaceous species of the Poaceae family is the fifth most cultivated plant in the world, being the main bread grain in Africa, Southern Europe, Central America and South Asia. Sorghum competes with corn, being an important fodder plant for biogas production of alcohol, growing with its inherent tolerance to drought, short cultivation times and relatively low operating costs of corn has determined the interest in cultivation. The aim of the paper is to identify the major sorghum-growing nations worldwide, in Europe, and domestically, examines their production levels, and analyzes their potential regarding yield, land utilization, and climate compatibility. Statistical data from FAOSTAT, EUROSTAT, and NIS Romania constituted the primary materials for this analysis. The methodological framework involved the calculation of the arithmetic mean, standard deviation, and coefficient of variation as key statistical indicators. These results are presented in both graphical and tabular forms. Main results and conclusions show that sorghum is recommended for drought-prone areas due to its resilience, low costs, profitability, and simple cultivation. Globally, top producers are the USA, Nigeria, Mexico, India, and Ethiopia, while highest yields per hectare are in Oman, Jordan, Israel, Austria, and Italy. Within the EU, France is the main cultivator, with Romanian cultivation showing significant variability (41.6% between 2013-2023). The current changing pedoclimatic conditions are increasing sorghum's importance in Europe, with France, Hungary, and Italy being major EU cultivators. Despite its drought resistance and nutritional value, Romanian sorghum production is declining annually.*

**Key words:** sorghum crop, drought, productions, yields, EU, Romania.

## **ECONOMIC WEIGHTS OF PRODUCTION AND FUNCTIONAL TRAITS AND THEIR IMPORTANCE IN SETTING UP BREEDING PROGRAMS WITH A POSITIVE IMPACT ON DAIRY SHEEP GROWING PROFITABILITY: A REVIEW**

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### ***Abstract***

*This article is a review of studies carried out in relation to calculation of the economic impact of various productive and functional traits in dairy sheep in connection with setting economically reasoned breeding goals in the breeding programs. Milk yield was found to be considered the main selection trait ensuring the sustainability of dairy sheep farms, subsequently complemented by quality traits such as protein and fat content, and somatic cell score (SCS). It has been also established that improving the reproductive performance of animals, fertility, survival and growth rate of lambs are also important for modern breeding programs, given that a large part of the farm income comes from lamb sales. In Bulgaria, economic values and weights for dairy sheep have been calculated only for two separate flocks of the Bulgarian dairy synthetic population and so far they have not been taken into account in the breeding programs. Calculation of economic weights of productive and functional traits for this dairy population would provide valuable information on which traits are of greatest economic importance and which should be emphasized in the breeding programs.*

***Key words:*** sheep, breeding goals, genetic progress, economic weights, bio-economic models.

## THE ECONOMIC IMPACT OF LOCAL FOOD PRODUCERS ON RETAILERS IN ROMANIA

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### **Abstract**

*The paper aimed to present the actions undertaken by the retail sector to support local producers in Romania. The study is based on statistical data provided by representatives of the "Profi" food retailer, which has the largest number of employees in the Romanian market. Through documentary research, we analyzed the presence of local producers in the retailer's stores and how it facilitates the relationship between consumers and producers. At the same time, the scientific endeavor examines the presence of local producers nationwide, focusing on the number and diversity of categories to assess how the products available in the retailer's stores meet consumers' needs and desires. Based on the statistical data, we made forecasts regarding the evolution of local producers in the stores. The results showed an upward trend, supported by the percentage of local products sold in the total sales of the analyzed retailer.*

**Key words:** local producers, traditional producers, economic impact, Food Retail, Romanian market.

## **AGRICULTURAL YIELDS AND CLIMATE CHANGE: HOW DOES ROMANIA MAINTAIN ITS EXPORT COMPETITIVENESS?**

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### ***Abstract***

*Climate change is one of the greatest challenges facing global agriculture, impacting yields and the competitiveness of agricultural exports. This study examines the impact of climate change on Romanian agriculture and how it influences export competitiveness compared to other exporting countries in the region, such as Ukraine, Russia, and Hungary, over a 10-year period (2013-2023). The results indicate that climatic variability has reduced the yields of key crops in Romania, particularly during years marked by drought or irregular precipitation. Compared to the analysed countries, Romania's adaptability to new climatic conditions has proven limited, affecting the sustainability of its comparative advantage. To demonstrate the correlation between climatic conditions and exports, a multiple linear regression was constructed. The study highlights the importance of investments in agricultural infrastructure, modern technologies, and effective policies to sustain the competitiveness of Romanian agriculture in international markets.*

***Key words:*** climate change, exports, competitiveness, sustainability, yields.

## WINE, CULTURE AND CONNECTION: EXPLORING THE OPPORTUNITIES OF WINE TOURISM IN ROMANIA

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### ***Abstract***

*Romania, with its millennia-old viticultural tradition, has significant potential to develop wine tourism as a driver of rural development, cultural preservation, and economic growth. While vineyards have long been integral to local culture, wine tourism has only recently emerged as a niche blending heritage, gastronomy, and immersive experiences. Historically, vineyards focused on grape production, but diversification led to complementary activities like tourism. Initially centred on passive observation during vineyard tours, wine tourism is now shifting towards experiential activities, engaging visitors in the stories and culture of winemaking. Despite its potential, the sector lacks in-depth research or a detailed SWOT analysis. This paper traces the sector's evolution from traditional grape cultivation to an industry balancing production and tourism and identifies key opportunities and challenges, emphasizing the need for strategic investments. These include creating cohesive wine routes linking wineries and cultural landmarks, improving infrastructure, and launching targeted campaigns to position Romania as a global wine tourism destination. By addressing these needs, Romania can leverage its cultural heritage and exceptional wines to attract international audiences.*

***Key words:*** wine tourism, SWOT analysis, tourism diversification, wine routes.

## STUDY ON THE CHARACTERISTICS OF THE VEGETAL AGRICULTURAL SECTOR IN ROMANIA COMPARED TO OTHER EU COUNTRIES

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### ***Abstract***

*This paper proposes a detailed analysis of the performance of the Romanian vegetable agricultural sector, compared to the EU average, for the period 2018-2022. The aim of the paper is to highlight the relative position of Romania within the vegetable agricultural sector, by assessing some indicators that reflect the economic performance and competitive capacity of the sector. The research method was based on the analysis of certain technical-economic indicators such as: average farm size, agricultural area in relation to population, average production per hectare, income from the agricultural sector and productivity. The analysis was based on official statistical data provided by national and European reference institutions such as Eurostat, the National Statistical Institute and the Ministry of Agriculture and Rural Development. The results obtained show that Romania consistently ranks among the top six EU Member States in terms of crop production. From the point of view of economic performance, the values recorded by the Romanian agricultural crop sector are comparable with the EU average.*

***Key words:*** agriculture, vegetable sector, potential, performance, productivity, Romania.

## ASSESSMENT OF FOOD AVAILABILITY IN BULGARIA AS A KEY FACTOR FOR FOOD SECURITY

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### ***Abstract***

*The article examines trends in the formation of food availability in the Republic of Bulgaria, which is one of the four components determining food security. The theoretical framework addresses the distinctive character of availability in the context of food security. The study is based on data from the Global Food Security Index (GFSI), with an overview of key indicators. In addition, the relationship between imports and domestic production, on the one hand, and consumption of basic foodstuffs on the other, as well as the factors affecting availability, was examined. The purpose of this document is to analyze the current state of food availability in Bulgaria and to assess the risk of dependence on imports. A sustainable food system is characterised by a balance between domestic production and foreign trade flows.*

**Key words:** food security, availability, food commodity, global food security index.

## ANALYSIS OF THE STRUCTURAL EVOLUTION OF THE DOMESTIC DAIRY PRODUCTS SUPPLY IN ROMANIA

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### ***Abstract***

*The paper aimed to analyse the structural evolution of various dairy products in Romania, during the period 2014-2023, based on statistical data from the National Institute of Statistics. To study their trends, various statistical indicators were calculated, as well as characteristic regression equations. Thus, in the analysed interval, the highest growth was found for cow's milk cheeses, with +46.5%, followed by drinking milk, with +42.3%. Overall, the cheese category had a market supply of 102,078 tons in 2023, which means an increase of 37.1%, compared to the year 2014. The lowest increase was in butter, where the supply was 10,593 tons in 2014 and increased by 3.5% to 10,963 tons in 2023. The calculated statistical indicators highlighted the fact that, in all product categories, both in drinking milk and in dairy products, the dynamics were positive, with different growth rates.*

***Key words:*** evolution, dairy products, milk, Romania, trends.

**EVALUATION OF CONSUMER PERCEPTIONS  
AND FUTURE POTENTIAL OF CULTURED MEAT:  
THE CASE OF ADANA**

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***Abstract***

*Cultured meat has emerged as an innovative alternative in sustainable food production and consumption in recent years. This study investigates consumer perceptions of cultured meat and its future potential in Adana, Turkey. The research was conducted in December 2024 with face-to-face surveys involving 100 participants. Socio-economic characteristics, food consumption habits, and awareness of cultured meat were assessed. The findings reveal consumer attitudes towards cultured meat, their willingness to accept it as a food alternative, and the factors influencing their perceptions. In particular, cultural influences, socio-economic status, and concerns regarding food safety were analyzed. Additionally, the study highlights the potential of integrating cultured meat into traditional Adana cuisine, such as kebabs and other regional dishes. The results provide valuable insights into the future acceptance and market potential of cultured meat in Turkey, serving as a foundation for policymakers, producers, and researchers aiming to promote sustainable food systems.*

**Key words:** cultured meat, consumer perceptions, sustainable food production, traditional cuisine, Adana, Turkey.

## VARIABILITY OF WINTER WHEAT AGRICULTURAL YIELDS UNDER THE INFLUENCE OF THERMAL RESOURCES. CASE STUDY: CONTINENTAL DOBROGEA (ROMANIA)

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### **Abstract**

*The study aims to focus on the analysis of winter wheat yields obtained in the context of the thermal resources available in the continental Dobrogea Region. The thermal resources play a crucial role in determining the length of the growing season, the sowing time, as well as the physiological processes of the plant and last but not least, in the production obtained at the end of the growing season. In achieving this study, there have been used the average production data per hectare from the National Institute of Statistics and the monthly meteo-climatic data on air temperature and spring index from six representative meteorological stations belonging to the National Meteorological Administration, for the period 1991 – 2023. The results of the study has highlighted the importance of the thermal factor in the development of the phenological stages of winter wheat in the study area, with agricultural yields varying between 296 kg/ha (2003) and 5,133 kg/ha (2018), for the analyzed period. Knowing the requirements of the winter wheat crop in relation to the thermal resources offers farmers the possibility to maximize its production.*

**Key words:** agricultural yields, thermal resources, winter wheat, variability, Dobrogea Region.

## SUNFLOWER PRODUCTION PERFORMANCE UNDER CLIMATE CHANGE IN DOBROGEA REGION, ROMANIA

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### ***Abstract***

*The study aimed to analyze the production performance of sunflower in terms of yield in the Dobrogea Region, where climate change has a deep impact in Romania's agriculture. For this purpose, the data on sunflower yield were collected from the National Institute of Statistics and the data on air temperature and precipitation regime were provided by the National Meteorological Administration for the period 1991 – 2020. The results proved the influence of monthly average temperature and precipitations along the vegetation period which have had a deep impact on sunflower production per surface unit. The yield performance varied between 470 kg/ha in the year 2001 and 3,583 kg/ha in the year 2018. Under variability of thermal and hydric resources, it is recommended that farmers adapt sunflower technology to local climate conditions regarding: the use of the sunflower varieties resistant to drought, choosing the best moments for sowing, applying the fertilizers and treatments and also the use of the irrigations systems for meeting the water requirements of the cropping order to enable it to reach the planned production whose sale to cover the production costs.*

***Key words:*** air temperature, precipitation, sunflower, yields, Dobrogea Region.

## CONSUMERS' ATTITUDE TOWARDS SENSORY ATTRIBUTES AND WILLINGNESS TO PURCHASE MEAT OF MALE LAYER-TYPE OR DUAL-PURPOSE CHICKENS

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### **Abstract**

*In recent years the practice of culling the oneday-old male layer-type chickens has been strongly criticized for both humane and environmental concerns. A possible solution for this problem is to rear the layer cockerels for meat or to use dual-purpose poultry lines. Hence, our survey aimed to assess the consumers' preferences for certain sensory attributes and the willingness to purchase meat from male layer-type and dual-purpose chickens. For the objective of the study the chicken meat was derived from two poultry lines – layer type L and dual-purpose Salmon raised in the Institute of Animal Science-Kostinbrod, Bulgaria. A total of 257 respondents were involved in the survey. The latter was designed in three panels and contained 22 questions. The results indicated that the meat from both layer-type and dual-purpose birds scored higher in texture and taste in comparison to the commonly purchased poultry meat, however, the ready-to-cook chicken carcasses were smaller. The comparison between both layer and dual-purpose lines showed similar results for the meat sensory evaluation, however, the declared annual consumption gave significant advantage to the layer-type chickens.*

**Key words:** chicken meat, dual-purpose, male layer-type chickens, consumers.

## **POTATO MARKET IN ROMANIA: LOCAL PRODUCTION VS IMPORTS**

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### ***Abstract***

*The paper analyses the Romanian potato market, focusing on cultivated areas, domestic production, consumption, and international trade. The study is based on open-access articles from international databases, reports from regional and national public institutions, and specialized articles from online media. Statistical analysis based on national and European data highlights market trends. Findings indicate a significant decline in cultivated areas and a lack of competitiveness in the domestic sector, primarily due to low productivity and high production costs. The lack of governmental support and economic inefficiency have significantly increased Romania's reliance on imports, contributing to a persistent trade deficit. In 2023, Romania imported over 800,000 tons of potatoes, covering a significant portion of domestic consumption. Additionally, a growing demand for frozen potatoes has been observed in recent years, yet Romania lacks processing facilities, making it entirely dependent on imports. In response, a Romanian company has announced a major investment in a potato processing plant, demonstrating market flexibility and business adaptability. This initiative could serve as a model for similar investments in other agricultural sectors. To counteract these challenges, a strategic approach is needed, including coherent agricultural policies, investments in technology, and financial support for local farmers to enhance self-sufficiency and food security.*

***Key words:*** Romania, potato market, international trade, processing industry.



**SUBSECTION  
FARM AND COOPERATIVES  
MANAGEMENT**

## COOPERATIVIZATION IN ROMANIAN AGRICULTURE: EVOLUTION AND CURRENT PERSPECTIVES

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### **Abstract**

*Organizing small agricultural producers into cooperatives can improve production value, operational efficiency, and access to European funds. The study analyzes the evolution of collectivization in Romanian agriculture using open-access literature and official data from the Ministry of Agriculture and Rural Development. Data were statistically processed and graphically represented to examine geographic distribution, cooperative status, and economic performance, while identifying challenges faced by Romanian agricultural cooperatives. Principal component analysis (PCA), heatmaps, and volatility coefficient analysis were employed to uncover territorial patterns and assess the stability of cooperative development across Romania, providing a comprehensive understanding of the factors influencing cooperative dynamics at the county and regional levels. Findings reveal a concentration of cooperatives in certain counties, reflecting infrastructure differences, cooperative traditions, and institutional support levels. Many cooperatives struggle beyond initial stages, with financial performance remaining fragile due to governance difficulties, limited market access, and funding challenges. Access to European funds and external support could greatly enhance cooperative sustainability.*

*The study underscores the critical role of agricultural cooperatives in rural development and suggests policies for increased durability, including ongoing fiscal support, member professionalization, and short supply chain development.*

**Key words:** agricultural cooperatives, rural development, Romania, sustainability.

## LOCAL PRODUCER GROUPS IN ROMANIA: AN EUROPEAN CONTEXTUAL ANALYSIS

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### **Abstract**

*In the European Union, numerous small family farms are operated by over 11 million farmers, who often work independently. The highest concentration of small farms is in Romania. Due to this fragmentation, small agricultural producers can be disadvantaged in contracts with the processing and retail sectors, where there is a greater consolidation. To strengthen the negotiating power of small farms, the EU supports the formation of producer organizations (POs) and interprofessional organizations, allowing collaboration with other actors in the supply chain. This trend is currently most common in the fruit, vegetable, and dairy sectors. EU funding and support measures are available, but POs must meet strict criteria regarding membership numbers and production volume. At the local level, producer groups (LPGs) help supply markets and adapt agriculture to climate change. In this context, the aim of this paper is to analyse the territorial distribution and typology of local producer groups in Romania. The study relies on secondary data collected from European and national authorities, complemented by information from scientific databases. Statistical methods, including hierarchical clustering and Pearson correlation analysis, were applied to identify relevant territorial patterns. The results have shown that Romanian POs are concentrated in counties with well-developed agriculture and a tradition of cooperation, while their uneven distribution reflects economic, social, and cultural factors. Public policies tailored to regional needs can stimulate associations, supporting sustainable agricultural development and enhancing the competitiveness of Romanian products. The proposed analysis provides an overview of the territorial and sectoral distribution of producer groups, highlighting regional clusters useful for shaping future agricultural policies.*

**Key words:** local groups, producers, agriculture, Romania.

## **FAMILY LIVESTOCK FARMS IN BULGARIA: THEIR COOPERATION – A NEW DEVELOPMENT HORIZON**

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### ***Abstract***

*The family farm is one of the leading organizational forms of agricultural production in the economies of many countries. It plays a crucial role in the production and satisfaction of market needs with agricultural products. Family business in the livestock sector of Bulgaria is represented by market-oriented farms (open systems), which through the production of animal products satisfy not only the needs of the owner and his family, but are mainly intended for market implementation. The purpose of the study is to analyze the features of the family livestock farm with a market orientation, specializing in the production of sheep products based on its own empirical study of typical Bulgarian family farms. Our own empirical research of 9 typical for Bulgaria sheep family farms is conducted through a survey method in the period 2021-2023. Their main problems and difficulties in development are identified. The possibilities of cooperation in solving the problems and overcoming the difficulties of family livestock farms are revealed. The benefits of cooperation of family farms are presented, which offer a new horizon for their development.*

**Key words:** family farm, family economy, livestock farming, open system, cooperation, benefits.

## THE PROTEIN PRODUCTION POTENTIAL OF SOME MAIZE HYBRIDS

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### **Abstract**

*Maize hybrids, provided by Research and Development Agricultural Station-ARDS Suceava, were tested in comparative crop, under the specific conditions of the Western Plain of Romania. Field experiments were carried out in the ARDS Lovrin. Twenty maize hybrids were tested (SV\_1 to SV\_20, experimental codes). The protein content of the grains (Pro, %) was evaluated. The protein content varied between Pro = 9.45±0.09% (SV\_13), and Pro = 12.40±0.12% (SV\_17). Comparative analysis between hybrids (PHC), led to 190 combinations. There were 45 statistically significant positive differences; 13 differences with p<0.05 level (\*), eight differences with p<0.01 level (\*\*), and 24 differences with p<0.001 level (\*\*\*). There were 19 negative differences with statistical certainty; two differences with p<0.05 level (o), three differences at the p<0.01 level (oo), and 14 differences at the p<0.001 level (ooo). In relation to the mean value (Pro\_m = 10.69±0.18%), some hybrids presented higher values (nine hybrids), and other hybrids presented lower values (11 hybrids). Significant increase in protein growth was recorded by hybrid SV\_17 (ΔPro = 1.71%), followed by hybrid SV\_5 (ΔPro = 1.46%). Maize hybrids with genetic advantage for protein production have been identified, for breeding programs and agricultural practice.*

**Key words:** comparative analysis, maize genotypes, proteic crops, protein yield increase.

## CLUSTERING AND RANKING OF CORN HYBRIDS BASED ON YIELD AND SEED QUALITY INDICES

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### **Abstract**

*The research evaluated the yield and seed quality indices of 15 corn hybrids created within NIARD Fundulea. The comparative corps was organized under the specific climate and soil conditions of ARDS Lovrin. Yield (Y) recorded values between  $Y = 4,126.00$ - $6,786.00 \pm 186.46$  kg ha<sup>-1</sup>. Physical indices of seeds recorded values  $TKW = 204.41$ - $316.45 \pm 7.93$  g (TKW – weight of 1000 seeds),  $HW = 73.50$ - $79.90 \pm 0.42$  kg hl<sup>-1</sup> (hectoliter weight). Cluster analysis (CA) generated the grouping of corn hybrids, according to similarity, based on the studied parameters (Y, TKW and HW). Hybrid 8029 was associated with hybrid 8025 with high yield values ( $Y = 6,786.00$  kg ha<sup>-1</sup>,  $Y = 6741.00$  kg ha<sup>-1</sup>) and TKW ( $TKW = 316.45$  g,  $TKW = 315.54$  g). In the case of the HW index, hybrid 8027 ( $HW = 79.90$  kg hl<sup>-1</sup>) was positioned with the highest values, followed by hybrid 8021 ( $HW = 78.20$  kg hl<sup>-1</sup>). Multivariate analysis generated the differentiated distribution of corn hybrids according to the principal components, in which PC1 explained 49.303%, and PC2 explained 40.077% of total variance. Based on the three parameters considered (Y, TKW, and HW) a ranking of the corn hybrids was done.*

**Key words:** cluster, maize, quality indices, ranking, yield.

## PRODUCTIVITY ELEMENTS AND YIELD IN GRAPEVINE IN RELATION TO THE MANAGEMENT SYSTEM – CASE STUDY IN SAUVIGNON BLANC

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### **Abstract**

*Grapevine is a plant with a long history and complex values in the history and economy of humanity. Different grapevine management systems have been promoted, in order to obtain quality wine products and by-products. This study comparatively analyzed two growing systems of the 'Sauvignon Blanc' grapevine cultivar (SB), in high form (HF), and in semi-high form (ShF). The experiments were conducted in the area of Recas locality. Productivity elements defined by current technological works, plant productivity indices, and yield per plant, respectively per unit area, were analyzed. Under the study conditions, the semi-high form (ShF) management system ensured better yield per plant (Y/plt) and per unit area (Y/ha),  $p < 0.001$ . Regression analysis described the values of yield per plant (Y/plt) in relation to productivity elements, FL (fruit load), FS (fertile shoots),  $R^2 = 0.951$ ,  $p = 0.0098$ ; respectively FL and IN (inflorescence number),  $R^2 = 0.958$ ,  $p = 0.0075$ . The results showed that FL and FS parameters presented convergent action and can be optimized concomitantly, while FL and IN parameters presented divergent action and require a differentiated approach.*

**Key words:** management system, productivity elements, productivity indices, vineyard, yield.

## AGRICULTURAL LAND ADMINISTRATION IN ALBANIA POST-PRIVATIZATION: CHALLENGES AND ISSUES FOR SUSTAINABLE DEVELOPMENT

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### **Abstract**

*The purpose of this paper is to analyze the major challenges associated with the administration and use of agricultural land in Albania from the pre-1950 period to 2023. Before 1950, 91.4% of Albania's agricultural land was privately owned. From 1946 to 1968, nationalization policies created 420 agricultural cooperatives managing 75.7% of arable land, with 77 state enterprises controlling 21.4%. This resulted in significant land fragmentation and distribution across small plots. While decentralization aimed to empower farmers, it increased production costs, degraded land, and reduced soil fertility on nearly 30% of the land. Key issues include inefficient administrative changes, fewer than 50% of farmers with land ownership certificates, and informal urban expansion reducing agricultural land. Furthermore, land fragmentation - where 50% of farms are smaller than 1 hectare - has hindered the adoption of modern agricultural technologies and increased operational costs. Additionally, the country's irrigation capacity has fallen by 50-60% compared to 1990 levels. Statistical data on land use, farm size, sectoral reports, policy documents, and national agricultural data are used. While a national land administration system and database have been established, the study highlights the need for better coordination among institutions and increased efforts to advance scientific research on soil protection, in alignment with EU directives. Addressing these challenges is crucial and more efficient and sustainable agricultural sector that can support Albanian long-term economic and environmental goals.*

**Key words:** land administration, governance, privatization, land health, fragmentation.

## **PRACTICES AND CHALLENGES IN HUMAN RESOURCE MANAGEMENT IN AGRICULTURAL FARMS IN ROMANIA: A QUALITATIVE APPROACH**

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### ***Abstract***

*The lack of in-depth qualitative studies exploring Romanian farmers' perspectives on human resource management highlights the need for dedicated research on this topic. The present study examines the challenges farmers face in recruiting and retaining the workforce, developing farms, and ensuring their continuity. The research employed a qualitative method based on individual semi-structured interviews, and the analysis of the collected data was conducted through an examination of word frequency and semantic relationships within the interviews. The findings highlight significant challenges in attracting and retaining qualified personnel, particularly in less attractive rural areas. Farmers are aware of the need for continuous professional training and partnerships with educational institutions to enhance employee skills. Additionally, the development of an effective succession plan is identified as a viable solution to address current challenges. The managerial implications of the study include diversifying recruitment channels, using online platforms, and developing strategic partnerships.*

***Key words:*** agricultural sector, human resources, employment, succession plan, challenges.

## ASSESSMENT OF THE APPLICABILITY OF FINANCIAL INSOLVENCY MODELS

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### ***Abstract***

*This article aims to develop criteria for classifying the most commonly used financial diagnostic models based on the scientific literature related to the theoretical and methodological assumptions of financial insolvency. On this basis, we assess the models' applicability by considering the specifics of Bulgarian conditions - difficulties, limitations in their application, advantages and disadvantages. The practical study focuses on enterprises operating in the agricultural sector which allegedly have been the subject of bankruptcy proceedings. The authors attempt to reveal to what extent the diagnostics using financial sustainability analysis methods provide an accurate forecast of the risk of insolvency and, hence, bankruptcy. The present study seeks answers to the following questions: are there any methodologies that stand out with a highest degree of coincidence of the forecast with the actual status quo of "declared bankruptcies"? Which indicators are characteristic of the agricultural sector, and what makes the applicability of the methods in which they participate most suitable for testing?*

***Key words:*** insolvency, classification bankruptcy prediction models - advantages and disadvantages, agriculture.

**SUBSECTION**  
**AGRICULTURAL AND RURAL**  
**POLICIES**

## ANALYSIS OF HUMAN RESOURCES IN RURAL ROMANIA: TRENDS AND SOCIO-ECONOMIC IMPLICATIONS

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### **Abstract**

*The paper analyzes the dynamics of human resources in rural Romania from 2021 to 2023, highlighting major trends and associated socio-economic implications. Key aspects examined include the evolution of the resident population, household structures, labor force, access to the internet, and adult participation in education, focusing on differences between urban and rural areas. The findings indicate a general decline in the total population; however, the rural population experienced a modest increase, suggesting internal migration from urban areas is likely due to the COVID-19 pandemic. The structure of rural households remained relatively stable, with a slight increase in the average number of members in certain social categories. Research results showed that employment rates and active participation in the labor market in rural areas have decreased. In contrast, the unemployment rate remained relatively high, amidst economic challenges and a lack of job opportunities for the population. Access to the internet has significantly increased in rural areas, partially narrowing the gap compared to urban areas. Participation in non-formal and informal education was higher in urban areas than in rural ones, reflecting the unequal access of the population to educational opportunities. From a socio-economic perspective, the study suggests the need for public policies that address regional disparities, support job creation, and facilitate access to education and digital infrastructure in rural areas. Implementing concrete measures is essential to reduce the gaps between rural and urban areas and to stimulate sustainable development in rural Romania.*

**Key words:** human resources, rural areas, Romania.

**THE IMPACT OF AGRICULTURAL INPUTS  
ON CROP PRODUCTION EFFICIENCY ACROSS  
ROMANIAN DEVELOPMENT REGIONS:  
A MULTI-CROP ANALYSIS (2007-2023)**

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***Abstract***

*The paper aims to investigate the link between agricultural inputs and crop production in Romania's eight development regions over the period of 2007-2023 for the selected crops wheat, corn, barley and sunflower. The study uses data from the Romanian National Institute of Statistics to check how chemical fertilizers (nitrogen, phosphorus and potassium), mechanical equipment and other agricultural inputs influence crop production. Through correlation and regression analysis, strong and significant links between the use of chemical fertilizers and crop production with different levels of effectiveness in the regions and crops have been established. The result of the analysis revealed that phosphorus fertilizer had the highest correlation coefficient with wheat and barley production, while potassium had the highest correlation with sunflower production. It was also found that variation in the effectiveness of inputs was a crucial factor; the South-East and South-Muntenia regions were more effective in converting fertilizer inputs into output. The results show that wheat and barley are the most consistent in their response to fertilizer application ( $R^2$  values are 0.21-0.29 and 0.24-0.25 respectively) while corn and sunflower have a relatively weaker response ( $R^2$  values of 0.13-0.14 and 0.14-0.15, respectively). These results imply that fertilizer application should be done on a region and crop basis in order to enhance production in Romania.*

***Key words:*** agricultural inputs, crop production, regional development, fertilizer efficiency, Romanian agriculture.

## **SORGHUM CAN HELP BUILD A SUSTAINABLE FOOD SYSTEM, ACCORDIND TO THE EU STRATEGY**

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### ***Abstract***

*The concept of sustainable food has more relevance, in the current context, due to overpopulation, it is estimated that the population will increase to 10 billion people, by 2050, insufficient and unhealthy food, but also an unstable climatic context for agriculture. Sorghum can successfully fit into the sustainable food system, according to the EU strategy, having advantages on people's health, it can contribute to the well-being and development of local communities, but also with a minimal impact on the living environment. Sorghum can be a "new" organic crop, with a high agricultural potential, to meet the requirements of the EU strategy. This study was based on the analysis of secondary data for a general approach, from a variety of sources, an exploratory research, with a large size of data, in order to allow to analyze and synthesize current trends regarding changes and agricultural policy at EU level. Sorghum is a response to a demand for safe, nutritious, healthy, organic and affordable food.*

**Key words:** sorghum, benefits of sustainable food, sustainable food, organic farming, agricultural policy at EU level.

## THE EUROPEAN UNION LONG TERM VISION FOR RURAL AREAS - PROSPECTS FOR BULGARIA

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### ***Abstract***

*The European Union's long-term vision for rural areas outlined the challenges, opportunities and prospects for rural Europe until 2040. The initiative resulted from a broad discussion among main stakeholders, institutions and the rural community. The CAP strategic plans also contribute to the main priorities of the EU vision. The study aims to outline the main trends in rural areas, focusing on Bulgaria and highlighting recommendations for future balanced and sustainable development of rural territories. The research follows the main action areas set in the strategic paper and analyses tendencies and possible paths until 2040. The results indicate that rural areas are lagging behind in main aspects such as access to essential services, infrastructure, and challenges of depopulation and ageing. In addition, there is a lower quality of life, job opportunities, and career prospects. The balanced development of rural areas requires capacity building based on local community members' participation and increased inclusion to boost innovation implementation and green transition.*

***Key words:*** revitalization, rural development, strategic plans, local community.

## **POLICIES AND FACTORS FOR RURAL DEVELOPMENT IN BULGARIA**

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### ***Abstract***

*Rural areas represent a significant part of Bulgaria and are crucial for regional growth and sustainability. Various policies at the European and national level help to ensure the prosperity of these regions. The main goal of this article is to review through empirical research whether rural areas in Bulgaria take full advantage of their comparative advantages and if the citizens are aware of the main goals in the plan for development for their municipalities. An analysis of the local independence provides information about the dependency of rural municipalities by the government due to the financial transfers they receive, so that is affecting the smaller settlements well-being. The research focuses on basic economic development indicators and the revenue side of municipal budgets. Main results are showing lack of awareness regarding the own revenues in rural municipalities and unconcern for the future policies. Based on the conclusions it can be suggested to increase the attractiveness to the citizens in understanding their responsibilities and have active role in municipalities decisions.*

***Key words:*** rural areas, rural development, municipal budget.

## EUROPEAN GREEN POLICIES' IMPACT ON FOOD PRODUCTION IN BULGARIA

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### **Abstract**

*The energy policy of the European Union (EU) aims to achieve a sustainable energy future by reducing carbon emissions, increasing energy efficiency and ensuring energy security. The EU's main objectives in this context include reducing dependence on external energy sources, shifting to renewable energy sources and creating an internal energy market that ensures efficiency and fair access for all Member States. The EU aims to achieve climate neutrality by 2050, which implies a significant reduction in carbon emissions, as well as a transition to cleaner and more sustainable technologies for energy production and consumption. Union policy has increasingly focused on transforming the energy production landscape of the continent towards a more sustainable future, with an ever-growing renewable energy sector. This process has also included the agricultural sector as it also has a high impact on the climate neutrality of the continent, with Green Deal policies focusing on reducing greenhouse gases produced by farms, the food supply chain and recourse producers (fertilizers, pesticides, etc.) and improving the food security of the continent. In this context, the aim of this study is to analyse the impact of European green policies on food production in Bulgaria. To achieve this goal, the following tasks must be completed: to highlight the most impactful European eco-policies regarding Bulgarian food production; to analyse the impact of these policies on the development of organic production in Bulgaria, as environmentally responsible, and to assess the possibilities for adapting Bulgarian agricultural practices to the new European green framework. This research uses data supplied by the Ministry of Food and Agriculture of the Republic of Bulgaria, though it's Agrostatistics branch. In order to achieve the goal of the study a policy review method was used, with the goal of highlighting the most impactful European policies for the organic production sector in Bulgaria. The main conclusion for the development of Bulgarian agriculture is that the concentration and specialization in production allows these larger-scale producers to be better positioned to leverage institutional support mechanisms. This is not without its challenges, as European green policies that promote sustainability require a more nuanced approach to policy implementation to succeed*

**Key words:** agriculture, sustainability, food security.

## **DYNAMICS OF THE AREAS, PRODUCTION, IMPORT AND EXPORT IN FRUIT AND VEGETABLES SECTORS AND LABOUR RESOURCES IN BULGARIA'S AGRICULTURE - TRYING TO ACHIEVE THE GOALS OF THE “FARM TO FORK” STRATEGY**

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### **Abstract**

*The Farm to Fork Strategy is part of the European Union's ambitious Green Deal and aims to create sustainable and efficient food systems that reduce the negative impacts on the climate, the environment and public health. This strategy focuses on the transition to greener agriculture and food processes, aiming to provide enough food for a growing population without depleting natural resources and damaging ecosystems. The aim of this study is to analyse the ability of Bulgarian agriculture to achieve the goals set out in the Farm to Fork Strategy through assessment of the development of its production, trade and labour resources. To achieve this goal, the following points should be addressed: the key points of the Farm to Fork Strategy should be clearly stated; the production base and production of the agricultural sector should be valued; labour as a significant factor should also be studied in regards to the development of new eco-policies in order to propose vectors for improvement. For the purpose of this study a policy review of the Farm to fork strategy was done. For analysis of the dynamics of production, trade and labour resources of Bulgarian agriculture data from multiple sources was used, mainly from the Agrostistics database of the Ministry of food and agriculture and the National statistical institute of Bulgaria. The data from internal sources was aggregated and cross-referenced with the Eurostat database as well as UN databases – Comtrade and Faostat. As a result from this research we can conclude that Bulgarian fruit and vegetable markets rely heavily on imports and the local agricultural sector needs to increase its production to meet the consumer demands in order to achieve the goals set in the Farm to fork strategy of the European union.*

**Key words:** sustainability, food supply, agricultural labour.

## THE IMPACT OF PUBLIC REGISTRIES ON GOVERNANCE STRUCTURE IN AGRICULTURE

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### ***Abstract***

*New Institutional Economics (NIE) posits that economic system improvement can be achieved through incentives for hybrid contractual organizations. In Bulgaria's agricultural sector, the increasing use of public registries (PRs) and their digital formats reduces information asymmetry, facilitates access to property rights, and lowers social costs. Enhanced governance structures are realized through hybrid contractual forms and property rights protection, enabled by the synergy between electronic and physical transactions. These conditions lead to low asset specificity, reduced uncertainty, and high transaction repeatability, characteristic of contractual alternatives with low transaction costs (TrC). However, the redirection of incentives for property rights acquisition by certain actors, who retain ownership rights, absorb cash flows, and reduce TrC, prevents the hybrid contract from achieving its goal of low social costs. This article aims to compare alternatives and test the hypothesis that hybrid technological contracts, exemplified by PRs in agriculture, result in lower social costs. The methods employed include comparative-institutional analysis, discrete structural analysis, and effect analysis. The expected results and conclusions are that the studies are expected to confirm the positive impact of digitalized public registers on the agricultural sector. A concept for improving the institutional environment is proposed.*

**Key words:** public registers, NIE, hybrid contracts, governance structure, transaction costs.

## PESTICIDES AND SUSTAINABILITY: A ROMANIAN FARMERS' PERSPECTIVE

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### **Abstract**

*The purpose of this study is to explore the perceptions and knowledge on sustainable use of pesticides of young farmers from Transylvania. The authors of the study have opted for a qualitative approach, and to this end, seven focus groups were conducted. The findings show that farmers understand the importance of adhering to recommended dosage and avoiding unnecessary treatments as part of a sustainable pesticide use practice. However, they identified several barriers to adopting these practices, including cost, access to information, and concerns about efficacy. When asked how authorities could support sustainable practices, the participants suggested increasing subsidies, offering training sessions, launching awareness campaigns, and developing supportive public policies. Considering the impact of this topic at the EU level and the lack of detailed research, this study opens the door for future quantitative research regarding the transition to sustainable agriculture.*

**Key words:** agricultural practices, EU policies, farmers' behaviour, perceptions, sustainable use of pesticides.

**STUDY ON THE IMPACT OF AGRICULTURAL  
POLICIES ON THE ECONOMIC EFFICIENCY  
OF FARMS IN ROMANIA**

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***Abstract***

*The Common Agricultural Policy (CAP) constitutes a key element of the European Union's agricultural framework, providing financial support and regulatory measures aimed at improving the economic efficiency and sustainability of farms, including those in Romania. This research investigates the implications of the CAP on the profitability and economic performance of farms in Romania, considering their diversity. It examines the distribution of CAP subsidies and how farmers can influence their value by meeting certain regulations and criteria. The methodology combines quantitative and qualitative methods, such as: analysis of official farm financial data and information on subsidies received, complemented by interviews and questionnaires with farmers to assess the impact of CAP regulations on farmers. The results show to what extent CAP regulations contribute to increasing subsidies and improving farm profitability, depending on how they are implemented. The conclusions highlight the significance of the Common Agricultural Policy (CAP) for Romanian farms and propose strategies to improve its implementation, contributing to the long-term sustainability of the agricultural sector.*

***Key words:*** CAP, subsidy, economic efficiency, farm.

## THE ROLE OF SMALL FARMS WITHIN THEIR NATIONAL CONTEXTS IN CENTRAL AND EASTERN EUROPE

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### ***Abstract***

*Small farms play a crucial role in shaping the agricultural landscapes and economies of many nations, serving as both cultural staples and significant contributors to food security and rural livelihoods. This study applies K-Means clustering to examine the dynamics of small agricultural holdings across European regions, using key indicators such as the number of holdings, utilized agricultural area (UAA), economic output (Euro), and agricultural labor input (AWU). The analysis identified four distinct clusters that reveal the diverse roles small farms play in national agricultures. The findings illustrate the multifaceted roles small farms perform - from sustaining rural economies and preserving traditions to confronting productivity challenges and resource constraints. The study underscores the necessity for region-specific policies that enhance the sustainability and competitiveness of small farms. By framing the role of small farms within their national contexts, this research provides a strategic foundation for strengthening their contributions to agricultural sustainability and resilience.*

***Key words:*** small farms, region, Central and Eastern Europe, cluster analysis.

## VALUE-ADDED AGRICULTURE IN THE REPUBLIC OF MOLDOVA – INCREASING THE EXPORT POTENTIAL AND INTERNATIONAL COMPETITIVENESS

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### ***Abstract***

*The paper analyses the sub-sectors of the Moldovan agriculture with a potential to transform into high value-added, in terms of production, processing and exports. The Moldovan agri-food sector is still relying on the production and export of raw material, rather than processed products. The low value-added level of agri-food exports determines the country's specialization and hinders its transformation process. The methods approached during the research are based on the quantitative analysis of production and foreign trade of value-added products. At the same time, the qualitative approach with respect to analysis of export potential and estimation of the degree of competitiveness through the Revealed Comparative Advantage (RCA) indicator has been also used. The obtained results revealed that the Republic of Moldova has the necessary prerequisites for enhancing its export potential of value-added products, as the primary agriculture is already developed and additional efforts are required. The agricultural policy should set the main directions for enhancing the value-added agriculture, particularly: support for increasing the quality of products and for processing industry, promotion of by-products, support for new varieties and sub-sectors of the agricultural system and enhancing the synergy among producers and processors.*

**Key words:** value-added agriculture, export potential, competitiveness, Republic of Moldova.

## ESTIMATING EUROPEAN UNION FIELD CROPS FARM SUSTAINABILITY THROUGH MEASURING POLICY IMPLEMENTATION EFFICIENCY BY DATA ENVELOPMENT ANALYSIS

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### **Abstract**

*European Union's Common Agricultural Policy (CAP) supports farm sustainability as a definition by its measures and tools, but the issue of its implementation efficiency differs despite of the common sense that European Commission (EC) stimulates the cohesion and coherence principles to all of the Member States (MS). This paper aims to reveal the efficiency of CAP implementation on field crop farms separated by economic sizes (6 classes) and compared to non-specialized average farm's sustainability levels. The technical efficiency (TE) scores are received by applying Data Envelopment Analysis (DEA) using Benefit of Doubt (BoD) modelling modification on 15 indicators representing equal number of variables of the three main sustainability dimensions – economic, social and ecological. The received results clarify a huge difference of CAP implementation between the most advanced, largest holdings and the other five smaller economic size classes. Furthermore, it is exposed that payments per unit area benefit the most efficient farms that apply the best return of scale (and scale efficiency) at the expense of all others.*

**Key words:** agricultural holdings, Common Agricultural Policy, European Union, field crop farms, sustainability.

## **FOOD SYSTEM APPROACH IN ROMANIA: CHALLENGES AND OPPORTUNITIES**

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### ***Abstract***

*This paper investigates the implementation of a food system approach in Romania, focusing on its potential to enhance the resilience and sustainability of the food system, particularly for small producers. Drawing on existing literature, the study identifies key actors and themes within the Romanian food system. The findings highlight the crucial role of collaborative partnerships - as emphasized in the EU's Food2030 strategy - in achieving inclusive growth and building a resilient agricultural framework. The research concludes that aligning with European directives necessitates fostering partnerships and implementing systemic changes through well-funded research and inclusive strategies to overcome challenges faced by small producers and build a more robust and equitable food system in Romania. The study emphasizes the interconnectedness of food processes for security and sustainability, underscoring the need for a holistic approach to address the specific challenges faced by small-scale producers.*

**Key words:** food production and consumption, food system governance, small producers, sustainability.

## TRANSFORMING FOOD SECURITY IN THE REPUBLIC OF MOLDOVA THROUGH THE AGROVOLTAIC CONCEPT

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### ***Abstract***

*In the economic conditions, in which vulnerabilities are increasingly accentuated, the issue of ensuring food security for the Republic of Moldova is becoming not so much an agricultural issue but a comprehensive one directly related to sustainable macroeconomic development, its ability to implement socially oriented policies, the constant increase in the standard of living of the population and the use of the advantages of the international division of labor in agriculture. Solving these problems cannot be achieved without implementing new technologies in agriculture. Based on these arguments, we set out to investigate the opportunities for increasing food security by applying new innovative approaches, such as Agri-PV. The research methodology includes quantitative and qualitative methods based on national and international data sources. The main results highlight that the advantages of Agri-PV in the Republic of Moldova primarily relate to the favorable climatic zone for these technologies, the average annual duration of sunshine, and the variety of crops grown in the Republic of Moldova. We want to mention that the use of Agri-PV not only increases productivity and soil quality but also makes it possible to use green energy. At the same time, we have revealed that there are several impediments that hinder the implementation of photovoltaic panels in the Republic of Moldova.*

**Key words:** agrovoltatics, Republic of Moldova, resilience, food security, renewable energy, sustainable agriculture, climate change.

## **GLOBALIZATION OR GLOCALIZATION? A COMPARATIVE ANALYSIS OF AGRI-FOOD SYSTEMS IN NIGERIA AND DR CONGO AMID GLOBAL CRISES**

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### ***Abstract***

*The study analyses the impact of recent global crises on the agri-food systems from Nigeria and the Democratic Republic of Congo (DR Congo), exploring vulnerabilities generated by globalization, and to adopt glocalization principles as solution to increase resilience and sustainability. Through a comparative approach, the research identifies the main challenges, such as high dependence on imports, poor agricultural infrastructure, and significant post-harvest losses, and highlights the potential of traditional crops, such as cassava and sorghum, in reducing food insecurity. The study proposes measures for crop diversification, infrastructure investments, and the adoption of sustainable agricultural practices, adapted to local conditions, as well as the need for regional collaboration and international partnerships to reduce structural vulnerabilities, concluding that a balanced integration of globalization and glocalization, adapted to local specificities, is a solution to strengthen food security. This analysis contributes to understanding the interdependence between global and local factors, providing insights to develop more resilient agri-food systems.*

**Key words:** DR Congo, Nigeria, food security, globalization, glocalization.

## THE RELATIONSHIP BETWEEN MANAGERIAL BEHAVIOUR AND EUROPEAN FUNDS IN ROMANIAN RURAL AREAS

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### **Abstract**

*This study examines the relationship between managerial practices and the absorption of European Union funds in rural development of Romania, focusing on a specificities of the implementation of agricultural policy programs. Using a combination of quantitative analysis and case studies, the research identifies key behavioural and institutional factors affecting fund utilization. The findings show that managerial aspects account for a significant portion of regional differences in fund absorption, outweighing structural or financial factors. High-performing regions achieve better results through digital tools, transparent processes, and staff training, while underperforming areas face challenges due to fragmented processes and cautious decision-making. These differences lead to notable economic impacts in areas such as food prices, agricultural productivity, and rural employment. The study proposes policy reforms including institutional changes, improved training, and digital upgrades to enhance fund absorption in the upcoming programming period.*

**Key words:** EU funds, managerial behaviour, fund absorption, CAP, institutional capacity.

**THE DEGREE OF INCOME DIVERSIFICATION  
AMONG RURAL HOUSEHOLDS IN THE POLOG  
AND PELAGONIA REGIONS OF NORTH MACEDONIA**

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***Abstract***

*Rural development in North Macedonia has traditionally been closely linked to agricultural growth, reflecting the sector's vital role in the country's economy. However, contemporary strategies increasingly recognize the role of non-farm rural activities in improving rural livelihoods. This study explores income diversification among rural households in the Polog and Pelagonia regions. The Shannon Equitability Index was used to measure the degree of income diversification by evaluating both the number and equity of income sources. Data were collected through field interviews with 140 rural households in 2018, categorizing income into five groups: plant production, livestock production, non-agricultural activities, off-household income and transfers. Monetary poverty status was assessed, distinguishing households above and below the poverty line. Findings reveal low-income diversification levels, with Shannon Index values of 32.9% for Pelagonia and 35.2% for Polog. Notably, poorer households (42.9%) tend to distribute their income sources more evenly as a strategy to mitigate risk, unlike wealthier households (32.3%), which are more dependent on specific income streams. These findings emphasize the critical role of income diversification in promoting rural development and alleviating poverty in North Macedonia.*

***Key words:*** Shannon Index, equitability, poverty, rural households.

## THE LABOR MARKET IN ROMANIAN AGRICULTURE: CURRENT TRENDS AND CHALLENGES FOR ENTREPRENEURS

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### **Abstract**

*Over the past five years, Romania has experienced a significant decline in the proportion of its workforce employed in agriculture. In 2018, 23% of the employed population worked in agriculture; however, by 2023, this share decreased to 11.9%. This trend is driven by urbanization, labor migration to higher-paying sectors, agricultural mechanization, and the aging of the rural population. Most workers in agriculture reside in rural areas, with low educational attainment, which limits their professional mobility. In 2023, underemployment in agriculture was recorded at 7.2%, while salaried workers in this sector represented only 3.3% of the national total, signaling a shift towards subsistence farming. Although the agricultural workforce has diminished, the sector remains vital for food security and export activities. The declining labor force in agriculture raises challenges, including rural depopulation, land abandonment, and reduced innovation capacity. Addressing these issues requires investments in modern agricultural technologies, education, and targeted policies to enhance rural development and attract younger, skilled workers to agriculture. This paper explores these dynamics, emphasizing the need for strategic interventions to ensure the sector's sustainability.*

**Key words:** workforce, agriculture, Romania, evolution.

## **A DIFFERENTIATED RURAL SETTLEMENT FRAMEWORK FOR LOCAL ECONOMIC DEVELOPMENT RESILIENCE IN RURAL GHANA**

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### ***Abstract***

*Globally, one in every ten rural village indicates a low level of economic growth. The condition is no different in Ghana, which continues to face significant developmental challenges, particularly regarding low socio-economic status of rural community. Local Economic Development (LED) is crucial for promoting sustainable growth, improving livelihoods and reducing poverty in rural Ghana. This paper examines the determinants of LED resilience across agricultural, mining, fishing and forest-based settlements, proposing an integrated framework tailored to each settlement type. Drawing on multiple theoretical perspectives, this study identifies key factors influencing LED resilience: Social, Human, Economic, Cultural, and Environmental resilience. A mixed-methods approach involving surveys, interviews, and focus groups discussions (FGDs) was utilized to gather data from diverse rural Ghanaian communities. Findings indicate that social cohesion, human capital development, and cultural preservation are essential for LED resilience, with distinctive dynamics specific to each settlement type. This study advances existing literature by offering a differentiated framework specific to agricultural, mining, fishing, and forest-based rural settlements in Ghana and presents practical recommendations for implementing localized strategies to foster inclusive economic growth.*

**Key words:** local economic development, rural planning, rural economy, rural development.

## EVOLUTION OF THE PRE-EMPTION RIGHT IN THE PURCHASE OF AGRICULTURAL LAND IN ROMANIA: IMPLICATIONS AND REGULATIONS

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### ***Abstract***

*In the context of the dynamics of the agricultural land market in Romania, the right of pre-emption is a crucial instrument for protecting both the state's economic and social interests and those of local communities. This article analyses the evolution of this right in national regulations, from the first post-1989 regulations to the recent amendments to the European and national laws. First of all, it discusses the purpose of the pre-emption right in preventing speculative acquisitions and in protecting agricultural resources, which are vital for national food security. The article also addresses the economic and social implications of these regulations, including the impact on potential investors, but also the possible effects on rural area development. Finally, it presents the current legislative challenges to ensure a balance between protecting agricultural resources and stimulating investments in the agricultural sector.*

***Key words:*** pre-emption right, regulations, rural area development.

## FROM CHALLENGES TO COMPETITIVE ADVANTAGE: A MATRIX FOR RESOURCE OPTIMIZATION, MARKET ACCESS, POLICY COHERENCE AND TECHNOLOGICAL ADVANCEMENT IN ROMANIAN AGRICULTURE

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### **Abstract**

*The Romanian agri-food sector faces significant challenges related to economic resource allocation and policy formulation. The study aims to explore these issues through a comprehensive case study of Romania, highlighting the interplay between economic policies and agri-food market dynamics. Following a research approach centered on administering questionnaires to key stakeholders, our findings reveal persistent inefficiencies in resource allocation, influenced by historical legacies, market fragmentation, and inconsistent policy frameworks. In addition, there were identified critical deficiencies in infrastructure and technology adoption that are impeding market efficiency. Overall, the study emphasizes the need for integrated policy reforms to increase the efficiency of resource allocation, support sustainable agricultural practices, and improve farmers' market access. The findings suggest that addressing these challenges requires a coordinated effort between policymakers, industry stakeholders, and the farming community to promote a resilient and competitive agri-food sector in Romania. Moreover, the matrix of challenges and opportunities provides the basis for turning these obstacles into competitive advantages through strategic optimization of resources, improved market access, coherent policy frameworks, and technological advances.*

**Key words:** agri-food sector, policy formulation, market dynamics, development matrix.



**SUBSECTION  
AGRIBUSINESS  
AND AGRICULTURAL  
EXTENSION**

## STUDY ON THE ROMANIAN GARLIC MARKET FROM 2010 TO 2023

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### **Abstract**

*The study presents the main trends on Romanian garlic market from 2010 to 2023. The indicators analyzed were collected from domestic and international databases and they are: the cultivated area, total garlic production, average production per hectare, basic price, average growth rate of indicators and the trade balance also (import, export). Based on these data, the average of the period, standard deviation and coefficient of variation were calculated. The analysis highlighted that the area cultivated with garlic has continuously decreased, the decrease being -31.6% in 2023 compared to 2010. Also, total production of garlic decreased with 31.8% in 2023 compared to 2010. The annual growth rate was negative for all indicators, the reasons being both economic (price fluctuations, high costs with the inputs, etc) and technological (lack of planting material, temperature fluctuations, diseases and pest attack). Regarding the average price of garlic in Romania, in 2023 it reached the value of 18.8 lei/kg, registering an increase of 48.38% compared to 2010. The trade balance was negative for the entire period both in value and quantity. The results obtained from the research can contribute to the consolidation of the production and marketing strategies for the crop of garlic in Romania.*

**Key words:** *Allium sativum*, cultivated area, production, annual growth rate, trade, Romania.

**CONFLICT MANAGEMENT TECHNIQUES  
AND EMPLOYEE'S JOB PERFORMANCE  
IN FEDERAL COLLEGES OF AGRICULTURE  
IN SOUTH-WEST NIGERIA**

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***Abstract***

*The study aims at exploring the effect of conflict management techniques on employees' job performance in Federal Colleges of Agriculture in South-West Nigeria. A descriptive research design was used to solicit information from employees, and the instrument used was a questionnaire. A multistage sampling technique was used; the first stage was random sampling of 2 colleges out of 5 colleges in South-West Nigeria, and a random sampling technique was used to sample 162 employees from 1621 employees in the 2 colleges. Data were analysed using frequency counts, percentages, the mean, and the Pearson Product Moment Correlation Coefficient (PPMC). Structural factors ( $\bar{x}=3.0$ ) were adjudged to be the predominant determinant of conflict in the two colleges. Collaborative was the most effective technique ( $\bar{x}=4.0$ ) that brought the harmony necessary to increase employees' performance in the two colleges. Job performance was statistically significant to conflict management techniques. Organization directors and managers should sensitize their employees to techniques to resolve conflicts and create an enabling work environment that will enhance job performance.*

***Key words:*** conflict, management, employees, and performance.

## AGRICULTURE PRODUCTION IN TWO SPANISH REGIONS WITH INTENSIVE USE OF FOREIGN LABOUR FORCE: A CASE STUDY OF ALMERIA AND MURCIA

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### **Abstract**

*Almeria and Murcia are regions that represent a tiny part of Spain in terms of area and population, but they account for a significant share of the national production and export of vegetables, supplying a large part of the EU Member States. As production and exports have grown, so has the demand for labour, and an increasing proportion of this demand has been met by immigrants. Thus, Murcia and Almería became Spain's major centres of immigrant-based agriculture, where intensive production resembles an industrial process. The aim of this study is to show that the strong raise in production has attracted migrants and their presence in the agricultural sector has increased significantly. Data on production, exports, labour force and migration were collected from different Spanish institutions over a period of thirty-eight years and a multiple linear regression model was applied to test our hypothesis. The results obtained confirm this hypothesis and are consistent with theories explaining labour migration.*

**Key words:** *intensive agriculture, immigrants' workforce, labour migration, vegetable exports, production growth.*

## THE IMPACT OF TAXES ON THE ACTIVITIES OF AGRICULTURAL ENTERPRISES: UKRAINIAN AND EUROPEAN PRACTICE

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### **Abstract**

*The study of the impact of taxes on the activities of agricultural enterprises is important in the context of ensuring the financial sustainability of the agricultural sector, increasing its competitiveness, and harmonizing the tax policy of Ukraine with European standards. The purpose of the article is to identify the features and state of taxation of agricultural enterprises in Ukraine, compare them with European practice, and substantiate recommendations for optimizing tax policy to stimulate the development of the Ukrainian agricultural sector. The study is based on official statistical data of the State Statistics Service of Ukraine, as well as on regulatory legal acts, analytical reports, and scientific publications devoted to issues of tax regulation of agriculture. The article uses a set of scientific research methods, in particular: methods of analysis and synthesis, deduction and induction, comparative method, statistical method, SWOT analysis method, and generalization method. The study concluded that tax regimes and benefits significantly affect the financial sustainability and competitiveness of agricultural enterprises, while there are several challenges, in particular, regarding the significant tax burden and complex tax administration.*

**Key words:** taxes, agricultural enterprises, tax benefits, tax policy, tax burden.

## ANALYSIS OF THE STATUS AND PROBLEMS FOR THE DEVELOPMENT OF BEEKEEPING IN BULGARIA

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### **Abstract**

*The present study is aimed at analysing the status, potential and problems in the development of beekeeping. The need for the study stems from the fact that despite the great opportunity for the development of beekeeping, which the country has had in recent years, the sector is not only not developing but is also facing a catastrophe. The main hypothesis is that beekeeping in Bulgaria, despite the good natural conditions for development, is far from its potential. Hence the main goal of the study. To identify the main reason or factor stopping the development of beekeeping. From the conducted research, we have reason to assert that the most significant factor influencing the development of beekeeping is the profitability of the bee colony. Since the low profitability in this case results from the adoption of poor legislative policies by the state and the EU, which are detrimental to beekeeping. The decisive role for the development of beekeeping remains in the hands of the state and the European administration and their legal and financial policies aimed at the sector.*

**Key words:** state of beekeeping, honey production, beekeeping problems, honey trade.

## ADAPTING THE U.S. UNIVERSITY-BASED EXTENSION MODEL TO THE AKIS FRAMEWORK OF ROMANIA AND THE EUROPEAN UNION

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### ***Abstract***

*This paper explores the feasibility of implementing a university-led agricultural extension system in Romania, aligned with the European Union's Agricultural Knowledge and Innovation System (AKIS). Drawing on comparative insights from the U.S. Cooperative Extension model, the study examines how agronomic universities can play a central role in bridging the gap between research, policy, and rural practice. Using a mixed methodological approach that includes PESTEL and SWOT analyses, a stakeholder matrix, and a GAP analysis, the paper identifies key systemic challenges: fragmented advisory structures, limited legal mandates, and underutilized academic capacity. Results suggest that while Romania has significant institutional and human potential, it lacks the structural coordination needed to meet EU expectations and fully access CAP and Horizon Europe funds. The proposed model emphasizes local engagement, digital knowledge sharing, and student involvement. If adopted, this approach could enhance Romania's alignment with EU policy goals, strengthen rural advisory services, and position universities as key actors in agricultural innovation and sustainability.*

**Key words:** advisory, AKIS, CAP, cooperative extension, knowledge transfer.



**SUBSECTION**  
**SUSTAINABLE DEVELOPMENT**  
**OF RURAL AREA**

## **ANALYSIS OF SKILLS AND ABILITIES REQUIRED BY THE LABOR MARKET FOR THE DEVELOPMENT OF CIRCULAR ECONOMY IN THE RURAL AREAS OF ROMANIA**

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### ***Abstract***

*This paper proposes a forward-thinking approach to education management by identifying key emerging skills and capabilities that can drive innovative, cross-sector training programs. These efforts are designed to support the circular economy in rural regions and empower the creation of sustainable, future-ready business models based on the smart exploitation of resources and also using the knowledge and entrepreneurial skills needed by students to increase their employment and career opportunities, especially in the rural circular economy. The set of activities in the circular rural economy refers to all the economic activities of production, transformation and marketing of services, agricultural and forestry products and by-products and food, which are carried out by enterprises located in rural areas. The purpose of this questionnaire-based analysis is to identify new skills and personal abilities that students in rural areas need to acquire. Overall, the study concludes that fostering multidisciplinary, skills-based education is key to empowering rural populations and promoting sustainable economic growth through the circular economy.*

***Key words:*** education management, circular economy, rural areas.

## A MULTIDISCIPLINARY APPROACH TO THE SUSTAINABLE MANAGEMENT OF AGRICULTURAL LAND AND RURAL RESILIENCE DEVELOPMENT

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### **Abstract**

*This research intricately explores the interconnections among biodiversity conservation, climate change, territorial fragmentation, and socio-economic challenges, with a specific focus on the Northwest side of Romania villages. Emphasizing the national importance of discerning land utilization practices, this paper draws on land distribution impact and consolidation. Adopting a multidisciplinary approach, the study integrates specialized studies to unravel the nuanced evolution of land management and rural resilience development. The research, traversing subsequent chapters, elucidates methodological intricacies, conducts a comparative analysis, and globally contextualizes discussed issues, additionally implementing a suitable analysis to develop viable solutions in the global context of land conservation. With a focus on identifying land parcels, ascertaining ownership, and updating land use dynamics the meticulous analysis contributes nuanced insights into sustainable land management. The rural resilience concept is valued by suitable analysis performed using Geographical Information System, which will serve as decision-making factor.*

**Key words:** biodiversity conservation; land consolidation; rural resilience; suitability analysis; sustainable land management.

## A MULTIDIMENSIONAL ANALYSIS OF THE AGROECOLOGICAL PERFORMANCE OF THE ROMANIAN FARMING COMMUNITIES

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### ***Abstract***

*This study aims to provide a comprehensive evaluation of the agroecological performance of farms in a South-Eastern Romanian farming community. The concept of agroecology, initially limited to the application of ecological principles in agriculture, has significantly evolved, integrating social, economic, cultural, and political dimensions. Thus, our research explores the implementation of agroecological practices at the level of soil, biodiversity, farm economics, human resources, and agricultural policies. A questionnaire was administered to both conventional and organic farms to identify differences in the adoption and effectiveness of these practices. The obtained results offer a perspective on the multidimensional implications of agroecology, contributing to the development of sustainable agricultural policies and strengthening the scientific basis for the transition towards more resilient and sustainable food systems.*

**Key words:** agroecology, multidimensional analysis, organic farming, sustainability.

## **RURAL VERSUS URBAN IN GALATI COUNTY. RURAL DEVELOPMENT PERSPECTIVES**

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### ***Abstract***

*The aim of the work is to identify the effects of urban development items on rural communities and the interdependence between the urban and rural environments, with an analysis carried out at the level of Galati county. The results of the research highlight the fact that the development of the rural communities adjacent to the municipality of Galati and those around the municipality of Tecuci significantly depend on the urban environment. The research highlights the fact that the rural-urban economic dependence specific to the two municipalities in Galati County and the rural communities in peri-urban rings 1 and 2 have different characteristics. Thus, the economic development in the peri-urban rural environment related to the Municipality of Galati is dependent on the economic evolution of urban center of Galati, while the peri-urban rural environment related to the Municipality of Tecuci is the one that determines the economic evolution of the urban center of Tecuci. The results of the research can be useful to local public administrations in order to formulate some strategic development directions.*

**Key words:** rural development, interdependence, Galati County, urban environment, territorial planning.

## **SPECIFIC ASPECTS OF BEEKEEPING DEVELOPMENT IN ROMANIA. CASE STUDY: GALATI COUNTY**

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### ***Abstract***

*Climate changes, biodiversity protection, agricultural practices, but also the evolution of the external and intra-community market. since the last period, they have a significant impact on beekeeping and, implicitly, on the development of rural communities where this agricultural activity is relevant. The aim of the paper is to analyze the effects of different exogenous factors on beekeeping activities in rural communities, with an analysis carried out at the level of Galati County. The work highlighted the fact that the development of beekeeping can represent a direction of development of the rural communities in the north of Galați County with a special potential, potential determined especially by the exogenous and endogenous factors identified and analyzed. In this context, the impact of support schemes with European financial resources in the development of this sector of activity in the analyzed rural communities of Galati County is also analyzed. The data and results of the research can be useful for public administrations or professional associations.*

**Key words:** rural development, beekeeping, Galati County, influencing factors, support schemes.

## IMPLEMENTING PRECISION AGRICULTURE TECHNOLOGIES IN SOUTH-MUNTENIA REGION: ECONOMIC BENEFITS AND OPERATIONAL CHALLENGES

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### ***Abstract***

*Precision agriculture can be considered a revolution in modern farming, relying on data and advanced technologies aimed at optimizing production and efficiently utilizing resources. This approach enhances yields and reduces losses, thereby ensuring the sustainability and competitiveness of the agricultural sector. In a global context profoundly impacted by climate change, population growth, and increasing economic demands, precision agriculture plays a critical role in adapting farms to these new challenges while ensuring their profitability. This paper aims to assess the level of technical equipment, the degree of use and perceptions of precision agriculture technologies in eight farms with various surfaces in South-Muntenia region. The research is based on a questionnaire applied on these farms. The collected data were analyzed descriptively, with graphical representations. The results highlight the widespread adoption of self-guidance systems, the variable rate applications, digital platforms and soil sensors. The identified benefits include reduced production costs, increased efficiency and improved production quality while the main barriers are high costs, lack of training and technological complexity. The overall conclusion highlights the potential of precision agriculture to support farm performance and competitiveness, with support policies and professional training needed for widespread adoption.*

***Key words:*** precision agriculture, sustainability, economic growth, agriculture profitability.

## SMART RURAL DEVELOPMENT - EDUCATION FOR THE 2030 AGENDA IN RURAL SMART EDUCATIONAL CENTERS

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### **Abstract**

*This article examines Smart Villages as a framework for sustainable rural development, highlighting the role of smart educational centers in addressing educational inequalities, poverty, limited technological access, food security, and rural-urban migration. These centers integrate modern infrastructure, digital tools, and sustainability practices to improve the quality of education, agricultural productivity, and economic opportunities, encouraging young people to stay in their communities. The study uses a literature review, an analysis of rural-urban disparities in Romania, and a proposed conceptual framework to assess the feasibility of these centers. The findings highlight the transformative potential of education in empowering rural communities, reducing economic disparities, increasing food security, and fostering socio-economic resilience. Despite financial and infrastructure challenges, public-private partnerships, teacher training programs, and digital inclusion strategies are identified as key solutions. The study concludes that smart educational centers significantly contribute to achieving the Sustainable Development Goals (SDGs), especially SDG 4: Quality Education, SDG 1: No Poverty, SDG 2: Zero Hunger, SDG 8: Decent Work and Economic Growth, SDG 13: Climate Action and SDG 11: Sustainable Communities. Their implementation represents a strategic path towards the sustainable transformation of rural Romania.*

**Key words:** Smart Villages; Education for sustainability; Smart educational centers; Sustainable Development Goals (SDGs); Smart rural development.

## MACROECONOMIC FACTORS INFLUENCING RURAL YOUTH'S DEVELOPMENT – A CASE STUDY IN NORTH MACEDONIA

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### **Abstract**

*Rural youth face a unique set of challenges that limit their development opportunities, influenced by macroeconomic factors impacting decision-making, mobility, and quality of life. In North Macedonia, rural youth represent 35% of the population. Having in mind the youth's challenging environment in their rural areas, this research investigates the needs and challenges of this vulnerable group, focusing on factors affecting their situation by using a PESTEL analysis. A survey questionnaire was conducted on a sample of more than 500 young people from rural areas, who assessed the political, economic, social, technological, environmental, and legal factors. On a scale from 1-7, social factors received high satisfaction ratings (average scores: family support 6.20, health 6.17, family life 5.85). On the contrary, economic factors showed low satisfactory levels (economic situation 2.94, employment opportunities 3.10, formal and informal education opportunities 3.22). Political and legal factors also scored poorly, especially the corruption (2.20), the judicial system (2.48), and the political situation (2.54). Addressing these issues can lead to formulation of more targeted policies that will improve rural youth's prospect and well-being and foster sustainable development.*

**Key words:** Youth, rural areas, PESTEL analysis, macroeconomic factors.

## EVALUATION OF GREEN AGRICULTURE DEVELOPMENT LEVEL AND REGIONAL DIFFERENCES IN SHANDONG PROVINCE, CHINA

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### **Abstract**

*Promoting the green agriculture development is a major initiative to advance the high-quality development of agriculture, the modernization of agriculture and rural areas and the implementation of the rural revitalization strategy. The level of green development of modern agriculture reflects the comprehensive strength of agriculture, and by assessing the level of green development of agriculture in Shandong Province, it can provide guidance for the construction of a modern agriculture province in Shandong Province. Taking 16 municipalities in Shandong Province as the research object, 14 evaluation indexes were selected from resource conservation, environmentally friendly, ecological conservation, and output benefits to construct the evaluation index system of agriculture green development. In this research, the entropy weight method was used to calculate the green development index of 16 municipalities in Shandong Province to analyze the level of green agriculture development in Shandong Province. The green development level of agriculture in different municipalities of Shandong Province is divided into three regional types. The results show that the overall green agriculture development index of Shandong Province shows a fluctuating upward trend, but the overall level reflected by this index is still low; the agriculture green development index has obvious regional differences, and the western region is significantly lower than other regions. In order to green sustainable and stable development of agriculture, the green development of agriculture in Shandong Province should change the traditional concept of agriculture development and accelerate the innovation of green agriculture development. According to the analysis of regional differences, all parts of Shandong Province should formulate green agriculture development policies according to local conditions and improve the level of green agriculture development.*

**Key words:** green agriculture development, indicator system, entropy weight method, regional differences.

## **BEEKEEPING: ECONOMIC AND SOCIAL IMPORTANCE, GLOBAL TRENDS AND DEVELOPMENT STRATEGIES IN EUROPE AND ROMANIA**

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### ***Abstract***

*Beekeeping plays an important role in the economies of European Union countries, with specific programs to support the beekeeping sector implemented in all member states. However, the sector faces challenges such as the lack of predictive market information, competition in the global market, changing consumer preferences, the introduction of modern technologies, and more. This article explores the basic economic parameters of honey production, consumption, export and import at national, European, and global levels. It forecasts trends in the growth of bee populations, honey production, and consumption using data from relevant sources (FAO, Eurostat, National Institute of Statistics-NIS) through a forecasting model. Furthermore, it discusses strategic development directions in Europe and Romania. The research highlights the sector's potential and the need for integrated policies that support both bee health and beekeepers' incomes.*

**Key words:** *beekeeping, socio-economic importance, trends, directions.*

## **ADAPTATION OF PASTURE COMPOSITION TO CLIMATE CHANGE CONDITIONS – A FACTOR FOR INCREASING ANIMAL FODDER QUALITY AND IMPLIEDLY MILK PRODUCTION**

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### ***Abstract***

*Natural grasslands with spontaneous vegetation have been gradually replaced by new categories, where human intervention is considerable. Research has shown that their valorization is done through the application of modern technologies. Feed production and its cost are influenced and limited by climatic challenges, multiplying through the mirror effect, in human food. The aim of the work is to demonstrate, with the help of statistical indicators, the influence of temperatures and precipitation on feed and milk production. According to the calculations made, it emerged that extreme temperatures negatively influence the amount of feed obtained, with rapid evaporation taking place. The lack of precipitation increases the risk of severe drought, having a domino effect. This phenomenon leads to a reduction in the water level in rivers, the groundwater area, slows down crop growth, leads to increased pest attacks and favors the occurrence of fires. Adaptation to climate change is essential for mitigating potential damage and identifying opportunities for farmers to respond.*

**Key words:** climate change, pasture, fodder, temperature, precipitation.

**SUBSECTION  
AGRITOURISM  
AND RURAL TOURISM**

## STUDY ON ROMANIAN RURAL TOURISM BASED ON AUTHENTICITY CRITERIA FOR VERNACULAR HERITAGE

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### **Abstract**

*The socio-cultural heritage in rural tourism highlights the unique traditional lifestyles of local communities, offering both diversity and genuinely authentic experiences. Vernacular culture, characterized by enduring traditional principles, norms, values, knowledge, habits, practices and material things, encompasses, among others, rural architecture, interior decor, customs, traditions, and local gastronomy - these compounds being facets of authenticity concept in rural tourism. This paper presents the results of a questionnaire on the specific facets mentioned above, applied to tourists from an authentic Romanian guesthouse to assess the impact of vernacular cultural elements on perceptions of authenticity in rural tourism. The results indicate that the vernacular concept is not well recognized by tourists, underscoring the need for greater emphasis on its impact and relevance to agritourism activities. Given the criteria for local authenticity, customers play a crucial role in selecting guesthouses to further support and promote vernacular tradition and local specificity in rural tourism.*

**Key words:** vernacular heritage, authenticity criteria, rural tourism, questionnaire survey.

## ECOTOURISM AND ORGANIC FARMING

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### ***Abstract***

*Organic farming plays a vital role in supporting rural areas, improving quality of life and contributing to the development of ecotourism. Offering new products with higher quality also has the potential to attract tourists and enhance regional attractiveness. This study aims to explore the relationship between organic farming and ecotourism, focusing on how their interaction can benefit the sustainable development of rural areas. The study focuses on the economic, social and environmental benefits of linking these two sectors, while addressing key challenges such as market access and the need for training in sustainable practices. Analysis in the study allows us to give certain recommendations to strengthen cooperation between farmers and tourism stakeholders, ultimately promoting sustainable growth and expanding economic opportunities for local communities.*

***Key words:*** bio-agriculture, ecotourism, sustainable development.

## DIVERSITY OF TRADITIONAL ROMANIAN PRODUCTS: CULTURAL AND ECONOMIC IMPACT IN RURAL REGIONS

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### ***Abstract***

*The article explores the diversity of traditional products in Romania and their impact on rural areas from a cultural and economic point of view. The characteristics and specificity of traditional products are analysed, highlighting their essential role in preserving the cultural identity and gastronomic heritage of the country's different regions. Then, the influence of these products on the local economy is investigated, with a particular emphasis on the development of small agricultural businesses, supporting traditional farmers and stimulating rural tourism. The article presents the importance of diversifying traditional products to increase their competitiveness in the national market, highlighting successful examples from the South Muntenia Region in their valorisation. Last but not least, a series of challenges encountered in promoting and protecting traditional products are presented, including legal regulations, market access and risks related to the loss of authenticity. The article's conclusions propose a series of solutions for supporting traditional Romanian products, considering both economic and cultural aspects.*

**Key words:** *influence, valorisation, promotion, support, authenticity.*

**THE POTENTIAL OF CYCLING TOURISM  
DEVELOPMENT IN GRĂDINARI COMMUNE, GIURGIU  
COUNTY: ECONOMIC AND TOURISTIC IMPACTS  
OF ESTABLISHING CYCLING ROUTES**

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***Abstract***

*This paper explores the potential development of cycling tourism in Grădinari Commune, Giurgiu County, Romania, focusing particularly on the economic and touristic benefits derived from establishing dedicated cycling routes in the region. Located in northeastern Giurgiu, adjacent to Ilfov County and bordered by the Argeș River, Grădinari commune comprises three villages: Grădinari, Tântava, and Zorile. The area's rich historical heritage, including landmarks such as the Oteteleşanu Manor and the historical churches, combined with favorable geographical conditions, present significant yet underutilized opportunities for cycling tourism. Through qualitative analysis of demographic, infrastructural, and historical data, this study argues that promoting cycling tourism would enhance local economic activity, boost rural tourism, and preserve cultural and natural heritage. The findings suggest substantial benefits, such as employment growth, increased local revenues, improved infrastructure, and heightened community well-being. The paper concludes that targeted investment and sustainable planning in cycling infrastructure could position Grădinari as a notable rural tourism destination, stimulating broader regional development.*

***Key words:*** cycling tourism, economic impact, Grădinari commune, rural tourism, sustainable development.



**SUBSECTION  
ENVIRONMENTAL  
ECONOMICS AND  
BIOECONOMY**

## THE ROLE OF CARBON CREDITS IN SUSTAINABLE AGRICULTURE: A REVIEW OF LITERATURE

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### **Abstract**

*Climate change constitutes a significant challenge of the modern period, profoundly affecting sustainable development and the global economy. The creation of carbon credit markets has become significant as a strategic tool for reducing greenhouse gas emissions and promoting a sustainable economic model. This study provides a thorough examination of the current literature about greenhouse gas emissions linked to agricultural practices, emphasizing the relationship between sustainable agriculture, carbon credit systems, and the economic incentives for farmers. The aim of the paper is to inform stakeholders about agricultural greenhouse gas policies and the carbon credit market in the European Union. In doing so, the authors seek to answer farmers' questions: i) What is the financial motivation for choosing agricultural technologies that reduce greenhouse gas (GHG) emissions?; ii) What are the technical and environmental motivations that lead farmers to replace conventional technologies with conservative and sustainable technologies? The results of the paper present the role of carbon credits in sustainable agriculture, both technically (sustainable farming practices, carbon sequestration) and economically (prices, revenues, carbon market).*

**Key words:** carbon credits, GHG emissions, carbon market, sustainable agriculture.

**ROMANIA'S COMMON OBJECTIVES FOR A  
SUSTAINABLE FUTURE WITHIN THE 2030 AGENDA.  
GREEN TRANSITION TO A CIRCULAR ECONOMY**

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***Abstract***

*The paper aims to present the actual framework, legislation and steps that should be taken by each country to mitigate climate change and its impacts in order to build a sustainable future. It also focuses on Romania and the way in which the objectives proposed by the European Union are being met. The basis for this paper is the information gathered over the years during the events organized by The Ecological Initiative and Sustainable Development Group, which is deeply involved and gives its contribution to the realization of the concept of sustainable development and environmental protection in Romania. "The Ecological Initiatives and Sustainable Development Group" Foundation has set up the first national and international forums on sustainable development, sustainability and environmental protection. We have set up a tool called responsible citizenship after hundreds of meetings in the Forum for Sustainable Development and Environmental Protection, bringing together leading figures in sustainable development and environmental protection from around the world. All these meetings led to raising awareness, rebirth of the civil spirit, information, creating working groups in order to contribute for fulfilling the Green Deal Agenda.*

***Key words:*** climate changes, sustainable development, policies, European Union.

## **AGRO-INDUSTRIAL WASTE MANAGEMENT IN THE REPUBLIC OF MOLDOVA: CHALLENGES AND OPPORTUNITIES**

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### ***Abstract***

*The management of agro-industrial waste in the Republic of Moldova significantly impacts the economy and public health. According to data from the Automated Waste Management Information System, agro-industrial waste constitutes over 50% of the total waste generated, primarily from activities such as the processing of fruits, vegetables, cereals, and edible oils. The main categories include sludge, organic waste, and materials unsuitable for consumption. Research results indicate an annual increase in such waste volumes, driven by increased production output and persistently low recycling rates. To address these challenges, effective policies and substantial investments in infrastructure are essential to boost recycling efforts and mitigate environmental impact. Valorizing agro-industrial waste continues to pose significant challenges for the sustainable development of Moldova's economy.*

***Key words:*** agrifood waste, recycling, sustainable development, Republic of Moldova.

## CONSUMER PERCEPTIONS IN THE IMPLEMENTATION OF DEPOSIT RETURN SYSTEM

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### ***Abstract***

*The population plays a crucial role in the successful implementation and operation of the Deposit Return System (DRS). In this context, the research analyzes consumer perceptions and behaviors, focusing on their level of knowledge, attitudes, and intentions to use the system. To gain a detailed perspective, a survey was developed and conducted, targeting consumers to assess their awareness, expectations, and concerns regarding the DRS. The research methodology combines qualitative and quantitative methods, including an in-depth literature review, comparative analysis of international systems, examination of the existing legislative and institutional framework, and a survey of key stakeholders in the waste management sector. The survey aimed to identify consumers' level of awareness, expectations, and concerns about the system, as well as their understanding of the positive impact of DRS on the environment and economy. The results highlight the fundamental role of the population in optimizing the DRS and emphasize the need for information and education campaigns to encourage active participation and raise awareness of the benefits of the circular economy.*

**Key words:** Deposit Return System (DRS), consumer perception, circular economy, waste management, public awareness, sustainability strategies.

## REVIEW OF RESEARCH FRAMEWORKS AND METHODOLOGICAL APPROACHES ON FOOD LOSS AND WASTE

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### **Abstract**

*Food loss and waste (FLW) quantification is critical for addressing global food security and sustainability challenges. This systematic review evaluates 27 studies focusing on methods used to quantify FLW, highlighting the diversity in definitions, frameworks, and methodological approaches. Of these, five studies lacked any explicit FLW definition, while others referenced diverse frameworks, including the Food Loss and Waste Protocol, Food and Agriculture Organization, and other organizations such as United States Department of Agriculture, High Level Panel of Experts, and the United Nations. Multiple definitions were mentioned in some studies, reflecting a fragmented landscape. Methodologically, 14 studies employed quantitative approaches, three used qualitative methods, and 10 adopted mixed methods, underscoring the complexity of FLW research. The dominance of quantitative approaches reflects the need for objective, measurable data, while mixed methods offer a more comprehensive understanding by integrating contextual insights. This review highlights significant methodological variability and a lack of standardization in FLW definitions and measurement practices. These results underscore the necessity for standardized frameworks and methodologies to enhance comparability and effectively direct global efforts for the reduction of FLW.*

**Key words:** food loss and waste, quantification methods, systematic review, sustainability.

## **WHEAT AND PRODUCT LOSSES AND THEIR IMPACTS ON THE POPULATION'S NUTRITION**

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### ***Abstract***

*The Reducing food loss is enshrined in Sustainable Development Goal (SDG) 12 on responsible consumption and production, particularly in target 12.3, which seeks to reduce food losses along the production and supply chain, including post-harvest losses, by 2030. The main hypothesis is that per capita losses of wheat and products influence the population's nutrition, with a mediation effect of per capita supply. Based on data from the FAO, a mediation analysis will be performed with Wheat and Product Losses as independent variables, with dependent variables measuring population nutrition and mediator variables measuring per capita food supply. Various research methods, such as the mediation analysis, Augmented Dickey-Fuller test and desktop research, have been applied. Before the application of mediation analysis, a time series stationarity test was made. The study results showed that Wheat and Product Losses per capita influence neither directly nor indirectly Average Dietary Energy Supply Adequacy and Prevalence of Undernourishment. Losses per capita influence the Prevalence of Obesity in the Adult Population only directly. Average Dietary Energy Supply Adequacy and Prevalence of Undernourishment are not dependent on mediator variables.*

***Key words:*** Wheat and Product Losses; Population's Nutrition; Mediation Analysis; Bulgaria.

## MAXIMIZING EFFICIENCY IN WATER AND ENERGY USE FOR GROWING PLANTS USING NUTRIENT FILM TECHNOLOGY

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### **Abstract**

*In growing plants, the harvest, the activity economic efficiency, and the environmental footprint of the process are simultaneously sought. When opting for a greenhouse, the advantage of quantitatively significant harvests is achieved, obtained regardless of the geographical area and season, but involving increased amount of resources, especially since the indoor conditions are more different and maintained for longer periods than those outdoor. Nutrient film technology requires a small amount of water, reduced surface area, minimal monitoring, but the energy and nutrients administered inputs are significant. The present paper seeks to determine the optimum point between effort and effect, in this case resources used versus quantity and quality of production.*

**Key words:** *growing plants in a protected environment, nutrient film technology, embeded water and energy, maximizing efficiency.*

**SUBSECTION  
DIGITAL ECONOMY  
AND INNOVATION  
IN MODERN AGRICULTURE  
AND FOOD CHAIN**

## CYBER-PHYSICAL SOCIAL SPACE IN AGRICULTURE AND RISKS

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### **Abstract**

*Population growth, the subsequent need to meet food needs, and other challenges facing agriculture have led to an accelerated development of innovations driven by artificial intelligence and automation. Industry 4.0 considers cyber-physical systems as a driving factor in increasing agriculture's efficiency while considering environmental issues. This paper aims to present various aspects of the processes in cyber-physical social spaces for agriculture and identify the main advantages and risks associated with the transition to production primarily oriented towards human well-being. We utilize Eurostat public data for local small and medium-sized enterprises (SMEs) for the years 2021-2023 to highlight the initial level of digital transformation. Based on a survey of recent scientific work the study identifies eight categories of risk factors related to the adaptation to the new digital environment, e.g. data protection and labor market change. Furthermore, we specify the main challenges more prevalent for SMEs in agriculture. SMEs tend to show a low propensity to adopt digital technologies and therefore manifest low investment activity. Policy-makers should consider the conservatism issue, among other factors, when developing policies to accelerate digitalization in agriculture.*

**Key words:** intelligent systems, cyber-physical-social spaces, smart crop production.

## RECENT ISSUES AND TRENDS OF ECO-INNOVATION IN THE EUROPEAN UNION

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### ***Abstract***

*The EU has set the move to the circular economy (CE) as a strategic goal. Therefore, eco-innovation initiatives are adopting a new strategy that combines environmental protection with concerns about resource and economic efficiency. Finding eco-innovation's characteristics and trends for the shift to a circular economy is the aim of this paper. It begins with a conceptual analysis of eco-innovation and its tenets from the perspectives of sustainable development and the market circular economy. To highlight the importance of innovation and open eco-innovation (OI and OEI) for the development and efficient operation of circular economy enterprises in the food sector, examples of circular collaborative eco-innovative business models are studied. The main trends of the EU's eco-innovation index from 2014 to 2024i s finally covered, along with state-to-state differences and Romania's position. The conclusions suggest perspectives, challenges, and future research directions.*

***Key words:*** circular economy, open innovation, business model, eco-innovation, eco-innovation index.

## ENERGY EFFICIENCY OF AGRICULTURAL TECHNOLOGIES THROUGH THE CREATION OF A SUSTAINABLE MODEL: A CASE STUDY OF GREENHOUSES

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### **Abstract**

*Ecological sustainability in agriculture involves the responsible and efficient use of natural resources, promoting practices that protect the environment and ensure long-term productivity. The paper aims to achieve the conceptual design of an agricultural greenhouse, including the elements necessary for the automation of installations to accomplish optimal energy efficiency. A generalized input-output optimized model was developed for a controlled agricultural technological process of plant growth. The model can identify the functional links between the variables of an agricultural technological process and allows for the global or partial optimization of the process, based on economic-organizational and technical-ecological criteria. Considering the cycle of crop cultivation in protected spaces, a calculation is also presented regarding the optimization of the duration of the operating cycles, taking into account various factors, in order to maximize production and minimize costs, in a sustainable and economic framework. The integration of automated systems in agricultural greenhouses significantly improves efficiency, reduces energy consumption, and boosts productivity. By utilizing IoT, automation, and data logging, these systems enable optimal environmental control and remote monitoring, ultimately maximizing both economic and environmental benefits in greenhouse farming.*

**Key words:** energy efficiency, automation, agriculture, greenhouse, input-output model, economic sustainability.

## AN INTEGRATED MODEL OF FOOD LOSS AND WASTE DETERMINATION ALONGSIDE THE AGRIFOOD CHAIN

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### **Abstract**

*The Food Loss and Waste (FLW) phenomenon is an important issue in the current development of economy as a whole. This phenomenon is emerging in all economic contexts, starting from food production and processing, known as food loss (FL), to the consuming stages, known as food waste (FW). In this matter, identifying key causes and quantifying the impact of FLW is essential. The current paper is an integrated summative description of several research results related to FLW obtained by the authors and elaborated in previous papers. Thus, the paper includes a birdseye view of the entire model alongside the agrifood chain, taking into account modalities of measuring the FL during its components and a specific measurement of FW on the consuming component. The approach takes into account methodologies and instruments from various domains, such as statistics, data processing, automated learning (e.g., machine learning), System Dynamics or networks. The expected results are the description of the model and the resulted data. Conclusions can be used further to study and challenge the FLW phenomenon causes effects for any interested stakeholders.*

**Key words:** agrifood chain, food loss and waste, modeling, statistics, automated learning.

## INFORMATION ECONOMY AND THE NEXUS OF ICT AND GROWTH

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### ***Abstract***

*In recent years, the development of the information economy, as part of the knowledge economy, is seen as closely related to the aspects of digital and telecommunication impact and efficiency. Modern theories of economic growth focus on the contribution of ICT, research and development (R&D) and innovation to stimulate growth, while digital technologies are considered to increase inclusion in the knowledge economy. The article aims to identify and analyze key indicators that define the information economy's progress and its relationship with GDP growth. It investigates both widely used and less explored ICT-related metrics, resulting in a systematic classification of existing indicators used to assess the information economy's impact on economic expansion. Findings highlight the e-government index, the online services index and telecommunications infrastructure as the reliable measures. In contrast, the productive capacities index, although indicative, is less suitable for practical application due to its complexity and focusing on narrower aspects of information economy such as ICT accessibility.*

***Key words:*** knowledge-based economy, GDP growth, ICT index, information economy.

## OPTIMIZING MOLDOVA'S AGRI-FOOD SUPPLY CHAINS FOR THE INTEGRATION INTO THE EUROPEAN UNION

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### ***Abstract***

*Moldova's agri-food sector faces significant supply chain challenges as it prepares for deeper European Union (EU) market integration. This study evaluates Moldova's logistics performance and infrastructural connectivity in a regional context, drawing on World Bank's Logistics Performance Index (LPI) data. The findings reveal that Moldova ranks low on LPI (97th out of 139 in 2023) with critical bottlenecks in customs clearance and transport infrastructure. Road and rail connectivity constraints - exacerbated by outdated infrastructure and limited port access - impede efficient trade flows. Case studies from Eastern Europe illustrate how targeted logistics optimization, digital transformation, and cooperative business models can enhance supply chain performance. Drawing on best practices from new EU member states and candidates, the analysis underscores that aligning with EU food safety and phytosanitary regulations is both a major challenge and an achievable goal. Strategic investments in infrastructure, adoption of digital logistics systems, and capacity-building for standards compliance emerge as pivotal solutions for Moldova's agri-food supply chains to compete in the EU single market.*

**Key words:** agri-food supply chain, logistics performance index, transport infrastructure, EU Integration, food safety compliance.

## TECHNOLOGY TRANSFER IN ROMANIA’S AGRO-FOOD SECTOR. AN OVERVIEW

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### **Abstract**

*Technology transfer represents a strategic domain for enhancing the competitiveness and economic sustainability of Romania’s agro-food sector. The adoption of modern technologies in production, processing, and distribution can optimize resources, reduce costs, and support sustainable development. This paper analyzes technology transfer in Romania’s agro-food value chain. The research results indicate an underdeveloped infrastructure for processing, such as facilities for sorting, packaging, and freezing, which limits the added value of products. Technological integration, whether through precision agriculture or short supply chains, supports farmers by reducing intermediaries and logistical costs. Public policy documents highlight the need for financial support, collaboration between farmers and academia, and the implementation of successful models. To leverage the potential of technology transfer, integrated policies are necessary to support farmer associations, modernize infrastructure, and promote innovation. These measures can transform Romania’s agro-food value chain into a competitive and sustainable sector, capable of meeting both domestic and international market demands.*

**Key words:** technology transfer, agrifood chain, challenges, research units.

## TRENDS AND CHALLENGES FOR IMPLEMENTING DIGITAL SOLUTIONS IN LAND MANAGEMENT IN BULGARIA

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### **Abstract**

*Transformations in agriculture, the implementation of sustainable production models, require more and more digital agriculture to be placed at the heart of the modern agrarian revolution in Bulgaria. Increasing attention is being paid to understanding the need for the application and use of digital technologies as an innovative approach in the farming business. Undoubtedly, digital technologies are the ones that provide an opportunity to improve the economic sustainability of agricultural holdings. Digital solutions in the development of digital agriculture are an indisputable necessity and at the same time are a prerequisite for slowing down the negative economic and social processes, the demographic structure and the trend of depopulation of rural areas. Unfortunately, at this stage in Bulgaria, untimely implementation of effective solutions in connection with the digitalization of processes related to land administration is characteristic. A long-term management perspective is needed, leading to a transition to sustainable land management in every territory, especially in rural areas. This necessitates the need for timely digital solutions for administering land management processes and accelerating the development of a key economic sector, such as agriculture. In this context, the aim of the article is to explore the possibilities of implementing modern software solutions, taking into account the state and trends in the development of agricultural areas and farms in Bulgaria. On the other hand, to identify the problems in assessing the possible income from owned agricultural land and their solution through specialized software applications. The publication includes official data from national and European institutions, as well as own calculations from face-to-face interviews and data from archival protocols of a consulting organization. The main results show that the number of individuals has the highest relative share compared to the total number of farms (91.43 %). However, individuals process only 37.4% of the UAA, which means that in most cases the use of expensive software solutions is unprofitable when managing small areas. In conclusion, the issue of a management vision based on information systems and a reliable mechanism for controlling deviations, a synchronized institutional framework and digital solutions before their design and implementation is particularly acute.*

**Key words:** agricultural areas, agricultural land, digital solutions, land management, problems.

## ADVANCING EARLY DETECTION OF MICROBIAL PATHOGENS IN THE FOOD CHAIN IN SOUTH-EASTERN EUROPE

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### **Abstract**

*Ensuring food safety is a critical challenge, particularly in South-Eastern Europe, where microbial pathogens pose a significant risk to public health and trade. Early detection methods are essential to mitigate foodborne diseases and strengthen food security. The research aims to harmonize conventional and nuclear-derived approaches for rapid pathogen detection, fostering collaboration between food safety authorities, research institutions, and regulatory agencies. By integrating these methods into national food monitoring systems, the food safety institutions seeks to reduce response times, improve accuracy, and ensure compliance with European food safety regulations. The study highlights the role of innovative, field-deployable tools in preventing foodborne outbreaks, enhancing regional resilience, and supporting the EU Green Deal objectives for sustainable food systems.*

**Key words:** Food safety, microbial pathogens, early detection, molecular techniques, South-Eastern Europe, PCR, LAMP, MALDI-TOF MS, NGS.

**DIGITAL TRANSFORMATION IN AGRICULTURE:  
A COMPARATIVE ANALYSIS OF HUNGARY, ROMANIA,  
AND GREECE AND THE ROLE OF COMPETENCE  
PROFILING IN THE AGRITECH MANAGER  
FRAMEWORK**

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***Abstract***

*This paper examines the digital transformation of agriculture in Hungary, Romania, and Greece, focusing on national policies, adoption of precision agriculture, and institutional roles. Drawing on data from EU and national sources, we highlight significant disparities in technology uptake - Hungary leading with 23% adoption, Romania at 10%, and Greece at 5%. The analysis informed the design of the AGRITECH project, initiated by Austria-based PAMEA, which introduced the AgriTech Manager (ATM) profile. This role integrates green and digital skills aligned with EQF and EU frameworks. The paper outlines how comparative policy research shaped AGRITECH's learning ecosystem and supports competence-based education to drive digital and sustainable innovation in agriculture.*

***Key words:*** precision agriculture, digital transformation, AgriTech manager, deep tech, competence-based education.



**SUBSECTION  
MISCELLANEOUS**

## BIBLIOMETRIC ANALYSIS OF QUALITY IN EDUCATION: GLOBAL TRENDS AND RESEARCH GAPS

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### **Abstract**

*The aim of the bibliometric analysis of quality in education was to provide a clear and quantifiable overview of the evolution, trends and impact of research in this field, helping to identify authors, institutions and works with major influence. By analyzing metrics such as the number of publications, frequency of citations and international collaborations, research can contribute to highlighting centers of excellence and main research directions, as well as outlining emerging themes and gaps in the specialized literature. The integration of the bibliometric analysis in the current study enabled us to objectively evaluate the conceptual and methodological advancements in the field of education quality, making it easier to identify the most useful approaches and underlying theories. This gave us a strong foundation on which to guide future research and for the foundation of educational policies. The obtained results highlighted the main research directions, such as teaching evaluation and the impact of technology, also showing the evolution of interest in these topics. Influential authors and institutions, networks of scholarly collaboration, and seminal articles that formed the basis of the research were identified. It was also possible to identify gaps in the literature, insufficiently explored areas and future research directions, reflecting the impact of educational policies on academic priorities, which provided us with a complex picture necessary for the development of educational strategies and training programs.*

**Key words:** education, quality, bibliometric analysis, global trends, gaps.

## **ASSESSING HOUSEHOLD GROUNDWATER CONTAMINATION RISK IN RURAL ROMANIA: A SEMI-QUANTITATIVE REGIONAL MODEL**

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### ***Abstract***

*This paper aims to evaluate groundwater contamination risks affecting household water supplies in rural Romania, where access to centralized infrastructure remains limited. A semi-quantitative risk assessment model was developed and applied to five representative counties - Bihor, Teleorman, Iași, Constanța, and Dolj - based on three dimensions: population exposure, likelihood of contamination, and severity of health impact. Data were collected from national statistics, environmental monitoring institutions, and international health guidelines. Risk scores revealed that Bihor and Teleorman counties face the highest vulnerability due to multiple contaminants (e.g., nitrates, arsenic, coliforms) and widespread reliance on untreated water. The exposed population across these counties is estimated to exceed 670,000 individuals. The study emphasizes the need for improved rural water infrastructure, regular well testing, and targeted policy interventions in agricultural areas. The model provides a useful tool for prioritizing regional investments and supporting water safety strategies under national and EU rural development frameworks.*

**Key words:** groundwater risk, rural water supply, contamination, Romania, health impact.

## CONSUMER BEHAVIOR TOWARDS THE CONSUMPTION OF PROTEIN ENRICHED FOOD – A CONJOINT STUDY

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### **Abstract**

*Nowadays, consumers are informed and have an increased awareness of the importance of a healthy diet and high - quality food. Today's foods are designed not only to satisfy hunger and provide necessary nutrients to human beings, but also to prevent nutrition-related diseases and improve the physical and mental well-being of consumers. This paper studied the behaviour and price sensitivity of consumers regarding protein-enriched vegetable biscuits. Adaptive conjoint analysis was used, which is a statistical technique used in market and marketing studies and personalizes the survey experience of each respondent based on the answers to the initiated questions. Therefore, the present study started from establishing the main attributes evaluated by the consumer (sustainability claim, price, brand, origin), respectively the value levels of these attributes. The results of the conjoint study show that for plant-based biscuits rich in protein and fibres, the most important attribute in choosing the product is the origin, followed by price and brand.*

**Key words:** *conjoint, vegetable biscuits, consumers, origin, price sensitivity, protein enriched food.*

## **ECONOMIC EVALUATION OF FORAGE PRODUCTION FROM GRASS MIXTURES IN THE MOUNTAIN REGIONS OF BULGARIA**

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### ***Abstract***

*Forage production from mixed grasslands is closely related to their productivity and quality. In this context, the correct selection of components in grass mixtures ensuring an environmentally acceptable grass association is essential, linked to the realization of cost-effective grass forage under sustainable management of natural resources. The object of the analysis is the characteristics of the main economic indicators in a scientific research experiment involving the following grass species: bird's foot trefoil + cock's foot; bird's foot trefoil and red fescue; bird's foot trefoil+ timothy; bird's foot trefoil + cock's foot + red fescue + timothy. The agrotechnical measures used and the costs involved are relevant to the amount of gross income, cost and profit of forage production. The high economic efficiency of the mixture of bird's foot trefoil + red fescue (82.65%) makes it the most suitable for hay in mountain regions. The realized forage production from it has the lowest production costs (19.57 BGN/da) and the lowest cost (0.018 BGN/kg). The high coefficient of economic efficiency makes it extremely profitable and suitable for practical application.*

***Key words:*** sustainable agriculture, grass mixtures, economic indicators, economic efficiency.

## THE IMPACT OF TREATMENT WITH KALAM AND FOCUS ULTRA HERBICIDES IN VARIOUS DOSES ON YIELD, GROSS REVENUE AND PROFIT IN BIRD'S-FOOT-TREFOIL GRASSLAND

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### **Abstract**

*Weeds have a negative impact on the productive, quality and economic indicators in the production of bird's-foot-trefoil forage. The control against them is increasingly becoming a general ecological problem, which necessitates the need to look for new approaches to eliminate them. The implementation of systems and activities for sustainable agriculture is related to control over the use of plant protection preparations. This necessitates consideration of issues related to the application of appropriate agrotechnical practices to improve soil fertility and preserve useful cultivated species in grasslands from an economic point of view. Correlation dependences and derived regression equations were calculated on the sown grass from bird's-foot-trefoil treated with the herbicides Kalam in a dose of 20 and 40 g/da and Focus ultra in a dose of 100 and 200 ml/da. It was found that imported herbicides authorized for use showed a high positive correlation between yield with gross revenues ( $r=1.0000$ ) and profit ( $r=0.9999$ ). Graphical models have been developed to predict the main economic indicators based on the yield obtained after treating the grass with herbicides.*

**Key words:** grass forage, herbicide treatment, correlation dependences, regression equations, statistical analysis.

## STRUCTURAL DIFFERENCES OF THE AGRICULTURAL SECTOR IN THE SOUTH-EASTERN EUROPEAN COUNTRIES

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### ***Abstract***

*In the present study, the comparative analysis of the state and changes in the sectoral economic structure of the "Agricultural" sector for some countries of South-Eastern Europe is of interest. This research aims to bring to the fore the structural differences in the agricultural sector that distinguish the development of the countries of South-Eastern Europe. By analyzing changes in agriculture using key macroeconomic indicators, the study identifies existing differences in this sector between these countries. On this basis, an assessment is given to what extent these changes are identical to the changes in the member states of the European Union. The results of the research show that the large relative number of those employed in the "Agricultural" sector in some South-Eastern European countries can be seen as an indication of existing opportunities for the restructuring of resources and their reallocation to other sectors of the economy. The change in the relative share of the Gross Added Value in the direction of reduction for the "Agricultural" sector is a process that leads to the improvement of the economic situation of a given country and the effect of this should be reflected in the direction of cohesion between these countries.*

**Key words:** agriculture sector, structural analysis, changes, differences and disproportions.

## COMPARATIVE ANALYSIS OF AWARD-WINNING WINES FROM ROMANIA VERSUS THE TOP WORLDWIDE PRODUCING COUNTRIES

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### ***Abstract***

*This study investigates award trends in international wine competitions, comparing the performance of Romanian wines to those from top global wine-producing countries. By analysing the number and distribution of awards, the research highlights Romania's positioning in the global wine industry. The findings reveal patterns that show top wine producing countries participation in specific international competitions and their performance, as well as showcasing the growing presence of Romanian wines in these prestigious fairs and the type of medals won. Tableau was used for data organization and analysis to identify trends and patterns, where the outcomes show that despite competing with established wine-producing nations, Romania demonstrates significant progress, with notable achievements linked to its unique varietals and improving quality standards. Additionally, a concentration analysis was conducted to gain a deeper insight into the competitive landscape and the distribution of medals among countries. The study underscores the importance of strategic promotion and continued innovation to sustain and enhance Romania's competitive edge in the global wine market.*

**Key words:** wine industry, international competitions, award-winning, top producing wine countries.

## EXPLORING THE DYNAMICS OF AGRICULTURAL LAND IN ROMANIA: AN IN-DEPTH ANALYSIS

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### **Abstract**

*This paper examines Romania's agricultural land market by creating a comprehensive database of land sale offers. The database aggregates essential information, including location, pricing, and land characteristics, collected from diverse regions of the country, providing a foundation to analyze market dynamics. The study applies statistical methods to uncover key trends in pricing, regional disparities, and market behaviors. These insights illuminate both the challenges and opportunities within Romania's agricultural land sector. To complement the statistical analysis, Geographic Information System (GIS) tools are employed to provide a spatial perspective on land sale distributions. GIS mapping visually represents geographic trends, identifying regions of high and low activity and enhancing the understanding of spatial patterns in land transactions. By integrating statistical and GIS analyses, the paper offers a comprehensive view of the market, delivering valuable insights for policymakers, investors, and stakeholders interested in navigating and optimizing the agricultural land market in Romania.*

**Key words:** agricultural land, database, statistical analysis, GIS.

## **ECONOMIC SIGNIFICANCE OF SMALL FARMS IN ENSURING FOOD SECURITY AND FOOD SOVEREIGNTY IN THE SOUTHERN CENTRAL REGION OF BULGARIA**

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### ***Abstract***

*The aim of this study is to assess the role of small farms in the Southern Central region of Bulgaria in achieving food security and food sovereignty. The methodological approach involves the use of comparative analysis and linear regression. The actual food production in the region for a calendar year is compared to the amount of food required to maintain a healthy diet, according to the World Health Organization. The article addresses the question of whether the average annual yields of farms are sufficient to meet the food needs of the population in the districts of Plovdiv, Pazardzhik, Haskovo, Smolyan, and Kardzhali. The results provide valuable insights into the sustainability and effectiveness of small farms as key components of regional food security and their role in reducing dependence on external food sources.*

***Key words:*** food sovereignty, food security, small farms.

## UNLOCKING THE ECONOMIC POTENTIAL OF RENEWABLE ENERGY IN RURAL AND AGRICULTURAL SECTORS

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### ***Abstract***

*The paper investigates the economic dimensions of renewable energy integration in rural areas and agricultural sectors across the EU, focusing on Bulgaria, Estonia, Slovenia and Spain. It examines EU regulatory landscape and National Energy and Climate Plans to understand financial incentives, policy frameworks, and social mechanisms empowering farmers and foresters as prosumers. Using a comparative methodology, the study highlights common challenges, including access to funding, regulatory bottlenecks, and sustainability standards. Results demonstrate that targeted financial incentives, efficient regulatory processes, and community-based models enhance rural economic resilience and energy independence. The findings underline the significance of policy integration at EU and national levels to drive sustainable rural energy transitions and address economic disparities.*

**Key words:** rural development, renewable energy, prosumers, decentralised energy.

## SMALL AND FAMILY FARMS - A PILLAR IN RURAL DEVELOPMENT IN BULGARIA

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### ***Abstract***

*The role of small and family farms in rural development has been a cornerstone of agricultural policy and socio-economic studies in Bulgaria provoked by the constant change in social, economical and enviornmental factors. This paper aims to explore the challenges and contributions of small-scale and family farming in the context of Bulgaria`s post-1991 land reforms and integration of acquis communautaire. PESTEL analysis is combined with desk research and literature review to highlight the processes that reflect on small and family farms. Small and family farms play a critical role in sustaining rural livelihoods, preserving traditions, and fostering socio-cultural cohesion. The lack of consensus for the definition of `small farms` complicates the process of policy alignment, as definitions varies based on physical size, economic value, labor input etc. These farms often struggle under market pressures but remain essential for agro-ecology and resilience of rural areas. They are vulnerable economic units the existence of which is caused mostly by social rather than market motives. The study emphasizes the need for targeted support to boost the sustainability and socio-economic impact of small and family farms in Bulgaria.*

***Key words:*** small and family farms, rural development, PESTLE.

## CONSUMER PREFERENCES STUDY FOR FRESH PEPPER

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### **Abstract**

*Rich in nutrients, especially vitamin A and vitamin C, with an impressive range of colors, sweet peppers are loved for their pleasant taste and mild flavor. Used in many different culinary recipes, peppers bring variety to the Romanian diet. People's preferences for sweet peppers are important for producers, so they can grow cultivars appreciated by consumers. In addition, pepper breeders are also interested in these preferences, so they can focus on creating varieties that answer the consumer's demands. This study presents a sensorial analysis of more than 40 sweet pepper cultivars in the period 2022-2024. Several varieties were assessed every year, indicating how Romanian preferences have evolved during this period. The common indicators evaluated in all three years are color, taste, size, and shape. Juiciness and flavor are extra indicators evaluated only in 2022 and pericarp thickness is an extra indicator evaluated only in 2023.*

**Key words:** *Capsicum annuum L., trends, consumer preference, sensorial analysis.*

## PLANNING FOR A MORE SUSTAINED SOCIAL DEVELOPMENT OF RURAL AREAS IN ROMANIA

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### **Abstract**

*This paper examines the challenges and opportunities for sustainable social development in rural Romania, focusing on issues such as inadequate infrastructure, limited access to essential services, and lack of sustained economic development. It analyses the current socioeconomic landscape, identifies core challenges in rural service provision, and proposes strategic elements for development. The research synthesizes evidence from policy frameworks, funding mechanisms, and grassroots projects to outline strategic pathways for enhancing rural resilience. The findings indicate disparities in access to healthcare and social services, highlighting the correlation between infrastructural deficits and health outcomes in these communities. The implications suggest that interventions in infrastructure and service accessibility could improve health outcomes and quality of life in rural settings. This research contributes to the broader approach of healthcare by pointing out the connection between social development and equitable health support, advocating for integrated policy approaches to address rural challenges. Recommendations include decentralizing funding allocation, expanding social economy ecosystems, bridging urban-rural digital divides, and strengthening monitoring frameworks.*

**Key words:** policy framework, rural social development, education, health services, Romania.

**MANAGEMENT OF THE NON-WOOD FOREST  
PRODUCTS IN THE AGROFORESTRY SYSTEM  
ESTABLISHED IN HORTINOVA NURSERY,  
CÂRCEA COMMUNE, DOLJ COUNTY, ROMANIA**

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**Abstract**

*Agroforestry systems involve the integration of trees and shrubs with forestry value alongside cereals and/or other horticultural crops. In 2023, twenty 24m x 24m plots were established, with two of them planted with 800 raspberry plants (plot no. 3) and 800 blackberry plants (plot no. 8). The planting layout had a 1.2m row spacing and a 0.6m plant spacing within the same row. Another two plots were dedicated to cereals, another two to vegetables, while 14 plots featured a mix of various tree and shrub species. The purpose of this study was to emphasize the economic impact of incorporating non-wood forest products into the overall management of an agroforestry system. In the second year of the experiment (2024), the fruits were harvested and weighed. Calculations regarding the potential yields that could be obtained and comparisons with the costs needed for the maintenance works in forestry cultures were made. Preliminary results suggest that the combination of trees and shrubs is key to the sustainability of this agroforestry system. By adding additional shrub species, such as hazelnuts, the diversity of products can be expanded, providing landowners with more opportunities to commercialize a wider range of agroforestry products and additional time to manage them.*

**Key words:** agroforestry systems, Craiova, cultivated raspberry and blackberry, Dolj, non-wood forest products.

## **ACADEMIC ENTREPRENEURSHIP ADDRESSING DROUGHT AND CLIMATE CHANGE: THE ROLE OF UNIVERSITY INCUBATORS IN SUSTAINABLE RESILIENCE IN MOROCCO**

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### ***Abstract***

*This paper explores how academic entrepreneurship can address the pressing challenges of drought and climate change in Morocco, a country heavily impacted by these phenomena. It emphasizes the important role of university incubators as hubs for fostering innovative solutions tailored to the local environmental and socio-economic contexts. These solutions include advanced technologies for efficient water management, the development of climate-resilient agricultural practices, and the promotion of sustainable energy alternatives. Drawing on real-world examples from university startups and academic initiatives, the study illustrates how the synergy between research and entrepreneurship can drive impactful solutions, mitigate the adverse effects of climate change, and support sustainable development. Additionally, it identifies key barriers, such as limited funding, policy misalignment, and insufficient capacity-building resources, that hinder the implementation and scaling of these innovations. Finally, the paper provides recommendations for stakeholders, including policymakers, university managers, and entrepreneurs, to strengthen the role of academic institutions in building community resilience and advancing sustainability in the face of growing environmental challenges.*

***Key words:*** academic entrepreneurship, sustainable innovation, university incubator, climate change.

## CHALLENGES, OPPORTUNITIES, AND INNOVATIONS IN TOURISM IN THE NEW NORMAL: EVIDENCE FROM RURAL TOURISM SITES IN THE PHILIPPINES

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### ***Abstract***

*This study explores how rural tourism sites in Southern Leyte, adapted their tourism packages during and after the pandemic, focusing resilience and sustainability. A multi-case study methodology was used in this paper with 10 informants whom were owners/managers of the hotel or beach resorts. Data were collected through in-depth interviews using Seidman's phenomenological interview paradigm. The results revealed the following: (a) the tourism sector faces challenges and opportunities spanning diversifying revenue streams, business operation, enhancing guest experience, building resilience, and marketing and promotion; (b) key adjustments in tourism packages under the new normal include marketing and promotion strategy, focus on safety and hygiene, adapting activities services, enhancing guest experience, price and policies considerations; (c) the valuable lessons gleaned from successful tourism packages implemented beyond the province's borders includes marketing strategies, financial sustainability, customer focus, and adaptability and innovation. The study contributes to understanding sustainable tourism strategies, offering insights into how the industry can remain resilient amid disruptions.*

***Key words:*** multi-case study; tourism; pandemic; business operation; reinvention.

## **REORIENTATION OF THE POPULATION FROM ROMANIA TOWARDS THE RURAL AREA – CHANGES GENERATED BY THE COVID-19 PANDEMIC**

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### ***Abstract***

*As a result of the period in which the entire planet was confronted with the state of emergency imposed by the Covid-19 pandemic, especially the population in urban areas has reoriented towards returning to their birthplaces or migrating to rural areas, attractive in terms of location and infrastructure. According to data provided by the National Institute of Statistics, the years after 2020 are marked by a clear reversal of the flow of internal migration between areas of residence, in favor of rural. The most conclusive figures are those of 2022 and 2023, when 31.6% and 34.9% of changes of residence take place from urban to rural areas. In order to understand the population's motivation to relocate, translated into the benefits sought, the survey method was used, through a questionnaire distributed online to 87 people who decided to move to the rural area in the post-pandemic years. The entire study shows that the fear of a new life of isolation, as well as the opportunity to work from home, were the reasons that led most people to make this change.*

***Key words:*** migration, rural area, benefits, remote work, Covid-19.

## THE ROLE OF RESPONSIBLE CONDUCT IN ACADEMIC ETHICS AND INTEGRITY: A BIBLIOMETRIC PERSPECTIVE

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### **Abstract**

*Using a bibliometric methodology, the current study examined the development and worldwide trends in the areas of ethics, academic integrity, and scientific integrity as well as the responsible conduct of researchers, faculty, students, and doctoral students. Analyzing the theoretical and applied contributions from the specialist literature was the goal of the study in order to pinpoint the primary research themes and any gaps that still existed. The discovery of networks of collaboration between authors and institutions demonstrated how responsible behavior supports academic integrity and ethical standards and how interest in addressing these issues is growing. I also noticed an increase in international collaboration, especially between Asian and European institutions. What stands out, however, is the rather small number of applied studies. The databases that were the basis of the research were Scopus and WOS, the articles published in the period 1992-2024 being analyzed. The bibliometric analysis was carried out with the help of the VOSviewer software, which allowed mapping the links established between authors, institutions, terms or publications, starting from the frequency of keywords, authors, citations and thematic clusters. The research led us to the conclusion that responsible conduct is an important element in ensuring ethics and academic integrity, this being proven by the interest that researchers have shown through its approach in various scientific researches, but we would find that there is still a need of a global and systematic approach to this concept, which could thus contribute to the creation of an ethical and transparent academic and scientific environment.*

**Key words:** *bibliometric analysis, academic ethics, academic integrity, responsible conduct, globalization.*

## THE ROLE OF PHYSICAL SECURITY MANAGEMENT IN CONSOLIDATING THE SAFETY AND SUSTAINABILITY OF PUBLIC FOOD AND AGROTURISM UNITS IN THE RURAL ENVIRONMENT

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### **Abstract**

*The article analyses the role of physical security management in public food and agritourism units in rural areas, focusing on the challenges and particularities of this context. In rural areas, where access to advanced technologies or resources is sometimes limited, the safety of employees and customers becomes essential for strengthening the local community's trust and for the success of businesses in this sector. Practical and adaptable solutions are presented, such as implementing simple surveillance systems or organizing activities in collaboration with local authorities. At the same time, the role of staff training is highlighted, which plays a decisive factor in reducing security incidents, especially in small communities, where relationships of trust are fundamental. The conclusions suggest that, through accessible strategies and security measures adapted to rural specifics, public food and agritourism units can contribute both to local economic development and to the creation of a safe and friendly environment for the community.*

**Key words:** physical security management, safety, public food units.

**ENHANCING THE EFFECTIVENESS OF VILLAGE  
AUTONOMY: A SOFT SYSTEMS METHODOLOGY (SSM)  
APPROACH TO IDENTIFYING CHALLENGES  
AND POLICY REFORM IN RURAL DEVELOPMENT  
IN INDONESIA**

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***Abstract***

*Village autonomy aims to improve community welfare through independent and participatory governance. However, its implementation still faces challenges. This study analyzes the dynamics of village autonomy implementation, identifies gaps between ideal conceptual models and practices on the ground, and proposes systematic and culturally feasible changes. Using Soft Systems Methodology (SSM), this study collected data through observation, interviews, and focus group discussions (FGDs). Results show that village planning lacks participation, implementation is constrained by bureaucracy, and monitoring and accountability are weak. Key recommendations include increasing community participation, digitizing reporting, strengthening the capacity of village officials, and diversifying funding sources for more effective and transparent governance.*

**Key words:** *village autonomy, governance, Soft Systems Methodology, transparency, participation.*

## IMPACT OF AGRICULTURE ON THE ENVIRONMENT IN BULGARIA AND ROMANIA

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### **Abstract**

*Agriculture has a significant impact on the environment. The implementation of inefficient agricultural practices can have severe consequences, both for natural ecosystems, the environment, soil and water quality, and for all humanity on the planet. Eurostat data for 2007-2023 were used to make a comparison between Bulgaria and Romania regarding the impact of agriculture on environment using specific indicators. The analysis found that in Bulgaria the areas occupied by organic crops continue to increase, and it is expected that by 2027 they will reach 6.98% of the UAA. In Romania, the areas are constantly increasing and reach 5.08% in 2022. The levels of pesticides and mineral fertilizers used in Bulgaria and Romania are relatively slowly decreasing, which will undoubtedly contribute to limiting pollution processes for the benefit of the environment. The recognized need for joint efforts of administrative structures to make adequate decisions regarding achieving a higher degree of sustainability in agriculture. The shift to sustainable models accelerates the transition to agricultural practices aimed at maintaining ecological balance in the system. The protection of the environment and natural resources is of priority importance for achieving a sustainable long-term vision for agricultural development.*

**Key words:** sustainable development, sustainable agricultural practices, analysis, environment.

## IMPACT OF M19 LEADER FUNDING ON RURAL AREAS IN THE NORTH-EAST REGION

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### **Abstract**

*The paper aims to highlight the impact of the funding received through M19 LEADER on rural areas, with a focus on the North East region, thus by supporting Local Action Groups, LEADER facilitates the implementation of Local Development Strategies, contributing to the diversification of the rural economy, the preservation of cultural heritage and the improvement of infrastructure. The study compares the performance of the measure between the 2007-2013 and 2014-2020 periods, highlighting the increased efficiency of resource allocation in the recent phase due to the introduction of additional sub-measures (19.1, 19.3). The results show that the funding provided has generated jobs, stimulated entrepreneurship and strengthened social cohesion. The study underlines the importance of rigorous monitoring and continuous support to the operational capacity of LAGs and the conclusions indicate that Leader M19 is a catalyst for sustainable rural development, supporting the involvement of local communities and tailoring solutions to specific needs, contributing significantly to the objectives of the Common Agricultural Policy and the sustainable development of the countryside.*

**Key words:** LEADER, rural development, Local Action Groups.

**UNLOCKING THE ECONOMIC POTENTIAL OF BEE DRONE  
LARVAE (APILARNIL): SCIENTIFIC INSIGHTS AND  
APPLICATIONS IN AGRI-FOOD INNOVATION**

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**Abstract**

*Apilarnil, a bioactive product derived from drone bee larvae, has emerged as a promising ingredient in agri-food innovation due to its exceptional nutritional and therapeutic properties. Rich in proteins, lipids, carbohydrates, vitamins, minerals, and natural hormones, Apilarnil offers a complex composition that supports both human health and functional food development. Scientific research highlights its biologically active compounds with antioxidant, anti-inflammatory, antimicrobial, neuroprotective, hepatoprotective, immunostimulatory, and fertility-enhancing properties. Notably, its content of androgenic and estrogenic hormones positions it as a natural aid in addressing reproductive and hormonal imbalances. This paper explores the scientific foundation supporting the use of Apilarnil and evaluates its economic potential as a value-added product within the agri-food sector. By promoting awareness and integration of this natural resource into sustainable food systems and rural entrepreneurship, Apilarnil can contribute to both public health and rural economic resilience.*

**Key words:** drone larvae, rural economy, apitherapy, economic valorization.

**PRESSURE, PERFORMANCE AND UNIVERSITY ETHICS.  
ANALYSIS OF THE RELATIONSHIP BETWEEN  
EDUCATION FUNDING AND ACADEMIC INTEGRITY  
IN E.U. COUNTRIES**

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***Abstract***

*The aim of this research was to analyse the relationship between the level of public investment in tertiary education and the structural characteristics of higher education in the Member States of the European Union, with a focus on the indirect implications on academic integrity. In the context in which institutional pressures can affect academic quality and ethics, the study aims to identify whether and to what extent funding influences performance, structural balance and the risk of compromising university standards. The specific objectives included: selecting a coherent set of comparable educational indicators at EU level, assessing the relationships between them through statistical correlations, constructing a composite score of educational pressure and formulating substantiated conclusions regarding the budgetary impact on the academic climate. The methodology used was of a quantitative-comparative type, based on the processing of data available in the Eurostat platform for the period 2015–2023. Only countries for which all the analyzed data were fully reported were included. The analytical tools applied included descriptive analysis. The results obtained highlighted significant correlations between the level of expenditure/student and the student/teacher ratio, as well as between education financing and the share of the population with higher education. Therefore, a sustainable approach to academic integrity inevitably also requires a strategic vision on funding and institutional architecture.*

***Key words:*** education, performance, ethics, funding, integrity, EU.

## SOYBEAN IN THE EUROPEAN UNION - AN UPWARD TREND FOR CULTIVATION AND PRODUCTION

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### **Abstract**

*The research investigated the trends in soybean crop cultivated area, production and yields in the EU and in its major producing countries: Italy, France and Romania in the period 2015-2024. The data were picked up from European Commission and USDA. Growth rate, trend line regressions, R square, comparisons and forecast, illustrative and tabular methods were used for processing data and commenting the results. At the global level, versus 2015, in 2024, soybean was cultivated on 146.7 million ha (+22%), of which Brazil, USA and Argentina 33.9%, 24.9%, 12.8% (together 71.6%). Soybean area, gross output and yield will continue to grow in the EU and at the global level, as soybean plays has a crucial role in assuring high quality protein for human diets and animal feed, oil for biofuel and industrial purposes, Nitrogen capture into the soil, fertility improvement, reduction of chemical fertilizers, environment protection and biodiversity preservation. To diminish the negative effect of climate change, farmers must adopt adapted technologies including: early cultivation, high production potential and resistant to drought varieties, irrigation systems, plant protection etc. Only in this way, they could sustain yield and also they could extend the cultivated area to increase seeds gross output.*

**Key words:** soybean, importance, trends, harvested area, gross output, yield, EU.

## LAND USE IN THE EUROPEAN UNION FOR CEREALS, OILSEEDS AND PROTEIN CROPS

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### **Abstract**

*Land use in the EU for cereals, oilseeds and protein crops was studied in the period 2018-2025 based on Eurostat data aiming to identify the trends, similarities and differences among the member states as a reflection how cultivated areas are involved by structure and orientation to stimulate agricultural production. Growth rate, structural index, trend equations, R square, comparison and graphical illustration represent the methodological approach. The results pointed out that the utilized agricultural land (UAA) increased by 0.82% reaching 160.56 mill. ha, of which six countries keep 68.2%: France, Spain, Germany, Poland, Italy and Romania in which UAA is over 10 mill. ha. The EU arable land accounts for 99.01 mill. ha, by 1.81% smaller and having a share of 60.5% in UAA. France, Spain, Germany and Poland account for 52.9% in arable land, having each more than 10 mill. ha. In 2025, the EU arable land is destined for two groups of crops: cereals 50.2 mill. ha (52.5%) and oilseeds and protein crops 13.1 mill. ha (13.9), summing 66.5%. In case of cereals, the largest arable land is allotted to soft wheat (42.1%), barley (20.5%) and grain maize (17.4%) totaling 80%. In case of oilseeds and protein crops, the highest share in arable land is kept by rape (45.1%), sunflower (35.3%) and soybean (7.9%), summing 88.3%. Smaller land surfaces are covered by other crops from these two groups in order to sustain the diversity of domestic production, to cover market needs and stimulate export. All these reflect the role of these crops in the EU vision for developing a sustainable agriculture assuring food security, animal feeding, renewable energy, industry processing and environment protection.*

**Key words:** land use, UAA, arable land, cereals, oilseeds and protein crops, EU.





ISSN 2457-3256  
ISSN-L 2457-3256